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Workshop #1

EDUCATION AND TRAINING (E&T) IN BEHAVIORAL MEDICINE – INTERNATIONAL PERSPECTIVES

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This workshop aims to improve attendees understanding of cultural and societal differences in E&T needs and approaches through informing attendees on E&T in behavioral medicine in various countries. Throughout the workshop attendees will learn about E&T in China, the future of E&T for health psychology graduate students, the use of expert interviews and video simulation case studies to contextualize theory and research, and about global teaching strategies for behavioral medicine through virtual patients and online continuing education.

Workshop #2

E-HEALTH INTERVENTIONS: PUBLIC HEALTH PERSPECTIVES

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A growing body of research indicates that E-health interventions in public health can be effective, especially in primary and secondary prevention. Moreover, they have significant potential to reach a large population with personalized interventions, an advantage compared to conventional public health measures. This workshop will provide knowledge about how bridges between research and national prevention action can be built, and how e-health interventions can be implemented in public health systems.

Workshop #3

ADVANCED CONCEPTS IN HIGH QUALITY RANDOMIZED CLINICAL TRIALS – PART 1

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The design and conduct of informative clinical trials of behavioral interventions poses specific challenges that warrant careful consideration. In this workshop, the presenters will discuss the importance of equipoise and blinding, the role of control groups, and the choice of primary and secondary outcomes in randomized clinical trials.

Workshop #4

FEAR OF CANCER RECURRENCE: THEORETICAL FRAMEWORKS AND INTERVENTION STRATEGIES

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This workshop explains several theoretical frameworks for fear of recurrence, followed by the provision of training in methods to reduce the fear of recurrence in terms of attentional focus, mindfulness training, cognitive and meta-cognitive strategies, as well as education and encouragement strategies for screening and monitoring of cancer recurrence. Both clinicians and researchers will benefit from this workshop. Although framed in the cancer context, the theories and strategies are relevant to any disease with a risk of relapse or progression.

Workshop #5

SYSTEMATIC REVIEWS AND META-ANALYSIS IN BEHAVIORAL MEDICINE: A PRACTICAL INTRODUCTION TO BEST PRACTICES

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Systematic reviews and meta-analyses play an increasingly important role in evidence synthesis within behavioral medicine. This workshop is designed to provide an introduction to the fundamentals of both methods with a focus on often-overlooked issues within searching, screening, analyses, and reporting.

Workshop #6

Advancing the science of implementation research to improve health: Key challenges and potential solutions

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Despite significant research investments in interventions to improve health, less than one fifth of health innovations influences policy or practice, often taking decades to do so. The failure of evidence-based interventions to be integrated into routine clinical and public health practice highlights a fundamental discordance between scientific enquiry and health gain. The application of the science of implementation has considerable potential to improve the translation of proven health interventions to benefit patients and the community. However, relative to other disciplines, implementation research is in its relative infancy, representing less than 3% of all health and medical systematic reviews and less than 10% of health research out-put. This half day workshop will bring together international leaders in implementation research to discuss

- i) International developments to advance implementation science
- ii) Implementation measures, theories and frameworks
- iii) Best-practice case studies of effective approaches to achieve improvements in the implementation of evidence-based health behaviour interventions. This workshop will describe the current state of implementation research, key impediments and future priorities to advance the field.

Workshop #7

INTRODUCTION TO MOTIVATIONAL INTERVIEWING: TECHNIQUES, PROCESSES, AND PROFICIENCY

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Motivational Interviewing (MI) has gained prominence over recent decades as an evidence-based method for promoting health behavior change in a variety of areas relevant to Behavioral Medicine. Participants in this workshop can expect to: a) learn basic techniques used in MI sessions; b) increase awareness about how to work with MI processes of engaging, focusing, evoking and planning; c) gain knowledge about session coding alternatives for developing and maintaining proficiency in MI.

Workshop #8

E-HEALTH INTERVENTIONS: CLINICAL PERSPECTIVE

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Research has shown that e-health interventions are effective in different areas of behavioral medicine. In tertiary prevention, examples include treating mental ill-health or improving coping skills for chronic illnesses. This workshop will focus on the challenge of transferring evidence-based e-health approaches for mental ill-health into routine healthcare settings.

Workshop #9

ADVANCED CONCEPTS IN HIGH QUALITY RANDOMISED CLINICAL TRIALS – PART 2

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During this workshop, speakers will draw on their substantial experience in conducting, reviewing, and monitoring clinical trials to discuss some of the most difficult issues in the field. Speakers will discuss the importance of clinical, relative to statistical, significance in behavioral trials, common trial design problems in behavioral intervention research, and how the determination of effect size and choice of the target population affect the likelihood of an informative outcome.

Workshop #10

MEASUREMENT AND LONGITUDINAL MODELS IN CROSS-CULTURAL BEHAVIORAL MEDICINE

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This workshop will provide an overview of the importance of measurement invariance in cross-cultural research and examine the different degrees of invariance (configural, metric, and scalar) that are required when making comparisons of means and path coefficients across populations. This is followed by a discussion regarding how measurement models may be incorporated in longitudinal designs to insure equivalence over time.

P001

IMPACT OF PERSONALITY ON SELF-PERCEPTION OF ORAL-WELL-BEING IN BLEACHING PATIENTS

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Introduction: There are no studies in the scientific literature correlating personality factors and aesthetic treatments in dentistry such as teeth bleaching. The aim of the study was to assess the relationship between personality factors and self-perception of oral-well-being in bleaching patients. Methods: Cross-sectional study with 58 patients aged between 19 and 55 years who attended the Operative Dentistry Clinic at the Dental School, Universidad de Chile. Participants were bleached with 10% carbamide peroxide gel and were given verbal instructions to apply 1 hour daily for 3 weeks according to manufacturer's instructions. Personality was assessed with NEO-Five-Factor Inventory and was applied before the bleaching. Self-perception of oral-well-being was assessed with PIDAQ scale (Dental Self-confidence, Social and Psychological Impact, Aesthetic Concerns) and was applied before bleaching and a week post-treatment. T student and Pearson correlation were made

Results: There was a significant relationship between neuroticism and three PIDAQ dimensions before the bleaching: self-confidence, social

and psychological impact. Significant differences were observed in all dimensions of PIDAQ scale between pre and post bleaching. No significant relationship was observed between personality and score difference in PIDAQ before and after bleaching.

Conclusions: The results showed that personality had no effect on self-perception of oral-well-being among bleaching patients, and the changes in self-perception of oral-well-being could be explained by the teeth bleaching.

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P002

THE DEVELOPMENT AND CURRENT SITUATION OF BEHAVIORAL MEDICINE EDUCATION IN CHINA

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Introduction: The aim of this study was to document the nature and extent of behavioral medicine educational programs in China.

Method: Questionnaire surveys, telephone interviews and network research were carried out concerning behavioral medicine education in 31 medical colleges and universities in China.

Results: Hu'nan Medical College (now named as Xiangya School of Medicine, Central South University) was the first to offer a behavioral medicine course, followed by an increasing number of medical intuitions of higher education. Currently, over 20 medical colleges and universities including Jining Medical University, Xiangya School of Medicine of Central South University, Harbin Medical University and so on provide behavioral medicine courses, mostly for undergraduates while some schools for the postgraduates and international students, majoring in psychiatry and mental health and psychology. The curriculum duration ranges from 10 to 60 hours. Behavioral medicine courses are given by Department of Behavioral Medicine in Jining Medical University and Xiangya School of Medicine while by Psychology Department and Medical Psychology Department in most of the other institutions

Conclusions: The main contents of behavioral medicine courses tend to be diversified in different schools. With more and more universities offering the behavioral medicine courses, the publication of behavioral medicine textbooks and monographs has started booming. Currently, the curriculum positioning and design, teaching research, continuing education and scientific work of behavioral medicine should be strengthened and behavioral medicine professional training needs to be improved.

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P003

YOUNG WOMEN'S MENTAL HEALTH IN NORTHERN SWEDEN

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Introduction: Young women report poorer health than other groups in the population. This study investigated young (18-25 years) women's mental health in comparison to that of young men and women aged 26 to 79 years.

Methods: The prospective population based Västerbotten Environmental Health Study was used. Forty per cent (3406 participants) of 8520 invited individuals, responded in 2010 to a questionnaire on health. Validated instruments were used to measure stress (Perceived Stress Scale), burnout (Shirom Melamed Burnout Questionnaire), anxiety and depression (Hospital Anxiety and Depression Scale), and sleep problems

(Karolinska Sleep Questionnaire). Scores were compared between 216 young women, 117 young men, and 1682 women older than 25 years by using t-tests, chi-square, and logistic regression.

Results: Young women scored significantly higher on stress, burnout, anxiety, depression, and sleep problems compared to both young men and women older than 25 years. However, on closer inspection, women older than 25 years scored significantly higher on the poor sleep quality dimension. Using clinical cut-offs, young women had an increased risk of anxiety compared to young men (OR 2.27; 95% CI 1.34-3.85) and women older than 25 years (OR 2.30; 95% CI 1.70-3.10). Young women were also at larger risk of clinical insomnia compared to young men (OR 1.97; 95% CI 1.18-3.29).

Conclusions: Young women report poorer mental health than young men and their older female counterparts. They are also at larger risk for clinical anxiety and insomnia. It is important for the community to identify young women as an intervention group.

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P004

ADULT COLOURING BOOKS AND MENTAL HEALTH: ARE THEY ALL THEY'RE CHALKED UP TO BE? MAYBE, YES!

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Introduction: Adult coloring books have recently flooded the market with bold titles alluding to their therapeutic nature. While researchers and art therapists have publicized the benefits of the 'art-as-therapy' approach for decades, it is unclear whether adult coloring books can fulfil this promise. With very little empirical research on the psychological benefits of adult coloring, the aim of the current study was to empirically test whether adult coloring books are related to improvements in psychological well-being.

Methods: Adult female university students (n=104) were randomly assigned into a coloring intervention group or a logic puzzle attentional placebo control. Participants completed a baseline survey of demographic information, psychological distress (depression, stress, anxiety), and psychological well-being (Time 1). They then completed a brief 7-day trial of their assigned activity (coloring or logic puzzle), short daily online surveys of self-reported functioning (mental health, stress, anxiety, mindfulness, and resilience) and adherence. Following the 7-day trial, participants completed a post-trial survey (Time 2) of all baseline measures and user impressions. **Results:** Coloring participants showed significant improvements in depression, stress, and anxiety at Time 2 controlling for outcome variables at Time 1 (with ethnicity as covariate) as well as improvements in daily mental health, stress, anxiety, and mindfulness (with ethnicity as covariate); puzzle participants showed no significant changes.

Conclusions: This is the first study to show that daily coloring can result in improvements in distress and highlights this activity as a promising psychological tool.

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P005

IMPACT OF LOW ALCOHOL VERBAL DESCRIPTORS ON PERCEIVED STRENGTH: AN ONLINE EXPERIMENTAL STUDY

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Introduction: Low alcohol labels are a set of labels that carry descriptors such as "low" or "lighter" to denote alcohol content in beverages. Current

UK legislation limits the use of such descriptors to drinks of 1.2%ABV and lower. There is growing interest from policy makers and producers to increase consumer selection of lower alcohol products, whilst extending the range of lower alcohol products above 1.2%ABV. We currently lack evidence on how the general population perceives low alcohol verbal descriptors in terms of strength (%ABV) and appeal.

Methods: 1,600 adults (804 beer drinkers, and 796 wine drinkers) sampled from a nationally representative panel rated the strength and appeal of 10 terms denoting low (9 terms), and regular (one term) strength descriptors of either beer or wine (according to drinking preference).

Results: *Low*, *Lower*, *Light*, *Lighter*, and *Reduced* were considered lower in strength (wine: 6-7.9%, beer: 2.4-3%) than *Regular* (average %ABV), but higher in strength than *Extra Low*, *Super Low*, *Extra Light* and *Super Light* (wine: 2.9-4.4%, beer: 1.1-2%). All descriptors were perceived stronger than the current legislated average of 1.2% with the exception of *Super Low* for beer. *Regular* was the most appealing strength descriptor, with the low verbal descriptors using *Extra* and *Super* rated least appealing.

Conclusions: Verbal descriptors of lower strength alcohol wine and beer can effectively communicate two categories of strength lower than an average strength product although the latter has most appeal. The impact of these verbal descriptors on selection and consumption awaits testing.

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P006

HOW MIGHT PRIMING AND AUTOMATICITY RESEARCH ENHANCE OUR UNDERSTANDING OF ILLNESS COGNITION AND HEALTH AND ILLNESS BEHAVIOUR?

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Introduction: A vast and impressive body of research has addressed people's beliefs about illness by employing explicit measures to describe their representations of illness and to predict behaviors adopted to manage illness. Relatively less research has considered processes of which the individual is not aware. Priming and automaticity research concerns the temporary activation of an individual's mental representations and the ways in which these internal readinesses interact with other information to produce thoughts, feelings and behaviors. These mental representations, when activated, influence psychological phenomena such as thought, feelings or actions without the individual being aware of or intending such influences. Consideration of automatic processes might contribute to illness management.

Methods: A series of randomized controlled experimental studies were conducted in the laboratory. Each experiment employed either supraliminal priming (e.g. written narratives) or subliminal priming (very short presentation of stimuli) to explore the influence of illness priming on attentional bias to illness concepts in a Stroop task, activation of coping pursuits and behaviors manifest in illness such as lethargy and mental fatigue.

Results: A series of experiments showed that: a mental representation of illness can be activated by supraliminal and subliminal priming; the consequences of activation may depend upon the nature of chronically held representations of illness; activation might be modified by environmental context; activation may automatically stimulate coping pursuits and behavioral responses.

Conclusions: Consideration of implicitly held mental representations of illness might enhance understanding and intervention in health and illness behavior. Possible pathways by which this might occur are outlined.

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P007

FACTORS AFFECTING PRESENCE OF SUICIDAL IDEATION IN PATIENTS ATTENDING PRIMARY HEALTH CARE SERVICE IN LITHUANIA

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Introduction: The aim of this study was to establish prevalence, recognition and risk factors for mental disorders and suicidal ideation in PC patients.

Methods: Study was performed in four PC settings in two major cities of Lithuania. 998 patients who agreed and who refused to participate in the study did not differ in gender, age, marital status and education ($p > 0.05$). Current mental disorders and suicidal ideation assessed using the Mini International Neuropsychiatric Interview (MINI).

Results: According to the MINI, 27% of patients were diagnosed with at least one current mental disorder. The most common mental disorders were generalized anxiety disorder (18%) and major depressive episode (MDE) (15%). Six percent of patients reported suicidal ideation. About 70% of patients with current mental disorder had no documented psychiatric diagnosis and about 60% received no psychiatric treatment. Greater adjusted odds for current MDE were associated with being widowed or divorced patients (odds ratio, OR=1.8, 95% CI 1.2-2.8) and with lower education (OR=1.6, 95% CI 1.1-2.3); while greater adjusted odds for current any anxiety disorder were found for women (OR=1.9, 95% CI 1.3-2.8) and for patients with documented insomnia (OR=2.2, 95% CI 1.2-4.2). Suicidal ideation was independently associated with use of antidepressants (OR=5.4, 95% CI 1.7-16.9), with current MDE (OR=2.9, 95% CI 1.5-5.8) and with excessive alcohol consumption (OR=2.0, 95% CI 1.1-3.8).

Conclusions: Suicidal ideation is prevalent but poorly recognized and managed among PC patients. Suicidal ideation is associated with current MDE, and with antidepressants and alcohol use.

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P008

ANXIETY AND INHIBITION IMPACT PEOPLE'S WALKING DIRECTION

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Introduction: Healthy individuals display a tendency to allocate attention unequally across space, and this bias has implications for how individuals interact with their environments. However, the origins of this phenomenon remain relatively poorly understood. The present research examined the joint and independent contributions of two fundamental motivational systems – behavioral approach and inhibition systems (BAS and BIS) – to lateral spatial bias in a locomotion task. Activation of BAS is linked to the experience of positive affect and goal-directed behavior. In contrast, activation of BIS is linked to the experience of anxiety, increased sensitivity to threatening cues, and disruption of ongoing processes.

Methods: Seventy-eight participants completed self-report measures of trait BAS and BIS, then repeatedly traversed a room, blindfolded, aiming for a straight line. We obtained locomotion data from motion tracking to capture variations in participants' walking trajectories.

Results: Overall, walking trajectories deviated to the left, and this tendency was more pronounced with increasing BIS scores. Meanwhile, BAS was associated with relative rightward tendencies when BIS was low, but not when BIS was high.

Conclusions: These results demonstrate for the first time an association between BIS (implicated in anxiety) and lateral spatial bias independently of variations in BAS (implicated in positive affect). We discuss the implications of these findings for the neurobiological underpinnings of BIS and for the treatment of unilateral neglect - a condition caused by a lack of awareness of one side of space.

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P009

ENCOURAGING HUMAN PAPILLOMAVIRUS VACCINATION: IS EMOTIONAL RESPONSE AND MESSAGE CERTAINTY MORE IMPORTANT THAN MESSAGE FRAMING?

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Introduction: Evidence on the effectiveness of message framing intervention for health behavior change has proven to be inconsistent. Additionally, the potential role of emotional response remains unexplored. The certainty of outcomes conveyed in health messages may contribute to inconsistent message framing effects. Young adults are recommended to obtain Human papillomavirus (HPV) vaccination for preventing some types of cancer but not all comply. This study explored the role of message certainty and emotional response on message framing effects when encouraging uptake of the HPV vaccination.

Methods: In a randomized controlled trial, 278 young adults (aged 18-26) in Australia, who had not received the recommended three HPV vaccinations, were randomly allocated to read one of four messages about HPV vaccination. A 2X2 design with Message Frame (gain versus loss) and Message Certainty (certain versus uncertain) was utilized. Participants were assessed before and after the reading the messages. Measures included intentions to vaccinate, emotional responses and perception of vaccine effectiveness.

Results: Repeated measures ANOVA found no effect of message frame or message certainty on vaccination intentions. However, intentions significantly increased from baseline to post-intervention. In addition, regression analyses found that emotion responses (fear: $B=.39$, $p<.05$ and worry: $B=.38$, $p<.01$) significantly predicted vaccination intentions.

Conclusions: Such findings emphasize the role of emotions in health decision making. The need for future research to focus on refining health communication messages and health behavior change interventions that trigger fear and worry rather than limiting such interventions to solely message framing is highlighted.

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P010

THE VALUE OF TAKING A DUAL-PROCESS APPROACH TO BEHAVIOUR CHANGE

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Introduction: Understanding why some forms of health-related behavior are hard to achieve is critical to advancing behavioral medicine, from prevention by adopting healthier behaviors, through issues around compliance with medication, and the pursuit of well-being. This paper briefly introduces dual process models of behavior using the author's CEOS theory as the exemplar. Dual-process theories separate out the different

ways that operational, impulsive or reactive processes differ from executive or reflective processes.

Methods: This presentation outlines ways in which CEOS theorizes that executive and operational processes interact.

Results: Behavior is theorized to be controlled by operational process, so they need to be sufficiently activated by executive processes for volitional actions to occur. Achieving this (self-regulation) in the context of competing OS action tendencies is difficult. Evidence is presented from a recent RCT that two postulated mechanisms, limiting options for action and use of implementation intentions, has led to significantly increased maintenance of smoking cessation over an already effective base program. I then focus on the role of affect and feelings, and their implications for effective communication. I focus on what is required of communications to generate enough affective force to lead to behavior, including problems with negations often ending up generating forces inimical to what is intended. This theorizing helps explain the paradoxical (to some) finding of the potency of graphic anti-smoking advertisements and health warnings.

Conclusions: CEOS and other dual-process theories help us understand the roles and limitations on both rationality and social ecological models as facilitators of behavior change.

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P011

A DUAL-SYSTEMS PERSPECTIVE ON SEXUAL HEALTH BEHAVIOR: SELF-CONTROL AS MODERATOR OF ASSOCIATIONS BETWEEN MEN'S IMPLICIT AND EXPLICIT ATTITUDES AND CONDOM USE

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Introduction: Dual-systems theories posit that behaviors are jointly shaped by reflective and reflexive processes. Evidence of the interplay of executive and operating systems remains however limited for health behaviors, including ostensibly impulsive sexual behaviors. This study tested associations between men's condom use and explicit and implicit attitudes and examined moderation effects of indicators of capacity for self-control.

Methods: Sexually active heterosexual men (n=125) were recruited at a large Australian university. Participants provided informed consent and completed a range of measures on a laptop computer. This included a single-category implicit association test assessing implicit condom attitudes and established self-report measures of condom use, explicit condom attitudes, trait self-control, self-monitoring, condom use action planning, condom use coping planning, sexual sensation seeking, and perceived sexual restraint.

Results: Multivariate linear regression analyses found that, as expected, self-control moderated the association between implicit attitude and condom use with regular partners ($\beta=.174$, $p<.05$). Marginally significant moderation effects of action and coping planning were found for associations between implicit attitude and condom use with regular partners and for explicit attitude and condom use with regular partners. No other moderation effects were (marginally) significant.

Conclusions: This study provides initial, albeit limited evidence for the role of self-control as moderator of associations between men's condom use and implicit and explicit condom attitudes. The study notably contributes further evidence of the benefits of dispositional self-control, extending this to the domain of sexual health behavior. While more research

is needed, dual systems theorizing holds much promise for innovative sexual health promotion.

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P012

IMPLICIT PROCESSES AND HEALTH BEHAVIOR CHANGE: A FRAMEWORK FOR INTERVENTION

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Introduction: Many varied interventions target implicit processes in order to promote health behavior change. This paper offers a framework for intervening with implicit processes, and presents two empirical studies concerning one approach – the use of self-regulation tools to manage implicit influence.

Methods: Conceptual accounts of implicit influence (top-down analysis) and empirical studies (bottom-up analysis) were analyzed in order to characterize the variety of interventions targeting implicit processes. A laboratory experiment concerning readiness to drink alcohol ($N = 173$) and a longitudinal field study of snacking ($N = 100$) pitted if-then plans against antagonistic primed goals and approach bias, respectively.

Results: Three overarching intervention approaches could be identified: (1) *Context change* interventions alter the physical or social settings for health behaviors in order to simplify decisions or install prompts; (2) *Impulse/reflection training* interventions involve practice-based programs geared at modifying either impulsive responses (i.e., attentional bias, implicit affect, or approach bias) or the person's reflective control over impulsive responding; (3) *Self-regulation* interventions give people tools to offset the detrimental impact of implicit processes by stabilizing or shielding ongoing pursuit of health goals. The empirical studies showed that if-then plans were effective at down-regulating the influence of antagonistic implicit goals and motivation.

Conclusions: Implicit processes can be harnessed to promote healthful decisions (e.g., via context change interventions). Moreover, when implicit processes threaten to engender risk behavior, training impulse/reflection and forming if-then plans can prove effective in attenuating their influence.

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P013

SEVERE FATIGUE IN CHRONIC MEDICAL DISEASES: IS FATIGUE DISEASE-SPECIFIC OR NOT?

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Introduction: Severe fatigue is highly prevalent in chronic diseases, but it is unknown whether fatigue-related factors are unique for individual chronic diseases or more generic. This is important in the development of effective treatments for fatigue.

Methods: Different fatigue models were analyzed in up to 14 common chronic diseases including type 1 diabetes, rheumatoid arthritis and

neuromuscular diseases in a total of 1625 patients. We used linear regression analysis with the Generalized Least Squares technique to test which factors predicted fatigue severity. Possible predictors were illness, age, gender, concentration problems, reduced motivation, activity level, depressive symptoms, pain, sleeping problems, social and physical functioning and self-efficacy concerning fatigue. First, we analyzed the explained variance of the illness itself, secondly the explained variance of the illness and predictors, and thirdly their interactions. We reported the range of explained variance for the different fatigue models.

Results: Type of chronic disease explained 11.1–11.8% variance in fatigue. In all chronic diseases, reduced motivation, more depressive symptoms and sleeping problems predicted an extra variance of 45.2–50.6% in fatigue severity. Interaction effects of activity and concentration problems, more pain, lower physical functioning, younger age and lower self-efficacy were found in some of the chronic diseases with an extra explained variance of 5.5–7.3%.

Conclusions: While most variance is explained by generic predictors of fatigue that are significant in all chronic diseases, little variance is explained by disease-specific factors. Treatments of severe fatigue in chronic diseases can benefit from a generic fatigue approach, with specific modules for individual diseases.

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P014

IMPACT OF COMMUNICATING GENETIC RISK ESTIMATES ON RISK-REDUCING HEALTH BEHAVIOUR: SYSTEMATIC REVIEW WITH META-ANALYSIS

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Introduction: DNA-based disease risk information is becoming widely available. Expectations are high that communicating this information motivates behavior change to reduce risk. We aimed to update an earlier Cochrane review from 2010 assessing the impact of communicating genetic risk estimates on risk-reducing health behaviors.

Methods: Systematic review with meta-analysis, using Cochrane methods. We searched five electronic databases including MEDLINE, Embase, and PsycINFO, and conducted backward and forward citation searches. We included randomized controlled trials involving adults in which one group received personalized DNA-based disease risk estimates for diseases for which the risk could be reduced by behavior change. We assessed risk of bias for each included study and quality of evidence for each behavioral outcome.

Results: We examined 10,515 abstracts and included 18 studies, 11 more than our earlier review. Meta-analysis revealed no statistically significant effects of communicating DNA-based risk estimates on smoking cessation (OR 0.92, 95% CI 0.63, 1.35, $n=2663$, $p=0.67$), physical activity (SMD -0.03, 95% CI -0.13, 0.08, $n=1704$, $p=0.62$) or diet (SMD 0.12, 95% CI -0.00, 0.24, $n=1784$, $p=0.05$). There were also no effects on any other behaviors, on motivation to change behavior, and no adverse effects, including depression and anxiety.

Conclusions: Expectations that communicating DNA-based risk estimates changes behavior are not supported by existing evidence. These results do not support use of genetic testing or the search for risk-conferring gene variants for common complex diseases on the basis that they motivate risk-reducing behavior.

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P015

ONGOING DEVELOPMENT OF A TYPOLOGY OF PHYSICAL MICRO-ENVIRONMENT, OR CHOICE ARCHITECTURE, INTERVENTIONS

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Introduction: We have previously published a provisional typology of physical micro-environment (or choice architecture) interventions to change health-related behavior, derived from a large-scale scoping review of the empirical literature (<http://bmcpublihealth.biomedcentral.com/articles/10.1186/1471-2458-13-1218>). Such interventions include altering the size, availability or presentation of food, alcohol or tobacco products and related objects. The primary objective is to develop a new, more conceptually coherent typology that can be applied reliably, in order to improve our ability to describe and classify such interventions.

Methods: In the first stage of planned development, the study team has produced a draft version of the typology, to be iterated over a series of formal exercises. The developing typology will then be subject to reliability and validity testing by a group of external behavior change experts, involving the coding of intervention descriptions, to inform the production of a final version.

Results: This work is ongoing. The current stage of work is that a draft version of the typology has been developed. This will be presented along with data from reliability and validity testing exercises which will be completed by July 2016.

Conclusions: The development of our typology will provide a more valid and reliable way than currently exists for describing and classifying physical micro-environment interventions to change health-related behavior. This and other related typologies can provide a foundation for building the evidence base for effective ways of changing behavior across populations.

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P016

EXPECTATIONS ABOUT COUNSELLING FOR A MENTAL ILLNESS AMONG PRIMARY SCHOOL TEACHER TRAINEES IN KENYA

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Introduction: Mental health problems including substance abuse are leading in years of lost life globally (YLD). Mental Health professionals are becoming aware of the necessity to support their activities using practice-based scientific research. Mental health practitioners are aware that

psychological treatment for a mental disorder brings better outcomes compared to other treatments alone, especially pharmacotherapy. Expectations about counselling for a mental illness among college students is not known in Kenya. The purpose of this study is to determine and document the expectations about counselling among college students.

Methods: Self-administered demographic questionnaire and opinions about mental illness scale brief form (EAC-BF) were presented to the participants. The EAC-BF consisted of three factors of personal commitment, facilitative conditions and counsellor expertise. The ethical protocol was followed from getting authority to informed consent from the participants.

Results: Out of the 2925 questionnaires presented, 2777 were returned fully filled, a return rate of 94.34%. Summative scores indicated moderate (between 2.34 and 4.67) towards negative expectations about counselling, with significant differences in year of study, gender, marital status, or whether ever taught before coming to college. There was a correlation between all the EAC factors.

Conclusion: Expectations about counselling is unfavorable/negative. This varies between gender, the year of study, marital status, place of birth. This study recommends training primary teachers on mental illness and counselling, by including the same in the curriculum.

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P017

PRELIMINARY DEVELOPMENT OF THE JAPANESE VERSION OF BODY APPRECIATION SCALE-2 (J-BAS-2)

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Introduction: There were no assessment tools to evaluate positive body image in Japan. This study aimed to develop the Japanese version of Body Appreciation Scale-2 (J-BAS-2; Tylca & Wood-Barcalow, 2015).

Methods: The original BAS-2 was translated into Japanese by the authors and it was back-translated into English by an independent professional translator unaffiliated with this study. The equivalence of back-translated version to the original one was confirmed by the original author. We conducted two-step web-based surveys. Participants were recruited from the database of Macromill INC in Japan. At the first survey, 520 individuals (mean age = 44, SD = 14, Range = 20-79) completed the J-BAS-2, Appearance Evaluation subscale within MBSRQ, body dissatisfaction, Internalization-general subscale within SATAQ-3, Intuitive Eating Scale-2, Rosenberg's self-esteem scale, and Proactive Coping subscale within the Proactive Coping Inventory. After 1 month from the first survey, 110 individuals repeatedly fulfilled the J-BAS-2 to investigate test-retest reliability. To examine a factor structure, we performed an exploratory factor analysis. Additionally, we calculated Pearson's correlation coefficients for testing a reliability and validity.

Results: Factor analysis revealed that J-BAS-2 had a unidimensional structure as same as the original version. At the first survey, the value of Cronbach's α was .94, and total score of the J-BAS-2 between the first and the second time showed a highly significant positive correlation. Furthermore, there were significant correlations between J-BAS-2 and related questionnaires.

Conclusions: We found that J-BAS-2 had adequate psychometrically properties. It is expected that these results encourage the body image studies in Japan.

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P018

BODY IMAGE AMONG MALES: CULTURE, MEDIA IDEALS AND GENDER ROLE NORMS

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Introduction: Studies have shown that non-European men living in Western countries are more at risk of body image problems, disordered eating and other related health risks behaviors than men from a European background. **Methods:** Using survey methods and standardized measures this study examined drive for muscularity and leanness, internalization of the ideal body and gender role norms among 84 men with from an Asian background and 83 men from an European background; all living in Australia). **Results:** Overall, Asian men scored significantly higher on Drive for Leanness, Winning, Heterosexual Self-Presentation, Power Over Women, and Primacy of Work but significantly lower on Violence. The main predictor of Drive for Muscularity and Leanness in both groups of men was Media Internalization. The masculine norm of Risk Taking was also found to predict Drive for Leanness in both groups. The norm of Playboy was found to predict Drive for Muscularity and Leanness among the European men. The norms of Violence and Emotional Control also predicted Drive for Muscularity among European men. An additional analysis with men from an Asian Indian background (N=50), showed that there was an interaction between Media Internalization and identification with Australian culture in predicting Drive for Leanness.

Conclusions: More research is needed to examine (a) moderating effects of identification with Western culture; (b) comparisons with men living in Asian countries; (c) comprehensive and assessment of Asian men's acculturation.

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P019

PREDICTING SUN-PROTECTIVE INTENTIONS AND BEHAVIOURS USING THE THEORY OF PLANNED BEHAVIOR: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction: Despite the increasing global skin cancer prevalence, many people are not using sufficient sun-protective measures. The theory of planned behavior (TPB) is one of the main predictive models utilized to understand people's sun-protective decision making. This study aimed to synthesize TPB relationships, using meta-analysis, and test the predictive utility of the model for sun protection behavior.

Methods: Thirty-eight samples were identified via database/manual searches and advertisements based on the criteria of: measuring sun-protective intentions and/or prospective behavior; using the TPB as a basis of measurement; and providing bivariate correlations for at least one relevant TPB association.

Results: The sample-weighted average effects were moderate-to-strong with attitudes showing the strongest association with intention followed by perceived behavioral control (PBC), and subjective norm. Intentions showed a stronger association with prospective behavior than PBC. A total of 39% of variance in intentions and 25% of variance in behavior were explained. Publication bias was not evident. Moderator analyses showed that TPB associations were stronger when TACT principles in measurement were used, in non-student samples, and when the follow-up time period >2 weeks.

Conclusions: Despite recent criticism, the TPB explains a large amount of variance in sun protection and TPB-associations are robust across

different populations. The evidenced utility of the TPB within the context of sun protection has practical significance for health practitioners and cancer agencies given that attitudes, normative influence, and control perceptions can be incorporated into interventions to encourage sun safety which can help decrease the individual and societal burden of skin cancer.

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P020

COGNITIVE STYLE AS A PREDICTOR OF MEN'S CANCER SCREENING PARTICIPATION

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Introduction: Men's decisions to participate in healthy behaviors may be influenced by their cognitive style (CS). We measured the two dimensions of CS, need for cognition (NFC) and faith in intuition (FI), in men to explore whether they varied according to demographic variables or predicted screening behavior.

Methods: Males from five Australian states (N = 585, aged 50-74) completed surveys about past screening and were subsequently offered mailed FOBTs. Demographic variables used to predict CS were age, socioeconomic status (SES), educational attainment, and language spoken at home. The behaviors to be predicted were self-reported prostate cancer screening by prostate-specific antigen testing and digital rectal examinations (DRE), and colorectal cancer screening by fecal occult blood test (FOBT), for which data was collected on self-reported participation and uptake of the mailed FOBT.

Results: NFC was positively related to educational attainment, SES, and speaking English at home. FI was negatively related to educational attainment. NFC predicted variance in self-reported DRE participation ($r = .11$, $p = .013$) after controlling for doctor visits and importance of health. No other screening relationships with CS were statistically significant.

Conclusions: The relationship of NFC to DRE participation may reflect attributes of the screening method, the information available to men, or willingness to report DRE. The relationship of CS with a range of healthy behaviors should be explored.

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P021

THE FEASIBILITY AND ACCEPTABILITY OF A WEB-BASED INTERVENTION TO SUSTAIN RESPONSIBLE ALCOHOL MANAGEMENT PRACTICES IN COMMUNITY SPORTING CLUBS: A CROSS SECTIONAL STUDY

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Introduction: Participants of sporting clubs are often involved in elevated levels of risky alcohol consumption and alcohol-related harm compared to the general population. A previously implemented community-level sporting club alcohol management program was effective in reducing such risky consumption and harm. Sustaining the effect of such an intervention can be resource intensive. A solution may be web-based support; with potentially lower cost and greater ease of access than face-to-face modes. The feasibility and acceptability of such an intervention is unknown.

Methods: A telephone survey was conducted with community-level football club administration staff in metropolitan and regional areas of New South Wales, Australia. The telephone survey utilized The Technology Acceptance Model (TAM) to measure perceived usefulness, ease of and intention to use a web-based program for sustaining alcohol management practices.

Results: 51 (86%) community football clubs consented to the telephone survey. The majority of clubs reported access to the web (97%) and current use of web-based devices (98%) when undertaking club management tasks. Clubs agreed/strongly agreed that a web-based alcohol management program would be useful (82%) and easy to use (73%). Intention of use was significantly positively associated with the program's perceived usefulness ($p=0.02$), and ease of use ($p=0.03$), as well as club size ($p=0.02$), with larger clubs reporting greater intention to use the program.

Conclusions: A web-based alcohol management sustainability program appears feasible and acceptable to sporting clubs and may provide a low cost and accessible mode of support for practice sustainability.

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P022

EFFICACY OF A POSITIVE PSYCHOLOGICAL INTERVENTION AMONG METHADONE MAINTENANCE TREATMENT USERS IN CHINA: A PILOT STUDY

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Introduction: Mental health problems are highly prevalent among drug users. The positive psychological intervention (PPI) has been applied successfully in the general populations to improve mental health status whereas there is limited evidence of its efficacy among drug abusers. In this randomized controlled trial (RCT), we piloted the efficacy of PPI in improving mental health status of drug users attending methadone maintenance treatment (MMT).

Methods: A total of 134 MMT users were randomly allocated into the intervention group ($n=64$) which carried on the intervention (documenting three good things happened during the day for two consecutive weeks) by using a logbook and the control group ($n=70$) which received pamphlets on mental health. Baseline, 2-week, 1-month and 3-month follow-up face-to-face interviews were conducted. Generalized estimating equations were used in data analyses.

Results: The two groups were comparable in both background and mental health status. At baseline, the prevalence of depression was 76.2% and 73.9% in the two groups respectively, while the prevalence of anxiety was 57.1% and 45.7%. Over the 3-month period, PPI was not significantly

associated with depression (OR=0.98, 95% CI: 0.88-1.08) and anxiety (OR=1.37, 95% CI: 0.82-1.92). Sixty-one percent of the intervention group adhere to at least 50% of intervention.

Conclusions: Efficacy of PPI was not observed in this study while the PPI intervention is potentially feasible among drug users. Being a simple intervention which can be conducted without mental health professionals, efficacy of PPI could be further test in studies with larger sample size and longer intervention period.

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P023

A FRAMEWORK FOR DESIGNING BRIEF COMMUNICATIONS TO PROMOTE HEALTH-RELATED BEHAVIOUR CHANGE

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Introduction: Brief communications are used to promote health-related behavior change in a variety of formats including, leaflets, posters websites and texts. Many of these are not evidence-based. Methods; Research into leaflet and poster content will be presented illustrating the use of content analyses and experimental pre-testing.

Results: Findings demonstrating that the content of nationally-available health promotion leaflets does not correspond well to available research findings will be described. The use of experimental laboratory pre-testing will be illustrated using two posters designed to promote responsible alcohol use. No difference in motivation was found between those who viewed or did not view the posters suggesting that the campaign was ineffective. Moreover, when the posters were combined with an explicit disapproval message the combination resulted in higher motivation to drink irresponsibly, compared to a no-intervention control group.

Conclusions: Brief communications that are not based on evidence of which messages result in changes in motivation and action may be ineffective or even harmful. A framework drawing upon Intervention Mapping and the Information, Motivation and Behavioral Skills Model will be presented to guide designers in the creation of evidence-based brief communications.

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P024

USING MULTIPLE RESEARCH METHODS TO DEVELOP A TAILORED EYE HEALTH LEAFLET FOR YOUNG ADULTS WITH TYPE 2 DIABETES

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Introduction: Young adults with type 2 diabetes (YA-T2D; 18-39 years) face increased risk of diabetic retinopathy (DR), a leading cause of vision loss. Although retinal screening is crucial for early DR detection, rates for YA-T2D are low. We aim to demonstrate the process of developing

tailored, evidence-based messages for inclusion in an eye health and retinal screening promotion leaflet.

Methods: Intervention Mapping provided the framework for intervention design; the Information-Motivation-Behavioural Skills model guided data collection and analysis. Interviews (N=10; 50% no screen) and an online survey (N=129; 29% no screen) were conducted to qualitatively explore factors influencing screening, and quantitatively assess which social-cognitive variables were associated with screening behavior. These were mapped to behavior change techniques (BCT), psychoeducational messages for inclusion in the leaflet were developed from each BCT.

Results: Interviews highlighted cohort-specific barriers and facilitators to eye screening (e.g. lack of knowledge of when to initiate screening, value of social comparison). Key screening determinants were confirmed in the quantitative survey (knowledge, health beliefs, attitudes, lowered risk perceptions, $P<0.05$). BCT were mapped to each determinant (e.g. provide general information, provide information about others' behavior). In turn, psychoeducational messages were matched to each BCT (e.g. early DR is asymptomatic, need to initiate screening prior to symptom onset; verbatim participant quote highlighting screening approval). Messages were reviewed by stakeholders, including YA-T2D, and incorporated into the leaflet.

Conclusions: This study illustrates a successful process of developing tailored evidence-based eye health messages for YA-T2D, a group at high risk of vision loss from DR.

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P025

IMPACT OF PHYSICAL ACTIVITY ON THE MENTAL HEALTH AND WELLBEING OF YOUNG PEOPLE.

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Introduction: This study investigates the relationship between physical activity (PA), mental wellbeing and psychological distress in a large sample of young Australians.

Methods: A sample of 2,130 young Australians (16 to 25 years) completed an online survey containing the Kessler 10 Psychological Distress scale and the Mental Health Continuum-Short Form (MHC-SF), which provides a measure of mental wellbeing status (languishing, moderate mental health, flourishing). A modified version of the Short Last 7 Day International Physical Activity Questionnaire (IPAQ) provided a measure of walking, moderate, vigorous (e.g., running) and total metabolic equivalent minutes (MET-minutes) in the preceding week.

Results: Walking, vigorous, moderate and total MET minutes in the past week were significantly associated with mental wellbeing. Walking, vigorous and total but not moderate MET minutes were significantly associated with lower levels of psychological distress. Young people who were currently employed and had no family history of mental illness had significantly higher levels of wellbeing and lower levels of psychological distress. Males also had lower levels of distress. Young people who engaged in more vigorous MET minutes in the past week were significantly more likely to have flourishing rather than languishing mental wellbeing. Higher walking, moderate and total MET minutes distinguished young people with flourishing mental wellbeing from those with moderate mental health. No measure of MET minutes distinguished between young people with moderate versus languishing mental wellbeing.

Conclusions: Findings from this study indicate that physical activity may enhance wellbeing, and reduce psychological distress in young people.

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P026

HEALTHI PROGRAM WEIGHT-LOSS INTERVENTION USING IMPLEMENTATION INTENTIONS AND MENTAL IMAGERY: INTERVENTION EFFECTS

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Introduction: The effects of the HEALTHI (Healthy Eating and Active Lifestyle Health Intervention) was examined. The brief, low cost, theory-based weight-loss intervention aimed to improve dietary intake and physical activity behavior, on biomedical, psychological and behavioral outcomes in overweight and obese individuals. The intervention adopted, a 12-week randomized-controlled design using two theory-based intervention techniques, mental imagery and implementation intentions to change behavior. Goal-reminder text messages were also used to augment intervention effects.

Methods: Overweight or obese participants were randomly allocated to one of three conditions: (1) a psycho-education plus an implementation intentions and mental imagery condition; (2) a psycho-education plus an implementation intentions and mental imagery condition with text messages; or (3) a psycho-education weight-loss control condition. The intervention was delivered via video presentations to increase the intervention's applicability in multiple contexts and reduce delivery cost. The assessments were predominantly measured at baseline, and at weeks 6 and 12 post-intervention.

Results: Contrary to hypotheses, there were no significant intervention effects. However, a significant effect for time revealed that participants within all three conditions showed positive improvements over time on some of the biomedical, psychological, and behavioral outcome variables. **Conclusions:** HEALTHI led to improvements in some biomedical, psychological and behavioral outcome variables in overweight and obese individuals. However, no intervention effects or differences between the psycho-education control and two intervention conditions were found. This may be due to participants allocated to the active psycho-education control condition receiving the psycho-education component and information on setting goals which was sufficient to evoke behavior change.

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P027

RELATION BETWEEN HEALTH LOCUS OF CONTROL WITH HEALTH PROMOTING BEHAVIORS OF HIGH SCHOOL STUDENTS IN BANDAR ABBAS, IRAN

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Introduction: Health promoting behaviors is one of the best ways that people can protect and maintain their health. The aim of this study was to determine the relationship between health locus of control with health promoting behaviors among high school students in Bandar Abbas, Iran. **Methods:** This was a cross-sectional study. To collect data, form A of Wallston questionnaire and Adolescent Health Promotion Scale were used. Out of 378 questionnaire, 342 were completed (Response

rate=90.5%). Data were analyzed by SPSS 19 Software. Pearson correlation and multiple regression analysis were used to analyze and predict health promoting behaviors through health locus of control dimensions. Results: The mean age of participants was 16.1 (SD=1.1) and 44.7% of them were male. Based on regression analysis, 12% of health promoting behaviors changes were explained by health locus of control dimensions ($R^2 = 12\%$, $F = 15.5$, $P < 0.001$). Internal locus of control ($B = 0.25$, $P < 0.001$) and powerful others ($B = 0.16$, $P < 0.001$) significantly predict health promoting behaviors.

Conclusion: For increasing the health promoting behaviors in students, improvement of internal locus of control and advising to follow the instructions of physicians and health experts is recommended.

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P028

EFFECT OF PEER EDUCATION ON HEALTH PROMOTING BEHAVIORS OF HIGH SCHOOL STUDENTS

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Introduction: An approach to achieve health communities is training people in health behaviors. This study was conducted to assess the effect of peer education on health promoting behaviors of a sample of high school students in Bastak, Iran.

Methods: In this semi-experimental study, 201 students were assigned in intervention group and 157 students in control group. Data were collected by Adolescent Health Promotion Scale. This scale consisted of a set of 40 items that assessed six dimensions of healthy behavior including nutrition, social support, life appreciation, health responsibility, stress management and exercise before and two months after the intervention. Educational intervention was performed by peer educators. Data were analyzed using SPSS 19 software.

Results: The results showed a significant increase after the educational intervention in nutrition, social support, health responsibility, stress management and exercise dimensions in the intervention group ($p < 0.001$), while the control group did not show such trend.

Conclusion: This study showed that peer education approach can be effective in changing the health related behaviors of young adults.

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P029

EFFECT OF EDUCATIONAL INTERVENTION BASED ON HEALTH BELIEF MODEL TO PROMOTE PREVENTIVE BEHAVIORS OF CARDIOVASCULAR DISEASE IN PEOPLE WITH NORMAL ANGIOGRAPHIC RESULTS

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Introduction: Cardiovascular disease is the leading cause of death in the world and imposes a huge health, social and economic burden on society. The aim of this study was to assess the effect of educational intervention based on health belief model on preventive behaviors of cardiovascular disease in people with normal angiographic results.

Methods: A total of 61 people with normal angiographic results who were referred to Rafsanjan Hospital, located in Kerman province in Iran, were

enrolled in this interventional study and randomly assigned to the intervention (32 cases) and control (29 cases) group. The intervention group was trained for a month. Data were collected before, immediately after, and three months after the educational intervention using a standard questionnaire based on health belief model constructs. To analyze data, Paired t-test and repeated measure analysis were used by SPSS 19 software.

Results: After intervention, despite the control group, the mean scores of knowledge, perceived susceptibility, perceived severity, self-efficacy, perceived benefits, cues to action, and preventive behaviors significantly increased and perceived barriers decreased in the intervention group ($P < 0.001$).

Conclusion: Educational intervention based on health belief model is effective for promoting preventive behaviors of cardiovascular disease. So, it is recommended that in designing and implementing educational interventions in order to promote preventive behaviors of cardiovascular disease, health belief model be used as a base.

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P030

PROCESSES OF CHANGE USED BETWEEN STAGES OF CHANGE FOR SUGARY DRINKS

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Introduction: The Transtheoretical Model has been applied to a wide range of dietary behaviors, in order to assist people in improving their nutrition and health. No studies, however, have applied the Transtheoretical Model to sugary drinks. To better understand what processes could facilitate a reduction in the consumption of sugary drinks, we examined the relationship between stage of change and use of ten processes of change.

Methods: In a cross-sectional study, participants aged 18-60 years ($n = 105$) completed a stage and process of change questionnaire. The latter included 40 items pertaining to sugary drinks and asked participants to rate how often they used or exhibited each item in the last month on a 5-point Likert scale. The staging questionnaire used a criterion level of <1 liter of sugary beverages per week and included questions related to readiness to change.

Results: Twenty-four participants were in precontemplation, four in contemplation, 16 in preparation, ten in action, and 51 in maintenance. There was a higher use of total behavioral and total cognitive processes in contemplation/preparation and maintenance, than in precontemplation ($P < 0.05$). From ten processes, eight varied in use between stages. Self re-evaluation was used more frequently by those in all stages compared to precontemplators (P -values ranged between ≤ 0.001 and < 0.05).

Conclusions: Providing findings can be confirmed by longitudinal studies using larger samples, the processes discussed here could be targeted at appropriate stages in order to assist adults in reducing their consumption of sugary drinks.

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P031

RELATIVE VALIDITY AND RELIABILITY OF A SHORT QUESTION AND A 28-ITEM FOOD FREQUENCY QUESTIONNAIRE MEASURING TAKEAWAY MEAL INTAKE USING ESTIMATED FOOD RECORDS

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Introduction: This study investigated the relative validity and reliability of two instruments to measure takeaway meals intake using three categories: total, low-saturated fat (SFA) and high-SFA.

Methods: Two prospective 7-day estimated food records were used as the reference method. Test methods were completed after the reference period for validation and duplicated 6–8 days later for reliability. The short question asked about intake of high-SFA takeaway meals only. The 28 items in the food frequency questionnaire (FFQ) permitted later classification as low- or high-SFA.

Results: Young adults (18–39 years) were recruited from two Australian universities and surrounds. Participants (n=109) were mainly female (61%). Mean age was 24.4 years (sd=4.9) and mean BMI 23.5 kg/m² (sd=3.7) with 32% overweight or obese. Using a goal of ≤1 high-SFA takeaway meals per week, the short question and FFQ have a sensitivity of 97% and 83% and a specificity of 46% and 92%, respectively. Both test methods exhibited good correlation with the food records (r_s ranging from 0.64 to 0.80, all $P \leq 0.01$). None of the instruments can measure precise, absolute intake at the group or individual level. For categorical agreement, test methods ranged from fair agreement ($k_w = 0.24$) to moderate agreement ($k_w = 0.59$). The reliability for all is good.

Conclusions: The FFQ can be used as a screener and both methods can be used for ranking individuals (except for measuring low-SFA takeaway) and classifying individuals into categories (except for measuring low-SFA takeaway by the FFQ, and measuring high-SFA takeaway by the short question).

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P032

BEING PRESENT: ASSESSING THE RELATION BETWEEN SELF-REPORT FACETS OF TRAIT MINDFULNESS AND BEHAVIORAL INDICES OF ATTENTION

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Introduction: To accurately investigate how mindfulness influences health outcomes, valid and reliable measures of mindfulness outcomes are critical. The study aimed to evaluate a multifaceted conceptualization of trait mindfulness (Five Factor Mindfulness Questionnaire; FFMQ, Baer et al., 2006) and provide validity for its core attentional component, *Acting with Awareness* (AWA), by examining its theoretical associations with behavioral sustained and selective attention abilities.

Methods: An undergraduate sample of 139 students completed mindfulness questionnaires using Qualtrics software (Qualtrics Lab Inc., 2011). A Primary Axis Factor (PAF) analysis tested the hypothesis that a four-factor mindfulness structure would be demonstrated for this undergraduate sample ($N = 139$). Of those, 89 participants completed both questionnaire and behavioral attention tasks, using Vpidx visual testing software (QC, Canada - vpidx.com) in a laboratory setting.

Results: As hypothesized, PAF results demonstrated a four-factor structure for the sample (Baer et al., 2006; 2008). Additionally, as hypothesized, higher self-rated trait AWA was significantly associated with higher self-rated state mindfulness ($r = .43$), supporting the theoretical

conceptualization of AWA as constituting present-moment attention (Brown & Ryan, 2003). However, contrary to its theoretical relationship, no significant unique associations were found between participants' self-rated trait-AWA and their behavioral sustained and selective attention abilities.

Conclusions: The findings provide support for a multifaceted definition of mindfulness. However, no support was found for the oft-cited theoretical association between AWA and sustained and selective attention. More empirical research directed toward assessing self-report trait mindfulness and an objective validation of the underlining cognitive theory is required.

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P033

ARE TREATMENT AND PLACEBO EFFECTS ADDITIVE – A META-ANALYSIS OF THE BALANCED PLACEBO DESIGN

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Introduction: In placebo-controlled trials, the difference between the treatment and placebo arms is often taken as the isolated treatment effect. This, however, assumes that the effects of active and placebo treatments are quantitatively additive – an assumption that has rarely been tested.

Methods: This meta-analysis examined the additivity assumption in studies employing balanced placebo designs – a 2x2 factorial design with treatment (active vs placebo) and expectancy (told active vs told placebo) crossed – where any reliable interaction between treatment and expectancy would indicate evidence against additivity. The databases of Embase, PsycINFO, PUBMED, and Web of Science were searched for the term 'balanced placebo design', finding a total of 218 potentially eligible studies. After further screening, data was extracted from a total of 92 studies and Hedges' g for the interaction effect calculated. Moderator effects of a number of study characteristics were explored with meta-regression, including treatment modality and type of outcome measure.

Results: There was considerable heterogeneity in the results, which was partly accounted for by the different conditions under study. Meta-regression was used to investigate whether the interaction between treatment and expectancy was greater in some modalities and with certain types of outcome measure.

Conclusions: These findings suggest that the assumption of additivity may not be supported in all circumstances. This finding has important implications for the interpretation of results from clinical trials of pharmacological and psychological treatments, where additivity is assumed.

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P034

RECRUITING ADOLESCENTS INTO LONGITUDINAL HEALTH RESEARCH: TRADITIONAL RECRUITMENT VS SOCIAL MEDIA

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Introduction: Adolescents are traditionally hard to engage in research, posing challenges for recruitment and retention. The school setting is a common avenue to recruit adolescents, however social media is an emerging channel of communication to recruit young people into research. The aim of this paper is to compare recruitment of upper secondary students into a longitudinal study examining physical activity and eating behaviors via traditional recruitment approaches within schools and advertising on social media.

Methods: Recruitment packs were distributed to Year 11 students at 43 schools over 2014. Schools could also opt to place electronic information for parents on the school intra-web and for research staff to present to students. A Facebook advertisement targeting 16–17 year-olds was run over a 42 day period in 2014 and 43 day period in 2015. Clicking on the advertisement took potential participants to a secure webpage where they could register to be sent a recruitment pack.

Results: In 2014, 6602 recruitment packs were delivered through schools, 354 consent forms were returned and 325 completed the baseline survey (4.9% response rate). The Facebook advertising generated 1770 registrations, 677 consent forms were returned and 641 completed baseline surveys (36.2% conversion rate). Key behaviors (fruit and vegetable consumption and leisure-time physical activity) did not differ by recruitment method, but there were differences in demographic characteristics.

Conclusion: Targeted Facebook advertising appears to be an effective method of recruiting adolescents compared to traditional methods through schools.

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P035

SENSE OF COHERENCE (SOC) IS AFFECTED BY QUALITY OF SLEEP AND EXERCISE HABIT AMONG JAPANESE WORKERS

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Introduction: We recently reported that a higher sense of coherence (SOC) is a key for good mental health status and the ability of stress management, and is related to regular exercise in Japanese workers (ICBM2014). In the study presented here, we examine if SOC is affected by the quality of sleep and exercise habit.

Methods: Self-administered questionnaires were distributed among 458 workers of a company in Tokyo and recovered by mail during 2013. The questionnaires included questions on the demographic variables, exercise habits, SOC (13-item scale), International Physical Activity Questionnaire, and the Pittsburgh Sleep Quality Index (PSQI, a self-rated questionnaire which assesses sleep quality and disturbances).

Results: Complete responses were returned from 115 workers (25.1%), consisting of 90 males and 25 females with mean ages of 49.4 (SD10.1) and 35.8 (SD9.5) years, respectively. By the average SOC score (mean59.4, SD11.4), 115 workers were divided into low (n=58) and high (n= 57) SOC groups. In high SOC group, PSQI scores were significantly lower than in those of low SOC group (p<0.001); the former group showed higher frequency of exercise habit as compared with the latter (p<0.05). SOC scores were inversely correlated with PSQI scores in all subjects combined (r = -0.479, p<0.001). The logistic regression analysis, controlling for age, drinking and smoking habit, and BMI, indicated that high SOC scores were significantly related to PSQI scores and habitual exercise.

Conclusion: Good sleep and moderate level of habitual exercise were related SOC among Japanese workers.

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P036

BRIDGING THE GAP BETWEEN PHYSICIAN AND PSYCHOLOGIST COMMUNICATION METHODS

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Introduction: Research demonstrated that patient outcomes can be improved with effective physician-patient communication. Psychologists play an important role in medical settings and medical education, particularly in teaching communication skills and facilitating physician-patient communication. Though there is some overlap, physicians generally learn techniques to guide physician-patient communication that are not widely applied in psychology. This study evaluated the most commonly used communication tools in medicine to bridge the gap between physician and psychologist communication methods in interdisciplinary settings.

Methods: Behavioral Science faculty members in US family medicine residencies completed a questionnaire regarding the communication tools taught to medical residents.

Results: Most faculty members stated that they use the BATHE method to teach doctor-patient communication (77%). BATHE stands for background, affect, trouble, handling, and empathy. BATHE teaches providers to elicit patient's problems and convey empathy. Residents were also commonly taught OARS for motivational interviewing purposes (54%). The OARS communication model uses open-ended questions, affirming statements, reflective listening, and concludes by summarization. SPIKES was taught in 32% of respondent's training programs. SPIKES is a six step protocol used to deliver bad news. SPIKES steps are: setting up the interview, assessing the patient's perception, obtaining the patient's invitation, giving information to the patient, empathically addresses the patient's emotions, and strategy and summarization.

Conclusions: BATHE, OARS, and SPIKES are commonly taught in family medicine training programs. Although these tools are not widely utilized in psychology training, educating psychologists about these methods of physician-patient communication will create more effective interdisciplinary healthcare relationships in the future.

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P037

USING A PARTICIPATORY ACTION APPROACH TO PROMOTE THE HEALTH LITERACY OF ELDERLY PEOPLE IN THE COMMUNITY: A PILOT STUDY.

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Introduction: This studied assessed whether the participatory action approach (PAR) program can improve the health literacy of elderly people.

Methods: 20 elderly people, defined as people over the age of 50 years, were recruited. The PAR approach was used to design 12 2-hour lectures on health literacy, including functional health literacy, communicative and interactive health literacy, and critical health literacy. These lectures were expected to increase the cognitive skills and critical thinking ability of participants. All participants were provided with a handbook, which included pictures and text that participants could use as a basis for designing games, role-playing activities, or learning to use a sphygmomanometer.

Results: Sociodemographic information and the health literacy questionnaire (HLQ) were employed. The HLQ comprises nine parts: (Part 1) feeling understood and supported by healthcare providers, (Part 2) possessing sufficient information to manage health, (Part 3) actively managing health, (Part 4) social support for health, (Part 5)

appraising health information, (Part 6) possessing the ability to actively engage with healthcare providers, (Part 7) navigating the healthcare system, (Part 8) possessing the ability to identify useful health information, and (Part 9) understanding health information sufficiently to manage health. According to results, the health literacy scores were 5.29 ± 3.29 . In addition, the HLQ scores were improved significantly: Part 1 ($P = 0.02$), Part 3 ($P = 0.006$), Part 4 ($P = 0.000$), Part 5 ($P = 0.02$), Part 6 ($P = 0.003$), Part 7 ($P = 0.001$), Part 8 ($P = 0.002$).

Conclusions: The participants' health literacy level was initially low, but after they joined 12 lectures, their ability to self-manage their health and apply health information to address health problems was enhanced. When an appropriate approach is used, health literacy can be increased and chronic disease incidence and complications can be reduced, especially in elderly people.

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P038

INDIAN SECONDARY SCHOOL TEACHERS' VIEWS OF NUTRITION PROMOTION

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Introduction: The unprecedented rise in overweight and obesity among Indian adolescents has been linked to unhealthy dietary behaviors. Schools can provide important learning opportunities for the development of lifelong healthy food habits. The purpose of this qualitative investigation was to examine teachers' views of the secondary school food and nutrition curriculum and the food environment in Kolkata schools.

Methods: Purposive sampling was employed to recruit twelve nutrition educators responsible for teaching Year 9 students of English-speaking schools in Kolkata, India. A series of open-ended questions based on a review of literature guided the semi-structured interviews. Audio recordings were transcribed verbatim and subjected to thematic analysis (NVivo). Ethical approval was granted by Deakin University (HEAG-H 171_2014). Results: Five main themes related to the on-going food and nutrition curriculum were identified. These included: (1) Improves awareness of healthy eating, (2) Nutrition not taught as an individual subject (3) A complicated curriculum, (4) Primary focus on theoretical knowledge rather than food skills, (5) Key food topics not in curriculum. Two themes summarized the teachers' views of the current school food environment: (1) It is a major source of unhealthy foods and (2) Disseminates ambiguous messages.

Conclusions: This work highlights the need for the implementation of a skills-focused food and nutrition curriculum supported by healthy school food policies to develop healthy eating habits among adolescents in Indian secondary schools.

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P039

THE '280 A DAY' DIABETES AWARENESS ADVERTISEMENT: WHAT WAS THE IMPACT?

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Introduction: We report on an evaluation of the '280 a day' diabetes awareness television advertisement, aired as part of a national campaign run by Diabetes Australia in 2015. The advertisement aimed to raise awareness about the incidence and seriousness of diabetes, and to challenge common myths / misconceptions.

Methods: Pre- and post-campaign online surveys were conducted with the general population aged ≥ 18 years. Independent samples were used at each time point ($N=1,011$; $N=1,124$) to avoid priming. Respondents who had not seen the advertisement in the 'real world' watched it within the survey.

Results: Real-world recall of the advertisement was low, with unprompted and prompted recall rates of 1.2% and 7.7% respectively. After advertisement exposure, perceived seriousness of diabetes, knowledge of incidence and diabetes complications were all higher (all $p < 0.01$). There was no evidence of advertisement impact on perceived personal risk of diabetes, or on beliefs about diabetes (e.g. preventability, misconceptions; all $p > 0.05$). A total of 70.4% of post-campaign respondents reported that the advertisement made them feel motivated to look after their health; 27.1% reported they were now likely to seek out information about diabetes. One in 10 respondents perceived the advertisement to be stigmatizing of people with diabetes.

Conclusions: The advertisement had poor population penetration, and its impact was moderate. It appeared to increase knowledge about diabetes, and increase the (self-reported) likelihood of information-seeking and health-related behavior. However, it did not impact on beliefs, including key misconceptions about diabetes, and may have had unintended negative consequences.

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P040

EXPERTS' PERCEPTIONS OF A NEW FOOD STUDIES CURRICULUM FOR SENIOR SECONDARY SCHOOL STUDENTS IN VICTORIA, AUSTRALIA

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Introduction: In 2015, a new food literacy school curriculum named Food Studies was developed by the Victorian Curriculum Assessment Authority as a way of providing senior secondary school students with knowledge of broader aspects of the food system. It is important that food and nutrition experts' views and advice are taken into consideration during the design and implementation of new food related curriculum.

Methods: In late 2015 and early 2016 food and nutrition experts (at senior management levels) ($n=30$) were interviewed either via in-depth face-to-face meetings or via phone. Participants were recruited from across the Victorian food system, including food production, food processing, food marketing, food service, food and nutrition science and education and communication sectors. The interviews were recorded, transcribed and thematically analyzed using NVivo software.

Results: The preliminary results suggest that food and nutrition experts are in favor of the new Food Studies curriculum. They believe that broader food system education for senior secondary school is timely. Furthermore, the experts suggested that this Food Studies curriculum lays a useful foundation for further education in food related areas. The unit that deals with food issues and challenges was viewed as the major strength of the curriculum. There were suggestions to modify the sequencing of the curriculum units and the breadth and depth of certain units.

Conclusions: The new curriculum is generally approved by experts from across the Victorian food system and is likely to be supported by companies and organizations across the food system.

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P041

BEHAVIORAL MEDICINE IN TOHO UNIVERSITY SCHOOL OF MEDICINE IN JAPAN

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Introduction: The Japanese medical education committee is undertaking reforms in medical education in order to further improve the quality of physicians to meet new global standards. In light of this reform, behavioral medicine will become a core curriculum in Japanese medical schools. Through a case study in behavioral medicine at Toho University School of Medicine, this research aims to give insight into the future prospects of behavioral medicine and psychosomatic medicine in Japan.

Methods: Toho University established the Department of Psychosomatic Medicine in 1980, the first of its kind in Japanese private schools. From the latest curriculum in behavioral medicine at Toho, we examine its basic philosophy, content of the coursework and teaching methods. Inferring from this case, we discuss the relationship between behavioral medicine and psychosomatic medicine.

Results: Behavioral medicine and psychosomatic medicine overlap in many areas and thus are able to function in complement. Psychosomatic physicians possess the potential to also become experts in behavioral medicine. Moreover, establishing an intermediary organization, such as the Center of Behavioral Medicine, as a medical bridge between the hospital and the community will certainly pave way for the success of behavioral and psychosomatic medicine in Japan.

Conclusions: In an age where special doctor license and medical education are globally standardizing, psychosomatic medicine is facing challenges deriving from its unclear realm of expertise. Behavioral medicine may be one viable solution. The establishment of a Center of Behavioral Medicine would be a new horizon for psychosomatic physicians to survive in the Japanese medical field.

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P042

PERCEPTIONS OF RESPONSIBILITY FOR HEALTH LITERACY AMONG HEALTH PROFESSIONALS AND CONSUMERS

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Introduction: Health literacy describes the capacity people have to manage their health needs. It is conceptualized as the cognitive, social and emotional skills people need to obtain, understand and use health information. While often framed as a patient capacity, health literacy is highly dependent on health care provider and health service level factors that can facilitate or restrict information accessibility. The potential exists, in such interactive systems, for different actors to perceive their respective roles differently with a detrimental effect on health information flow.

Methods: Structured interviews were conducted with health care consumers, doctors, nurses and pharmacists to investigate participant's

interpretation of health literacy; their perspectives on who was responsible for facilitating health literacy; and their ability to meet their self-perceived responsibility for health literacy. Narrative analysis and critical discourse analysis were used to evaluate participant responses.

Results: Participants variously attributed responsibility for health literacy to patients, doctors, other health professionals, society/government, and parents. When attributing responsibility to patients, health professionals often doubted their capacity to meet the responsibility. Health consumers overwhelmingly self-ascribed agency more than health professionals.

Conclusions: Differences exist in the attribution of agency around health literacy. It is generally understood that agency inheres in multiple locations and there is a perception that this varies depending on the health care need in question. The potential for mismatches in the attribution of agency in a given health context can impede the flow, understanding and use of health information, with the resulting implication for poorer health outcomes.

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P043

WEARING FACEMASK TO PREVENT INFLUENZA IN HONG KONG ELDERLY PEOPLE: A QUALITATIVE INVESTIGATION

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Introduction: It has been widely recognized that elderly people have heightened risk of afflicting serious medical complications due to influenza. Among the preventive behaviors recommended by the Hong Kong government, facemask wearing remains one of the most effective ways of influenza prevention behaviors, although there is still a considerable amount of people would not like to wear facemasks.

Methods: A total of 136 community-dwelling Chinese older adults in Hong Kong aged between 65 and 80 ($M = 75.16$; $SD = 6.50$) were recruited in the current study. Face-to-face semi-structured interviews will be conducted in an isolated room, lasting from 4 to 20 minutes. Interview data were analyzed using inductive thematic analysis.

Results: Three main general dimensions were revealed. With regards to (a) the knowledge and habits of influenza prevention, a majority of older adults cannot tell the difference between seasonal flu and H1N1, adopting both effective and ineffective influenza prevention behaviors. In terms of (b) barriers of facemask wearing, most old adults report the uncomfortable breathing of wearing a facemask and some report not afraid of being infected. Facilitating factors (c) include protecting being infected and infecting others, moral pressure (e.g., afraid of being discriminated), protecting family members, avoiding "waste" money seeing a doctor, and social responsibility of not infecting others.

Conclusions: Hong Kong old adults have habits of wearing facemasks when they were required in certain circumstances (e.g., hospital). Some unique and important factors can explain why Hong Kong older adults choose to wear facemasks.

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P044
EFFECTIVENESS OF HEALTH EDUCATION INTERVENTION ON IMMUNE FUNCTION AND QUALITY OF LIFE IN BREAST CANCER PATIENTS IN CHINA

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Introduction: Breast cancer is the most common malignancy. The incidence rate of breast cancer has markedly increased in China during the last few decades. Breast cancer becomes a heavy burden of society and family because of its increased incidence and younger onset age of in China year by year. With the transfer of medical model, cancer treatment is no longer simply to eliminate or reduce the tumor entity or kill cancer cells, but to take into account the improvement in quality of life of patients. The purpose of the research is to explore the effect of health education intervention on immune function and quality of life in breast cancer patients.

Methods: All patients were divided into experimental group (intervention group, 34 patients) and control group (without intervention, 33 patients), whose demographic variables were matched. The experimental group received a 45 minute to 1 hour weekly health education intervention, including a lecture, consultation and leaflets. Twice immune parameters and QOL were assessed before and after health education intervention.

Results: The health education intervention significantly improved breast cancer patients' immunologic function and QOL after six weeks. Levels of IgG, IL-2, CD4+ T cells, and QOL of experimental group patients were significantly higher than control group patients after health education intervention. Furthermore, self-comparison in experimental group showed a significant increase in IgG antibodies, CD4+cell percentages, IL-2 production and QOL after health education intervention.

Conclusions: The health education intervention can be effective in improving the immunologic function and QOL of breast cancer patients.

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P045
“THIS TOWN CAN'T BE THAT HARMFUL”: RISK PERCEPTION OF LEAD EXPOSURE

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Introduction: Much of the focus of lead risk health campaigns has been on vulnerable populations such as children and pregnant women, thus not communicating the risk of exposure for other adults. This becomes a particular issue for adults who are long-term residents of communities near lead mines as they can be at an increased risk of exposure to lead within their environment. As such, this study investigated the perceived risk of exposure to lead in residents of a lead mining community.

Methods: Semi-structured interviews were held with 20 (3 male, 17 female) residents from a community in close proximity to a lead mine and were recruited through the community media and local organizations. Common themes were identified through an interpretative phenomenological analytical framework providing an in depth examination of the lived experiences of participants.

Results: Majority of the participants did not perceive a health risk from exposure to lead. Those who reported a specific concern surrounding their exposure to lead had lived within the community for less than five years. However, it was commonly noted that the behaviors to control residents' exposure to lead were easily performed and low cost.

Conclusions: These results suggest that residents of a community chronically exposed to lead seem to become complacent about their risk for

poor health outcomes the longer they live within the community. These findings have implications for the communication of the risk of exposure to lead for adults who are chronically exposed to lead.

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P046
ESTABLISHING A PSYCHOSOCIAL CARE PROGRAMME FOR PEOPLE WITH SPINAL CORD INJURY DURING INPATIENT REHABILITATION

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Introduction: Recent research demonstrates the clinical efficacy of medical approaches or physical aspects of spinal cord injury (SCI) rehabilitation in functional independence and pain reduction; however, psychosocial care of SCI people has not yet been adequately considered and thus is inadequately attended by health professionals. This research aimed to establish a culturally sensitive psychosocial care programme based on current empirical evidence, and test the content validity of the programme by experts' consultation.

Methods: A comprehensive systematic review was conducted to identify previous psychosocial interventional studies for people with SCI. The coping-oriented supportive programme (COSP) was then established based on the available psychosocial interventions from the other countries and relevant SCI-related literature. The COSP was further modified based on the cultural considerations in the Chinese context as well as comments from six experts in the area of rehabilitation psychology and psychotherapy.

Results: The COSP is a group-based psychosocial care programme that is divided into four phases (i.e., orientation and encouragement, cognitive appraisal, coping and social support). It contains eight sessions delivered in a weekly basis. All experts recognized the potential positive effects of the COSP in supporting people's psychological adjustment to SCI, and gave comments in order to further improve the intervention protocol.

Conclusion: This culturally sensitive psychosocial care programme (COSP) for Chinese people with SCI has its potential to be incorporated into the routine SCI rehabilitation care if positive results could be found by testing its effectiveness in the subsequent clinical trial.

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P047
DRUG AND ALCOHOL TREATMENT CLINICIAN BARRIERS TO THE PROVISION OF REFERRAL TO TELEPHONE HELPLINES

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Introduction: People with drug and alcohol (D&A) problems have a high prevalence of modifiable health risk behaviors (e.g. physical inactivity). However, low levels of preventive care is reported in D&A settings. Low preventive care levels may be attributed to competing clinical priorities

and brevity of clinician contact. Referral to telephone helplines offer a way to overcome such issues, however referrals to such helplines are not routinely provided. This study examines D&A clinician reported barriers to the provision of referral to telephone helplines.

Methods: A cross sectional survey was undertaken with community D&A clinicians in NSW, Australia. Clinicians were asked to report their reasons for not arranging referral to the Quitline (smoking) or Get Healthy Information and Coaching Service (insufficient fruit and vegetable consumption and insufficient physical activity). Clinicians were also asked to rank potential strategies to increase referral provision.

Results: Fifty four (65%) clinicians completed the survey. The most commonly reported barrier to referral for both the Quitline (87%) and the Get Healthy Service (insufficient fruit and vegetable consumption: 72%, insufficient physical activity: 74%) was that clients would not be interested. The most preferred strategy to increase referral provision was automated referrals utilizing the electronic medical record system (40%).

Conclusions: Recent research indicates that D&A clients are interested in improving their health risk behaviors. Future research could focus on client advocacy to ensure clinicians are aware of client desire to modify health risk behaviors and investigate the effectiveness of automated referral in increasing connecting clients to evidence based helplines.

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P048

CLINICIAN PROVISION OF PREVENTIVE CARE FOR MODIFIABLE BEHAVIOURAL HEALTH RISK BEHAVIOURS WITHIN SUBSTANCE USE TREATMENT SERVICES: A SYSTEMATIC REVIEW.

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Introduction: People with substance use problems have a high prevalence of modifiable health risk behaviors such as smoking, insufficient fruit and vegetable consumption and insufficient physical activity. Such risk factors contribute to the increased mortality and morbidity for people with substance use problems. Clinician delivered preventive care has been shown to reduce the prevalence of modifiable health risk behaviors. Preventive care has not traditionally been regarded as a part of routine substance use treatment, however little is known about the prevalence of preventive care delivery by substance use treatment clinicians. Given this, a systematic review was undertaken to assess clinician provision of preventive care to substance use treatment clients.

Methods: The Medline, EMBASE, CINAHL, PSYCInfo, SCOPUS and Cochrane Databases were searched (2005 to 2015). Two reviewers screened all articles for inclusion. Studies were included if they reported preventive care provision, in the form of assessment, brief advice and/or referral, by routine substance use treatment clinicians for smoking, fruit and vegetable consumption or physical activity. Measures of the same outcome were pooled using a random effects model with meta-analysis conducted for each outcome. Meta-analysis was contingent on the availability of appropriate data and following assessment of heterogeneity.

Results: The review was underway at the time of abstract submission.

Discussion: This review is the first to synthesize and report clinician provision of preventive care regarding modifiable health risk behaviors to substance use treatment clients. Such information is important to guide

interventions to increase preventive care provision in substance use treatment settings.

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P049

THE EFFECTS OF COMMUNICATING CARDIOVASCULAR DISEASE RISK AS 'FITNESS AGE' ON BEHAVIOURAL INTENTIONS AND PSYCHOLOGICAL OUTCOMES

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Introduction: Cardiovascular disease (CVD) is greatly influenced by lifestyle behaviors in youth, when short-term percentage risk of a CVD event is usually low. The alternative risk communication format of Heart Age has not been tested on young people, but the novel concept of Fitness Age may be more salient to this group. This study tested the impact of communicating Fitness Age to young people compared to Heart Age and lifetime percentage risk of CVD.

Methods: 180 young adults participated in a randomized experiment with a 2 (risk level: high vs low) x 3 (risk format: fitness age vs. heart age vs. percentage risk) between-subjects design. Participants were categorized as being at low or high risk of CVD based on self-reported lifestyle risk factors, received this result in one of three risk formats, and completed a questionnaire on the primary outcome (intention to change lifestyle) and secondary outcomes (worry, perceived risk and credibility). Regression analyses were conducted.

Results: Communicating CVD risk as Percentage Risk or Heart Age resulted in greater behavioral intentions ($p=.009$) and more accurate numeric risk perception ($p=.011$) than Fitness Age. Participants classified as high risk were more worried by results ($p=.014$) but those at low risk found the results more credible ($p=.005$).

Conclusions: The findings suggest that amongst young people with higher education, presenting CVD risk in a lifetime percentage format may lead to greater engagement with risk messages, whilst the Fitness Age format may decrease accuracy of risk perception and falsely assure individuals of their health status.

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P050

REDUCING ALCOHOL CONSUMPTION IN OBESE MEN: A PRIORITY FOR ACTION

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Introduction: Obese men who drink heavily are at greatly increased risk of liver disease. This makes them a priority for intervention. Obese men may be reluctant to engage in an intervention to reduce alcohol

consumption. This feasibility study developed and tested methods to overcome this challenge.

Methods: Two recruitment strategies were used: through GP registers and by community outreach. The intervention was systematically developed based on formative research, public involvement and behavior change theory (the Health Action Process Approach). The intervention was organized in two phases: a face to face session delivered by trained lay people (Study Coordinators), followed by a series of text messages.

Results: In total 69 men were recruited, exceeding the intended total of 60. Both recruitment strategies were successful, but recruiting through GP registers was much less labor intensive than by community outreach. Almost all the men (95%) were at a 19 fold increase in the risk of dying from liver disease. The men engaged enthusiastically with the intervention and most (71%) made plans to reduce their alcohol consumption. A very high follow-up rate was achieved (98%). The two outcome measures for a full trial were successfully measured.

Conclusions: The recruitment methods of this study identified men at very high risk of liver disease. There is an urgent need to intervene. This study has developed an acceptable intervention and effective methods for the conduct of a full trial.

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P051

A NEW CORE CURRICULUM FOR INTEGRATION OF BEHAVIOURAL MEDICINE AND PHYSIOTHERAPY IN GRADUATE STUDIES: PLANNING, IMPLEMENTATION, AND EXPECTED OUTCOMES

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Introduction: Over the 20th century, health care priorities shifted from the prevention, cure, and management of acute infectious conditions to the today's focus on the prevention, cure, and management of lifestyle conditions. To develop Swedish physiotherapy students' skills in behavior change techniques a need for changes in the core curriculum was identified. Central to these changes was the implementation of behavior learning theory, behavior change techniques, and an evidence-based model for clinical reasoning based on such principles in all physiotherapy courses.

Methods: A new core curriculum was developed at the Physiotherapy Program at Uppsala University, Sweden. The work involved academic teachers with active research in behavioral medicine and physical exercise, in collaboration with students, clinicians and critical friends. The implementation process included the following three phases. Phase 1: Planning and skills training of academic teachers. Phase 2: Development of a new core curriculum. Phase 3: Development of new course-syllabus and continuing education for clinical supervisors and academic teachers.

Results: To date 160 students are following the new curriculum. Preliminary results show that skills in theory based behavioral analysis and behavior change techniques have been successfully implemented in the physiotherapy courses. The evidenced based model for clinical reasoning provides a tool for clinical reasoning and problem solving skills.

Conclusions: This presentation will provide a model for change and implementation of a new core curriculum based on behavior change theory and principles for health professions alongside psychology.

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P052

BODY IMAGE AND PARITY: ARE DEMOGRAPHIC, PSYCHOLOGICAL AND WEIGHT-BASED KNOWLEDGE VARIABLES PREDICTORS OF BODY IMAGE ACROSS PARITY GROUPS?

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Introduction: Studies have identified that body image attitudes fluctuate as a function of age and reproductive stage (during pregnancy and the post-partum period). However, it is unknown if there are differences in women's body image between parity groups. The aim of the current study was to compare nulliparous, primiparous and multiparous women on feeling fat, strength and fitness, salience of weight and shape, and attractiveness and to determine whether there are different psychosocial predictors for body image at these different parity stages.

Methods: 168 nulliparous, 104 primiparous and 103 multiparous women completed a self-report questionnaire. ANOVAs and chi-square test of independence were used to compare the three parity groups in relation to demographics, psychological distress symptoms, weight-related beliefs/knowledge and four body image scales. For each parity group, multiple regressions were used to identify the cross-sectional predictors for each body image scale. Subsequently, these models were compared using a Chow test.

Results: There were no differences in feelings of attractiveness or strength and fitness between parity groups, however feelings of fatness and salience of weight and shape were more important to the nulliparous women than both primiparous and multiparous. Furthermore, for each body image scale, the significant predictors varied across the parity groups. However, the non-significant results of the Chow tests indicated that the full regression models were significantly different from one another.

Conclusions: Screening and interventions efforts might benefit from targeting different psychosocial variables for women of different parity group in order to improve body image and reduce body dissatisfaction.

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P053

RATES OF PROBLEMATIC EATING AND FOOD-RELATED BEHAVIOURS IN A SAMPLE OF AUSTRALIAN YOUNG PEOPLE IN RESIDENTIAL OUT-OF-HOME CARE

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Introduction: Problematic eating and other food-related behaviors (i.e., emotional eating, compulsive eating, overeating, binge eating, and stealing or hoarding food) have been identified as possible mechanisms linking adverse childhood experiences and obesity. One population group particularly at risk is young people (YP) living in out-of-home care (OOHC); this group is characterized by histories of abuse, neglect, concomitant trauma, and attachment disturbance. However, research investigating difficult or disturbed eating with this population is limited. The aim of this study was twofold: (1) examine the rates of problematic eating in YP living in residential OOHC in Victoria, Australia; and (2) explore the relationship between YP's patterns of problematic eating and their body mass index (BMI).

Methods: Carers completed scale five (Food maintenance behavior) from the Assessment Checklist for Adolescents. A trained data collection worker measured YP's height/weight.

Results: 126 residential care workers (62.7% female; mean age 38.7 years) reported on problematic eating patterns for 154 YP. Forty-six YP also completed objective height/weight measures (57.8% male; mean age 15.3 years). Overall, 22.1% of YP presented with clinically significant

eating problems. No significant associations were found between aberrant eating and BMI.

Conclusions: The current findings suggest that problematic eating behaviors are common among YP in residential OOH, and highlights the need to incorporate assessments of eating and food-related problems into clinical evaluations upon entry into care. Given that patterns of problematic eating were not associated with increased weight status, it is important that assessments of these behaviors are not limited to overweight/obese individuals.

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P054

PSYCHOLOGICAL HEALTH AND LIFESTYLE MANAGEMENT PRECONCEPTION AND IN PREGNANCY

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Introduction: Healthful lifestyles before and during pregnancy are important to facilitate healthy outcomes for mother and baby. Behaviors such as a sedentary lifestyle and consuming a suboptimal diet increase the risk of overweight and obesity before pregnancy and may contribute to excessive gestational weight gain. Maternal psychopathology may be implicated in the development of suboptimal maternal lifestyle behaviors preconception and during pregnancy.

Methods: A narrative review of the literature was conducted to explore how psychological well-being during preconception and pregnancy impacts on pregnancy physical health outcomes via lifestyle behaviors, taking into account both individual and environmental contributors.

Results: Common psychological health concerns experienced during pregnancy include stress, anxiety, depression, and body image concerns. Psychological health issues are associated with poor lifestyle behaviors. Motivation may be a key mediating factor between these two aspects of health. Environmental influences also play a role in promoting healthy lifestyle behaviors but are less often considered as factors enabling behavior change. In particular, psychological health can be addressed at many points within the maternal obesity system. For example, provider training for recognizing psychological distress may improve health professionals' motivation to evaluate and provide treatment or referrals. This may lead to improvements in the individual patient's psychological well-being, with positive consequences on lifestyle behaviors and gestational weight gain.

Conclusions: Psychological well-being and environmental influences play important roles in promoting healthy lifestyle preconception and are key modifiable aspects for intervention designers to consider when trying to improve dietary behaviors and increase physical activity before and during pregnancy.

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P055

CAN DRINKING WATER BEFORE MAIN MEALS HELP ADULTS WITH OBESITY LOSE WEIGHT?

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Introduction: There is a need to investigate the effectiveness of pragmatic weight loss interventions. Daily water consumption is widely advocated as an aid to weight loss, with little supporting evidence. One strategy to facilitate weight loss is to modify perceptions of fullness before meals with a 'preload' such as water. Two test meal studies and a small trial have reported some preliminary evidence that water preloading before meals may facilitate weight loss and we tested this further in a larger attention controlled RCT. The aim of this RCT was to investigate the efficacy of water preloading before meals as a weight loss strategy for adults with obesity.

Methods: 84 adults with obesity were recruited from primary care. All participants were given a face to face weight management consultation at baseline (1 hour) and a follow-up telephone consultation at two weeks. Participants were randomized to either drinking 500mls of water 30 minutes before main meals or comparator (asked to imagine stomach is full prior to meals) for 12 weeks. The primary outcome was weight change at 12 weeks. Several measures of adherence were also used, including 24hr total urine collections.

Results: The water preloading group lost -1.3 kg (P=0.03, 95% CI -2.4 to -0.1) more than comparators at 12 weeks.

Conclusions: Water preloading before main meals leads to a moderate, but significant weight loss at 12 weeks and is a simple message that could easily be disseminated within weight management advice given to the public.

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P056

THE ASSOCIATION BETWEEN INTUITIVE AND DISORDERED EATING

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Introduction: Limited research has examined intuitive eating in relation to other eating patterns, which collectively, are often referred to as "disordered eating". This study was designed to examine three aspects of intuitive eating (unconditional permission to eat, eating for physical not emotional reasons, reliance on hunger/satiety cues) in relation to the following aspects of "disordered eating": dieting behaviors, restrained eating, bulimia and food preoccupation, emotional eating, and external eating.

Methods: A community sample of 457 women aged between 18 and 87 participated in a cross-sectional survey of eating attitudes and behaviors. Bivariate correlations and an exploratory factor analysis were conducted to examine the interrelationships.

Results: Two main factors were found. The first represented disordered eating and was defined by high loadings on dieting, restrained eating, bulimia/food preoccupation, and unconditional permission to eat. The second factor represented emotional/external eating and was defined by high loadings on emotional eating, external eating and eating for physical not emotional reasons. Only one aspect of intuitive eating was found to not load on either factor: a reliance on hunger/satiety cues.

Conclusions: These findings suggest that two aspects of intuitive eating, unconditional permission to eat and eating for physical not emotional reasons, have a large overlap with other aspects of disordered eating and are not distinct or independent constructs. However, the reliance on hunger/satiety cues aspect of Intuitive Eating is clearly distinguishable from disordered eating. This style of eating may help individuals develop a positive and healthy attitude to food and weight.

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P057

OMEGA-3 FATTY ACIDS FOR PREGNANT WOMEN WITH DEPRESSIVE SYMPTOMS IN JAPAN AND TAIWAN: AN OPEN-LABEL TRIAL

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Introduction: Although safe strategies for managing depression in pregnancy are needed and the possible efficacy of omega-3 fatty acids has been suggested, evidence has not been established. The appropriate amount of supplemental omega-3 fatty acids has not been determined and might be different among countries.

Methods: In this 12-week, prospective, open-label pilot trial, pregnant women between 12 to 24 weeks' gestation with Edinburgh Postnatal Depression Scale scores of ≥ 9 were recruited in Japan and Taiwan. Participants were supplemented daily with omega-3 fatty acids capsules containing 1,206 mg eicosapentaenoic acid and 609 mg docosahexaenoic acid for 12 weeks. The primary outcome measure was change in total score on the 17-item Hamilton Rating Scale for Depression during the supplementation. The fatty acid composition of erythrocyte membranes was measured to confirm adherence.

Results: Of the 13 participants, 9 completed the trial. Omega-3 fatty acids supplementation was well tolerated, and a significant decrease in Hamilton Rating Scale for Depression score was observed after 12 weeks of supplementation (mean, 4.8; standard deviation, 4.9) compared with baseline (mean, 12.1; standard deviation, 3.7) ($p < 0.01$). The mean eicosapentaenoic acid level increased and the n-6/n-3 ratio decreased significantly after omega-3 PUFA supplementation in completers.

Conclusion: This open-label study suggests the potential efficacy of moderate omega-3 PUFA supplementation for improving depressive symptoms in Japan and Taiwan, where fish consumption is higher than in almost any other countries. A randomized controlled trial is needed to confirm these findings.

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P058

PATTERN OF BEHAVIOURAL COMPONENTS OF METABOLIC SYNDROME IN A NIGERIAN SUB-POPULATION

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Introduction: Unhealthy lifestyles have been implicated as one of major factors driving the increasing prevalence of cardiovascular disease risk factors in low-middle-income countries. However, there exists inadequate evidence regarding the pattern of unhealthy lifestyle behaviors in Nigeria. The aim of this study is to assess the prevalence of lifestyle patterns that predisposes to risk of metabolic syndrome in a Nigerian population.

Methods: A population-based cross-sectional study was carried out on 422 apparently healthy individuals ≥ 18 years old. The World Health Organization (WHO) STEPwise questionnaire was used to collect information on behavioral components, such as tobacco use, smoking habits, alcohol consumption and dietary habits.

Results: There were more ex-smokers (7.8%) than current smokers (3.4%). Among current smokers, only 8 had attempted to quit smoking during past 12 months. 22.8% and 30.2% indicated that someone smoked in their home and in closed areas at workplace, respectively, in the past 30 days. On alcoholism, 225 admitted to taking alcohol, of which 72% consumed in past 12 months. Those who reported quitting alcohol 19 (4.5%), did so due to health reasons, while 30 (7.4%) individuals have had family problems due to someone else's drinking. 223 (56.3%) of the population engage in < 5 servings of fruits and or vegetables on each day. Median day was 3/week.

Conclusions: Although smoking habit is low, the high prevalence of alcohol consumption and unhealthy diet may be contributory to increasing prevalence of metabolic syndrome indices in the population.

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P059

MAINTENANCE OF NUTRITION-RELATED BEHAVIOURS AFTER INTERVENTION IN HEALTHY ADULTS: A SYSTEMATIC REVIEW.

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Introduction: Diet is a major contributor to prevention and management of chronic disease and much effort is invested in helping individuals make dietary change. Success is demonstrated short-term but it is imperative changes are sustained. The objective of this study was to systematically review the literature to build the evidence-base for maintenance of nutritional behavior change.

Methods: The literature was searched from 2000 until current using Medline, Premedline, Embase, Web of Science, Informit, Lilacs, Cinahl, PsycINFO, PunMed and Cochrane. Search terms included 'adults', 'nutrition', 'diet', 'nutrition behavior', 'lifestyle intervention', 'behavioral nutrition intervention' and 'maintenance', 'follow-up' and 'long term'. Only randomized controlled trials following healthy participants for at least six months after intervention were included. All studies were assessed for eligibility then risk of bias determined using the Cochrane tool.

Results: Of 75 manuscripts identified, 15 interventions (from 18 papers) met inclusion criteria but 19 studies were excluded because they failed to study maintenance. Most studies targeted increased fruit and vegetables or decreased dietary fat and used group face-to-face meetings with supportive material during intervention. Most were delivered by a health professional. Twelve of 15 interventions demonstrated maintenance of some nutrition behaviors after 12 to 54 months. Those that targeted one or two behavior changes were more likely to achieve maintenance while those with multiple dietary behaviors achieved maintenance in two or less. Few studies used new technologies for delivery.

Conclusions: Changes to nutrition behaviors can be changed long term and further evidence for studies incorporating newer delivery modes are indicated.

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P060

PSYCHOLOGICAL HEALTH AND BODY IMAGE FOLLOWING BARIATRIC SURGERY

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Introduction: Bariatric surgery is becoming increasingly popular and is the most effective treatment for weight loss maintenance following obesity. While the treatment is effective physically, there are contradictory results regarding the psychological impact of this treatment method. This study examined positive and negative psychological health, and body image, following bariatric surgery.

Methods: Snowball sampling via social media support groups yielded responses from 299 participants who had undergone bariatric surgery. Participants completed the DASS-21, and the Subjective Happiness Scale, alongside the Trait version of the Physical Appearance State and Trait Anxiety Scale and the Body Shape Questionnaire-34.

Results: Those who had had bariatric surgery more than 2 years ago had significantly impaired psychological health and body image compared to participants who had surgery less than 2 years ago. Positive psychological health was significantly lower 2 years post operatively, but higher between 6 months and 12 months post operatively. The lowest reported symptoms of negative psychological health were between 12 months – 2 years post operatively.

Conclusions: There is a need for continued psychological monitoring following bariatric procedures. While these procedures have positive physical outcomes and a positive influence on body image and psychological health, this study suggests these positive psychological consequences may only persist for a short period. It is currently unknown whether this change in positive psychological consequences may have implications for the longer term physical outcomes.

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P061

BEYOND THE BODY IMAGE IN BULIMIA NERVOSA: ABNORMALITIES IN THE IMPLICIT BODY REPRESENTATION

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Introduction: Body representation disturbances (BDI) represent a core component of Eating Disorders (EDs). Although, a distinction has been made between body image and body schema, studies on BDI across EDs have focused mainly on body image.

Recently, researchers suggested that EDs could be characterized also by a dysfunctional body schema. This study aims to elucidate whether the perceptual deficits are limited to an explicit overestimation of body size or also involve more basic and implicit aspects of perception.

Methods: We measured body dissatisfaction, explicit body perception, and body schema in 15 AN, 15 BN and 15 healthy subjects (HC). The body schema was assessed using an action-related task, having participants walking through door-like openings varying in width, while they focusing their attention on a diversion task.

Results: Cinematic data analysis revealed that BN started to rotate their shoulders at a larger aperture widths compared to HC (A/S-crit 1.5 Vs 1.4). Although there was not a statistically significant difference between HC and AN, at a descriptive level, data suggested a dysfunctional body schema also in AN. BN and AN patients presented higher level of body dissatisfaction and higher level of explicit body distortion compared to HC.

Conclusions: BN processed information accurately, but the body-size related input that they received were not consistent with their actual body dimensions, supporting the hypothesis of aberrant body schema in these patients. Understanding the specific levels of disturbances in body representation is crucial, not only for diagnostic purposes, but also for early detection, prevention and treatment.

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P062

MAINTENANCE OF WEIGHT LOSS AND THE ROLE OF IMPULSIVITY: AN ERP INVESTIGATION

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Introduction: Despite advances in the efficacy of weight loss interventions, weight loss maintenance (WLM) appears to be particularly challenging for many individuals. Increasing rates successful WLM is vital for capitalizing on successful weight loss interventions. Recent research has suggested that impulsivity, a behavioral tendency which impairs an individual's ability to self-regulate their eating behavior, is increased in overweight and obese individuals. A small number of studies have investigated self-regulation in the context of weight loss maintenance showing evidence of a relationship between self-regulation and successful weight maintenance. Specifically, successful weight loss maintainers appear to have increased activation in frontal brain regions that are related to impulsivity compared to both healthy weight and obese adults.

Methods: To further explore this possibility the Balloon Analogue Risk Taking Task (BART) during EEG was used to measure the brain event related potentials in response to negative consequences of behavior weight loss maintainers and weight loss regainers.

Results: Preliminary analysis of 20 adults, 10 WLM (BMI $M = 27.01 \pm 3.75$) and 10 WLR (BMI $M = 37.17 \pm 3.76$) were recruited. Analysis of the BART behavioral data indicated that there were no differences between the groups. Analysis of the neurocognitive data indicated that the feedback error-related negativity (fERN), a physiological marker of consequence evaluation, was significantly reduced in the WLR at centro/parietal sites.

Conclusions: Findings of the current pilot study, utilizing the BART to measure rash impulsivity and risk taking behavior in successful and unsuccessful weight losers suggest that there are differences in cognitive processing.

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P063

TECHNIQUES FOR MODIFYING IMPULSIVE PROCESSES ASSOCIATED WITH UNHEALTHY EATING: A SYSTEMATIC REVIEW

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Introduction: Despite available support, people still struggle to lose weight. This limited success may be in part due to impulsive processes regulating behavior. The development and evaluation of techniques that can facilitate control of impulsively-regulated behavior has been a key challenge for the science of health behavior change and the design of effective weight-loss interventions. This systematic review aimed to identify such techniques in relation to eating behavior in the current literature, describe the targeted mechanism, and summarize available evidence on the effectiveness.

Methods: Searches of 5 bibliographic databases identified studies, published in English since 1993, that evaluated at least one technique to modify impulsive processes affecting eating in adults. Data were systematically extracted on study characteristics, population, study quality, intervention techniques, proposed mechanisms of action and outcomes. Effectiveness evidence was collated and described using narrative synthesis.

Results: The included 92 studies evaluated 17 techniques which were categorized according to the targeted mechanism of action. Promising changes in unhealthy food consumption and food cravings were found for visuospatial loading, physical activity, and if-then planning. However, higher quality evidence is needed to draw definitive conclusions.

Conclusions: A wide range of techniques have been evaluated. Although some show promise for use in weight management interventions, larger-scale, more methodologically robust community based studies with longer follow-up times are needed to establish any potential for long-term impact on eating patterns.

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P064

EXPLORING SOCIAL NETWORKS WITHIN A WEB AND APP BASED INTERVENTION FOR WEIGHT LOSS.

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Introduction: Research shows that setting goals, planning, self-monitoring and social support are important for behavior change. We are conducting a RCT of a web/app based intervention for weight loss incorporating these elements. The social support element is key and individuals will identify ‘helpers’, from within their social network to help them achieve behavior change goals. We will randomize 120 obese adults to the intervention or control group. One aim of this study is to examine the association between characteristics of the participant’s social network (types and quality of relationships etc.) and success in their achievement of weight related goals.

Methods: The social network analysis is mixed methods. Participants will identify the people in their social network with whom they have most contact and they will be asked to complete an egocentric network questionnaire. These data will be analyzed using regression models. We will also interview participants about their social networks and at least one of their nominated helpers. Data from the interviews will be analyzed thematically and combined with the quantitative data will allow exploration of the participant’s ego network and the impact of these on behavior change success or failure.

Results: This paper will present the protocol for this novel study.

Conclusions: This analysis will provide insights which will be useful for the design of the definitive trial, as well as shedding light on the impact of the participant’s ego network structure and content on the intervention effects and conversely how the intervention affects individual ego networks.

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P065

DOES COMFORT FOOD COMFORT? DYNAMICS OF THE ASSOCIATIONS BETWEEN STRESS, MOOD, AND EATING BEHAVIORS IN HEALTHY ADULTS

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Introduction: Previous research indicates a strong relationship between negative emotions, stress, and a preference for high-fat and high-carbohydrate food (‘comfort food’). Primarily cross-sectional evidence demands for more in-depth research addressing temporal aspects of mood, stress, and eating during a subject’s daily living. We therefore utilized an ecological momentary assessment design to examine mood and stress as antecedents and/or consequences of eating behaviors.

Methods: Overall, 77 young healthy adults (38 women, 23.9±4.5 years, 22.0±2.8 kg/m²) completed items on momentary mood (valence, calmness, and energetic arousal) and stress as well as eating behaviors (intake of sweets, high-fat food, high-carbohydrate food, coffee, alcohol) 5 x/day for 4 consecutive days. With each data entry, salivary cortisol and alpha-amylase were assessed as markers of neuroendocrine and autonomic activity, respectively.

Results: Hierarchic linear models showed greater wellbeing after the consumption of coffee and alcohol. Consuming high-fat food resulted in mood deterioration and vice versa. High-carbohydrate food preceded higher cortisol while the consumption of coffee was followed by higher amylase. After positive valenced mood and high energetic-arousal, more alcohol and coffee consumption was reported. Higher stress, better mood and energetic arousal predicted lower cortisol but higher amylase.

Conclusions: These findings corroborate previous reports of negative emotions and stress predicting eating behaviors and vice versa. However, findings also challenge some assumption of the ‘comfort food’ hypothesis. Findings on biomarkers provide first insights into underlying biological mechanisms. Research on long-term consequences of this stress- and mood-induced unhealthy eating (which might lead to eating disorders or obesity) is highly warranted.

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P066

LET’S NUDGE: A PILOT RCT OF A NOVEL CHILDHOOD OBESITY INTERVENTION

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Introduction: Childhood obesity is one of the world’s most pressing issues. While prevention is the ultimate goal, intervention is also needed to reduce its detrimental later effects (eg metabolic, cardiovascular). Common sense lifestyle interventions continue to dominate public health; however, it is now clear that they have limited impact to reduce established overweight/obesity. Thus, we argue that this demands entirely

new approaches. The behavioral economic concept of ‘nudge’ could offer a solution. ‘Nudges’ alter the architecture of choice via subtle changes to social and physical environments to consistently promote ‘better’ behaviors (e.g. healthier eating) without restricting options. At the same time, many obese children also require medical assessment but, although Australian pediatricians see managing obesity as central to their role, they report feeling ill-equipped to do so. This study is assessing the acceptability/feasibility of an intervention that couples enhanced pediatric care with a tailored package of home-based ‘nudges’ that modifies the child’s environment to reduce their obesity.

Methods: *Design:* Pilot RCT. *Setting:* Community pediatric practice. *Participants:* 3–10 years old with BMI >95th centile. *Intervention:* Pediatricians will receive obesity training via webinars. Children will attend a 1-hour pediatrician appointment to assess obesity and related comorbidities. A ‘nudge’ consultant will visit the home to offer a flexible ‘nudge’ package (e.g. smaller plates/glasses, smart forks) across 3 visits. *Control:* Usual care. *Outcomes:* Acceptability/feasibility (primary), BMI z-score, physical activity, diet quality etc. (secondary). *Analyses:* Descriptive analyses and linear/logistic regression models. **Results & Conclusions:** Findings and next steps will be presented and discussed.

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P067

MARKETING STRATEGIES TO PROMOTE UNHEALTHY FOODS TO ADOLESCENTS ON ROMANIAN TELEVISION CHANNELS: AN IN-DEPTH CONTENT ANALYSIS

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Introduction: In most European countries, food advertising represents the most frequent adverts targeted to children, with a large proportion being devoted unhealthy snacks promotion. Exposure to these adverts shapes food preferences and is presumably associated with higher caloric intakes and more time spent in front of the TV. The study sought to understand the type of marketing strategies in ads for unhealthy snacks and the frequency of food adverts targeted to youngsters.

Methods: We selected 4 TV channels (2 for general audience and 2 targeted for children/adolescents aged 10–18) and studied their programs on 2 weekdays and 2 weekends, coding for frequency of food ads and type of marketing strategies (4 categories: endorsers/promotional characters, premium offers, nutritional information, fun/emotional appeals).

Results: The results show that almost half of all adverts are for unhealthy snacks and beverages with the most frequent strategies being the theme of fun/emotional appeals, followed by endorsers and premium offers.

Conclusions: Identifying TV food marketing strategies for children and adolescents is a cornerstone for monitoring advertisement and further developing food marketing regulations.

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P068

PREDICTORS OF HEALTHCARE PROFESSIONALS PRACTICES IN OBESITY TREATMENT

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Introduction: When it comes to obesity treatment, there is a research gap concerning not only the association between the healthcare professionals’ beliefs and attitudes and their frequency of practices but also the predictors of their practices in obesity treatment. The aim of this study was to fulfill this gap by investigating the degree which age, BMI and the beliefs and attitudes of healthcare professionals predicts their frequency of practices.

Methods: 207 general practitioners, 258 nurses and 163 dietitians working in primary care setting (n=628) were surveyed about their beliefs, attitudes and practices concerning obese people and obesity treatment. Demographic data was also collected. Outcomes included age, BMI, attitudes towards obese people and beliefs about obesity treatment. Linear multiple regressions were used to identify whether outcomes studied were associated and were predictive factors of the healthcare professionals’ practices.

Results: Age and BMI were negatively associated with the beliefs about obesity treatment (perceived role and perceived self-efficacy), disengagement, and the frequency of practices. The perceived role and perceived self-efficacy were the best predictors of professionals’ practices followed by the belief in the inability of obese people to lose weight and the belief in the behavioral causes of obesity. BMI and treatment disengagement were negative predictors of the frequency of practices. **Conclusions:** Older professionals also presenting bigger BMI may be missing treatment opportunities. Education should be increased in order to enhance their self-efficacy and promote better practices.

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P069

TASTE AND SEE: A FEASIBILITY STUDY OF A CHURCH-BASED, HEALTHY, INTUITIVE EATING PROGRAMME

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Introduction: Obesity treatment remains a high priority globally; evidence suggests holistic approaches, which include a religious element, are promising. Most is US research, but a similar need is evolving in the UK. Therefore a feasibility study of a faith-based, healthy, intuitive-eating programme was conducted within a UK church.

Methods: A mixed-methods pre-post feasibility study of a 12 week intervention in 18 overweight participants. Ethical approval was granted by Coventry University Ethics committee.

Results: ‘Word of mouth’ recruitment was effective. 17/18 participants completed the intervention. Significant improvements were found in weight, quality of life, mental well-being, depression, anxiety and intuitive-eating scores. Restrained-eating and emotional eating appeared worse. Measures of spiritual well-being and religious love showed a non-significant improvement. Reduced ‘Avoidance to God’ was associated with reduced anxiety and increased quality of life.

Emerging themes of spirituality showed a journey leading participants to feel: ‘I can take my food issues to God’ and ‘God’s love is a catalyst for self-love’. These themes formed an important foundation for changing motives to manage weight.

Conclusions: Results support a mainly positive association with outcomes of the intervention. However uncertainty exists due to the small sample. A larger cluster-randomized controlled trial is planned. If weight can be reduced by a small amount and mental health improve in the obese population, the public health impact could be substantial. Using churches enables religious and spiritual health to be addressed and also uses existing social structures and a voluntary workforce that are potentially sustainable and cost effective.

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P070

TELEVISION VIEWING AND BODY MASS INDEX AMONG ADULTS OVER 5 YEARS:

DO CHANGES IN FOOD AND BEVERAGE CONSUMPTION DURING TELEVISION VIEWING OR LEISURE-TIME PHYSICAL ACTIVITY EXPLAIN LONGITUDINAL ASSOCIATIONS?

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Introduction: Greater television (TV) viewing time is associated with higher body mass index (BMI), but the mechanisms explaining this association are not clear. Food and beverage consumption (FBC) during TV viewing and/or displacement of leisure-time physical activity (LTPA) are hypothesized to contribute, but longitudinal evidence is sparse. This study aimed to determine whether associations between TV viewing time and BMI are explained by changes in FBC and/or LTPA over five years among Australian adults.

Methods: In the first (2004–6) and second (2009–11) follow-ups of the Childhood Determinants of Adult Health (CDAH) study, measures of height, weight, TV viewing time, TV-related FBC, and LTPA were collected from 1,068 adults. Change variables were created, and linear regression was used to examine hypothesized direct and indirect pathways between TV viewing and BMI.

Results: Change in LTPA and change in BMI were significantly inversely correlated (Spearman's $r = -0.10$, $p = 0.002$); those whose BMI increased had decreases in LTPA of 10.9 (SD 242.8) mins/week. Although those whose TV-related FBC increased had significant increases in their TV viewing (0.41 hours/day), there was no association between increased TV viewing and BMI at follow-up (0.38 kg/m², 95% CI -0.18, 0.94 compared to those whose TV viewing remained stable). This association was marginally attenuated and remained non-significant when adjusted for TV-related FBC and LTPA in separate and combined models.

Conclusions: These findings suggest that the longitudinal relationship between changes in TV viewing and changes in BMI are weak, and changes in TV-related FBC or LTPA contribute little to this finding.

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P071

EFFECTIVENESS OF INTERVENTIONS TO PROMOTE PHYSICAL ACTIVITY AND/OR DECREASE SEDENTARY BEHAVIOUR AMONG RURAL RESIDENTS:

A SYSTEMATIC REVIEW

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Introduction: Rural adults are less active and have poorer health than urban adults. This study aimed to establish the effectiveness of interventions to increase physical activity (PA) and/or decrease SB among rural adults.

Methods: Seven electronic databases were searched for articles reporting randomized controlled trials, or non-randomized trials with a control. Two authors independently applied inclusion/exclusion criteria, extracted data, and assessed risk of bias.

Results: 1292 articles were identified; 12 met inclusion criteria. Five were at medium risk of bias; seven were at high risk and none at low risk. Five (42%) studies found positive intervention effects; three of these were at medium and two at high risk of bias. Irrespective of risk of bias, results that favored the intervention were more commonly seen in studies: with medium versus high risk of bias (60% vs. 29% of studies); using objective versus self-reported PA measures (67% vs. 33%); interventions of medium (12 weeks \leq 1 year) versus shorter (\leq 12 weeks) or longer ($>$ 1 year) duration (75% vs. 25% vs. 25%); using 'other' versus community settings (60% vs. 29%); delivered individually versus group mode (50% vs. 33%); and with one (versus 2 or 3) delivery channel (67% vs. 33% vs. 33%). No studies focused on decreasing SB.

Conclusions: There is limited evidence of the effectiveness of interventions to promote PA, and no evidence for decreasing SB, among rural adults. Studies with less risk of bias and using objective PA measures more commonly demonstrated favorable effects, as did individually-targeted, focused, medium-term interventions in non-community settings.

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P072

THE EFFECTIVENESS OF LEARNING COMMUNITY ON PHYSICAL ACTIVITY OF THE ELDERLY IN TAIWAN

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Introduction: Taiwan is one of the areas with high aging rate. Improving active life-style of the elderly to delay the onset of multi-morbidity is the goal of public health workers. This study aims to investigate the effectiveness of cooperative learning strategy based on the concept of social capital toward the enhancement of physical activity of the elderly.

Methods: Quasi-experimental design with fixed group was used as the research design. Printed material similar to the contents of the experimental group was offered to the control group. Questionnaires and test of physical fitness were administered to the subjects at pre-test, post-test and delayed post-test. The elderly in 4 of the 12 administrative districts were the subjects and there was community assigned to the experimental and control groups in each district. Two hundred elders were recruited into the research with 119 subjects in the experimental group and 91 in the control group. Only one hundred and sixty subjects who were comprised of 60% of the original subjects remained in the study.

Results: The elderly in the experimental group improved in both psychosocial factors and physical activity than they did in pre-test. Meanwhile, they felt more perceived benefit of and increased the amount of physical activity compared with the control group. There are significant effects of intervention.

Conclusions: It is found that the amount of physical activity of the elderly can be increased by implementing cooperative learning under the concept of social capital and the method can be widely applied in the elderly group.

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P073

PHYSICAL ACTIVITY AND SEDENTARY BEHAVIOUR IN INNER-REGIONAL AUSTRALIA: WHAT FACTORS INFLUENCE ACTIVE LIFESTYLE PARTICIPATION?

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Introduction: Active lifestyles that incorporate regular physical activity and minimized sedentary behavior are beneficial for health and wellbeing. People living in inner-regional Australia are less physically active than those residing in city and rural areas, and levels of sedentary behavior among this population are also concerning. Despite differences in participation and relative health disadvantages faced by Australians outside of major cities, there has been little research into the influence of socio-geographic factors, or 'regionality' on active lifestyle behaviors. This study will identify the components of regionality relevant to active lifestyles, and variation in these factors across different inner-regional settings.

Methods: The qualitative study will involve five online focus groups, conducted with adults residing in inner-regional areas of the Darling Downs and South East Queensland. The questioning route will elicit socio-geographic factors that influence active lifestyles. Data will be evaluated using thematic analysis.

Results: An essentialist/realist epistemological position will be adopted when analyzing the data. NVivo software will be used to develop a codebook of major themes and common patterns.

Conclusions: The study will build upon existing research by examining the nature of variation in factors associated with regionality in inner-regional contexts, and by identifying factors relevant to common sedentary activities, in addition to physical activity. A framework that captures the complex nature of regionality, and its influence upon active lifestyle behaviors will be proposed based on the findings.

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P074

EFFECTS OF A SCHOOL-BASED PHYSICAL ACTIVITY INTERVENTION ON ADIPOSITY IN ADOLESCENTS FROM ECONOMICALLY DISADVANTAGED COMMUNITIES: 'PHYSICAL ACTIVITY 4 EVERYONE' RCT.

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Introduction: Physical Activity 4 Everyone (PA4E1) study is a multi-component physical activity intervention implemented in secondary schools from socio-economically disadvantaged communities, and resulted in a significant differential change in the primary outcome, daily minutes of MVPA. The aim of this study

was to determine the 12-month and 24-month adiposity outcomes of the study.

Methods: A cluster randomized controlled trial was conducted between 2012 and 2014, involving ten secondary schools in New South Wales, Australia. The school-based intervention included seven physical activity strategies targeting: the curriculum; school environment; and parents and the community. The secondary outcomes, students' weight (kg), body mass index (BMI) and BMI z-score, were collected at baseline (Grade 7), 12- and 24-months. Linear Mixed Models were used to assess mean difference from baseline to 12-months and 24-months between intervention and control groups.

Results: A total of 1150 students (mean age=12 years) provided outcome data at baseline, 1051 (91%) at 12-months and 985 (86%) at 24-months follow-up. At 24-months, there were significant group-by-time effects for weight (mean difference= -0.62kg, 95%CI= -1.21;-0.03, p=0.01) BMI (mean difference= -0.28, 95%CI= -0.49;-0.06, p=0.01) and for BMI z-score (mean difference= -0.08, 95%CI=-0.14;-0.02, p=0.02) favoring the intervention group.

Conclusions: The PA4E1 school-based intervention was effective in achieving reductions in adiposity among adolescents from socio-economically disadvantaged communities. The PA4E1 program, may assist in preventing unhealthy weight gain among adolescents.

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P075

THE RELEVANT APPROACH TO PHYSICAL ACTIVITY VARIES IN IBS BY EXECUTING OF EXERCISE AND GASTROINTESTINAL SYMPTOMS

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Introduction: Irritable bowel syndrome (IBS) is a functional gastrointestinal disorder associated with abdominal pain, diarrhea, constipation, or a mix of symptoms. Treatment strategies for IBS may include both non-pharmacologic and pharmacologic approaches. Lifestyle modifications that aim to improve exercise and stress may be warranted. Aim of this study was to evaluate the 4-week exercise results of loco-motor activity and gastrointestinal symptoms in university students with IBS.

Methods: At baseline 154 students, recruited via local campus, were assigned into 3 groups: a high amount of walking group (51 subjects, over 7000 steps/day on pedometer), a low amount of walking group (50 subjects) and a group without symptoms of IBS which received personal and e-mail advice respectively. All participants underwent experimental muscle stretching and walking with pedometer for 4-week. Two way analysis of variance were used to identify benefits of intervention effectiveness (executing rate of exercise and steps per day) using the gastrointestinal symptoms rating scale (GSRS). This study was approved by the ethics committee of Saitama Prefecture University.

Results: GSRS score of low-activity group was more severe than high-activity group in IBS (Difference of the mean=.526, 95% confidence interval .042-1.010, p=.024). After exercise intervention, the favorable

quality of slightly indicating a successful result in low-activity group with low-executing of exercise and high-activity group with high-executing of exercise.

Conclusions: Our results suggest that some gentle physical activity is of benefit for GI symptoms. Well-designed prospective trials evaluating the benefits of exercise and physical activity on IBS are recommended for future research.

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P076

FOR BEHAVIOURAL CHANGES TO SUSTAINABLE HEALTH PROMOTION THROUGH EXERCISE: PRESENCE OF COMPANION DOES NOT AFFECT SUSTAINABILITY

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Introduction: The aim of this study was to investigate the method of using incentives for sustainable health promotion through exercise.

Methods: A total of 579 employees (396 males and 183 females) answered a survey questionnaire. We analyzed the associations of various behavioral characteristics and personality traits with continuity of exercise. We defined the respondents who had engaged in continued exercise for over 6 months as 'repeaters'.

Results: In total, the odds ratio (OR) of repeaters who exercised with a companion was 0.94 (95%CI: 0.64–1.37) compared with persons who exercised alone. For personality traits, the controlling trait was positively associated with continued exercise among both males and females (OR=2.16 [1.39–3.35] and 2.28 [1.08–4.81], respectively); and level of attachment was positively associated with continued exercise only among males (OR=1.05 [1.01–1.10]). There were no significant associations between presence of companion during exercise and ratio of repeater for each personality trait. However, in only the higher group of the controlling trait, the ratio of repeaters in persons who exercised with a companion was significantly lower than persons who exercised alone (OR=0.53[0.30–0.93]).

Conclusions: We expected that persons who have a companion during exercise repeat exercise and sustain engagement; however, we did not find such results in this study. To examine this on each level for personality traits, persons who were in the higher level of controlling repeated exercise more than those in the lower level. However, many of them may do it not with a companion but alone.

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P077

SYSTEMATIC REVIEW OF THE ASSOCIATION BETWEEN CLASSROOM-BASED PHYSICAL ACTIVITY INTERVENTIONS AND ACADEMIC-RELATED OUTCOMES

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Introduction: Children's physical activity levels are declining. While schools provide an ideal setting to increase children's physical activity levels, adding physical activity to the school day can be difficult given competing key learning areas. Classroom-based physical activity may provide an opportunity to improve school-based physical activity levels while concurrently improving academic outcomes. The aim of this systematic review was to evaluate the effect of classroom-based physical activity interventions on academic-related outcomes.

Methods: A systematic search of electronic databases (PubMed, ERIC, SPORTDiscus, PsycINFO) was performed in January 2016. Studies that investigated the association between classroom-based physical activity interventions and academic-related outcomes in primary school aged children were included.

Results: Thirty articles met the inclusion criteria. Studies investigated a range of academic-related outcomes including classroom behavior (e.g. on-task behavior), cognitive functions (e.g. executive function), and academic achievement (e.g. standardized test scores). The majority of studies (n = 23) reported positive associations between classroom-based physical activity interventions and at least one academic-related outcome. There was no evidence of classroom-based physical activity interventions having any detrimental effect on academic-related outcomes.

Conclusions: Evidence suggests classroom-based physical activity interventions have a positive effect on academic-related outcomes. Teachers and school administrators are encouraged to incorporate physical activity into classroom routines to concurrently improve health and academic-related outcomes.

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P078

EMPLOYMENT STATUS AND PHYSICAL ACTIVITY AMONG JAPANESE MOTHERS OF PRESCHOOLERS

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Introduction: Currently, the Japanese Government has been promoting the women's social advancement. Since Japanese women are assuming more responsibilities at work, the number of women with stress from both child-rearing and work is increasing. In order to reduce such stress, it is effective to increase physical activity (PA). However, little is known about the amount of PA of Japanese mothers of preschoolers. This study examined whether the employment status was a factor that increased PA in Japanese mothers of preschoolers.

Method: The participants included 1865 Japanese mothers of preschoolers, ages 18 to 52 years (M = 35.14, SD = 4.89). We assessed the employment status (workers: full-time or part-time job, non-workers: housewives), the time spent playing with own children (e.g., game of tag), and the International Physical Activity Questionnaire short form.

Results: The results showed that the workers had more PA levels (high, moderate, and low) than the non-workers (p < 0.001, d = 0.2–0.3). The time spent in sedentary activity had a non-significant difference between workers and non-workers. However, non-workers spent more time playing with their children than the workers (p < 0.001, d = 0.2).

Conclusions: The employment status of Japanese mothers may be a factor increasing PA. The non-working Japanese mothers had low levels of PA, but they had more time to play with their children. This finding implies that the promotion of PA among Japanese non-working mothers may require a place to play with their children or keep their children in affordable temporary care.

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P079

WORK RESPONSIBILITIES AS BARRIERS TO PHYSICAL ACTIVITY: HOW DO WE EVALUATE THE EXERCISER?

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Introduction: Often-cited barriers to participation in physical activity are lack of time and work responsibilities. This study examined how missing work because of exercise is viewed and if evaluations differ with respect to the presence or absence of a diagnosed physiological disorder.

Methods: Young adults (N=166) read a scenario describing someone who has just began an exercise program. Reasons for exercise were manipulated as a between-participants factor: for disease prevention, to control hypertension, or to treat heart disease. Amount of work time missed was also manipulated as a within-participants factor (10 minutes, one hour, missed meetings). Participants evaluated the exerciser in the scenario (e.g., hard-working) and indicated if they should suffer consequences (e.g., docked pay) as a result of prioritizing exercise over work obligations.

Results: Evaluations of the exerciser were submitted to a 3(reasons for exercise) x 3(amount of work missed) mixed factorial ANOVA. The exerciser was more positively evaluated if they had a more severe diagnosis ($p > .001$), or if they missed less work time ($p < .001$). The consequence measure was submitted to the same analysis. Results revealed that participants endorsed fewer negative consequences if the exerciser was diagnosed with heart disease ($p < .001$) or if they missed less work time ($p < .001$).

Conclusions: Although physical activity for prevention is emphasized, individuals exercising for prevention are more negatively evaluated than individuals who are physically active and already had a diagnosed disorder. This suggests that social pressure to fulfil work obligations is a genuine barrier to preventative physical activity.

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P080

A SYSTEMATIC REVIEW OF PHYSICAL ACTIVITY INTERVENTIONS IN CENTRE BASED CHILDCARE: META-ANALYSIS OF OUTCOME EFFECTS BY INTERVENTION CHARACTERISTICS

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Introduction: Effective physical activity interventions delivered in the childcare setting have the potential to positively impact on the health of large numbers of children. This review sought to examine the extent that intervention characteristics influence effects on child physical activity and describe unintended adverse effects and cost or cost effectiveness in trials of physical activity interventions undertaken in center-based childcare services.

Methods: Computer based literature searches of eight electronic databases of studies including children aged less than five years with no diagnosed diseases or health problems. Interventions carried out in center based childcare with at least one intervention component targeted at increasing objectively measured physical activity. Randomized study designs, including cluster-randomized controlled trials, published in a peer reviewed journal in English. Meta-analysis was performed using random effects and reported as a standardized mean difference (SMD)

Results: A total of 6132 publications were retrieved. After screening of titles and abstracts, 64 publications were considered potentially

eligible. Based on the full text review, 47 publications were excluded resulting in 17 trials for inclusion in the review. Overall interventions significantly improved child physical activity (SMD =0.44; 95% CI:0.12-0.76). Significant effects were found for interventions that included structured activity (SMD 0.53; 95% CI: 0.12-0.94), delivery by experts (SMD 1.26, 95% CI: 0.20-2.32) and used theory (SMD 0.76, 95% CI: 0.08- 1.44).

Conclusions: Structured activity, environmental enhancements and use of theory should continue to be recommended for childcare based interventions. Information regarding adverse events or data on intervention costs or cost effectiveness is lacking.

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P081

PERCEPTIONS OF PHYSICAL ACTIVITY IN CANCER-RELATED FATIGUE

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Introduction: Improving physical activity level (PAL) can aid in reducing cancer-related fatigue (CCRF). However, as large differences in PAL exist among individuals who suffer from CCRF - both in self-reported and in objective measures - the challenge is to set goals for treatment that fit the patient needs as well as their perspectives. Therefore, we studied how patients with CCRF perceive their PAL and how these measures relate to objective measures of physical activity.

Methods: Participants are recruited from a randomized controlled trial for cancer-related fatigue. Accelerometer data (>3 days with >600 minutes) was used from 164 participants, from which mean physical activity count (PAC) and moderate-to-vigorous intensity physical activity time (MVPA) were derived. Subjective measures were satisfaction (dummy variable that encapsulates 'unsatisfied and wants to be more active') and perceived PAL (internal comparison, external peer comparison, and the 'reduced activity' subscale of the Checklist Individual Strength). Bivariate analyses and regression models for PAC and MVPA were performed with all subjective measures.

Results: 'Unsatisfied' participants (48.2%) had a 12% ($p = .002$) lower mean PAC than the others, but equal MVPA. PAC correlated weakly with PPAL ($r_{int} = .329$, $r_{ext} = .309$, $p < .001$; $r_{red} = .170$, $p = .030$). MVPA correlated weakly with PPAL_{int} and PPAL_{ext} ($r_{int} = .194$, $p = .013$; $r_{ext} = .223$, $p = .004$), but not with PPAL_{red}. Linear regression models revealed PPAL_{int} as predictor for PAC ($R^2 = 12.6%$, $p < .001$), but none for MVPA.

Conclusions: Subjective and objective measures of PAL are barely related. Therefore, physical activity interventions that aim to reduce CCRF need to target mismatching perceptions.

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P082

THE CORRELATES OF CHILDREN'S AFTER-SCHOOL PHYSICAL ACTIVITY AND SEDENTARY BEHAVIOUR.

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Introduction: Understanding correlates of children's after-school moderate- to vigorous-intensity physical activity (MVPA) and sedentary behavior (SB) time is important for informing intervention development. The correlates of children's after-school MVPA and SB were examined using an ecological framework.

Methods: Child and proxy-report survey data from the Transform-Us! intervention at baseline were used. Children ($n=354$, age 8.2 years, 43% boys) wore an ActiGraph GT3X accelerometer from which the percentage of time after school (end of school to 6pm) spent in MVPA (%MVPA) and SB (%SB) were calculated. Generalized linear models assessed the association between 18 intrapersonal, 23 social, and 17 physical environment variables and the outcomes. All variables showing significant associations were entered into a final model for %MVPA and %SB separately which also adjusted for age, sex and clustering by school.

Results: Children spent 14.2% and 53.3% of the after-school period engaged in MVPA and SB respectively. Variables associated with %MVPA included: sibling PA co-participation (OR 1.03, [1.01, 1.05]), PA frequency (OR 1.01, [1.00, 1.02]), days at a sporting club after school (OR 1.05, [1.00, 1.11]), and parents being aware of the health implications of PA/SB (OR 0.98, [0.97, 0.99]). Only one variable was significantly associated with %SB: PA frequency (OR 0.99, [0.98, 0.99]).

Conclusion: Of the 58 correlates of after-school PA or SB examined, only five were significant. Associations were predominantly context specific variables suggesting the child's location and who they are with may be important for after school behavior participation.

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P083

FACTORS PREDICTING BARRIERS TO EXERCISE IN MIDLIFE AUSTRALIAN WOMEN

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Introduction: Chronic diseases are the leading cause of death and disability worldwide being largely attributable to modifiable lifestyle risk factors including physical inactivity. There is evidence exercise barriers perceptions are correlated with physical activity, although little is known about what factors influence the strength of those perceptions in midlife women. This study aimed to investigate the extent that socio-demographic factors, lifestyle behaviors, health factors, perceived benefits and exercise self-efficacy predict perceived barriers to exercise in midlife women.

Methods: This cross sectional descriptive study collected data from midlife Australian females by online questionnaire. Volunteers aged between 40 and 65 years were recruited following media publicity about the study. The primary outcome measure was perceived exercise barriers (EBBS Barriers sub-scale). Other self-report data includes: exercise, smoking, alcohol, fruit and vegetable consumption, body mass index, physical and mental health and well-being (MOS SF-12®) and exercise self-efficacy.

Results: On average, the 225 participants were aged 50.9 years (SD = 5.9). The significant predictors of perceived barriers to exercise were perceived benefits of exercise, exercise self-efficacy, physical well-being and mental well-being. These variables explained 41% of variance in the final model ($F(8,219) = 20.1, p < .01$)

Conclusions: In midlife women, exercise barriers perceptions correlate with beliefs about the health benefits of exercise, exercise self-efficacy, physical and mental well-being. With midlife women increasingly susceptible to non-communicable diseases attributable to modifiable lifestyle risk factors, these findings have application to the design and delivery of

health promotion interventions to better facilitate positive exercise behavior change.

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P084

THE EFFICACY OF A TAILORED PHYSICAL ACTIVITY INTERVENTION FOR SOCIOECONOMICALLY DISADVANTAGED WOMEN: THE INSPIRE STUDY

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Introduction: Women with higher levels of socio-economic disadvantage are more likely to be physically inactive and have higher levels of sedentary behavior (SB) than less disadvantaged women. However, few successful strategies have been designed to increase physical activity (PA) and reduce SB in this target group. This study aimed to test the efficacy of providing a tailored intervention approach for improving these behaviors amongst women living in socio-economically disadvantaged neighborhoods. **Methods:** Fifty-three women (aged 23-78) living in two disadvantaged neighborhoods were randomized into either a wait-list control or intervention group. The intervention group received a booklet providing PA and SB information tailored to the neighborhood of residence and based on an ecological model as well as fortnightly emails over 12 weeks. Self-reported PA, SB, barriers and facilitators, perceived access and use of facilities, and self-efficacy were assessed at baseline and follow-up. Regression models determined any between group differences in these outcomes at post-intervention, controlling for baseline values, age and physical health.

Results: In regards to perceived barriers, the intervention group were less likely to report having no one to exercise with after the intervention in adjusted models ($B=-1.01, 95\% CI= -1.81, -0.20$). There were no other significant effects of the intervention.

Conclusions: While beneficial intervention effects were found for reducing one perceived barrier to PA, the intervention was not effective in changing behavior. More work is needed to develop effective strategies to promote PA and reduce SB in disadvantaged women.

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P085

DEVELOPMENT AND FEASIBILITY OF AN INTERVENTION TO PROMOTE ACTIVE TRAVEL TO SCHOOL

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Introduction: In Great Britain, 19% of the trips to school within one mile, and 62% within 1-2 miles, are by made car (age 5-10). Active travel to school (ATS) offers a potential source of physical activity for youth. This study aimed to develop and test the feasibility of an intervention to promote ATS in Year 5 children.

Methods: A review of theory, of ATS and health promotion interventions in youth, and public involvement suggested the effectiveness of an incentive scheme. A cluster randomized pilot trial and embedded qualitative process evaluation (interviews) were conducted over five months in two local schools. Daily measures included

parental ATS reports (optionally by SMS), child ATS reports, and accelerometry. In the intervention school, every parent-reported ATS day corresponded to one ticket entered into a weekly £5 voucher draw.

Results: Four schools replied positively (3.3%) and 29 participants (33.0%) were recruited (retention=93.1%). Most materials were returned on time: accelerometers (81.9%), parental reports (82.1%), and child reports (97.9%). Parent-child agreement was moderate ($k=0.53$, CI 95% 0.45; 0.60). MVPA differences (minutes) between ATS and non-ATS trips on two time segments considered were significant based on parental report ($U=390.5$, $p<0.05$; $U=665.5$, $p<0.05$) and based on child report ($U=596.5$, $p<0.05$; $U=955.0$, $p<0.05$). Inter-school differences were observed in feasibility outcomes. Interviewees ($n=29$) supported the acceptability of the procedures but made suggestions for recruitment and implementation of the scheme.

Conclusions: Data suggest the feasibility of an ATS incentive scheme and the validity of ATS reports. Further work is needed to improve recruitment.

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P086

MODIFYING EFFECT OF CIGARETTE SMOKING ON THE ASSOCIATION OF ORGANIZATIONAL JUSTICE WITH SERIOUS PSYCHOLOGICAL DISTRESS IN JAPANESE EMPLOYEES: A PROSPECTIVE COHORT STUDY

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Introduction: Growing evidence has shown that low organizational justice (i.e., procedural justice and interactional justice) is associated with mental ill health. Furthermore, recent evidence has suggested that cigarette smoking enhances the stressor-stress response relationship through increased impulsivity. We examined the modifying effect of cigarette smoking (i.e., smoker vs. non-smoker) on the association of organizational justice with the development of serious psychological distress (SPD) in Japanese employees.

Methods: We analyzed data from a one-year prospective cohort study of 12 companies in Japan including 4,891 male and 1,452 female employees who did not suffer from SPD at baseline or change their smoking status during the follow-up period. Organizational justice, smoking status, SPD (defined as a K6 score ≥ 13), demographic characteristics, and other health-related behaviors (i.e., drinking and physical activity) were measured by a self-administered questionnaire at baseline and follow-up. Multiple logistic regression analyses were conducted. In the analyses, interaction term of procedural justice or interactional justice at baseline with smoking status was included in the model.

Results: After adjusting for demographic characteristics and other health-related behaviors, significant interaction effect of procedural justice at

baseline with smoking status was observed ($p=0.025$): the association of low procedural justice at baseline with SPD at follow-up was greater among smokers (OR=2.56 [95% CI=1.44–4.55]) than among non-smokers (OR=1.45 [95% CI=1.07–1.97]). On the other hand, interaction effect of interactional justice at baseline with smoking status was insignificant ($p=0.547$).

Conclusions: Cigarette smoking may enhance the association of low procedural justice with the development of SPD in Japanese employees.

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P087

DEVELOPING OF JAPANESE VERSION OF WORKPLACE SOCIAL CAPITAL SCALE

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Introduction: Workplace social capital (WSC) has drawn attention as an important psychosocial work environment and well-validated questionnaire is indispensable for the cultural settings. The purpose of this paper was to develop a Japanese version of an individual-level cognitive WSC questionnaire.

Methods: A 6-item scale was developed. The scale taps whether there are attitude/mood of collaboration and helping each other, mutual understanding and trust, and sharing information across the co-workers. Items were rated on a 4-point scale with higher scores representing higher WSC. Ratings for all items were summed to provide a single index. We administered the WSC scale, a short measure of social capital at work by Kouvonon et al (2006), and a psychological distress scale (K6; Kessler et al, 2002) to randomly selected workers ($n=1,650$) in a web-based survey. We repeated the survey using the same WSC questionnaire for the part of the respondents ($n=900$) two weeks later. We evaluated the scale reliability by internal consistency and test-retest reliability. We evaluated the scale validity by the correlations with the Kouvonon's scale and K6.

Results: The WSC scale was unidimensional (principal component analysis; eigenvalue=4.4). Internal consistency was high with coefficients alpha of 0.92–0.93 in the respective waves. The correlations between the scores of the two waves indicated high test-retest reliability ($r=0.74$). The WSC was positively correlated with Kouvonon's scale ($r=0.82$) and negatively correlated with K6 score ($r=-0.37$) ($p<0.001$, respectively).

Conclusions: Our psychometric analyses showed reasonable properties of the newly developed Japanese version of workplace social capital scale.

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P088

SURVEY OF BARRIERS AND FACILITATORS RETURNING TO AND CONTINUING WORK AFTER STROKE

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Introduction: Ill workers often need support from medical institutions, workplaces, society and/or their families to undergo treatment while working. This study explored the barriers and facilitators of returning to work after stroke, by examining the effects of symptoms and/or side effects of therapy on working hours and type of work.

Methods: We used individual face-to-face in-depth interviews, each involving one interviewer and one observer. All respondents were workers who had been hospitalized because of stroke, or post-stroke patients who had undergone a medical examination at one of two hospitals in Japan. The interviews were supervised by a doctor from the rehabilitation department. A team of five researchers used content analysis to identify emerging themes.

Results: We interviewed five people. Barriers and facilitators returning to work were categorized into ten areas, including decreased ability to work and psychological effects. The effect on direct work performance was particularly high, and had three sub-categories; decreased physical function, fatigue and higher brain dysfunction.

Conclusions: The greatest problem facing post-stroke patients is decreased ability to perform physical tasks. Recovery from stroke is an ongoing process, and one of the biggest hurdles for stroke patients is returning to work. To provide more effective support for returning to and continuing work, it may be helpful to prepare a tool to support better communication between the workplace and the hospital, to ensure that both parties have sufficient understanding of the condition and its effects on ability to work.

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P089

USE OF A “PATTERN OF LIVING” SURVEY TO ASSESS READINESS TO RETURN TO WORK AFTER LEAVE FOR MENTAL DISORDER

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Introduction: When workers who have been on leave from a company for a mental disorder are subject to decision making regarding their return to work (RTW), a “Pattern of living (POL)” is sometimes used to assess their RTW readiness. However, its actual use in Japan is unknown. This research aimed to present results of a survey of highly specialized occupational physicians on POL, its usefulness for decision making, and the relevance of its evaluation criteria for RTW.

Methods: We presented a self-administered questionnaire to 1128 physicians who were registered with the Bureau of Occupational Physicians in Japan. Survey items addressed physician attributes, the presence or absence of POL and how POL is used. The survey period was November–December 2015.

Results: The response rate was 36.6%. Occupational physicians who were younger and who conducted more frequent meetings with employees on leave reported significantly higher use of POL. Among POL users, the most important points for RTW decision making were: “It is possible to work for the time that the company has set” (135 physicians

selected); “Sufficient willingness for RTW” (110 physicians selected); and “Consistent wake-up time” (49 physicians selected).

Conclusions: The reason that younger occupational physicians tend to use POL may be to compensate for their lack of experience. Also, occupational physicians who conducted frequent meetings with employees on leave may have been trying to improve efficiency in collecting information.

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P090

INVESTIGATING THE INFLUENCE OF FACTORS INHIBITING ENVIRONMENTAL BEHAVIOUR AND THEIR RELATIONSHIP TO WORKPLACE HEALTH

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Introduction: While there has been a wealth of research exploring household pro-environmental behavior (PEB), very little research has explored PEB in the workplace. This constitutes a considerable gap in the literature and in practice. Workplaces provide considerable opportunities for the implementation of behavioral interventions and policies. Using the Theory of Planned Behavior (TPB) as a guiding framework, this study sought to identify the predictive validity of perceived behavior control, beliefs, knowledge of environmental policy and norms on work-related PEB. Understanding the predictors of this rational behavior has implications for improving both environmental and health outcomes within the workplace.

Method: Staff and students (N=198) from a Queensland university were recruited to participate in a questionnaire that explored the attitudinal, normative and control factors associated with workplace PEB.

Results: Preliminary findings suggest that the importance of attitudinal, normative and control factors vary depending on the type of PEB targeted. For instance, control factors were particularly important for engaging in alternate transport behaviors (i.e. cycling/walking), whilst environmental beliefs were important for advocacy behaviors.

Conclusions: This research suggests that the TPB is useful in explaining some PEB due to the intentional and rational nature of the behavior. The findings further suggest that workplaces could act as a medium by which to enhance PEB through policy implementation. Moreover, due to the nature of some PEB, this policy implementation may potentially have spillover effects for individual health outcomes.

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P091

ACTIVITY TRACKERS AS A TOOL TO REDUCE EMPLOYEES’ SEDENTARY BEHAVIOUR IN A FLEXIBLE WORKPLACE

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Introduction: Flexible work environments represent a new context for sedentary behavior (SB) interventions. Consideration must be given to varying work location, work hours and communication channels. Activity trackers can provide sedentary alerts, be used across work locations and times, and can include online social

networking. This pilot study explored the use of an activity tracking device as a tool for reducing SB in office-based employees with a flexible work environment.

Methods: Participants attended an information session on the Australian SB guidelines and were then provided with a wrist-worn activity tracker for six weeks. Participants provided feedback post-intervention using an online questionnaire. Accelerometry was completed pre- and post-intervention. Change in proportion of time spent in sedentary activity was assessed using paired *t*-tests.

Results: Participants ($n=18$, $M=43$ years, $SD=10$; 67% females) agreed that this approach was suitable for a flexible work environment (95%), liked to be able to monitor their own behavior (89%), and agreed that the tracker was a useful tool for helping to change behavior (83%). Participants generally did not agree that the social networking functions were useful (66%). However, no significant differences were observed in proportion of time spent in sedentary activity ($M=80.17\%$, $t(17)=.886$, $p > .05$).

Conclusions: This study found that although employees agreed that an activity tracker was a useful tool for helping to change sedentary behavior, no significant changes were detected after six weeks. Activity trackers may help to increase self-awareness, but additional approaches may be required to promote behavior change.

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P092

KNOWLEDGE AND USE OF SELF-CARE BEHAVIOURS IN AUSTRALIAN PSYCHOLOGISTS: RELATIONSHIP WITH STRESS, DISTRESS, AND IMPAIRMENT

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Introduction: A heightened awareness of distress and impairment in psychologists, has recently led to a growing body of literature, promoting self-care as a protective strategy to cope with stressors in the profession. This study used a mixed-method approach to investigate the extent to which Australian psychologists engage in self-care behaviors, and its relationships with stress, psychological distress, and perceived impairment.

Methods: The sample consisted of 105 females and 10 males psychologists registered with the Psychology Board of Australia. Participants completed an online survey containing a demographic questionnaire that included questions about years in professional practice, the Depression Anxiety and Stress Scales, the Life Change Index Scale, eight open-ended questions about self-care, and a single question about perceived impairment.

Results: Two moderator effects were found: age by group (older participants increased their total PA Low levels of psychological distress were found in the current sample. Engagement in maintaining balance, interpersonal work, and recreational activities was associated with less symptoms of psychological distress. Furthermore, more years spent in professional practice were linked to lower levels of stress.

Conclusions: The findings suggest that registered psychologists, and early career psychologists in particular, should engage in self-care behaviors to manage stress and prevent impairment. Australian psychology trainee programs would benefit from incorporating self-care management skills as part of standardized coursework.

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P093

SOCIAL AND ENVIRONMENTAL INFLUENCES ON OFFICE WORKERS' SITTING TIME: A QUALITATIVE STUDY

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Introduction: Office workers accumulate high levels of sitting time during work hours. Improved understanding of the barriers and enablers to reducing workplace sitting may assist in the design and targeting of interventions targeting this health risk factor.

Methods: A qualitative study was conducted involving semi-structured interviews with 20 office-based workers (50% women) from three organizations in Melbourne, Australia. Managerial and non-managerial staff were included and participants' job roles were varied. Topics included barriers to reducing sitting, the feasibility of strategies and perceived effects on productivity. Data were analyzed using thematic analysis.

Results: Participants reported high levels of workplace sitting (median: 80% of work hours). Workplace social norms were suggested as barriers to reducing sitting time, and also likely to influence the perceived feasibility of strategies such as standing meetings. Seeing others modelling the desired behavior was suggested as a possible enabler for encouraging greater take up of 'sit less' strategies, however there was also a perception that individual motivation was a key driver of change. Environmental barriers to reducing sitting included office furniture, particularly the availability of height-adjustable workstations; however the office layouts of all three organizations provided opportunities to reduce sitting through centralized facilities (e.g. bins and printers).

Conclusions: Strategies aimed at reducing sedentary behavior in the workplace should consider addressing underlying social norms and workplace cultures that may inhibit or facilitate behavioral change. Physical environments supportive of incidental activity, and promotion of these features, may assist workers to sit less and move more in the office.

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P094

NO ASSOCIATIONS BETWEEN JOB STRESS AND HIGH-SENSITIVITY C-REACTIVE PROTEIN (HS-CRP)

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Introduction: Some Researchers indicated associations between job stress and high-sensitivity C-reactive protein (hs-CRP). We confirmed the associations.

Methods: The subjects of this cross-sectional study were 725 workers (288 men and 437 women) who answered self-administered questionnaires and underwent a medical examination. Job stress was measured

using the Job Content Questionnaire and the Effort–Reward Imbalance Questionnaire. Variables of age, body mass index, cigarette smoking, alcohol consumption, and exercise were used as covariates.

Results: We found no significant ($p > 0.05$) associations of hs-CRP with job demand, job demand–job control ratio, effort, effort–reward ratio, and overcommitment in crude and multivariable linear regression analyses. We also found no significant ($p > 0.05$) associations of high hs-CRP ($> 0.3\text{mg/dL}$) with job demand, job demand–job control ratio, effort, effort–reward ratio, and overcommitment in crude and multivariable logistic regression analyses. When we analyzed the data in men and women separately, no significant ($p > 0.05$) associations were found.

Conclusions: Job stress did not seem to be associated with hs-CRP.

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P095

JOB STRESS AMONG NURSES IN A TERTIARY HOSPITAL IN LAGOS, NIGERIA

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Introduction: Job stress has been described as a major occupational hazard among human service professionals yet most previous studies on mental health at workplaces have focused mainly on other aspects of research in occupational disability. There is a relative dearth of information regarding this work-related disorder amongst nurses in most developing countries with focus on Nigeria. This study set out to determine the prevalence of and correlates of Job stress among nurses in a tertiary hospital in Nigeria.

Methods: The study was conducted among nurses at a tertiary health facility in Lagos, Nigeria. A simple random sampling technique was used to assess 232 nurses of 680 nurses. The instruments employed were a designed questionnaire and the 34–item Nursing Stress Scale (NSS). Data was analyzed using SPSS-20.

Results: The prevalence of Job stress was 46.6%. The associated socio-demographic and work related variables for Job Stress were the respondents age ($p=0.014$), the present working unit ($p=0.001$), the number of days off duty per month ($p<0.001$) and the presence of health problems in the month prior to the study ($p=0.001$).

Conclusion: Job stress is common among nurses and is associated with some socio-demographic and work-related factors. This finding calls for a high index of suspicion and a holistic approach to the management of job stress among health care professionals in addition to developing effective prevention strategies. This will guarantee that their mental well-being is protected and ultimately the wellbeing of all who come in contact with the health care industry.

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P096

HEALTH RELATED LOSS OF PRODUCTIVITY – AN ALTERNATIVE OUTCOME MEASURE TO COMBINE ABSENTEEISM, PRESENTEEISM AND REDUCED WORK ABILITY INTO A SINGLE NUMBER

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Introduction: The lack of unified and business relevant outcome measures impedes research on well-being at work interventions. In modern work contexts, enumerating absence days alone fails to quantify an organization's health related loss of productivity (HRLP). We developed an index unifying losses from absence, presenteeism and reduced work-ability.

Methods: HRLP comprised of: a) counting sickness absence days, b) full day equivalents of presenteeism related reduced productivity and c) full day equivalents of reduced work ability. We estimated presenteeism-effects using items from the Stanford Presenteeism Scale and the method of the Work Productivity and Activity Impairment Questionnaire. Productivity loss from reduced work-ability was estimated by comparing individual results to a 20-cell reference table (age-groups, gender, blue-white-collar). Each cell contained the work-ability (WAI) amongst those 15,000 participants in a representative validation sample, who had above average health-related quality of life (SF-12), absence of major risk factors or chronic diseases and above average work-related resources (ERI, job-strain).

Results: In 20,866 participants (mean age 41,15 years, 81% men, 21% blue-collar) the mean HRLP estimate amounted to 15.4 days per year (SD 16.7, median 11.8 days, 10th–90th Percentile – 1.7 to 36.3 days). Negative values amongst the “healthiest” resulted from very low self-reported absence days and an above reference work-ability index. HRLP partitioned into 5.3 days of absence, 1.8 days from presenteeism and 8.3 days from reduced work ability

Conclusion: HRLP combines the concept of work-ability, presenteeism and count of sickness absence days into a single outcome measure for use in wellbeing-at-work impact studies.

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INVITED SYMPOSIUM: Cancer in the context of comorbidity and multimorbidity: Perspectives from behavioral medicine

S097

CANCER IN THE CONTEXT OF COMORBIDITY AND MULTIMORBIDITY:

PERSPECTIVES FROM BEHAVIOURAL MEDICINE

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Epidemiological and demographic transitions at global and national levels are shaping the contemporary burden of cancer. For example, older adults are the fastest growing demographic segment of the United States population and approximately 60% of cancer survivors are age 65 and older. The convergence of this demographic and the early emergence of chronic health conditions due to behavioral risk factors contribute to the increased prevalence of multiple chronic conditions. Hypertension, arthritis, diabetes, and cancer appear to cluster as prevalent co-occurring conditions. Behavioral risk factors like smoking, poor diet, and sedentary behavior are known to cluster as well. However, our empirical evaluation of behavioral and psychosocial interventions in service of improved cancer prevention and control often fail to account for the ecological validity of multiple chronic conditions as the population context for such interventions. The aim of this symposium is three-fold: 1) present results of a systematic review of the inclusion of multiple chronic conditions in randomized clinical trials of behavioral/psychosocial interventions targeting cancer associated outcomes; (2) highlight an international study that developed a framework to support clinical decisions for

tailoring exercise interventions in the context of cancer treatment and comorbidity; and, 3) present an international perspective of cancer control models of primary care, with a focus on issues relating to multimorbidity and behavioral health promotion. The discussant will use a mosaic heuristic framework of multimorbidity to discuss implications for research and practice that seeks to modify health behaviors, improve health-related quality of life, psychosocial functioning, and/or cancer associated outcomes.

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S098

SYSTEMATIC REVIEW OF INCLUSION OF MCC IN BEHAVIOURAL/PSYCHOSOCIAL RCTS TARGETING PARTICIPANTS WITH CANCER
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Introduction: As the population with multiple chronic conditions (MCC) increases, it is essential that randomized controlled trials (RCTs) targeting cancer include MCC to ensure generalizability of trial results. This review assesses the inclusion of MCC in RCTs of behavioral/psychosocial interventions targeting cancer published from 2000-2014.

Methods: A librarian searched for RCTs targeting chronic illness in MEDLINE and EMBASE within three time periods (2000-2004, 2005-2009, 2010-2014). Results were randomly ordered and 200 trials per period selected. Selection criteria were primary reports of RCTs of behavioral/psychosocial interventions targeting adults with chronic conditions. Data were extracted independently by two readers and differences resolved by a third party. More details can be found at www.mccsystematicreview.wustl.edu.

Results: Of 600 RCTs assessed, 103 (17.2%) targeted participants with cancer. These included 58 (56.3%) from North America. Of these, 60.2% included general, specific, or vague exclusion criteria for MCC. A maximum age as exclusion criteria was common (17.5%), and median maximum age was 65. Inclusion of MCC was identified in 21.4% of trials, with 86.4% of these reporting MCC prevalence. General descriptions (72.7%) were more common than condition specific descriptions (45.5%).

Conclusions: In a representative sample of behavioral/psychosocial intervention RCTs published from 2000-2014, trials targeting cancer frequently exclude individuals with MCC using specific, general, or vague exclusion criteria, and factors correlated with MCC, such as age. When trials include MCC, the prevalence of MCC is often not specified. Improved reporting of cancer trials is necessary to be able to evaluate if and to what extent MCC are included.

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S099

TAILORING EXERCISE INTERVENTIONS TO COMORBIDITIES AND TREATMENT-INDUCED ADVERSE EFFECTS IN PATIENTS WITH EARLY STAGE BREAST CANCER UNDERGOING CHEMOTHERAPY: A FRAMEWORK TO SUPPORT CLINICAL DECISIONS

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Introduction: Supervised exercise is advocated for patients with early stage breast cancer undergoing chemotherapy. Since exercise tolerance changes frequently over the course of chemotherapy and many patients suffer comorbid diseases, a tailored approach is needed to maximize benefits. This requires complex clinical decisions of the treating professional. The aim of the present study was to develop a framework to support clinical decisions for tailoring exercise interventions to common comorbidities and treatment-induced adverse effects.

Methods: Exercise adaptations were developed in four steps, following the i3-S strategy (Dekker, de Rooij and van der Leeden, 2016). All steps were based on current best available evidence, complemented with expert opinion. First, an inventory of common comorbidities and treatment-induced adverse effects was created. Second, contra-indications and restrictions for exercising related to these conditions were identified. Third, required exercise adaptations were described. In the final step, the obtained information was synthesized into a framework, guiding adaptations in the diagnostic and intervention phase of the exercise intervention.

Results: Prevalent comorbidities in early stage breast cancer were hypertension, heart disease, diabetes mellitus, (osteo) arthritis, chronic obstructive pulmonary disease and obesity. Adverse effects included symptoms and clinical parameters induced by (i) pre-treatment with surgery or radiotherapy (e.g. lymphedema) and (ii) chemotherapy (e.g. reduced blood cell counts). Proposed exercise adaptations were related to exercise tolerance (i.e. adjustment in frequency, intensity, type and timing of exercises), safety and hygiene.

Conclusions: Comorbidities and treatment-induced adverse effects require adaptations to the exercise program in patients receiving chemotherapy for early stage breast cancer.

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S100

INTEGRATING BEHAVIOURAL MEDICINE INTO PRIMARY CARE MODELS OF CANCER SURVIVORSHIP

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Introduction: Growing cancer incidence and improvements in cancer survival mean there is a growing number of cancer survivors who require long term follow-up. The current oncology workforce cannot provide long-term care for all cancer survivors and so alternative models of cancer survivorship care which integrate primary care are needed. Furthermore, the ageing population and increase in prevalence of chronic diseases means that many cancer survivors will have multiple conditions which require holistic management. Primary care may well be better suited to coordinate such complex care for cancer survivors.

Methods: Rapid review of trials and systematic reviews of studies examining primary care models of cancer survivorship.

Results: We will present an overview of evidence relating to models of cancer survivorship which integrate primary care, with a specific focus on issues relating to multimorbidity.

Conclusions: This presentation will summarize current evidence about models of primary care cancer survivorship. It will reflect on this evidence in the context of the wider literature on models of care for multimorbidity.

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The behavioral economics of health behavior change: New findings and application

S101

THE BEHAVIORAL ECONOMICS OF HEALTH BEHAVIOR CHANGE: NEW FINDINGS AND APPLICATION

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Health behavior is a major contributor to morbidity and mortality worldwide. Among the specific behaviors contributing to this global burden are cigarette consumption, excessive alcohol consumption, prenatal exposure to tobacco, and risky sexual behavior. Behavioral economic concepts and methods are increasingly used to address a variety of health conditions and to bring greater understanding to some of the mechanisms that underlie these behaviors. In this symposium, recent work in behavioral economics addressing cigarette smoking, excessive alcohol consumption, prenatal exposure to tobacco, and risky sexual behavior will be presented. Dr. Warren K. Bickel will present data showing that cigarette- and alcohol-dependent individuals exhibit impaired self-control as measured by the behavioral economic measures of discounting future monetary rewards. He will also show that an episodic future thinking manipulation improves self-control and also decreases the valuation of drug reinforcers. Dr. Stephen T. Higgins will present the results of recent randomized control trials during which the behavioral economics treatment of providing incentives for smoking abstinence has decreased smoking in pregnant women who are unable or unwilling to stop smoking. Dr. Matthew Johnson will present work employing a novel measure of risky sexual behavior, the Sexual Discounting Task. Specifically, he will show how cocaine selectively engenders risky-sexual behavior. Dr. Ron Borland, who has broad and deep experience in health behavior, will serve as our discussant.

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S102

SELF-CONTROL FAILURE AND ITS REPAIR AMONG ALCOHOL- AND TOBACCO-DEPENDENT INDIVIDUALS

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Introduction: Self-control failure, preference for immediate drug reinforcers rather than delayed reinforcers of good health and pro-social behaviors, contributes to alcohol and tobacco dependence. Cigarette smokers and alcohol-dependent individuals discount delayed monetary rewards significantly more than community controls. Delay discounting refers to decreased valuation of a reinforcer as a function of the delay to its receipt. To date, few therapeutic methods to improve self-control have been developed.

Methods: Studies in my laboratory measured self-control with the behavioral economic concept of delay discounting. Participants were randomized to receive a guided episodic future thinking intervention or a control intervention. Episodic future thinking refers to projecting oneself into the future to pre-experience events. Participants in the active condition generated a list of positive future events. Participants in the control condition generated events from the previous day. Participants then completed a delay discounting procedure and indicated how much they would consume of their preferred substance. Additionally, deprived cigarette

smokers were allowed to smoke while hearing a recording they made about episodic future events or control events.

Results: In the episodic future thinking condition, cigarette smokers and alcohol-dependent individuals decreased their discounting of the future and decreased valuation of their drug relative to participants in the control condition. Also, cigarette smokers who engaged in episodic future thinking smoked significantly less than the control group.

Conclusions: These research findings suggest that episodic future thinking can contribute to greater self-control and may decrease the valuation of drugs. As such, it may be a useful adjunct to treatment.

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S103

SOME RECENT DEVELOPMENTS ON FINANCIAL INCENTIVES FOR SMOKING CESSATION AMONG PREGNANT AND NEWLY POSTPARTUM WOMEN

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Introduction: Smoking during pregnancy is a leading preventable cause of poor pregnancy outcomes and immediate and longer-term adverse health outcomes among exposed offspring. Developing more effective smoking-cessation interventions for pregnant women has been a public-health priority in developed countries for more than thirty years.

Methods: I will review recent developments (past 3 years) on the use of financial incentives to promote smoking cessation among pregnant and newly postpartum women.

Results: I will review results from several recent randomized controlled trials conducted by research teams in the U.S. and the U.K. further supporting the efficacy of this treatment approach. One of those recent trials also included the first econometric analysis of this treatment approach showing financial incentives with pregnant smokers to be highly cost-effective. That information will be reviewed as well. Second, I will briefly share evidence from two Cochrane reviews reported within the past 3 years' period that support the efficacy of the approach. Third, I will briefly discuss results from the first effectiveness trial demonstrating that obstetrical clinic staff in a large urban hospital working with community tobacco interventionists can effectively implement this treatment model. Lastly, I will review current knowledge regarding impacts of this treatment model on birth outcomes and postpartum maternal and infant impacts.

Conclusions: There is a growing and compelling body of evidence supporting the efficacy and cost-effectiveness of financial incentives for smoking cessation among pregnant women. Existing knowledge gaps and important future research directions will be noted.

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S104

HIV SEXUAL RISK DECISION-MAKING IN STIMULANT ADDICTION

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Introduction: Illicit stimulant abuse and addiction remain significant problems. Of major health concern with stimulant use is the increased rate of sexual HIV-risk behavior in this group and a corresponding increased rate of HIV infection. The sexual delay discounting task is a measure of HIV risk that is analogous to a monetary delay discounting task, but assesses how the decision to engage in hypothetical risky sex

changes as a function of the delay to condom availability, thereby obtaining a safer-sex discount rate.

Methods: I will review recent studies of ours and others using the sexual delay discounting task in stimulant users. I will also present preliminary results from an ongoing neuroimaging study comparing neural correlates of sexual risk decision making in stimulant users.

Results: Our studies have shown that that cocaine-dependent participants discount safer sex at a much higher rate than controls. Across dependence groups, males also discount safer sex at a higher rate than do females, underscoring the importance of gender in understanding risky sexual behavior and condom use. Preliminary neuroimaging results reveal greater activation of areas of the left frontal and temporal cortex during sexual risk decisions when the hypothetical sexual partner is rated more sexually desirable.

Conclusions: Stimulant users and males are less likely than control participants and females to wait for safer sex, instead opting to have immediate, unprotected sex. Cortical areas in the brain commonly associated with delay discounting seem to be involved in these risky sex decisions.

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Cultural adaptation of mHealth initiatives in the Pacific Rim

S105

CULTURAL ADAPTATION OF mHEALTH INITIATIVES IN THE PACIFIC RIM

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As the global momentum to utilize mHealth contributions to address complex health accelerates, questions about adapting contents for diverse populations become salient. mHealth is now widely accepted as technically feasible (due to radical developments in infrastructure), increasingly affordable and largely acceptable within mainstream health institutions. These developments elevate the potential for designing bespoke mHealth initiatives targeted to diverse populations. This symposium draws together experiences of three text message initiatives designed to support behavior change across diverse ethnic groups or within distinct cultural settings. Presenters will examine the value of prioritizing cultural adaptation as a core component in the process of developing mHealth initiatives. Each presentation represents a different level of adaptation: a New Zealand maternal health programme translated into 16 cultural versions; a U.S. based, healthy diet text message programme linguistically adapted for a Hispanic population; and a mCessation initiative that was adapted linguistically and culturally to support smoking cessation in Samoa. Each presenter will explore the nexus between various theoretical arguments (behavior change) and the implicit challenges to adapting text-based initiatives for specific cultural groups alongside markers of success in the process of developing culturally adapted text message initiatives. mHealth initiatives that are adapted to reflect end users are more likely to achieve genuine institutional commitment, a characteristic identified as essential to sustainable initiatives. Specifically this means adapting mobile technologies within an environment characterized by mutual trust, perceived value of the tool and realistic expectations.

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S106

DEVELOPMENT AND IMPLEMENTATION OF A CULTURALLY TAILORED TEXT MESSAGE MATERNAL & CHILD HEALTH PROGRAMME

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Introduction: Targeting interventions to families is seen as vital in addressing increasing obesity rates internationally. Commencing in pregnancy, maternal and child nutrition and physical activity influence physiology in ways that contribute to disease risk and lay the path for lifelong health.

Methods: TextMATCH (Text messages for MATernal and Child Health) is a culturally tailored mHealth information and support programme developed with a consortium of organizations in Waitemata and Auckland districts, New Zealand. Following focus group work, messages consistent with national guidelines were culturally adapted with local community organizations for Maori, Pacific, Asian and South Asian populations. Cultural versions were also translated where appropriate. This resulted in 16 different versions available via a small number of upfront questions. TextMATCH is available to pregnant women or other family members, and can continue until the baby is 2 years of age. Semi-structured phone interviews with a subgroup of participants have been conducted to assess acceptability and usefulness of the intervention.

Results: In the first 18months, 1,404 people registered for TextMATCH and over 98,000 messages were sent by the system. A total of 224 (16%) withdrew over this period. Of those eligible (n=502), 71% chose to continue with baby messages postnatally. Interviews showed high acceptability across all cultural groups with participants reporting the programme to be useful and positive impacts of the messages.

Conclusions: The findings suggest that a culturally tailored text-message based intervention is both acceptable and perceived to be useful in providing education and support during the antenatal and early postnatal period.

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S107

CULTURAL AND LINGUISTIC ADAPTATION OF A HEALTHY DIET TEXT MESSAGE INTERVENTION FOR HISPANIC ADULTS

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Introduction: mHealth initiatives typically strive for broad reach, particularly within vulnerable minority populations. Such interventions are more successful when they are culturally relevant and in the dominant language of the users. This research aimed to develop a Spanish version of HealthyYouTXT, an mHealth program developed by the U.S. National Cancer Institute, and evaluate its acceptability with Hispanic residents.

Methods: We utilized a three-stage, mixed-methods process to adapt the text messages, evaluate their acceptability, and revise them based on the findings. In Stage 1, we conducted initial translations using an iterative, theory-guided process. In Stage 2, we used focus groups and surveys with 109 Hispanic adults to evaluate the linguistic and cultural appropriateness of the program and its acceptability. Further, we tested whether Self-Determination Theory (SDT) factors of autonomous motivation, controlled motivation, and amotivation (used

to develop HealthyYouTXT) and cultural beliefs about familism, fatalism, and destiny predict program interest and its perceived efficacy.

Results: Qualitative and quantitative analyses revealed substantial interest in HealthyYouTXT; most participants expressed interest in using it and perceived it as efficacious. Regression analyses revealed that both cultural beliefs (i.e., beliefs in destiny and familism) and SDT motivations (i.e., autonomy) predicted HealthyYouTXT evaluations, suggesting utility in emphasizing them in messages. Higher destiny beliefs predicted lower interest and perceived efficacy, suggesting they could impede program use. In Stage 3, we implemented the findings to generate a revised HealthyYouTXT en Español.

Conclusions: The emergent linguistic principles and multi-stage, mixed-methods process can be applied beneficially in health communication adaptations.

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S108

TXTTAOFITAPAA (TEXT STOP SMOKE): A TEXT-BASED SMOKING CESSATION PROGRAMME ADAPTATION FOR SAMOA

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Introduction: Despite being a signatory to the WHO FCTC, Samoa faces a persistent high prevalence of adult tobacco use and few existing cessation support services. Mobile phones are ubiquitous, generally affordable and mobile literacy is relatively high. A text message smoking cessation programme (mCessation) designed in New Zealand was adapted for use in Samoa to assist national objectives to reduce tobacco use.

Methods: Focus groups with smokers and ex-smokers explored the context for tobacco use and preferences for text based messages. Post-intervention focus group were conducted one week after participants received text messages. Face to face meetings with the primary partner (Ministry of Health Samoa) and key stakeholders were conducted throughout the text message adaptation phase.

Results: The text messages evolved significantly following an iterative process of consultation, in situ testing, revision and retesting to arrive to an acceptable country-specific version of the mCessation programme. The text messages retained in the final set remain consistent with the theory of behavior change but reflect both linguistic and cultural nuances appropriate for Samoa. Adapting messages requires simultaneous multi-level processes including complex high-level engagement between the team and stakeholders alongside crafting precise content for (character limited) messages.

Conclusions: Receiving cessation support messages via a mobile phone shows promise, particular in the absence of allied support. Participatory feedback and collaboration from stakeholders is an integral part for the cultural adaptation and translation of the programme. Adapting a text based programme in Samoa requires fastidious attention to nuances of culture, language and socio-political structures in-country.

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Cardiovascular regulation and its outcomes

S109

CARDIOVASCULAR REGULATION AND ITS OUTCOMES

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Different types of cardiovascular regulation in the prediction of markers of cardiovascular disease or the variation of them in the understanding of critical influencing factors is the topic of this symposium. These presentations offer new insights in long-term problems of how to analyze and predict some cardiovascular risks. Matthew Zawadzki will present results from two studies measuring ambulatory blood pressure, examining both psychosocial predictors of the variability in blood pressure over the measurement period, and whether ambulatory blood pressure variability independently predicts a marker of cardiovascular disease. Lauri Parkkinen will present the results of the analysis of daily variability of blood pressure. The study utilizes the so-called bivariate trajectory analysis method for joint modelling of the heterogeneity of systolic and diastolic blood pressure. The five identified groups provide information on main types of daily variation in the research data of 95 individuals. Martti Tuomisto uses traditional risk factors, pulse pressure, and heart rate/ pulse pressure product reactivity to behavioral tasks in his presentation to predict atherosclerosis measured by pulse wave velocity. His results show that pulse pressure and heart rate/ pulse pressure product may influence the development of atherosclerosis in addition to traditional risk factors, but insulin levels seem to be a critical factor to take into account in longitudinal studies.

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S110

THE IMPORTANCE OF AMBULATORY BLOOD PRESSURE VARIABILITY: EXAMINING ITS PSYCHOSOCIAL PREDICTORS AND RELATIONSHIP WITH A MARKER OF CARDIOVASCULAR DISEASE

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Introduction: Ambulatory blood pressure [ABP] has long been recognized as superior predictor of cardiovascular disease than other forms of BP measurement. Typically, all ABP readings are used to calculate an ABP mean. Emerging work has suggested that how one's ABP varies over the measurement period may be independently associated with poor health. Yet, more work is needed to understand the importance of ABP variability as a predictor of poor cardiovascular health; and little work has tested what predicts ABP variability. The purpose of this talk is to examine whether psychosocial factors predict ABP variability, and whether ABP variability shows independent associations with left ventricular mass [LVM] – a marker of cardiovascular disease.

Methods: Across two studies, a healthy community sample (Study 1, $n = 279$) and hypertensives (Study 2, $n = 294$) completed measures of psychosocial variables, including depression, rumination, social support,

personality, and trait anger. ABP readings were taken over 36 hours on two (Study 1) or three (Study 2) occasions. Finally, in Study 2, an echocardiogram was performed to measure LVM.

Results: Bivariate correlations indicated significant positive relationships across both studies between depression and rumination with ABP variability, and significant negative relationships with social support and conscientiousness. In addition, multivariate regressions revealed independent associations between ABP variability and LVM, controlling for demographics and ABP mean.

Conclusions: Results suggest the importance of ABP variability as a predictor of potential cardiovascular disease. Moreover, analyses indicate that individuals with certain psychosocial profiles may be at risk for high levels of ABP variability.

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MODELING OF 24-HOUR BLOOD PRESSURE VARIABILITY USING TWO RESPONSE TRAJECTORY ANALYSIS

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Introduction: Trajectory analysis may be used to model the 24-hour variability of blood pressure. Our aim was to study if healthy people with different blood pressure levels include groups with different types of variability in blood pressure.

Results: The daily measurements of systolic and diastolic blood pressure were analyzed using trajectory analysis (TA), which can be used to model the unobserved heterogeneity in longitudinal data. The TA by Nagin (1999, 2005) and Jones et al. (2001) applies the generalized linear models theory (exponential family of distributions) with finite mixtures under the assumption that observations within a given trajectory are independent. Our analysis uses the multivariate version of this basic TA, where the two outcomes (systolic and diastolic blood pressure) are related, but distinct variables (see e.g. Nagin 2005 and Jones et al. 2007). The computations were carried out by R package Flexmix (Leisch, 2004).

Results: Five trajectory groups were identified. The daily rhythm in most of the groups followed fairly similar pattern, but the level and the variability varied depending on the trajectory group. The measured values of blood pressure depend on time such that the highest values were monitored during midday.

Conclusions: These results show that trajectory analysis is suitable for the modeling of blood pressure variation during 24 hours and that it is possible to find subgroups of people with different types of blood pressure variability. These results may be useful in the prediction of different outcomes of blood pressure variability.

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THE PREDICTION OF ARTERIAL STIFFNESS USING BEHAVIORAL STRESS TASKS: 10 YEARS OF FOLLOW-UP

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Introduction: Arterial atherosclerotic stiffness can be estimated with the measurement of pulse wave velocity (PWV). Cardiovascular reactivity has been indicated as a risk factor for arterial stiffness.

Methods: A group of middle-aged healthy men (N = 95) on different levels of blood pressure (BP) were subjected to different behavioral tasks. BP reactivity was studied and used in the prediction of future PWV measured using whole-body impedance cardiography in a 10-year follow-up (N = 82). After excluding participants with antihypertensive medication, hierarchical regression analyses were performed to test if pulse pressure or heart rate [HR]/PP product during the tasks entered cumulatively in separate models on respective baseline variables would add to the prediction of PWV.

Results: The addition of PP and HR/PP reactivity measures to respective baseline measures, and age and smoking improved the predictive models by 2 to 7%. Additional risk factors Body Mass Index, physical activity, cholesterol, use of alcohol, or creatinine did not improve the models. However, a sub-group with data on insulin levels (N = 38) obtained different results in which reactivity was the only non-significant predictor. Conclusions: Cardiovascular reactivity may influence the development of atherosclerosis as indicated using PWV as an outcome measure, but insulin levels are a critical factor to be taken into account in these longitudinal studies. The interaction of cardiovascular and other variables on one side and insulin on the other side in the development of atherosclerosis will be discussed.

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Mechanisms and clinical applications of the placebo and nocebo response

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MECHANISMS AND CLINICAL APPLICATIONS OF THE PLACEBO AND NOCEBO RESPONSE

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While placebo and nocebo effects have been recognized as clinical phenomena for decades, a thorough investigation of their underlying mechanisms and potential clinical applications has started just recently. The placebo response is mainly mediated by two frequently overlapping psychological mechanisms, expectation and conditioning. The aim of this symposium is to present results of four randomized controlled trials (RCTs) designed to experimentally manipulate either expectations or former experiences in terms of associative learning to determine their influence on the placebo or nocebo response. The first study manipulated the expectation about the price of a placebo bronchodilator spray and assessed side effects. Results indicate that a higher price increased the perception of side effects (nocebo effect). The second study investigated whether framing information about a side effect could positively change perceptions of all side effects associated with beta-blocker medication. Findings indicate that positive framing leads to less threatening perception and a more beneficial attribution of symptoms. The third study investigated whether an amitriptyline induced REM-sleep suppression could be learned in a behavioral conditioning paradigm and evoked by a re-exposure to the CS together with a placebo pill. Results indicate that more complex influences like conditioning of the drug-antagonistic response or rebound could be involved. The final study evaluated a preoperative psychological intervention targeting coronary artery bypass graft (CABG) surgery patients' expectations. Findings indicate that preoperative psychological interventions improve short-

and long-term outcomes of CABG patients. Implications of these RCTs will be discussed.

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DO EXPENSIVE DRUGS HAVE MORE SIDE EFFECTS?

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Introduction: There is evidence that perception of price can influence the placebo effect of medication, with cheaper drugs having a reduced placebo response. The price of a drug can influence how powerful the effect of the drug is perceived but whether price also creates more side effects has yet to be investigated.

Methods: We randomized 80 participants to receive either a cheap or expensive bronchodilator spray designed to improve lung function (actually placebos). In each cheap and expensive group, participants also were further randomized to receive an inert or active placebo. The effectiveness of the drug was measured by spirometry and side effects were assessed immediately after the trial and at a 24 hour follow-up.

Results: Analyses revealed a higher nocebo response in participants in the expensive condition compared to participants receiving the cheaper nasal spray ($p = .05$). A larger placebo effect was evident in the active placebo group in both forced vital capacity ($p = .02$) and forced expiratory volume ($p = .04$), as well as a larger nocebo effect post medication and at the 24 hour follow-up.

Conclusions: These findings indicate that the price of medication can influence the nocebo effect, likely by changing individuals' expectations about the potency of the treatment. Active placebos which cause minor unrelated symptoms also can significantly increase placebo and nocebo responding.

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DIZZY BUT POSITIVE – A RANDOMIZED CONTROLLED TRIAL ON SIDE EFFECT EXPECTANCY

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Introduction: Expectations influence the effectiveness of clinical treatment. Negative expectations may even produce side effects that occur due to an inert substance or treatment. This “nocebo effect” is associated with content of information and the context it is delivered in. The informed consent process in clinical trials has been found to induce nocebo effects. We investigated whether framing information about a side effect (dizziness) could positively change perceptions of all side effects associated with beta-blocker medication.

Methods: Our sample consisted of 80 healthy participants who were randomly assigned into two groups that both received a beta-blocker. In the positive framing group, participants were informed that dizziness is an indication that the drug is taking effect. The neutral framing group received usual information about dizziness as a side effect. Before and after medication intake participants had to complete an exercise test and then rate their symptoms in intensity and perceived threat.

Results: Participants that received positive framing rated their symptoms as less threatening compared to the neutral framing group. They were also

more likely to attribute their symptoms to a drug effect than an adverse side effect. The groups did not vary in intensity of symptoms.

Conclusions: Participants must be told about side effects to ensure a process of informed consent. However, nocebo research suggests that information about side effects may lower positive expectations of treatment. Our results show that the way in which information is presented can reduce perceptions of threat related to side-effects.

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CONDITIONING OF AMITRIPTYLINE-INDUCED REM-SLEEP SUPPRESSION

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Introduction: Clinical trials in sleep disorders report substantial improvement in symptoms in their placebo groups. Conditioning processes contribute to the placebo response in addition to patients' expectations and doctor-patient communication. However, we do not know whether and if so, the extent to which sleep architecture is influenced by behavioral conditioning, similarly to other physiological responses, i.e., those in the immune system.

Methods: We applied a conditioning paradigm to 39 healthy adults pairing a novel-tasting drink (CS) with the REM-sleep suppressing tricyclic antidepressant amitriptyline (US) during the acquisition phase. Participants in the control group received placebo pills instead. We hypothesized that, after having undergone the acquisition phase and a three to four day washout phase with no pill intake, re-exposure to the CS together with a placebo pill in the evocation night would lead to less REM-sleep in the amitriptyline group. Sleep was measured via ambulatory polysomnographic recordings. To test for differences in the proportion of REM-sleep between groups, we conducted an analysis of variance (ANOVA) for repeated measures.

Results: Instead of the expected REM-sleep suppression, sole presentation of the CS (together with a placebo pill) in an evocation night led to significantly more REM-sleep in the amitriptyline group ($p = .033$).

Conclusions: In our first proof of principle study, we were unable to demonstrate that REM-sleep suppression triggered by amitriptyline is simply accessible to conditioning. More complex influences like conditioning of the drug-antagonistic response or rebound could be involved.

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THE PSY-HEART TRIAL: PREOPERATIVE OPTIMIZATION OF PATIENTS' EXPECTATIONS IMPROVES SHORT- AND LONG-TERM-OUTCOME IN HEART SURGERY PATIENTS

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Introduction: Outcomes of coronary artery bypass graft (CABG) surgery are associated with patients' expectations. Preoperative psychological interventions targeting patients' expectations may lead to better short- and long-term outcomes after surgery.

Methods: A randomized controlled trial with assessments at 10 days before surgery, post psychological intervention (day of hospital admission, but before surgery), post-surgery (6-8 days later) and six months after surgery. Eligible patients (N=124) scheduled for elective on pump CABG or CABG with valve replacement surgery were approached before hospital admission. Standard medical care (SMC) was compared to two additional preoperative psychological interventions: Either the expectation manipulation intervention (EXPECT) to optimize patients' expectations about course and outcomes, or the same amount of therapeutic attention with a focus on a good therapeutic relationship and emotional expression, but without specifically working on expectations (supportive therapy, or SUPPORT). Primary outcome was patients' disability 6 months after surgery. Secondary outcomes were quality of life, expectations, biological markers and others.

Results: Linear mixed models indicated significantly lower adrenaline levels for both preoperative psychological interventions compared to SMC after surgery. Patients in the EXPECT group showed significantly larger improvements in disability compared to the SMC group six months after surgery. Both psychological intervention groups had significantly improved physical quality of life and physical activity levels compared to SMC at follow-up.

Conclusions: These findings indicate that preoperative psychological interventions improve short- and long-term outcomes of CABG patients. The exact mechanism needs further investigation and expectation-focused interventions should also be evaluated in other types of surgery.

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Supporting the implementation of state nutrition guidelines and policies in schools and childcare: Application of the theoretical domains framework

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SUPPORTING THE IMPLEMENTATION OF STATE NUTRITION GUIDELINES AND POLICIES IN SCHOOLS AND CHILDCARE: APPLICATION OF THE THEORETICAL DOMAINS FRAMEWORK

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The implementation of evidence-based policies and guidelines into the routine practice of community settings accessed by children represents a significant opportunity to improve dietary behaviors. Despite this, many childcare services and schools fail to implement existing policies and guidelines, even when they are mandatory. For example, a national study with 263 Australian primary and high schools found that between 5 -35% implemented mandatory healthy canteen policies with marginal improvements occurring over the period the policy has been in place. Similarly, less than 5% of Australian childcare services currently implement State-based healthy menu guidelines despite the 20 year existence of such recommendations and a context of supportive regulations and

accreditation standards. As such, interventions that improve implementation of such policies, even if modestly effective, can have a large impact on supporting health behaviors in the community. Despite this, there is a lack of evidence to inform the implementation of policies and guidelines in such key public health settings. This is hampered by a limited understanding of the barriers and enablers to guideline implementation. The application of theory in the design and evaluation of strategies can provide a basis for identifying implementation barriers and identifying effective behavioral strategies to address these. This symposium will focus on articulating the barriers and enablers to school and childcare nutrition guideline and policy implementation and describe the application of the Theoretical Domains Framework (TDF) in the development of implementation interventions.

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IMPLEMENTING STATE NUTRITION GUIDELINES AND POLICIES IN SCHOOLS AND CENTRE BASED CHILDCARE: BARRIERS AND ENABLERS

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Introduction: Interventions to improve schools' and childcare center's compliance to nutrition guidelines should target barriers to policy and guidelines. Little is known about factors that may impede or promote guideline implementation in these settings. The study aims to apply the Theoretical Domains Framework (TDF) to: i) identify school canteen managers' and childcare staff reported barriers to guideline implementation and ii) examine barriers associated with guideline implementation.

Methods: A computer assisted telephone interview was undertaken with a randomly selected sample of school and childcare centers in one state in Australia. School canteen managers and childcare center staff responsible for menu planning completed a survey assessing the TDF constructs. A subsample of schools and childcare services provided a copy of their menus to allow for assessment of compliance to state policy and nutrition guidelines.

Results: Preliminary results from 202 childcare participants indicate that staff scored the lowest on the following domains: 'reinforcement with implementing the guidelines', 'setting goals (action planning and prioritizing guideline implementation)', 'social influences (getting social recognition and support for implementing the guidelines)' and 'behavioral regulation (being able to regulate/keep track of progress in implementing the guidelines)'. The domains 'knowledge' and 'skills' were significantly associated with higher implementation of the guidelines. Data from 200 school canteen manager surveys will also be presented.

Conclusions: This study highlights that a discrepancy between 'reported' and 'actual barrier to childcare staff implementation of nutrition guidelines may exist. The TDF allows for comprehensive assessment across a range of constructs to inform the design of future interventions.

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APPLICATION OF THEORETICAL DOMAINS FRAMEWORK TO INFORM AN INTERVENTION TO IMPROVE IMPLEMENTATION OF FOOD SERVICE NUTRITION GUIDELINES BY CENTRE BASED CHILDCARE SERVICES

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Introduction: Despite state based childcare nutrition guidelines being in existence for over 20 years and almost universally recognized, research suggests that the foods and beverages provided to children do not meet recommendations. There is limited research into how to best support childcare service cooks to provide food consistent with nutrition guidelines. This presentation aims to describe the application of the theoretical domains framework (TDF) to inform the development of a multi-component intervention targeting the implementation of nutrition guidelines in childcare services.

Methods: The TDF is integrative theoretical framework developed for behavioral research and incorporates multiple theories of behavior change. Semi-structured interviews with service cooks were conducted using a validated survey instrument to identify the domains of behavior change identified as barriers to the implementation of nutrition guidelines. The matrix was then used to map these to behavior change techniques. A literature review and consultation with an expert health promotion team were undertaken to assess the feasibility, relevance and acceptability of the mapped behavior change techniques.

Results: Based on the TDF, the findings of the team's previous research conducted in this setting and empirically supported strategies to improve compliance with guidelines by health service organizations and staff, a multi-component intervention was designed. Intervention strategies include the provision of staff training, resources, audit and feedback, ongoing support and securing executive support.

Conclusions: Applying the TDF allowed for consideration of a broad range of determinants of implementation. TDF is feasible to be applied in the design and development of childcare based implementation trials.

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THEORY-INFORMED INTERVENTIONS TO INCREASE IMPLEMENTATION OF A MANDATORY HEALTHY FOOD POLICY IN SCHOOLS. APPLICATION OF THE THEORETICAL DOMAINS FRAMEWORK.

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Introduction: There is little evidence to inform government agencies about how best to design interventions that increase the implementation of health policies in schools. This presentation will overview the development of a multi-component intervention and use of the Theoretical Domains Framework (TDF) to increase schools' implementation of a mandatory healthy canteen policy.

Methods: A four-step approach was used to design the multi-component intervention which included; i) literature reviews; ii) interviews with

canteen managers and principals and iii) observations of school canteens. Following these data collection procedures, an advisory group mapped the identified barriers and enablers against TDF constructs, and implementation strategies to address these were purposefully selected using the matrix and strategy selection process described by Michie et al. To be included implementation strategies were also required to be judged as feasible, and acceptable to school communities.

Results: A multi-strategy implementation intervention was designed that included such strategies as; executive support, training, resources, audit and feedback, communication strategies and ongoing support. Implemented over a 12-month period as part of a randomized controlled trial the intervention resulted in significant absolute improvements in policy compliance of greater than 60%; larger than previous interventions which have sought to enhance implementation of nutrition policies in schools.

Conclusions: A theoretically designed multi-strategy intervention can achieve significant improvements in policy implementation. The method of development provides a systematic framework that could be used by others in the development of similar school implementation trials.

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The effects of stress and stress reduction interventions on wound healing: From bench to bedside

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THE EFFECTS OF STRESS AND STRESS REDUCTION INTERVENTIONS ON WOUND HEALING: FROM BENCH TO BEDSIDE
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Psychological stress has been shown to impair the healing of wounds, mostly in laboratory settings. In order to translate these findings to patient populations, it is important for more research to investigate whether psychological stress has similar effects on healing in clinical populations. There is also a need for studies to investigate whether interventions to reduce stress can improve wound healing to inform treatment recommendations. In this symposium, the first presentation by Professor John Weinman will compare the effects of perceived stress on wound healing in two different clinical populations: surgical patients and patients with venous leg ulcers. This will set the scene for three following interventional papers. In the second presentation, Hayley Robinson will present the effects of a written emotional disclosure intervention on the healing of punch biopsy wounds when the timing of the intervention is experimentally manipulated (before or after wounding), and implications for clinical implementation will be discussed. Dr Heidi Koschwanz will then present the effects of a similar written emotional disclosure intervention on the healing of surgical wounds in bariatric surgery patients. The fourth presentation by Associate Prof Elizabeth Broadbent will present the results of a social support intervention on the recovery of skin barrier function after skin damage, and will integrate the findings with a review of interventional studies on wound healing. Together the papers in this symposium illustrate the importance of considering clinical context, timing, and wound type in the effects of stress and stress-reduction interventions on wound healing in clinical settings.

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STRESS AND WOUND HEALING IN THE CLINICAL SETTING: DIFFERENTIAL EFFECTS FOR ACUTE AND CHRONIC WOUNDS
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Introduction: Many laboratory-based studies have demonstrated significant effects of stress on speed of wound healing. There is much less evidence of such effects in clinical settings where wound healing is a key issue. Findings will be presented from two recent studies examining psychosocial factors influencing the healing of (1) acute post-operative wounds, and (2) chronic venous leg ulcer wounds.

Methods: Study 1: a prospective study of post-operative wound healing measured by high-resolution ultrasound in 52 living kidney donors who completed pre-operative measures of stress (PSS) and dispositional factors (LOT; Big5). Study 2: a 6-month prospective study of speed of healing of venous leg ulcers in 63 patients, who completed baseline measures of stress (PSS), mood (HADS) and illness perception (R-IPQ).

Results: Study 1: Higher pre-operative life stress, lower optimism and conscientiousness were significantly associated with delayed wound healing after controlling for clinical, demographic and health behavior variables. Study 2: after controlling for clinical and demographic variables, slower wound healing was predicted by higher stress, depression, negative illness perception, lower educational level and worse adherence to compression bandaging

Conclusions: Although higher life stress (PSS) was associated with slower wound healing in both studies, the pattern of results and explained variance was quite different. Whereas the magnitude of the stress/wound healing effect in acute operative wounds was similar to that found in laboratory/experimental studies, this was less marked in the healing of chronic venous leg ulcers. The clinical and theoretical implications of these findings will be discussed.

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DOES EXPRESSIVE WRITING PERFORMED BEFORE OR AFTER WOUNDING HAVE A BENEFICIAL IMPACT ON HEALING?

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Introduction: Research indicates that an expressive writing intervention conducted two weeks prior to punch biopsy wounding can speed healing. However, it may be impractical to perform writing two weeks before wounding in a clinical context. This study investigated whether expressive writing performed after wounding could improve healing.

Methods: One hundred and twenty-one healthy people participated in this study. They were randomized to perform expressive writing or time management writing (control) either before or after receiving a biopsy wound. Wounds were photographed on day 10 and day 14 to measure epithelialization. **Results:** Participants who completed expressive writing either before or after the biopsy showed changes in emotions consistent with previous research indicating the writing is initially distressing. Participants who performed expressive writing before the biopsy had a higher proportion of fully re-epithelialized wounds on day 10 compared to the other three groups. In the expressive writing before group, greater use of cognitive

words was associated with better healing. Those who performed writing after the biopsy had similar rates of healing to the control groups.

Conclusions: Expressive writing only improved healing if performed two weeks before wounding. This may allow time for the initial distress of writing to reduce and for subsequent cognitive changes to occur. The emotional distress caused by expressive writing may interfere with initial wound healing processes if performed concurrently. This suggests that expressive writing may not be beneficial in the days immediately after wounding in a clinical context, but further research is required.

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A RANDOMIZED CONTROLLED TRIAL INVESTIGATING THE EFFECTS OF AN EXPRESSIVE WRITING INTERVENTION ON SURGICAL WOUND HEALING IN BARIATRIC PATIENTS

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Introduction: Expressive writing prior to wounding has been shown to reduce stress and improve healing in laboratory settings. This is the first study to investigate whether a pre-surgical expressive writing intervention could improve post-operative wound healing.

Method: A randomized controlled trial was conducted with 76 patients undergoing elective laparoscopic bariatric surgery. Patients either wrote emotionally about traumatic life events (expressive writing) or objectively about how they spent their time, including plans for the upcoming week (time management). Writing was performed over three days commencing two weeks prior to surgery. On the day of surgery, patients had one wound drain and two ePTFE tubes inserted into laparoscopic sites to assess pro-inflammatory cytokine concentration over a 24 hour post-surgery period and hydroxyproline deposition at the wound site over 14 days post-surgery.

Results: Fifty-four patients completed the study. Contrary to hypotheses, patients who wrote about time management had significantly higher TNF- α and more hydroxyproline at their wound sites than did expressive writing patients. Many patients in the expressive writing group wrote about pre-surgical anxiety in addition to past events and those in the time management group wrote about their preparatory plans for surgery.

Conclusions: Expressive writing prior to surgery did not improve wound healing in this population. Contrary to previous research with healthy populations, this population was facing impending surgery, and expressive writing is unlikely to have reduced stress about surgery compared to pre-surgical planning. Future research could investigate whether a specifically designed pre-surgical preparation intervention can reduce surgical stress and improve healing.

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THE EFFECTS OF SOCIAL SUPPORT ON SKIN BARRIER RECOVERY

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Introduction: Research suggests that hospital room-mates can provide social support and facilitate recovery from surgery. However, few studies have investigated the effects of social support on the healing of wounds. This study aimed to investigate whether participants undergoing a skin tape-stripping procedure together with another participant had faster skin barrier recovery than participants undergoing the procedure alone.

Methods: Seventy-two healthy adults were randomized to undergo a skin tape-stripping procedure to the upper arm either alone (control group) or together with another (unknown) participant (social support group). Pairs randomized to the social support condition first underwent a 15 minute relationship-induction conversation task before the tape-stripping procedure to simulate what might occur in a ward room. Skin barrier function was measured using trans-epidermal water loss at baseline, immediately after tape stripping and 30 minutes later.

Results: Participants in the social support group had significantly faster skin barrier recovery than those in the control group. They also reported significantly greater reductions in current stress over time than the control group. Within the social support group, participants who liked their partner more had significantly greater skin barrier recovery than those who liked their partner less.

Conclusions: Undergoing a tape stripping procedure together with a stranger with whom you have completed a brief relationship task can improve skin barrier recovery compared to undergoing tape stripping alone. This may operate via stress reduction. This finding adds to evidence from three previous studies on social support and healing and has relevance for patients undergoing medical procedures.

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Effort reward imbalance as a mediator for worker health: A theoretical and empirical extension

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EFFORT REWARD IMBALANCE AS A MEDIATOR FOR WORKER HEALTH: A THEORETICAL AND EMPIRICAL EXTENSION

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This is a collaborative symposium between the International Commission of Occupational Health Scientific Committee of Work Organization and Psychosocial Factors (ICOH-WOPS), International Society of Behavioral Medicine (ISBM), and the Asia Pacific Academy for Psychosocial Factors at Work, which aims to explore the role of effort/reward imbalance (ERI) (and its components, reward at work) on the effect of different organizational characteristics and behaviors on mental health and well-being of workers, toward the theoretical and empirical extension of the Effort/Reward Imbalance Model with a multilevel perspective. Speakers are selected from two countries with distinct cultures, Australia and Japan, and those who are actively involved in these Societies. Dr. A. Inoue will present a literature review on the role of ERI or reward at work for mediating the association between organizational justice and worker health and wellbeing. Drs. M.S. Owen and H. Becher, in their

presentations, will focus on the mediating role of ERI for the link between Psychosocial Safety Climate and worker health in a sample of workers in Australia, with using different health outcomes, psychological distress and cardiovascular risk factors. Dr. K. Tsuno will present the ERI as mechanisms of connecting workplace bullying and worker health in Japan. These presentations will give the audiences new insights into ERI as a mediator or mechanism for a multilevel association between organizational characteristics and worker health. The symposium could lead to a broader theoretical understanding of psychosocial factors at work and new perspectives for intervention practice.

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MEDIATING ROLE OF EFFORT/REWARD IMBALANCE ON THE ASSOCIATION OF ORGANIZATIONAL JUSTICE WITH PSYCHOLOGICAL DISTRESS: THEORETICAL AND EMPIRICAL CONSIDERATIONS

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Introduction: Organizational justice is a concept of organizational characteristics closely linked to effort/reward imbalance (ERI) concept. In this presentation, the theoretical relationship between the two concepts is reviewed and empirical findings on the mediating role of ERI on the association of organizational justice with psychological distress are introduced.

Methods: (1) Theoretical consideration: A literature review was conducted on theoretical considerations of the two concepts. (2) Empirical findings: A total of 243 employees from a manufacturing factory in Japan were surveyed using a self-administered questionnaire including the scales on organizational justice, ERI, and psychological distress. Multiple mediation analyses with a bootstrap method were conducted.

Results: (1) Organizational justice consists of three dimensions: distributive justice (DJ), procedural justice (PJ), and interactional justice (IJ), and PJ and IJ could affect employee health through DJ (Moorman, 1991), which is considered to be overlaps with ERI (Kawachi, 2006). (2) Empirical findings: After adjusting for demographic characteristics, the bivariate analyses showed that PJ and IJ were significantly negatively associated with psychological distress (total effect [95% confidence interval: CI] = -0.22 [-0.34, -0.09] and -0.15 [-0.28, -0.02], respectively). In the mediation analyses, ERI significantly mediated the associations of PJ and IJ with psychological distress (indirect effect [95% CI] = -0.10 [-0.18, -0.03] and -0.12 [-0.21, -0.04], respectively).

Conclusions: While ERI is considered as a part of organizational justice concept, there is a hierarchy among the two concepts. The effects of PJ and IJ on psychological distress seem to be mediated by ERI, supporting this idea.

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PSYCHOSOCIAL SAFETY CLIMATE AS A MULTILEVEL EXTENSION OF ERI THEORY: EVIDENCE FROM AUSTRALIA

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Introduction: Workplace stress is a prevalent issue in Australia, and worldwide. Several models and theories provide an understanding of how workplace stress develops and the resulting consequences on workers' health and organizational participation. For example, the Effort-Reward Imbalance (ERI) model explores the imbalance between workers' efforts and rewards, and Psychosocial Safety Climate (PSC) theory explores the priority management gives to workers' psychological health and safety vs. productivity imperatives. To provide a more comprehensive understanding of workplace stress we propose a multi-level extension of the ERI model incorporating PSC theory.

Methods: This study utilized data from the national surveillance tool, the Australian Workplace Barometer (AWB), which included participants from various industries and occupations. We had 850 individuals nested within 119 organizations. To test our hypotheses, we used HLM and a Monte Carlo test for our mediation pathways from PSC to the various health and organizational outcomes via ERI (using three different interaction formulations, for ratio, multiplicative, and relative excess).

Results: We found that high organizational and individual PSC, reduced levels of ERI. We found that at the individual level, PSC triggers the ERI model influencing workers' psychological and physical health, and organizational outcomes, engagement and satisfaction. At the organizational level, high PSC indirectly improved workers' job satisfaction, via ERI.

Conclusions: Our research demonstrates that the PSC extended ERI model can be used in organizational research using population approaches to understand health and organizational outcomes, and that a multi-level approach is required to understand the complex issue of workplace stress.

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PREDICTING CARDIOVASCULAR DISEASE RISK FROM PSYCHOSOCIAL SAFETY CLIMATE IN AN EXTENDED EFFORT-REWARD IMBALANCE MODEL

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Introduction: Cardiovascular Disease (CVD) is the greatest health risk in developed regions such as Europe and the United States. Cardiovascular Disease has been linked to excessive ratios of demand to control, and effort to reward, within the job-demand-control and effort-reward imbalance (ERI) models respectively. We expand CVD research by using a longitudinal sample to demonstrate the predictive power of Psychosocial Safety Climate (PSC) on CVD via an extended ERI model. Given PSC's role as an upstream determinant of psychosocial risk factors, we hypothesize that low PSC will increase the risk of CVD onset via insufficient job rewards and excessive job demands.

Methods: We used three waves of interview data; the first lag one year, the second four years. We excluded those with heart conditions at Time 1, split participants by PSC benchmarks, and compared rates of CVD after four years (final $n = 919$). Logistic regression was conducted to estimate the longitudinal associations among PSC at Time 1, ERI ratio at Time 2, and CVD risk at Time 3.

Results: CVD incident rates by PSC benchmarks were: low PSC, 12.4%; medium PSC, 11.2%; and high PSC, 8.9%. Logistic regression showed low PSC is significantly associated with higher CVD risk. Inserting ERI into the model significantly improves the prediction of CVD, and reduces PSC significance, suggesting a mediational process model (PSC→ERI→CVD).

Conclusions: Evidence for the role of PSC and ERI in the etiology of cardiovascular disease in workers was found. This indicates that workplaces can be designed to reduce CVD risk.

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EFFORT-REWARD IMBALANCE MODEL AS A MEDIATOR BETWEEN WORKPLACE BULLYING AND PSYCHOLOGICAL DISTRESS

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Introduction: Although many previous studies revealed that workplace bullying had associated with psychological distress, mechanisms or mediated factors were not fully investigated. The aim of the study was to identify the medication effect of effort-reward imbalance (ERI) on this association.

Methods: The study sample consisted of 802 males and 724 females of the local government employees in Japan. Effort-Reward Imbalance Questionnaire, Negative Acts Questionnaire, and K6 were used to measure ERI, workplace bullying, and psychological distress, respectively. Hierarchical multiple regression analyses with psychological distress were used to conducted by entering bullying as well as demographic and occupational covariates in step 1, and effort and reward or ERI ratio in step 2. Additionally, structural equation modelling (SEM) was used to examine an indirect effect of ERI.

Results: The results of hierarchical multiple regression analyses showed that bullying had a significant net effect on psychological distress ($\beta = .48$, $p < .01$). When additionally entering ERI variables, the effect of bullying was decreased ($\beta = .29$, $p < .01$); the effects of effort and reward, or ERI ratio were significant ($\beta = .26$, $-.35$; and $.43$, respectively). The results of SEM showed that an indirect effect of bullying ($\beta = .20$) through ERI was almost equivalent to the direct effect ($\beta = .29$).

Conclusions: A partial mediation effect of ERI was found between workplace bullying and psychological distress. This contributes to understanding of mechanisms of mental health consequences from bullying at work.

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INVITED SYMPOSIUM: Data driven responses to the management of population based behavior change: Lessons, pitfalls and possibilities from across the GDP wealth divide

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DATA DRIVEN RESPONSES TO THE MANAGEMENT OF POPULATION BASED BEHAVIOUR CHANGE: LESSONS, PITFALLS AND POSSIBILITIES FROM ACROSS THE GDP WEALTH DIVIDE

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Innovations in data collection and data management through low cost tablet technology, cloud computing, record linkage, and modern data analytics have the potential to transform the delivery of health services in countries across the GDP wealth divide. The technologies are now relatively cheap, can be increasingly easily implemented, and can be devolved down to local health authorities. They also have the potential to integrate routinely collected health data with research data, geographic information, and potentially even social media. This would allow local health authorities to become much more responsive to implementing community based behavior change interventions. The symposium will draw out the potential and the pitfalls, across different contexts, in moving along the path of becoming data driven in the implementation of behavior change. We provide case studies on the use of modern data collection, data management, and data analytic approaches and the potential for technology use in middle, and high income settings for behavior change interventions. Second, through the discussion, other examples will be drawn out and further issues identified. Finally, we expect that the session will provide opportunities for attendants to identify potential future collaborators in exploring and implementing these kinds or approaches.

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DATA SCIENCE IN THE IDENTIFICATION AND MANAGEMENT OF INTERVENTIONS FOR CHILD ABUSE

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Introduction: The presentation describes the use of data science to analyze all the open text fields from the youth health care department to construct a prediction model related to the possibility of child abuse.

Method: The open text fields carry a lot of information provided by the youth health care nurses and physicians that predict the chance of child abuse.

Results: This information is not being really assessed by the professionals.

Conclusion: This finding has informed an approach for implementation of a similar model in the youth health care registry. Professionals get an alert if the information within the record points to potential abuse for which both the intervention of professionals and family situations can be supported and monitored.

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THE VÄSTERBOTTEN INTERVENTION PROGRAM

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Introduction: The Västerbotten Intervention Program is a population-based strategy to reach all middle-aged persons individually at ages 40, 50 and 60 years, by inviting them to participate in systematic risk factor screening and individual counselling about healthy lifestyle habits.

Method: The program is integrated into ordinary primary care routines through electronic patient records. The data are also now linked to the Swedish National Register on SES, hospitalization, and deaths.

Results: Outcomes of behavior modification are evident through 10-year follow-up of the participants. We are using latent class transition analysis

(LTA), which yields valuable information to further target and refine interventions.

Conclusions: The intervention, analytics and challenges will be presented and discussed.

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DEVICE LINKED DATA AS A SHARED RESOURCE FOR BEHAVIOUR CHANGE

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The South East Asia Community Observatory is a demographic and health surveillance site in Malaysia that monitors health and wellbeing (with a focus on NCD risk factors) in a semi-rural population of 40,000 people. In house development of mobile applications and data linkage systems have the potential to support the seamless self-monitoring of health by the community and collection of health related data for monitoring and evidence for policy and further implementation. The presentation presents a number of case studies, for the purpose of highlighting the challenges for implementation in middle and lower income countries.

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Systematic approaches to designing effective behavior change interventions to impact health

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SYSTEMATIC APPROACHES TO DESIGNING EFFECTIVE BEHAVIOUR CHANGE INTERVENTIONS TO IMPACT HEALTH

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Effective interventions are needed to change a range of behaviors which impact on health outcomes. A number of frameworks and methodological tools have been produced within the last ten years to encourage more systematic approaches to intervention development. For example, the UK Medical Research Council's framework for the development and evaluation of complex interventions emphasizes the importance of building interventions using an evidence-based, theory-driven approach, and modelling and piloting intervention processes to ensure feasibility and suitability. Other frameworks, such as the Behavior Change Wheel, the Theoretical Domains Framework and Intervention Mapping are examples of tools which aim to promote systematic approaches. In this symposium, we aim to show-case four examples of approaches taken by different research teams to systematically developing behavioral interventions. In the first presentation, the Behavior Change Wheel is used to develop an intervention to improve implementation of sexual counselling guidelines in hospital-based cardiac rehabilitation. In the second, a multi-method approach, based on the Intervention Mapping Protocol, is used to design, implement and evaluate an executive function training intervention to

reduce unhealthy eating behavior. In the third, a systematic approach to test behavior change theory is used to develop a digital intervention for weight loss maintenance. In the fourth, an N-of-1 methodology is used, in combination with the theoretical domains framework and qualitative interviews, to develop an intervention for people with a rare skin disease, xeroderma pigmentosum. Following these, the discussant will summarize and compare approaches and will facilitate a discussion about key learning from these shared experiences.

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INCREASING SEXUAL COUNSELLING DELIVERY IN CARDIAC REHABILITATION: DEVELOPING THE CHARMS INTERVENTION USING THE BEHAVIOUR CHANGE WHEEL APPROACH

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Introduction: International guidelines recommend routine delivery of sexual counselling to cardiovascular patients, who commonly report sexual problems. However, research suggests this rarely happens in practice. The aim of this study was to develop the Cardiac Health and Relationship Management and Sexuality (CHARMS) multi-level intervention to improve implementation of sexual counselling guidelines in hospital-based cardiac rehabilitation.

Methods: We developed an intervention using the Behavior Change Wheel approach. Previous research exploring why sexual counselling is not currently being delivered by cardiac rehabilitation staff (n=61) were double coded to understand staff's capability, opportunity, and motivation to deliver sexual counselling. The most appropriate intervention functions to change behavior were selected using the APEASE (affordability, practicability, effectiveness, acceptability, side effects and equity) criteria. Behavior Change Techniques (BCTs) potentially relevant to the identified functions were selected and translated into intervention content. The Template for Intervention Description and Replication (TIDieR) checklist was used to specify details of the intervention.

Results: The provision of sexual counselling group sessions by cardiac rehabilitation staff to patients during phase III cardiac rehabilitation was identified as the target behavior. Education, enablement, modelling, persuasion and training were selected as appropriate intervention functions. Twelve BCTs, mapped to intervention functions, were identified for inclusion and translated into CHARMS intervention content.

Conclusions: The Behavior Change Wheel provided a systematic and transparent approach to intervention development, which facilitates the application of theory to intervention development, the evaluation of intervention effectiveness and future replication. Its use contributes to the advancement of a cumulative science of implementation intervention design.

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USING INTERVENTION MAPPING TO DESIGN, IMPLEMENT AND EVALUATE AN EXECUTIVE FUNCTION TRAINING INTERVENTION

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Introduction: Healthy eating behaviors, such as minimizing dietary fat intake, reduce the risk of numerous negative health consequences including obesity. Currently, very few interventions designed to reduce unhealthy eating are effective. Higher order cognitive process referred to as executive functions, have been proposed to influence the adoption and maintenance of healthy eating behaviors. A multi-method approach based on the Intervention Mapping Protocol was used to design, implement and evaluate an executive function training intervention to reduce unhealthy eating behavior.

Methods: Qualitative interviews were conducted to assess the needs of the target population and establish the factors involved in the maintenance of healthy eating behavior. Subsequently, a cross-sectional study was conducted to test whether the factors deemed important were associated with eating behavior. A meta-analysis of current executive function and eating behavior interventions was conducted to identify effective components of existing interventions. An intervention was then designed based on these results and implemented in an undergraduate sample (N = 82) and evaluated. Finally, the intervention was replicated in a community sample (N = 78) and the acceptability and feasibility of the intervention was assessed.

Results: The intervention led to a reduction in body mass index, which was mediated by changes in vulnerability to ego-depletion. These results were only partially replicated, and did not persist over time. Participants found the intervention to be highly acceptable.

Conclusions: These findings provide an example of an intervention designed and evaluated using intervention mapping and highlight the importance of careful theory-based intervention planning for health promotion.

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DESIGNING THEORY-BASED MHEALTH TOOLS FOR WEIGHT LOSS MAINTENANCE: THE NOHOW TOOLKIT

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Introduction: Few comprehensive solutions are available for weight loss maintenance (WLM). The NoHoW is an EU H2020-funded project that will test if theory- and evidence- based behavior change techniques delivered via a digital Toolkit (TK) are effective in helping people maintain previous weight loss.

Methods: The NoHow TK is based on (1) state-of-art theories, including techniques associated with self-regulation skills (Self-regulation Theory), building autonomous motivation (Self-Determination Theory), and emotional regulation; (2) web-design expertise; 3) user-testing; and 4) a

survey with representative sample of individuals and in-depth interviews about WLM patterns. Informed by the guidelines for developing complex behavior change interventions (e.g. MRC), we used a systematic approach to the translation of theory and evidence to ICT intervention components. This includes (1) developing theory-driven logic models, (2) identifying theoretical constructs targeted, (3) selecting techniques that impact on target constructs, and (4) translating these techniques into principles and specifications of a digitally-mediated intervention.

Results: We identified 8 themes (16 sessions) targeting core theoretical constructs for each intervention arm. Results from user testing are being considered to refine the TK principles and specifications. After a pilot study, a large-scale European 2 x 2 factorial trial (self-regulation/motivation versus emotion-regulation) will be conducted among previous or currently overweight/obese adults that lost $\geq 5\%$ of their initial body weight in the last year.

Conclusions: NoHoW provides an example of a systematic approach to test behavior change principles and theory translated into a digital intervention, aiming to contribute to the implementation of sustainable, Europe-wide solutions to WLM.

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USING N-OF-1 METHODOLOGY TO INFORM THE DEVELOPMENT OF INDIVIDUALISED, EVIDENCE-BASED INTERVENTIONS FOR PATIENTS WITH XERODERMA PIGMENTOSUM

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Introduction: XP is a very rare inherited disease affecting 1 in 250,000 people (~90 UK patients). It involves extreme sensitivity to UV light; the only treatment is complete avoidance of UV – not going outside during daylight, fitting UV screens to windows, or ensuring complete skin coverage. Most patients die by age 35, usually from skin cancers. No research on the psychological consequences of XP or factors relating to UV protection currently exists.

Methods: In phase one, an N-of-1 study was conducted in 25 adult XP patients, as part of a mixed methods approach to intervention development. Participants wore a UV wristwatch and completed a brief survey, including adherence behaviors and psychological predictors (e.g., emotions, self-regulation), for 50 consecutive days. Constructs were selected from the theory domains framework and a review of behavioral maintenance theories.

Results: N-of-1 analysis revealed differences in the patterns of predictors of adherence across participants, supporting the need for an individualized approach. Following MRC guidelines, phase two involves the development of a series of individualized interventions to improve adherence, informed directly by the specific predictors identified for each participant in phase one (e.g., including BCTs to target motivation, planning, or emotions). After PPI feedback and piloting, the interventions will be tested in a waitlist-controlled RCT in a matched sample of non-adherent adults.

Conclusions: The XP study provides a novel example of systematic intervention development in a rare and unstudied condition, which could be used as a model for understanding and improving health outcomes in other rare diseases.

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Increasing the uptake of the HPV vaccine: Four countries examine barriers and look ahead

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INCREASING THE UPTAKE OF THE HPV VACCINE: FOUR COUNTRIES EXAMINE BARRIERS AND LOOK AHEAD

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Introduction: High risk types of HPV are necessary though not sufficient causes of the vast majority of cervical cancers. Cervical cancer is the second most common cancer of women worldwide. In addition, HPV is responsible for more than 90% of anal cancers, about 70% of vaginal and vulvar cancers, and more than 60% of penile cancers. About 70% of cancers of the oropharynx may be linked to HPV. While vaccines against HPV have been approved for use in more than 45 countries, full coverage has been slow and uneven. Four countries—Australia, the UK, Mexico, and the US—have national immunization programs. Each has observed rising HPV vaccine immunization rates. Currently, coverage ranges from Australia (3 dose, females, 76%, males, 66%), the UK (2-dose, females, 89.4% in England), Mexico (2-dose-females, 67%), to the US (3-dose, females at 39.7%, males, 21.6%). Each country has a different HPV vaccination policy, delivery system, and vaccination protocol, within varied socio-political-cultural contexts. Even in those countries with the highest coverage, however, vaccination rates vary by age, gender, income, race/ethnicity, and geography. Aims. The aims of this symposium are to: (1) describe the rates of HPV inoculation (initiation and completion) across 4 countries (Australia, Mexico, UK, US), with particular attention to variations by racial/ethnic subgroups. (2) examine the psychosocial barriers and supports to inoculation behaviors. (3) discuss multi-level (policy, community, medical practice-and school organization, family and child intervention) approaches to increasing HPV vaccine uptake to reduce anogenital and oropharyngeal cancers, and cervical cancer worldwide.

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HPV VACCINATION IN AUSTRALIA: COVERAGE, IMPACT, AND WHERE TO NEXT?

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Introduction: Australia is in its 10th year of HPV vaccination using the 3 dose quadrivalent HPV vaccine. A catch-up program was delivered to all females 12 to 26 years of age from 2007-2009. In 2010-2012 routine vaccination was delivered at school to girls aged 12-13 years. In 2013 male vaccination commenced, with a two year catch-up to age 15 years. Methods: The National HPV Vaccination Program Register enables monitoring of vaccination coverage and supports measures of vaccine impact by making vaccination history available when studying outcome data. Several research studies have evaluated reasons for non-vaccination or non-completion of the vaccination course.

Results: Over half of all women were vaccinated in the 2007-2009 catch up program. Three dose coverage in the targeted age group (12-13 year olds) has risen over time to 76%. Male coverage is 10% lower than female coverage. Vaccine coverage is more equitable across socio-economic groups than cervical screening. The high level of coverage has resulted in declines in genital warts, HPV prevalence, and progressive and ongoing declines in high grade cervical-intraepithelial neoplasia. Aboriginal and Torres Strait Islander people have lower vaccine coverage, but similar dramatic declines in HPV prevalence and genital warts have been seen. Reasons for non-participation in the catch-up program include lack of awareness, forgetting, and concerns about vaccine safety. Failure to complete the course is largely due to logistic issues.

Conclusions: School-based vaccine delivery provides high and equitable coverage. Further research is required to understand why some children do not commence the vaccine course.

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HPV VACCINATION IN GIRLS FROM ETHNIC MINORITY BACKGROUNDS IN THE UK

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Introduction: In the UK, girls aged 12-13 years have been offered HPV vaccination since 2008, with annual coverage in school-based programs ranging from 78% to 87%. However, girls from non-white ethnic minority backgrounds appear less likely to be vaccinated, for reasons that are unclear.

Methods: This paper describes two studies. First we carried out a systematic review of qualitative studies assessing barriers to (general childhood) vaccination in ethnic minority groups in the UK. Thematic synthesis was used to coalesce and interpret findings across the 8 eligible studies. The systematic review founded an interview study of 33 multi-ethnic parents, both acceptors and refusers of the HPV vaccine, who were recruited via schools and community groups. Interviews were recorded, transcribed verbatim, and were coded using NVivo software. In both studies, Framework Analysis was used to organize the data and explore between-group differences in emergent themes.

Results: In the review, many of the barriers were similar across ethnicities; religious- and culture-specific barriers to the HPV vaccination emerged among ethnic minorities, however. In the interview study, many parents who had refused the vaccine had concerns about safety, regardless of ethnic background. Parents from white backgrounds felt they could delay vaccination until their daughters became sexually active (and more safety were data available), whereas some ethnic minority parents believed their daughters would never need the vaccine because of cultural norms around sex and marriage.

Conclusions: Findings will be used to develop culturally-tailored interventions to increase informed uptake of HPV vaccination among ethnic minority parents.

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KNOWLEDGE, BELIEFS, AND PRACTICES REGARDING HPV VACCINATION AMONG MEXICAN MOTHERS IN THE U.S. AND MEXICO

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Introduction. To compare the knowledge, beliefs, and practices regarding human papillomavirus (HPV) vaccination between mothers of vaccine eligible girls in Cuernavaca, Mexico and Oxnard, U.S.

Methods. Similar samples of Mexican mothers with vaccine eligible daughters were interviewed at two Cuernavaca clinics in 2012 (n=200) and two Oxnard clinics in 2013 (n=200).

Results. More mothers in Mexico had heard of HPV (94.5% vs. 65%), knew that HPV is transmitted sexually (91.5% vs. 56.5%), were aware of the link with cervical cancer (89.5% vs. 60.5%), and knew that the vaccine is most effective prior to sexual debut (91% vs. 64%), than mothers in the U.S. Mothers in Mexico were less likely than mothers in the U.S. to believe that the vaccine causes more harm than good, worry about side-effects, or express concerns about fertility problems for daughters. Mothers in the U.S. were significantly more likely to have discussed the HPV vaccine with their daughter's clinician, than mothers in Mexico. Vaccine initiation rates were lower in Mexico (39.5%) than in the U.S. (48.5%). In multivariate analyses, having discussed the HPV vaccine with a health care provider was the most important predictor of vaccine uptake in both samples.

Conclusions. Although mothers in the U.S. had less knowledge and more negative attitudes towards the vaccine than their Mexican counterparts, vaccine uptake rates were higher in the U.S. sample. This suggests that factors other than knowledge and beliefs, (such as system, clinic or provider factors), may be the main drivers of vaccine receipt in our samples.

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CANCER AND HEART ATTACK SURVIVORS' EXPECTATIONS OF EMPLOYMENT STATUS: RESULTS FROM THE ENGLISH LONGITUDINAL STUDY OF AGEING

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Introduction: In this study, the effect of health- and work-related factors and the expectation of being at work on future employment status in cancer survivors was explored. To assess the degree to which these factors specifically concern cancer survivors, a comparison with heart attack survivors was made.

Methods: Data from the English Longitudinal Study of Ageing were used. Cancer and heart attack survivors of working age were included and followed up for two years. Baseline characteristics of both survivor groups were described and compared regarding employment status. Regression analyses were performed, and the interaction between independent variables and diagnose group was assessed.

Results: In cancer survivors, participating in moderate or vigorous sport activities, fair general health and being at work at baseline were associated with employment status at two-year follow-up. In heart attack survivors, female gender, high expectation of being at work and being at work at baseline predicted employment status. The influence of gender, depressive symptoms, job satisfaction and the expectation of being at work was found to differ significantly between cancer and heart attack survivors.

Conclusions: Employment status at baseline turned out to be the most relevant factor to consider in cancer survivors when predicting their future work status. In heart attack survivors, expectation of being at work should not be disregarded though, when developing interventions to support their return to work. Given the similarity in influencing factors in both survivor groups, it is feasible that return to work is not entirely a diagnose-related process.

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O146

FACTORS ASSOCIATED WITH ROMANTIC RELATIONSHIP FORMATION AFTER BREAST CANCER

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Introduction: Many un-partnered women consider the formation of new romantic relationships to be a key priority after breast cancer. Qualitative research points to a number of dating-related barriers and anxieties in this population, however, these are yet to be confirmed quantitatively. This study aimed to empirically determine the psychological factors associated with women's dating-related anxiety and their ability to form romantic relationships following breast cancer diagnosis and treatment.

Methods: Women (N=156) diagnosed with breast cancer, who were either currently un-partnered and desired a romantic relationship or had commenced a romantic relationship post-diagnosis, completed an online survey. Measures included interpersonal competence, dating-related anxiety, self-compassion, post-traumatic growth, attachment style, fear of negative evaluation, body image, and sexual functioning.

Results: Bivariate correlations indicated dating-related anxiety was associated with lower self-compassion, post-traumatic growth, and sexual/body esteem, and with greater appearance investment, fear of negative evaluation, body image disturbance, and attachment insecurity. Interpersonal competence was correlated with greater self-compassion, post-traumatic growth, and sexual/body esteem, and lower attachment insecurity, fear of negative evaluation, and body image disturbance. Multiple regression analyses indicated fear of negative evaluation, body image disturbance, and avoidant attachment predicted dating-related anxiety ($R^2=.54$). Age, self-compassion, avoidant attachment and post-traumatic growth predicted interpersonal competence ($R^2=.54$).

Conclusions: These findings highlight the key psychosocial factors associated with romantic relationship formation after breast cancer. Psychosocial interventions targeting modifiable factors such as body image disturbance, fear of negative evaluation and self-compassion may be promising approaches to reducing dating-related anxiety post- breast cancer.

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O147

'THE HOPEFUL AND THE RESILIENT': A BIO-PSYCHO-SOCIAL-SPIRITUAL CANCER AND NON-CANCER PERSPECTIVE

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Introduction: A strong movement to understand human resilience rather than morbidity alone, has synthesized core health-related quality of life (QOL) domains into the bio-psycho-social-spiritual model. Evolving this model through comparison of the cancer-affected and non-affected can develop our comprehension of integral resilience facets like 'hope'.

Methods: This longitudinal, quantitative study assessed QOL using the Functional Assessment of Chronic Illness Therapy – Spiritual Well-Being (FACIT-Sp), adding the expanded Spiritual Wellbeing scale (FACIT-Sp-Ex), the Integrative Hope Scale (IHS), and the Depression Anxiety Stress Scale (DASS21). Of 2,475 participants, at baseline 822 cancer survivors, 93 chronically ill, 158 informal cancer caregivers, 69 oncology professionals, and 651 general participants (n=1,793) took part. Online data was correlated using SPSS v22.

Results: Cancer survivors' evidenced higher 'hope' compared to norms, particularly for the subscale 'Trust & Confidence' (future goal-attainment confidence). Hope showed large, significant associations with Depression ($r= -.76$), Stress ($r= -.50$), QOL ($r=.71$) and its subscales; Spiritual, Functional, Social/Family, and Emotional Wellbeing ($r=.76$, $r=.71$, $r=.67$, $r=.57$, respectively). The largest association was between Hope and Meaning ($r=.80$), a Spiritual Wellbeing factor. Survivors appeared significantly more hopeful compared to other groups ($p\leq.004$), except oncology professionals who showed elevated Trust & Confidence ($p\leq.002$, $\phi=.11$).

Conclusions: Diminished hope was associated with poor mood, elevated hope with high QOL, most notably, existential domains. Survivors appeared more hopeful than a normative, general population and most of the groups compared. Only oncology professionals were slightly more hopeful, especially in their future goal-attainment confidence.

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O148

PSYCHOSOCIAL CORRELATES OF WELL-BEING AMONG CHINESE HUSBAND CAREGIVERS OF BREAST CANCER SURVIVORS: APPLICATION OF THE STRESS AND COPING MODEL

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Introduction: Breast cancer can affect both the patients and their significant others. Western studies found that husbands of breast cancer survivors reported multiple domains of challenges; and their quality of life (QoL) was associated with their stress and coping processes. Given the limited research on breast cancer caregiving in Asian populations, this study applied the Stress and Coping model to examine the psychosocial correlates of well-being among Chinese husbands of breast cancer survivors.

Methods: Chinese husbands of breast cancer survivors (n=176) recruited from two hospitals in Weifang, China were invited to complete a cross-sectional survey. Participants' individual characteristics, cancer survivors'

disease- and treatment-related information, health outcomes (including physical functioning, depressive symptoms, posttraumatic growth, and sexual QoL), caregiving-related stressors, cognitive appraisals, coping resources and strategies were measured.

Results: After controlling for covariates, hierarchical regression results showed that lower perceived stress and caregiving burden, higher levels of coping resources (social support, marital satisfaction, caregiving self-efficacy), more positive cognitive appraisals (lower harm/threat, higher challenge appraisals), and less denial coping were associated with better adjustment outcomes. We also found that ambivalence over emotional expression (AEE) significantly moderated the relationship between protective buffering and sexual QoL, such that the negative association between protective buffering and sexual QoL was only significant among those with higher AEE.

Conclusions: Our findings could help researchers to design theory-driven and evidence-based interventions to serve specific needs among husbands of breast cancer survivors. Facilitating adaptation to breast cancer caregiving can benefit the patients' well-being in the long run.

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O149

WOMEN'S EXPERIENCES OF THE PROCESS OF BEING DIAGNOSED WITH OVARIAN CANCER: IMPLICATIONS FOR HEALTH SERVICES

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Introduction: The five-year survival rate for Australian women diagnosed with ovarian cancer is 43%. Vagueness of symptoms plays a role in late diagnosis for many affected women, with advanced disease being associated with a poorer prognosis. Given the confronting nature of the disease and the poor prognosis for women diagnosed at advanced stages, it is essential to identify opportunities to improve women's experience of the diagnosis process. The overarching aim of this study was to explore the lived experience of women during the process of being diagnosed with ovarian cancer. A primary aim was to explore women's interactions with the health care system. A secondary aim was to identify women's preferences regarding their health care during the diagnosis process.

Methods: This qualitative study involved individual semi-structured interviews undertaken over the telephone with 34 women who had been diagnosed with ovarian cancer at least 12 months earlier. Most Australian states and territories were represented in the sample. Transcribed recordings of the interviews underwent thematic analysis.

Results: Five themes were identified: dealing with uncertainty; escalating emotional momentum; desire for effective relationships with doctors; desire for useful information and empathic communication; and desire for clinical information in preparation for learning to live with cancer. In relation to the latter three themes, there was considerable variation in women's experiences of health care received.

Conclusions: There is substantial scope for Australian health services to improve the experiences of women during the process of being diagnosed with ovarian cancer.

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O150

ARE MINDFULNESS AND SELF-COMPASSION RELATED TO PSYCHOLOGICAL DISTRESS AND COMMUNICATION IN COUPLES FACING LUNG CANCER? A DYADIC APPROACH.

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Introduction: Lung cancer patients and their spouses report high rates of distress. Due to the increasing popularity of and evidence for mindfulness-based interventions in cancer, mindfulness and self-compassion have been identified as potentially helpful skills when coping with cancer. This dyadic study examined how mindfulness and self-compassion are related to psychological distress and communication about cancer in couples facing lung cancer.

Methods: Using the Actor Partner Interdependence Model, self-reported mindfulness, self-compassion, psychological distress and communication about cancer were analyzed in a cross-sectional sample of 88 couples facing lung cancer.

Results: Regarding psychological distress, no difference was found between patients and spouses. In both partners, own levels of mindfulness ($B = -.1880$, $p = .002$) and self-compassion ($B = -.4293$, $p = .001$) were negatively related to distress. At a dyadic level, own self-compassion was less strongly associated with distress if the partner reported high self-compassion ($B = .0438$, $p = .028$). Regarding communication about cancer, patients reported to communicate more openly with their partner than spouses. However, after controlling for gender this difference was no longer significant. Own self-compassion ($B = .0323$, $p = .023$) was significantly associated with communication in both partners while mindfulness was not. A trend showed that mindfulness of the partner was related to more open communication in the individual ($B = .0124$, $p = .070$).

Conclusions: These findings give a first indication that mindfulness skills and self-compassion may go beyond the individual, and could impact couple functioning. Future research should examine whether couples facing (lung) cancer may benefit from programs in which mindfulness and self-compassion are cultivated.

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O151

EXPLAINING THE PLACEBO RESPONSE WITH SYMPTOM BURDEN AND ILLNESS EXPECTANCY.

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Introduction: The often-strong placebo effects in trials of psychological and psychopharmacological therapies in functional health disorders (FHDs) suggest a gap in our understanding of mechanisms of patients' response to therapy. Understanding drivers of placebo response is particularly relevant given the role of emotional and cognitive process in FHDs. This study investigated what baseline individual differences predict improvement in the placebo arm of a 12-week clinical trial for both subjective (self-reported pain) and objective (number of bowel movements, BMs) outcomes in irritable bowel syndrome patients.

Method: Data from 599 placebo-arm female patients were analyzed. Predictors were: baseline measures of pain, average BMs per week, quality of life (QOL), and basic physiology; physical and psychological medical history; and pain relief from weeks 1, 2 3 of the trial period.

Results: An overall linear decrease in pain and increase in BMs was observed over the 12 weeks. Stepwise regression models with bootstrapping revealed higher baseline body temperature, no early pain relief in week 1, and no history of endometriosis predicted a steeper increase in BMs. A greater baseline maximum pain level, no history of back pain, fewer baseline BMs but more baseline complete spontaneous BMs, no pain relief in week 1 but adequate pain relief in week 2 predicted a greater decrease in pain. Additionally, QOL was correlated with a greater decrease in pain.

Discussion: Results suggest two forces working in the placebo response: Patients with higher symptom burden improve most rapidly, but also individuals with lower illness expectancy.

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O152

USING THE PHQ15 TO DETECT THE DSM-5 SOMATIC SYMPTOM DISORDER: SENSITIVITY, SPECIFICITY, AND VALIDITY WITHIN A GERMAN POPULATION SAMPLE

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Introduction: Self-report measures became even more important in diagnosing somatoform disorders after removing the criterion of medically unexplained symptoms during the recent revision of the DSM. The PHQ-15 is among the most frequently used screening instruments for somatoform disorders. So far, no study has tested its usefulness in screening for the DSM-5 Somatic Symptom Disorder.

Methods: In a German population sample ($N=251$), the following self-report measures were assessed at baseline and again at 12-months follow-up: the PHQ-15, the Screening for Somatoform Disorders (SOMS-2), and the Brief-Illness-Perception-Questionnaire (B-IPQ). Using a clinical interview, the Somatic Symptom Disorder was diagnosed. Moreover, the interview assessed somatic complaints, healthcare utilization, and diseases diagnosed by health care providers within the preceding year. Additionally, comorbid psychiatric disorders were assessed using the Structured Clinical Interview for DSM-IV (SCID).

Results: The PHQ-15 showed good Reliability (Cronbach- $\alpha=.74$), and high convergent validity ($r_{(SOMS-2)}=.67$, $r_{(somatic\ complaints)}=.69$) and divergent validity ($r_{(anxiety\ disorder)}=-.02$, $r_{(depressive\ disorder)}=.19$). Results reflect a good performance in screening for Somatic Symptom Disorder (AUC=.79, $p<.001$). Calculating sensitivity and specificity (66%/79%), likelihood ratio (3.23/0.43), and phi-coefficient (.45) indicate a cut-off of ≥ 6 . Moreover, the PHQ-15 significantly predicted disability (B-IPQ; $\beta=.18$, $p=.003$) and health care utilization ($\beta=.11$, $p=.039$) at 12-months follow-up.

Conclusions: This is the first study to indicate that the PHQ-15 is a useful, time-economic screening tool to detect the DSM-5 Somatic Symptom Disorder. Further research should investigate the screening value of combining the PHQ-15 with self-report measures for psychological factors of the Somatic Symptom Disorder.

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O153

PATIENT-TAILORED MODULAR TREATMENT FOR PATIENTS WITH MULTI-ORGAN BODILY DISTRESS SYNDROME

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Introduction: Many doctors experience difficulties to motivate patients with functional somatic syndromes (FSS) for psychological treatment. Moreover, available treatments may not be well-suited as patients differ largely in terms of illness severity, illness behaviors and their own understanding of their illness. We therefore developed a first version of a patient-tailored modular treatment program for patients with severe FSS. Specific aims were to provide patients with a clear illness model, to involve patients in the decision process regarding their own treatment, and to monitor patient improvement. An uncontrolled pilot study was initiated to explore the program's feasibility and acceptability, and its potential to improve outcomes.

Methods: From April 2015 to summer 2016, approx. 120 patients with severe FSS (captured under the research diagnosis of multi-organ bodily distress syndrome, BDS) are being recruited from primary and secondary care. Patients are enrolled in a treatment program consisting of time-limited treatment modules such as bio-psychosocial assessment, psycho-education in groups, and two different manualized bespoke group therapies, based on principles from either Acceptance and Commitment Therapy or Mindfulness Based Stress Reduction. Patient progress is monitored in regular consultations with a physician.

Results: Preliminary data analysis show that the majority of patients engage in psychotherapy, and that patient satisfaction is high. We will present preliminary results on main outcomes and process measures.

Conclusion: If this pilot study shows promising results, next steps would be a randomized pilot study and finally a large randomized controlled trial to compare the modular-based treatment program with a standard psychological treatment.

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O154

ILLNESS PERCEPTION AND PATIENT SATISFACTION FOLLOWING A SHORT-TERM PSYCHO-EDUCATION AMONG PATIENTS WITH MULTI-ORGAN BODILY DISTRESS SYNDROME

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Introduction: Clear illness models are believed to be important for patients with functional somatic syndromes (FSS). The aim of this present study is to investigate the effect of a short-term psycho-education on illness perception and pain levels among patients with FSS.

Methods: Approx. 120 patients diagnosed with severe FSS (captured under the research diagnosis of multi-organ bodily distress syndrome, BDS) are recruited from Spring 2015 till Summer 2016 to participate in a new patient-tailored treatment program based on a number of time-limited and focused intervention modules; among those a 3-hour group-based psycho-education called “BDS school”. Patients receive web-based questionnaires before and after the BDS school assessing illness perception, patient satisfaction, and pain levels.

Results: At present, 86 patients have completed the BDS school. Preliminary analysis indicated high to very high satisfaction with the intervention, reporting that they had: confidence in the therapists’ ability to help them (92%), learnt something new and valuable (89%), and wanted to continue working with the new things they had learnt (97%). Furthermore paired t-tests found indications of significant changes from before until after the BDS school in some of the illness perception dimensions, such as decreased illness concern and increased personal control. No effects were found on pain levels.

Conclusions: These findings indicate that patients are highly satisfied with the concept and content of a BDS school. Furthermore, that even a brief psycho-education may be able to change dimensions of illness perceptions and enhance motivation to engage in psychological treatment.

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O155

ONE STEP AT A TIME: INTERNET-BASED TREATMENT FOR BODILY DISTRESS SYNDROMES (BDS)

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Introduction: Even though it is well established that psychotherapy has significant effect in functional somatic syndromes (FSS), only few patients are offered evidence-based treatment. Internet-based treatment (IBT) has shown effect in FSS such as chronic fatigue syndrome, irritable bowel syndrome, and chronic pain conditions. To our knowledge, however, no IBT encompassing all functional somatic syndromes, has been developed and tested. The aim of this study was to develop and pilot-test an internet-based program ‘One Step At A Time’ for BDS.

Method: 10 patients fulfilling criteria for the research diagnosis of multi-organ BDS will be invited to participate in a pilot-study of the newly developed internet-based 7-module treatment program consisting of a mix of text, audio, video, illustrations, and exercises. Patients will be aided by a therapist via a secure email-system embedded in the IBT. The IBT draws on previous manuals from clinical trials at the Clinic and draws on principles from both second and third generation of cognitive behavioral therapies. Patients will be asked to complete questionnaires on physical functioning, physical symptoms, emotional distress and feasibility and satisfaction with the IBT. Finally, they will be asked to engage in a telephone interview regarding their experiences during the program at the end of treatment.

Results: The study is ongoing but both quantitative and qualitative data will be presented.

Conclusions: The IBT is expected to complement group-based treatment at the Clinic. Furthermore, the IBT might be extended to other patient groups with FSS in the future.

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O156

FEASIBILITY OF ACCEPTANCE AND COMMITMENT GROUP THERAPY FOR ADOLESCENTS WITH SEVERE FUNCTIONAL SOMATIC SYNDROMES: A PILOT STUDY

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Introduction: Functional somatic syndromes (FSS) may in adolescents as in adults cause severe disability and reduced quality of life. Despite a high need for care, there is lack of empirically supported treatments for this age group. The aim of this pilot study was to evaluate the feasibility of group-based Acceptance and Commitment Therapy (ACT) for adolescents with severe FSS.

Method: Twenty-one young patients attended a manualized group-based ACT programme specifically developed for adolescents with severe FSS (9 modules, i.e. 27 hours, and one 3 hour follow-up meeting). The treatment focused on improving functioning and quality of life and reducing symptom interference, through value driven exposure and acceptance strategies. Close relatives participated in a workshop to increase their support to the patient throughout the treatment. Questionnaires evaluating the patient’s and relatives opinions of the treatment and their overall impression of change were completed after end of treatment.

Results: There were two drop-outs. Among the remaining 19 patients there was a high attendance rate of 93%. They all reported an overall positive impression of change and would recommend the treatment to a friend with similar problems. Close relatives rated it valuable to meet other relatives to adolescents with FSS.

Conclusion: The ACT-based programme was well received by the patients and their close relatives. An RCT on 120 adolescents, aged 15-19 years, is currently being performed where the treatment effect of this new group-based ACT-programme will be evaluated by both self-reported outcome measures as well as objective markers for physiological stress response.

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O157

EARLY WEIGHT-LOSS IN A CULTURALLY-INFORMED LIFESTYLE INTERVENTION PREDICTS LONGER-TERM WEIGHT-LOSS IN PACIFIC ISLANDERS

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Introduction: Pacific Islanders (PIs) have among the highest obesity rates in the World for which culturally-relevant interventions are needed. Previous studies suggest that early weight-loss success is associated with

long-term weight-loss in PIs. We examined the effects of early weight-loss on long-term weight-loss in overweight/obese PIs who underwent a culturally-informed lifestyle intervention delivered either via group setting by a peer educator (GS) or individually by digital-video-disc technology (DVD) in overweight/obese PIs.

Methods: Following a 3-month Diabetes Prevention Program-adapted intervention to initiate weight-loss, 240 adult PIs were randomized into the PILI Lifestyle Program (PLP) GS-delivered, the PLP DVD-delivered, or to a no-further-treatment-control group to determine their weight-loss maintenance effects over 12 and 18 months. Multivariate regressions were done to determine the number of participants who achieved $\geq 5\%$ overall weight-loss across groups after stratifying by initial weight-loss ($\leq 3\%$ vs. $> 3\%$) at randomization.

Results: Intent-to-treat analysis indicated that PLP participants with $\geq 3\%$ (vs. $< 3\%$) initial weight-loss were significantly ($p \leq .05$) more likely to maintain that weight-loss or reach $\geq 5\%$ weight-loss at 12 months (36.4% vs. 8.5% for GS; 47.4% vs. 16.1% for DVD) and at 18 months for only GS (50% vs. 17%; 36.8% vs. 12.5% for DVD) compared to control (36.1% vs. 20.8% at 12-month; 36.1% vs. 16.7% at 18-month).

Conclusions: Early weight-loss success in PIs predicted longer-term weight-loss in those who underwent a culturally-informed lifestyle intervention designed to improve weight-loss maintenance efforts. Alternative strategies are needed for those unable to achieve significant initial weight-loss early on in a lifestyle intervention.

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O158

FRUIT AND VEGETABLE CONSUMPTION DURING PREGNANCY: AN ACTION CONTROL FRAMEWORK APPROACH

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Introduction: Understanding the factors that determine women's diet during pregnancy is necessary for the development of effective interventions to improve maternal and fetal health. Recent conceptual models suggest that motivation is a central determinant of whether pregnant women engage in healthy nutrition behaviors; however, the extent to which women are able to translate motivation into behavior is unclear.

Method: An action control framework approach was used to explore the motivation-behavior relationship for fruit and vegetable consumption during pregnancy. Women ($n=135$) were classified according to four action control profiles (motivated actor, motivated abstainer, unmotivated actor, and unmotivated abstainer) on the basis of their motivation to adopt or maintain a healthy diet at 16-18 weeks' gestation and consumption of fruit and vegetables at 32 weeks' gestation. Predictors of profile membership were explored using multinomial logistic regression.

Results: For both behaviors, higher dietary self-efficacy decreased the odds of being an unmotivated abstainer or unmotivated actor relative to likelihood of being classified as a motivated actor. Those with inadequate vegetable consumption at baseline were more likely to be classified as abstainers than motivated actors.

Conclusion: Self-efficacy and past behavior appear to be important predictors of whether women are motivated to adopt or maintain a healthy diet during pregnancy and whether they are able to translate this motivation into healthy dietary patterns during pregnancy. This study offers novel insights into psychosocial predictors of dietary behavior during pregnancy – a behavior that has a profound influence on long-term health outcomes for both mother and child.

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O159

IMPLEMENTING STATE NUTRITION GUIDELINES AND POLICIES IN CHILDCARE: BARRIERS AND ENABLERS

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Introduction: Interventions to improve childcare center's adherence with nutrition guidelines should target barriers to planning menus that meet guidelines. However, little is known about factors that may impede or promote guideline implementation in the childcare setting. The study aims to apply the Theoretical Domains Framework (TDF) to: i) identify childcare staff reported barriers to guideline implementation and ii) examine barriers associated with guideline implementation.

Methods: A computer assisted telephone interview was undertaken with a randomly selected sample of childcare centers in one state in Australia. Childcare center staff responsible for menu planning completed an adapted measure assessing the TDF constructs. The measure consisted of 75 items on a seven point Likert scale, ranging from strongly disagree to strong agree. A subsample of services also provided a copy of their menus to allow for assessment of adherence with nutrition guidelines.

Results: Overall, 202 childcare staff completed the questionnaire. Preliminary results indicate that staff scored the lowest on the following domains: 'reinforcement with implementing the guidelines', 'setting goals (action planning and prioritizing guideline implementation)', 'social influences (getting social recognition and support for implementing the guidelines)' and 'behavioral regulation (being able to regulate/keep track of progress in implementing the guidelines)'. Only two domains, 'knowledge' and 'skills', were significantly associated with higher guideline implementation.

Conclusions: This study highlights that a discrepancy between 'reported' and 'actual' barriers to childcare staff implementation of nutrition guidelines may exist. The TDF allows for comprehensive assessment across a range of constructs to inform the design of future interventions.

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O160

A MIXED METHODS INVESTIGATION OF PSYCHOLOGICAL FACTORS RELATIVE TO WEIGHT MAINTENANCE

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Introduction: Weight maintenance outcomes are poor. Psychological factors such as planning and problem solving abilities could be important for supporting weight maintenance through the development of personalized routines and self-sustaining healthy habits. The current study aimed to investigate how consumers perceive and engage in these constructs.

Methods: Fifty three participants (62% female, aged 20-74 years old ($M=51.12$, $SD=10.91$)) were recruited following participation in a 24-

week weight loss trial. After 16 weeks of attempting weight maintenance, participants completed a semi-structured interview and quantitative measures measuring planning, problem solving, habit strength and dichotomous thinking. Participants were divided into weight categories representing those who were preliminary weight maintainers ($\geq 10\%$ of original weight maintained) or those who had not maintained initial weight loss (weighed more than their baseline weight at the start of the weight loss trial). Data were analyzed using t-tests and thematic analysis.

Results: Preliminary weight maintainers ($n=10$) exhibited significantly stronger problem solving skills ($p<.05$). Heavier-than-baseline participants ($n=11$) tended towards the two non-rational problem solving styles: Impulsive/Careless ($p=.01$) and Avoidant ($p=.06$). Qualitative data revealed that accounts of preliminary weight maintainers contained more planning event descriptions than heavier-than-baseline accounts and that the maintainer group also dealt with their mistakes in a more accepting manner than the heavier-than-baseline group.

Conclusions: Consumers of weight loss programs perceive planning and problem solving to be important, but maintainers and re-gainers may differentially engage in concrete planning and problem solving strategies and treat their mistakes differently.

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O161

SOCIAL NORM INTERVENTIONS: ARE THEY EFFECTIVE IN PROMOTING HEALTHY EATING?

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Introduction: Social norms provide people with information about what is common to do (i.e., descriptive norms) or what is the right thing to do (i.e., injunctive norms). Although it is commonly believed that social norms influence human behavior, mixed evidence has been found on the effectiveness of social norm interventions that aim to promote healthy eating. This research aims to uncover if and when social norm interventions are effective.

Methods: A series of experimental studies among university students (N ranging from 91 to 265) were conducted as well as a cross-sectional survey among 598 (pre-)vocational students aged 12 to 22. Results: The experimental studies showed little evidence of an effect of communicating healthy social norms on the consumption of fruit or snacks among students. The survey showed that overestimation of both healthy and unhealthy consumption was common, and suggested that visibility of the behavior may play an important role in the impact of social norms on behavior.

Conclusion: Communicating healthy eating norms by a simple norm message may not be very effective, especially when these norms are already known among the target group. Visibility of eating behavior may be a vital ingredient for social norms to exert influence on behavior.

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O162

CAN 5+ A DAY KEEP THE PSYCHOLOGIST AWAY? THE ROLE OF FRUIT AND VEGETABLES IN PSYCHOLOGICAL WELLBEING

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Introduction: Consumption of fruits and vegetables (FV) has been linked with lower incidence of mental illness, and more recently with indicators of positive well-being such as life satisfaction and happiness – suggesting a broad impact of nutrition on psychological health. However, whether this relationship is causal remains largely unknown.

Methods: Young adults ($n=171$) were randomly assigned into a diet-usual control condition, an Ecological Momentary Intervention condition (receiving text message reminders to increase their FV consumption), or a Fruit and Vegetable condition (receiving two additional daily servings of FV to eat). This RCT aimed to establish whether increases in FV consumption were associated with improvements in positive well-being including, flourishing, vitality, and eudemonic behaviors (curiosity, creativity, and motivation). These were assessed nightly for two weeks using a smartphone-accessed survey. Changes in two prominent biomarkers - vitamin c and carotenoids - and psychological expectancies were assessed as potential mediators.

Results: Only those given extra daily FV servings reported increased daily flourishing, vitality, and eudemonic behaviors relative to the other groups. These benefits were not explained by changes in biomarkers or psychological expectancies.

Conclusions: This is the first study to show that being provided with extra servings of FV can result in short-term improvements to higher-order states of wellbeing associated with engagement, fulfilment, and curiosity in life - factors identified as protective against mental illness. This highlights the important role of diet in psychological health and the potential for dietary change as an adjunct in promoting mental well-being.

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The International Behavioral Trials Network (IBTN): An international effort to improve the rigor and impact of behavioral clinical trials

S163

THE INTERNATIONAL BEHAVIOURAL TRIALS NETWORK (IBTN): AN INTERNATIONAL EFFORT TO IMPROVE THE RIGOR AND IMPACT OF BEHAVIORAL CLINICAL TRIALS

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There is rapidly growing, robust literature demonstrating that good health behaviors (e.g., eating a healthy diet, engaging in regular physical activity, refraining from smoking or smoking cessation) are associated with a reduction in mortality and chronic non-communicable disease prevalence. However, despite the great potential benefits of health behavior interventions, the uptake and impact of existing behavioral interventions and the creation of new promising interventions has generally been limited by a variety of methodological challenges specific to the design and conduct of behavioral clinical trials. The International Behavioral Trials

Network was created to address methodological issues unique to these trials and provide guidance on current ‘best practices’ in the development and implementation of behavioral trials. This session will highlight some of the key issues that are unique to behavioral trials, detail novel approaches to resolve these issues, and discuss some of the areas where further work is needed. Given the increased number of behavioral interventions and trials appearing in the literature and growing interest in these kinds of studies for more classically trained trial methodologists, this session will provide both theoretical and practical information that will be useful for both experienced, as well as, junior behavioral trialists.

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S164

WHAT IS THE INTERNATIONAL BEHAVIOURAL TRIALS NETWORK AND WHAT CAN IT DO FOR YOU?

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Over the last several decades there have been a growing number of attempts to provide guidance and assistance to those wishing to undertake behavioral trials. However, these pockets of work have not generally been very impactful in changing how such trials are undertaken and reported. The International Behavioral Trials Network was created with 3 key goals: 1) Facilitate the global improvement of the quality of behavioral trials; 2) Provide networks and capacity to undertake more and higher quality trials; and 3) Develop a repository for existing recommendations, tools, and methodology papers on behavioral trials and intervention development. This talk will review some of the key work that has been done to date in the field of behavioral trials, e.g., the MRC’s complex intervention guidelines, theoretical domains framework, and the behavior change theory taxonomy. It will also identify some of the key challenges which we face in the delivery of behavioral trials, such as, treatment fidelity and selection of the appropriate comparison group. Finally, information on the structure and function of the International Behavioral Trials Network will be provided, along with information on how people can get involved and participate in the growth and development of IBTN.

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S165

DESIGNING MORE EFFECTIVE BEHAVIORAL TREATMENTS FOR CHRONIC DISEASES: THE ORBIT MODEL FOR BEHAVIORAL INTERVENTION DEVELOPMENT

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Unhealthy behaviors are major contributors to many chronic diseases, yet behavioral interventions have shown limited success in substantially altering unhealthy lifestyles, especially over the long-term. Findings from basic behavioral and social sciences research hold great promise for addressing behaviorally-based clinical health problems, but there are currently no established pathways for translating fundamental behavioral science discoveries into health-related treatments ready for Phase III efficacy testing. This talk will describe a framework – the ORBIT model – that is intended to accelerate the translation of findings from basic behavioral and social sciences research to the development of new behavioral treatments to improve unhealthy behaviors. The ORBIT model consists of a phased approach similar to the drug development model but adapted for behavioral treatment development (see <http://psycnet.apa.org/psycinfo/2015-03938-001/>). Key features of the model include a flexible, bi-directional and progressive process, prespecified clinically significant milestones for forward movement, and return to earlier stages for refinement and optimization as needed. The speaker will describe features of the model as well as methods – from formative and qualitative research, to small-N “proof of concept” studies to feasibility pilot studies – useful at each phase. Several examples of studies using the model will be presented that illustrate its potential for facilitating the development of more efficacious behavioral interventions to prevent and treat chronic diseases.

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S166

HOW TO BUILD BEHAVIORAL RESEARCH NETWORKS TO BE ABLE TO DELIVER AN INTERNATIONAL, HIGH-QUALITY, BEHAVIOURAL TRIAL ADDRESSING GLOBAL BEHAVIORAL HEALTH PROBLEMS

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One of the long-term goals of the International Behavioral Trials Network is to be able to develop the capacity to deliver an international, high-quality, behavioral trial addressing global behavioral health problem. A key way to achieve such a major long-term goal like this is to form and sustain research networks that are specifically designed to work toward these goals. In addition, to ensure the success of this kind of approach there is a need to develop a systematic approach for identifying common long-term research targets, for example, identifying the addressable global health problems. This talk will describe appropriate frameworks to develop such networks and systematic processes by which research targets can be identified and agreed upon. Examples of how this has worked and failed in practice will also be discussed.

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O167

ASSESSING THE EFFECTIVENESS OF AN INTERNET-BASED INSTRUCTOR-LED MINDFULNESS INTERVENTION FOR REDUCING STRESS, DEPRESSION AND ANXIETY: A RANDOMISED WAITLIST CONTROL TRIAL.

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Introduction: As awareness of the benefits of mindfulness-based therapy increases, so does the need to improve access to these types of interventions. One possible way is to operationalize therapeutic interventions online. This study aimed to: (1) assess the effect of completing an Internet-based instructor-led mindfulness intervention on stress, depression and anxiety; (2) assess facets of mindfulness (i.e., acting with awareness, describing, non-judging, and non-reacting) as mechanisms of change via mediation analysis; and (3) assess whether the effect of the intervention was maintained over time.

Methods: At baseline, 118 adults were randomly assigned to two groups: an intervention group (which completed a 4-week online mindfulness intervention), and a waitlist control group (which commenced the intervention after a six-week waitlist period). Participants completed self-report questionnaires at four time points: pre-intervention; post-intervention; 3-month follow-up; and 6-month follow-up. MANCOVA and ANCOVA analyses assessed the effect of the intervention on stress, depression and anxiety; and mediation models, using the PROCESS macro, assessed four different facets of mindfulness (acting with awareness, describing, non-judging and non-reacting) as mediators of change.

Results: Participants who completed the mindfulness intervention (N=60) reported significantly lower levels of stress, anxiety and depression, when compared with waitlist control participants (N=58). Large effect sizes ($p^2=0.27-0.31$) were maintained at three- and six-month follow-up. The effect of the intervention was primarily explained by increased levels of only one facet of mindfulness (non-judging).

Conclusions: This study provides support for online mindfulness interventions and furthers our understanding with regards to how mindfulness interventions exert their positive effects on mental health.

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O168

WEB BASED-SUPPORT FOR PEOPLE WITH LOW HEALTH LITERACY: TRIALS OF A DIGITAL INTERVENTION TO SUPPORT DIABETES SELF-MANAGEMENT IN FIVE COUNTIES
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Introduction: Little is known about how people with lower levels of health literacy engage with web-based health interventions and there are important unanswered questions about how best to meet the needs of this population.

Methods: We developed a brief web-based intervention to assess the impact of interactivity and audio-visual features on engagement and outcomes in people with low and high levels of health literacy. Participants from the UK, Ireland, Germany, Austria, and Taiwan were randomized to either an interactive or plain text version of the intervention. Engagement in the intervention was assessed by objectively recorded intervention usage. Self-report measures were taken at baseline and follow-up and included measures of engagement and health literacy outcomes.

Results: 1041 people participated in this study. Results found that the interactive intervention overall did not produce better outcomes compared to a plain text version. Participants in the plain text intervention group looked at significantly more sections of the intervention, but this did not lead to better outcomes. Participants in both interventions groups'

health literacy outcomes significantly improved as a result of looking through the webpages. These improvements were reflected across all health literacy levels and countries.

Conclusions: These results suggest that digital materials can be designed to improve health literacy and support self-management in people with all levels of health literacy, without increasing health inequalities. A good, clear design may be more important than interactivity and audio-visual presentations when developing accessible digital health interventions.

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O169

RECRUITING SOCIOECONOMICALLY DISADVANTAGED PARENTS TO AN MHEALTH INTERVENTION: LESSONS FROM THE GROWING HEALTHY PROGRAM

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Introduction: Mobile health (mHealth) is a promising avenue for reaching parents of lower socioeconomic position (SEP) with behavioral interventions, however little is known about the success or costs of various recruitment strategies. This is important given low SEP families carry a disproportionate health burden.

Methods: The Growing healthy program comprises a mobile phone app and website aimed at promoting healthy infant feeding behaviors. Parents with infants <3months of age were recruited via: 1) health practitioners working in disadvantaged communities 2) researchers (face to face) or 3) online parenting websites and social media. Costs per participant recruited were calculated accounting for advertising and researcher time/travel. Mother's education level was used as a proxy for SEP. Practitioner feedback on recruitment was obtained through a follow-up survey and qualitative interviews.

Results: Nearly 50% of the 323 participants were recruited online at a cost of \$13 per participant compared to practitioner recruitment (30% of sample, \$151 per participant) and researcher recruitment (8%, \$86 per participant). Mothers without a university degree represented 53% of both online and practitioner/researcher recruited cohorts. Key barriers to practitioner referral included lack of time, difficulty remembering to refer, staff changes, lack of parental engagement, and practitioner difficulty in accessing the app.

Conclusion: Online and practitioner/researcher led recruitment reached similar numbers of low SEP parents, however online recruitment was substantially cheaper. Online recruitment provides a promising opportunity for recruiting low SEP families however, further research is required to understand how to recruit more of these families to mHealth interventions.

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O170

RANDOMISED CONTROLLED TRIAL OF AN MHEALTH ALCOHOL INTERVENTION FOLLOWING AN INJURY ADMISSION

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Introduction: Despite known benefits, brief interventions (BIs) for hazardous drinking are often not implemented in trauma care wards due to resource constraints. In order to overcome this challenge, we developed and evaluated a mHealth text message BI underpinned by established BI evidence and behavior change theory.

Methods: 598 injured patients aged 16–69 years were identified as moderate risk drinkers and enrolled in a parallel, single-blind RCT. The intervention group received 16 text messages over four weeks after hospital discharge. Controls received one text message acknowledging participation in the study. Primary outcomes comprised differences in hazardous drinking (AUDIT-C) between the intervention and control groups at 3, 6 and 12 months following the injury. Data were analyzed using a mixed-effects model for repeated measures.

Results: Baseline features were similar in both groups (71% males; mean age 34 years; 21% Māori, 62% European; mean AUDIT-C 6.8). A small but significantly lower risk of hazardous drinking was evident in the intervention compared with control group (least square means difference: -0.322; 95% CI: -0.636, -0.008). This effect was maintained across the 12-months of follow-up and similar among Māori and non-Māori (interaction $p=0.257$). These findings will be complemented with participant feedback on their perceptions of the intervention.

Conclusion: The effect of the intervention was similar to most standard BIs despite its modest intensity and the restriction of this trial to moderate risk participants only. MHealth interventions are scalable low cost approaches that can overcome barriers to implementing BIs in trauma care settings.

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O171

TXT4TWO: A MOBILE HEALTH INTERVENTION PROMOTING HEALTHY WEIGHT GAIN IN PREGNANCY

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Introduction: Excess gestational weight gain (GWG) is associated with multiple adverse maternal and child health outcomes. This study investigated the feasibility and efficacy of a mobile health intervention promoting healthy nutrition, physical activity (PA) and GWG in women who began pregnancy overweight or obese.

Method: txt4two was a pilot randomized controlled trial in which 100 pregnant women were recruited from an antenatal outpatient clinic with a singleton gestation between 10⁺⁰–17⁺⁶ weeks, and pre-pregnancy body mass index (ppBMI) >25kg/m². Women were randomized to the txt4two intervention (interactive text messages; videos; website; and chat forum) or control group (standard care).

Results: At recruitment, women completing the study (n=91) reported an average age of 32.5 (+3.4) years and a ppBMI of 31.0 kg/m². Feasibility, the primary outcome, was demonstrated with delivery to protocol. Usage data indicated most women engaged regularly with the program, primarily with the text messages. The majority of women (97.6%) reported the intervention helpful. Secondary outcomes demonstrated a significantly

lower GWG in the intervention group (7.8kg + 4.7 versus 9.7 kg + 3.9; $p=0.041$) compared to the control group. Intervention women reported a significantly lower reduction in total daily minutes of PA (-27 + 340 versus -162 + 268; $p=0.004$) compared to the controls with significant differences in light and moderate PA. No differences were detected in self-reported consumption of key food groups.

Conclusion: Results suggest that an intervention delivering healthy nutrition, PA and GWG utilizing mobile technology can be feasibly implemented and produce positive PA and GWG outcomes.

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O172

SMARTPHONE APPLICATION FOR UNHEALTHY ALCOHOL USE: A PILOT STUDY

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Introduction: Technology-delivered interventions are useful to address unhealthy alcohol use. We developed a smartphone application ('Alcooquizz') with 5 modules: 1. Personal feedback with norms for people living in Australia, Canada, USA, and Switzerland, 2. Self-monitoring of drinking, 3. Designated driver tool, 4. Blood alcohol content calculator, 5. Information, and evaluated its acceptability. We also assessed association between use and drinking outcomes.

Methods: A total of 130 adults with unhealthy alcohol use (>14 drinks/week or at least one episode/month with 6 or more drinks), were recruited in Switzerland (n=70) and Canada (n=60), and offered to use the application. Follow-up was at 3 months. Associations between application use and drinking at 3 months were evaluated with negative binomial and logistic regression models, adjusted for baseline values.

Results: Of the participants, 112 (86.2%) completed the study. There were significant changes from baseline (BL) to follow up (FU) in number of drinks/week, BL: 15.0 (16.5); FU: 10.9 (10.5), $p=0.0097$, and monthly binge drinking, BL: 95.4%; FU: 64.3%, $p<0.0001$. Participants using the application more than once reported significantly less drinking at follow up (IRR 0.69 (0.51;0.94) but not less binge drinking (OR 0.76 (0.33; 1.74). **Conclusions:** A smartphone application for unhealthy alcohol use appears acceptable and useful. Nevertheless, without prompting, its use is infrequent. Those who used the application more than once reported less weekly drinking than those who did not. Efficacy of the application should be tested in a randomized trial taking into account strategies to make its use more frequent.

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O173

DETERMINANTS OF CARDIAC MISCONCEPTIONS, RISK PERCEPTIONS AND SELF-EFFICACY IN ADOLESCENTS

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Introduction: Health beliefs have been associated with the adoption of preventive behaviors. The aims of this study were to investigate the type of beliefs related to cardiovascular disease, including cardiac misconceptions, causal attributions, individual and compared risk perception, perceived severity and self-efficacy, in a sample of adolescents. **Methods:** This was a cross-sectional design in which 455 healthy students (both

sexes) from two public secondary schools in a metropolitan area of Lisbon completed a questionnaire which included socio-demographic information, self-rated health, illness perceptions and causal attributions, cardiac misconceptions, individual and compared risk perception and self-efficacy. These variables were analyzed by gender, age group, study area, smoking habits and family history.

Results: The strongest cardiac misconception is related to the need to avoid stress and excitement. Known risk factors showed higher scores for the causal attributions. It has been found that the perceived seriousness for cardiovascular disease is very high. However, the perception of individual and compared risk perception are low. There were significant interaction effects of socio-demographic variables, smoking habits and family history on cardiac misconceptions, self-efficacy and compared risk.

Conclusions: This exploratory approach enables the identification of factors which are relevant for assessing risk for cardiovascular disease as well as the type and strength of cardiac misconceptions. These results can contribute in a meaningful way for the development of cardiovascular disease prevention strategies in adolescence.

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O174

PERSONALISED FEEDBACK FROM A DRINK POURING TASK CAN IMPROVE ADHERENCE TO GOVERNMENT GUIDELINES FOR ALCOHOL CONSUMPTION

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Introduction: Although most people are aware of government guidelines for alcohol consumption, few people have accurate knowledge of the guidelines and fewer still use them to monitor their drinking. Most people also lack accurate knowledge of the alcohol content of the drinks they consume. The aim of the study reported here was to examine whether personalized feedback on alcohol consumption based on performance in a drink pouring task and self-reported alcohol intake would improve university students' knowledge of alcohol consumption guidelines and reduce their alcohol intake.

Methods: A quasi-randomized control trial with a two-month follow-up was conducted with 200 students aged 18-37 from a university in the south-east of England. Participants were allocated to one of 3 groups: 1] the "pour + feedback" group that completed a drink pouring task - in which they poured their usual drinks as well as what they thought to be UK alcohol units - and received personalized feedback; 2] the "pour only" group completed the drink pouring task but did not receive feedback; 3] the control group did not complete the drink pouring task.

Results: At follow-up, participants in the "pour + feedback" group had significantly better knowledge of government guidelines, and significantly lower weekly alcohol intake when compared to the "control" and "pour only" groups.

Conclusions: Personalized feedback derived from a drink pouring task appeared to improve knowledge of, and adherence to, government guidelines for alcohol consumption. Further refinement of the drink-pouring intervention and feedback in various populations could enhance these effects.

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O175

BETTER PERCEIVED HEALTH AMONG THE SWEDISH SPEAKING MINORITY AS COMPARED TO THE FINNISH SPEAKING MAJORITY IN FINLAND – AN INTERGENERATIONAL PERSPECTIVE

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Introduction: Swedish speakers in Finland (5 %) show lower mortality and risk for disability pension as compared to corresponding Finnish speakers. The aim of the study was to explore whether the health advantage of Swedish speakers could also be substantiated on the level of perceived health.

Methods: Data was derived from an on-going population-based follow-up postal survey, the Health and Social Support (HeSSup) study, initiated in 1998. The original random sample with an over-representation of Swedish speakers comprised of 64 797 individuals representing concurrent age groups 20-24, 30-34, 40-44, and 50-54 years yielding 25 898 (40.0%) responses. In 2012 the questionnaire included a question of the dominating language (Swedish or Finnish) of the respondent and her/his preceding generation. Three groups of the language structure in two generations were formed: 1) Swedish twice 2) mixed composition and 3) Finnish twice. Observations with missing values were excluded. The outcome variable was a dichotomized variable on perceived health (very good/good, intermediate/poor/very poor). The statistical analysis was carried out with logistic regression and SAS software.

Results: Two-generational Swedish speakers showed a significantly ($p=0.02$) better health as compared to corresponding Finnish speakers when adjusted for age group, vocational training, smoking, alcohol consumption, and physical exercise. As hypothesized, the group with a mixed composition ranked between the two other groups. No gender differences were detected.

Conclusions: The health advantage of Swedish speakers cannot be totally attributed to health behavior leaving room for additional culturally mediated pathways. These mechanisms are transferable and could be more generally applied in health promotion.

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O176

INCREASING THE PROVISION OF PREVENTIVE CARE TO COMMUNITY DRUG AND ALCOHOL CLIENTS: A PILOT STUDY.

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Introduction: For people with drug and alcohol (D&A) problems, health risk behaviors (e.g. physical inactivity) are significant contributors to their high levels of chronic disease. Preventive care to address these behaviors is not routinely provided as a part of D&A treatment. A pilot study was conducted to evaluate the potential effectiveness of an intervention to increase drug and alcohol clinician provision of preventive care.

Methods: A pre-post study design was implemented and included a 12 month multi-strategic practice change intervention with community D&A services in NSW, Australia. Clients reported their receipt of preventive care (assessment, brief advice, and referral) for three health risk behaviors (smoking, insufficient fruit and/or vegetable consumption and physical inactivity).

Results: Client sample sizes were 226 (72%) and 189 (72%) at baseline and follow-up respectively. Increases in care regarding insufficient fruit

and/or vegetable consumption were indicated for assessment (24% v 54%, $p < .001$), brief advice (26% v 46%, $p < .001$), talking about (10% v 31%, $p < .001$) and referring to a free telephone based coaching service (1% v 8%, $p = .006$). No increases in care were found for smoking or insufficient physical activity.

Conclusions: The results suggest that D&A clinician delivered preventive care can be increased for some elements of care, particularly for insufficient fruit and vegetable consumption. Such findings need to be confirmed with a more rigorous study design. Future studies should further investigate barriers to care provision for other health risk behaviors.

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O177

THE EFFECT OF COGNITIVE BEHAVIORAL GROUP THERAPY ON IMPROVING PSYCHOSOMATIC SYMPTOMS ASSOCIATED WITH RADIATION STRESS AMONG MOTHERS IN FUKUSHIMA, JAPAN: A RANDOMIZED CONTROLLED TRIAL.

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Introduction: The purpose of this study was to examine the effect of a newly developed cognitive behavioral group therapy (CBGT) program on improving psychosomatic symptoms among mothers with a preschool child in Fukushima, Japan, who are under radiation stress with a randomized controlled trial design.

Methods: The study design was a randomized controlled trial. We developed a two-session weekly CBGT program applying behavior activation skill. The program consisted of participatory sessions by a clinical psychologist, including a group discussion, with homework. The primary outcomes were psychological distress (by K6) and somatic symptoms (by the Brief Job Stress Questionnaire; BJSQ, 10-item) assessed at baseline, 1-month, and 3-month follow-up.

Results: All the 37 participants were randomly allocated to an intervention or control group (18 in the intervention group and 19 in the control group). The present BA program failed to show a significant intervention effect on the outcomes. Only marginally significant effects were shown on psychological distress assessed by K6 ($t = -1.99$, $P = 0.051$) and physical symptoms ($t = -1.83$, $P = 0.07$) at 1-month follow-up. The effect sizes were medium to large and only K6 was significant (-0.72 [95%CI -1.36 to -0.09] and -0.56 [95%CI -1.21 to 0.08], respectively).

Conclusions: The new CBGT program may be effective in improving psychological distress and physical symptoms among mothers with small children under radiation stress.

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O178

EFFECTIVENESS OF A TEXT MESSAGE INTERVENTION TO REDUCE BINGE DRINKING IN DISADVANTAGED MEN

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Introduction: Socially disadvantaged individuals suffer from high levels of alcohol-related harm. A novel text message intervention to reduce binge drinking was tested in a large multi-center randomized controlled trial.

Methods: Disadvantaged men aged 25–44 years who had ≥ 2 episodes of drinking > 8 units in a single session in the preceding month were recruited. The intervention drew on literature from: alcohol brief interventions, communication theory and behavior change theories and techniques. A series of 112 interactive text messages were delivered over three months. Frequency of binge drinking and mean alcohol consumption were measured at baseline and 12 month follow up.

Results: 825 men were randomized to intervention or control. The two treatment arms were balanced on demographic factors and measures of alcohol consumption. The predominant pattern of drinking was of episodes of binge drinking interspersed with periods of sobriety; 92% of the alcohol consumed was drunk in binge drinking sessions. 95% of participants sent replies to the text messages. The responses showed a high level of engagement with the intervention, particularly with self-monitoring of drinking, goal setting and action planning. The follow-up rate at 12 months is currently 84%, although follow-up does not end until April 2016. Full results will be presented in Melbourne.

Conclusions: This large well conducted trial will provide convincing evidence on the effectiveness of an empirically and theoretically based text message intervention to reduce binge drinking in disadvantaged men.

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O180

DEVELOPMENT OF A NEW EMOTIONAL EATING BATTERY

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Introduction: While there is mounting evidence that emotional eating is associated with an increase in BMI, the current measures of emotional eating have a number of limitations. As such a new battery of questions were developed to assess these three areas that we titled the Emotional Antecedents of Emotional Eating Questionnaire (EAEEQ), the Tastes of Emotional Eating Questionnaire (TEEQ), the Awareness of Emotional Eating Questionnaire (AWEEQ)

Methods: The study involved 297 participants (males = 65, females = 232) who were aged 18 years and older ($M = 28.40$, $SD = 12.50$) were recruited from either a pool of first year of university as well from the general community via social media. All participants self-reported having no eating disorder pathology. Participants completed an online survey containing the EAEEQ, TEEQ, AWEEQ, as well as the Dutch Eating Behavior Questionnaire (DEBQ), Depression Anxiety Stress Scale (DASS), and the Brief Irritability Test (BITE).

Results: An Exploratory Factor Analysis showed that the EAEEQ contained six factors of emotional antecedents for emotional eating (Low mood/anxiety, Positive mood, Exhaustion, Loathing, Rejection,

Alexithymia), while the AWEEQ displayed one factor of self-awareness of emotional eating. The EAEEQ demonstrated good convergent and divergent validity with the DEBQ as well as good predictive validity with the DASS and BITE. All scales demonstrated good test retest reliability.

Conclusions: The Emotional Eating Battery extends upon current measures of emotional eating and demonstrates good psychometric properties. It is therefore a useful addition to studies exploring the psychosocial factors associated with emotional eating in adults.

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O181

FOOD LITERACY IS POSITIVELY ASSOCIATED WITH HEALTHY FOOD BEHAVIOURS

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Introduction: There is increasing evidence that food literacy may be associated with healthier dietary patterns. The aim of this study was to determine the relationships between confidence in food knowledge and skills, and a range of food-related behaviors and attitudes.

Methods: An online survey was completed by 1059 Australian household dietary gatekeepers selected from the Global Market Insite research database. The survey contained questions about capabilities, behaviors, attitudes, home food environment and demographic characteristics. Two-step cluster analysis identified groups based on food knowledge and skills. Chi-square tests and one-way ANOVAs were used to compare groups for each of the variables. Three low, moderate and high confidence groups were identified through two-step cluster analysis.

Results: The most confident gatekeepers were significantly more likely to have lower body mass indices (BMI), place greater importance on fresh food products, use more vegetables in meals, and were more likely to plan their meals, use product information, and express greater perceived behavioral control and overall dietary satisfaction. In contrast, the least confident gatekeepers were significantly more likely to have higher BMIs, and report more perceived barriers to healthy eating, more time constraints and more impulse purchasing practices, and greater use of convenience ingredients.

Conclusions: Confidence regarding food skills and nutrition knowledge was positively associated with several food behaviors. Food education strategies aimed at building food-skills and knowledge in both school and community settings are likely to empower current and future dietary gatekeepers to make healthier food decisions for themselves and their families.

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O182

UNDERSTANDING THE STRATEGIES, FACILITATORS, BARRIERS, AND WEIGHT MANAGEMENT EXPERIENCES BY DIFFERENT STAGES OF ACTION: A SNAP-SHOT OF AUSTRALIAN DIETERS

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Introduction: The aim was to explore if experiences of weight management varied by stage of action in a sample of Australian dieters.

Methods: TWD Online blog subscribers were emailed an online survey. Participants rated their stage of weight maintenance using the Precaution Adoption Process Model and completed questions on previous weight management. Respondents included 2311 adults (80% female).

Results: Selected stages of weight management included successfully maintaining weight (30%), disengaged/planning (19%) or in early stages of action (23%). Twenty-eight percent reported previous weight management attempts with three quarters still active. Most of the sample (96%) had tried to actively manage their weight and wanted to lose weight or prevent weight regain regardless of weight management stage. A third of those still trying to lose weight reported over 25 previous attempts. Weight loss techniques focused on modifying diet and exercise practices. Those successfully maintaining weight were least likely to have used meal replacements and commercial programs which were mostly commonly used by those who had previously tried and disengaged. Facilitators did not vary by stage and included, weight improvements and feeling good. Those successfully maintaining were less likely to suggest that everyday life got in the way of weight management and selected fewer barriers. Almost half of respondents selected no-one supported them and 75% identified themselves as the saboteur, but this not the case for those successfully maintaining.

Conclusions: Understanding weight management experiences and what may be associated with success is useful in the design of future interventions.

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O183

MOBILISING SOCIAL SUPPORT: INSIGHTS FOR THE DEVELOPMENT OF A WEB AND APP BASED INTERVENTION FOR WEIGHT LOSS.

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Introduction: Previous research shows that setting goals, planning, self-monitoring and social support are key to behavior change. We are developing and testing the feasibility of a web and app based intervention for weight loss incorporating these elements. The first stage involved co-design with a panel of users. This paper will describe insights from focus groups and user testing which have informed the development of the app and website.

Methods: Ten obese adults were recruited to three focus groups. Thirty others were recruited and one-to-one interviews were conducted with them. Think aloud methods were also used to assess acceptability, feasibility and usability. Users in both the focus group and interviews were asked about design issues, barriers to use and key features of the app/website. Data were analyzed using thematic analytic approaches.

Results: Users preferred a simple uncluttered design. They wanted to create their own goals but also felt having a 'template' was important to guide SMART goal setting. Participants preferred weekly to daily

monitoring of weight. They also discussed the importance of ‘personalization’. Participants highlighted the importance of gamification and an element of competition for engagement. They also felt rewards for progress were important. Strategies identified for engaging helpers included: feedback/rewards; options for quick interaction e.g. thumbs-up; and an SOS button to request input from helpers in moments of potential relapse. Conclusions: This detailed user-centered development process and feasibility testing has led to an intervention, designed and tested by users, which will have the potential to change weight related behaviors.

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0184

IMPROVED CONFIDENCE IN PERFORMING NUTRITION AND PHYSICAL ACTIVITY BEHAVIOURS MEDIATES CHANGE IN YOUNG ADULTS: BEHAVIOURAL OUTCOMES AND MEDIATION RESULTS OF A RANDOMISED CONTROLLED MHEALTH INTERVENTION

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Introduction: There is an increasing recognition that researching the mechanisms underlying successful dietary and physical activity behavior change is important for designing and enhancing effective interventions. The aim of this study was to investigate improvements in knowledge, self-efficacy and readiness to change for nutrition and physical activity behaviors and secondly their role in mediating the behavioral changes observed in a mHealth randomized controlled trial for prevention of weight gain.

Methods: Two-hundred fifty young adults were randomly assigned to a 3-month intensive phase and 6-month maintenance phase of a multicomponent mHealth program including coaching calls, text messages and other resources. Self-reported online surveys at baseline, 3- and 9-months assessed nutrition and physical activity behaviors, knowledge, self-efficacy and readiness for change. Self-efficacy was assessed in multiple mediation models for 3- and 9-month nutrition and physical activity behavior change.

Results: Intervention participants increased and maintained knowledge of fruit requirements ($P=0.029$). Fruit, sugar-sweetened beverage and take-out food behaviors improved to meet recommendations at 9-months ($P<0.001$, $P=0.051$ and $P=0.012$ respectively). Indirect effects of improved nutrition and physical activity behaviors at 3- and 9-months in intervention group were in part explained by changes in self-efficacy, accounting for 16 to 40% of the total effect.

Conclusions: This provides insight into how the intervention achieved part of its effects. This mediation analysis demonstrates the importance of self-efficacy in improving eating and physical activity behaviors in a young adult population.

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0185

THE INTERRELATIONSHIP BETWEEN ORTHOREXIA NERVOSA, PERFECTIONISM, BODY IMAGE AND ATTACHMENT STYLE

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Introduction: The aim of the study was to investigate whether perfectionism, body image, attachment style, and self-esteem are predictors of orthorexia nervosa.

Methods: A cohort of 220 participants completed a self-administered, online questionnaire consisting of five measures: ORTO-15, the Multidimensional Perfectionism Scale (MPS), the Multidimensional Body-Self Relations Questionnaire- Appearance Scale (MBSRQ-AS), the Relationship Scales Questionnaire (RSQ), and Rosenberg's Self-Esteem Scale (RSES).

Results: Correlation analysis revealed that higher orthorexic tendencies significantly correlated with higher scores for perfectionism [self-oriented, others-oriented and socially prescribed], appearance orientation, overweight preoccupation, self-classified weight, and fearful and dismissing attachment styles. Higher orthorexic tendencies also correlated with lower scores for body areas satisfaction and a secure attachment style. There was no significant correlation between orthorexia nervosa and self-esteem. Multiple linear regression analysis revealed that overweight preoccupation, appearance orientation and the presence of an eating disorder history were significant predictors of orthorexia nervosa with a history of an eating disorder being the strongest predictor.

Conclusions: Orthorexia nervosa shares similarities with anorexia nervosa and bulimia nervosa with regards to perfectionism, body image attitudes, and attachment style. In addition, a history of an eating disorder strongly predicts orthorexia nervosa. These findings suggest that these disorders might be on the same spectrum of disordered eating.

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0186

EATING DISORDER PATHOLOGY IN ELITE ADOLESCENT ATHLETES

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Introduction: We aimed to investigate eating disorder pathology in German elite adolescent athletes. Evidence suggests that eating disorder pathology is more common in adult elite sports, especially in female athletes and in sports emphasizing leanness. There is a scarcity of studies in elite adolescent athletes who are in a vulnerable developmental stage and are affected by general as well as sport-specific risk factors.

Methods: Our data was derived from the German Young Olympic Athletes' Lifestyle and Health Management Study (GOAL) which conducted a survey in 1138 elite adolescent athletes. In this sample, we assessed body weight, weight control behavior, body acceptance and screened overall for core symptoms of eating disorders, depression and anxiety. We performed a tree analysis to identify high risk groups for eating disorder pathology

Results: High risk groups comprised (a) athletes competing in weight dependent sports, and among athletes competing in disciplines other than weight dependent sports (b) athletes who are high on negative affectivity, (c) female athletes and (d) male athletes competing in endurance, technical or power sports. Athletes competing in weight dependent disciplines reported wide spread use of compensatory behaviors to influence body weight. Athletes reporting eating disorder pathology showed higher levels of depression and anxiety than athletes without eating disorder pathology.

Conclusions: Increased psychosocial burden in athletes with eating disorder pathology suggests that eating disorder symptoms should not be accepted as an unproblematic and functional part of elite sports. The prevention and management of eating disorder pathology is especially important in weight dependent sports.

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O187

RISK FACTORS FOR DISORDERED EATING IN ADOLESCENCE: A LONGITUDINAL STUDY

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Introduction: Appearance-related cognitions, body weight and shape pre-occupation, and restrictive dieting are cognitive and behavioral factors which are emphasized in the cognitive models of eating disorders. We examined the indirect effects and reciprocal associations between appearance orientation, appearance worries, and dieting in a non-clinical group of adolescents, constituting a high-risk group for the development of eating disorders.

Methods: 1260 adolescents participated in the study which was conducted three times (with 2-month and 13-month follow-up) in sixteen schools in Poland. Participants completed a questionnaire referring to their nutrition behaviors, beliefs about appearance, health and well-being. Height and weight were measured objectively. Mediation analyses were performed to test whether the reciprocal relation between appearance orientation, appearance worries and dieting.

Results: Three mediating effects were found: (1) effect of appearance worries (T2) in the association between appearance orientation (T1) and dieting (T3), (2) effect of appearance orientation (T2) in the association between dieting (T1) and appearance worries (T3), and (3) effect of dieting (T2) in the relationship between appearance worries (T1) and appearance orientation (T3). Reciprocal relations between tested variables created a vicious circle, which can contribute to the formation of symptoms of eating disorders in the non-clinical samples of adolescents. Conclusions: Eating disorders' formation and maintenance factors depicted on cognitive model of eating disorders might be present also in non-clinical samples of adolescents and might allow creating more effective prevention programs in the future.

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O188

A COMPARATIVE ANALYSIS OF PRO-ANOREXIA VERSUS PRO-RECOVERY INSTAGRAM IMAGES THROUGH THE LENSES OF OBJECTIFIED BODY CONSCIOUSNESS AND POSITIVE BODY IMAGE CONCEPTUAL FRAMEWORKS

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Introduction: Research has yet to examine the nature of visual representations associated with pro-ana and pro-recovery social media imagery. Moreover, not much empirical attention has been given to the nature of this content on IG. The first aim of this qualitative content analysis was to examine how the underlying theoretical constructs of objectified body consciousness (OBC) and positive body image (PBI) were represented among #ana and #anarecovery content.

Method: A detailed coding guide was developed and high levels of interrater reliability were established for the primary codes (kappa > .80). 75 images each from #ana and #anarecovery were systematically coded. Within- and between-hashtag comparisons of images were performed using frequency counts and chi-square analyses.

Results: Within #ana images, themes of body shame were more frequently depicted relative to body surveillance and appearance control themes. Within #anarecovery images, themes of body protection were most prevalent followed by body functionality and body acceptance themes. All three OBC themes were more likely to be present in #ana images. PBI themes of body protection and body functionality were more frequently represented in #anarecovery images. The frequency of body acceptance themes did not differentiate the images sampled from both hashtags.

Discussion: This research calls for more expanded and distinguished definitions of the constructs that comprise the continuum of PBI. Findings also suggest how the lack of distinction in the frequency of body acceptance observed between the two hashtags may be clinically relevant for exploring potential risk factors that persist in the process of ED recovery.

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O189

SELF-CONTROL PREDICTS WEIGHT CHANGES AMONG WOMEN IN A 7-YEAR POPULATION-BASED PROSPECTIVE STUDY

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Introduction: Dispositional self-control is a part of the self-regulation system indicating capability to resist impulses and control thoughts and actions. Self-control has found to have a small effect on weight-related behaviors, but prospective studies with long-term follow-up are lacking. We examined whether self-control predicts weight changes in a 7-year follow-up study.

Methods: The participants were Finnish men and women aged 25-74 years who took part in the DILGOM study at baseline in 2007 and follow-up in 2014 (N=3735). A 13-item Brief Self-Control Scale (Tangney et al. 2004), physical activity (PA), PA and nutrition related self-efficacy, and years of education were self-reported. Height and weight were measured at health examination.

Results: Those with higher self-control at baseline had lower BMI and more leisure time PA. There was a slight increase in weight (0,8 kg) in the whole sample. Those with higher self-control gained less weight (b=-.06, p<.001) after controlling for age, education and baseline weight. However, this association was significant only among women (gender*self-control interaction p=.001). Self-control was not related to weight loss in either gender.

Conclusions: In the present population sample, lower self-control was related to weight gain only among women. This association was mediated by behavior specific cognitions. Lack of association among men could be related to lower pressures to maintain a thin body.

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O190

"I LOOK AT MYSELF AND FEEL LIKE I'M TOO SKINNY." A COMPARISON OF THE INFLUENCES OF BODY IMAGE IDEALS IN BOYS AND GIRLS IN AUSTRALIA.

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Introduction: Significant research has focused on the body image ideals of girls. However, research clearly shows that boys may also be significantly impacted by negative body image. To date, there has been very limited research which seeks to understand the factors that may influence how boys and girls develop different ideals about their bodies.

Methods: Qualitative interviews with 150 families groups, comprised of at least one parent and one child (aged 9–18 years). We discussed the dominant messages about weight and health, and the impact of these popular discourses on body ideals.

Results: While girls were focused on ‘thinness’ and ‘being skinny’, boys were more focused on having muscular, athletic, body types. Most commonly, this was so that they could be more competitive at sport. Many boys in this study stated that while thinness was a negative body attribute, they did not want to be ‘fat’. Children had developed a range of strategies to help them achieve their ideal body, including dieting for girls, and engaging in more physical activity (including weights) for boys. Although parents recognized the influence of gender-specific body ideals on their children, they were unaware of the consequences of poor body image issues among adolescent boys.

Conclusion: There is a need to further understand body image concerns in relation to adolescent boys and the pressures they feel to conform to these ideals. Initiatives aimed at improving body image among adolescents need to take in to consideration the changing body ideals of adolescent boys.

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O191

PATIENT ACCOUNTS OF RESILIENCE AND BARRIERS TO WELLBEING DURING A LIFESTYLE INTERVENTION PROGRAMME FOR NON-COMMUNICABLE DISEASES

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Introduction: Resilience plays an important role in the research and management of non-communicable diseases (NCDs). Effective, patient-centered treatment strategies include lifestyle intervention programmes, an effective tool for improving health outcomes and building resilience. The study investigated patients’ experiences of a lifestyle intervention programme for NCDs and the influence of psychosocial and programme-related factors on patients’ ability to improve their wellbeing.

Methods: A qualitative design was employed, consisting of semi-structured interviews of patients with NCDs before and at completion of a twelve-week programme. Fourteen adult patients were interviewed at baseline and 13 at completion. Thematic analysis was used for analyzing patient responses.

Results: Nearly all patients experienced trauma at initial diagnosis, despite varying severity of NCDs, premorbid health, or degree of self-reported resilience. Nevertheless, resilient responses were common in all patients, demonstrated by the adaptive responses to their diagnosis and positive lifestyle changes initiated during,

and maintained subsequent to the programme. Benefit finding was evident in patients’ perceptions of NCDs and in their active participation in their own recovery. The degree of perceived support highlighted the impact of such programmes on psychosocial and physical health progress, particularly in vulnerable patients.

Conclusions: Several patients were identified as vulnerable to psychosocial and programme-related barriers to recovery from NCD. Conversely, resilient patients were able to find benefit in adversity, to access support, and to initiate and maintain necessary health behaviors. Lifestyle intervention programmes will benefit from distinguishing such individuals in order to provide more patient-centered, clinically relevant care.

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O192

EFFECTS OF MINDFULNESS TRAINING ON BEHAVIORAL AND NEUROPHYSIOLOGICAL FINDINGS AMONG EARLY CAREER NURSES

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Introduction: Nursing is one of the most stressful healthcare professions. We investigated whether mindfulness training might reduce stress and burnout in nurses. Mindfulness is a mental state achieved by focusing one’s awareness on the present moment, while calmly acknowledging and accepting one’s feelings, thoughts, and bodily sensations. We evaluated the effects of mindfulness-based approaches on stress, mood, and cognition using self-report questionnaires and neurophysiological changes on the Psychomotor Vigilance Test (PVT), a 20-minute computerized test of sustained attention.

Methods: 30 nurses from a tertiary hospital attended one of two 8-week mindfulness programs. Paired sample t-tests evaluated changes from pre- to post-intervention in self-reported mindful awareness, burnout, general health and well-being, and compassion for others. Repeated-measures ANCOVA was used to analyze reaction times and P300 amplitude as participants performed the PVT.

Results: Participants reported being significantly more attentive and aware of their thoughts, emotions and actions. They were more likely to report a greater sense of personal achievement and more pleasure from being able to help others (protective factors from experiencing burnout). Participants who attended more sessions had faster PVT reaction times and reduced attenuation of P300 amplitude with time-on-task. This suggests mindfulness training may benefit PVT performance by stabilizing levels of top-down attentional control. No relationships were found between the subjective and neurophysiological variables.

Conclusions: Mindfulness training leads to changes in attention and mood, which may protect nurses from stress. A better understanding of it and its longitudinal benefits may inform future programs to better protect nurses from job-related stressors.

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O193

DEVELOPING A RESILIENCE INTERVENTION FOR EARLY MOTHERHOOD USING THE BEHAVIOUR CHANGE WHEEL

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Introduction: Breastfeeding difficulties in the early days are normal and frequent. In the Western world cessation is common: in Scotland, for example, 50% of women who initiate breastfeeding have stopped by 10 days. The purpose of this study, therefore, was to develop an intervention to help women develop resilience skills for early motherhood and particularly the breastfeeding experience.

Methods: A systematic literature review was carried out to identify qualitative studies exploring how women reporting breastfeeding problems had managed to continue breastfeeding. The COM-B was used as a framework for data extraction. The Behavior Change Wheel (BCW) then informed the intervention components.

Results: Data was extracted from eleven qualitative papers. Coding revealed reflective motivation, social opportunity and psychological capability to be extremely important in the continuation of breastfeeding. When breastfeeding difficulties occurred the motivation to continue was bound up in the woman's beliefs about the importance of breastfeeding and the goals she had set herself before the baby was born. Support from kind and sensitive health professionals, partners, family members and peers was essential. Women who successfully continued breastfeeding despite difficulties used a number of psychological skills including goal-setting, self-talk and interpersonal skills to negotiate and seek out help. Using the BCW we identified four functions for the intervention: education, persuasion, modelling and enablement.

Conclusions: The Behavior Change Wheel can be used as a tool to inform systematic development of an antenatal education intervention aimed at enabling women to continue breastfeeding despite encountering difficulties.

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O194

A SINGLE SESSION OF YOGA IMPROVES RECOVERY AFTER AN ACUTE PSYCHOLOGICAL STRESS TASK IN HEALTHY INDIVIDUALS

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Introduction: Yoga is promoted as an anti-stress activity, however, little is known about the acute effects of yoga prior to experiencing a stressful event. The present study aimed to examine the effects of a single session of yoga on the response to and recovery from an acute psychological stressor.

Methods: Twenty-four healthy participants (11 female, mean age 22.9 ± 3.5) took part in a counterbalanced, randomized-crossover trial, with a yoga and a control condition (relaxation while watching TV). Participants attended the laboratory in the afternoon on two days separated by a minimum of 48 hours. Each session comprised a baseline (15min), control/yoga task (30min), stress task (21min), and recovery (30min). Blood pressure (BP), heart rate (HR) and salivary cortisol responses were measured throughout.

Results: Repeated measures ANOVAs showed significant ($p < .001$) increases in HR (+9 bpm) and systolic BP (+10mmHg) from baseline to during the stress task. There was no difference in the BP or HR responses to stress between conditions. However, the recovery from stress was significantly accelerated (lower BP, and smaller area-under-curve cortisol) in the yoga condition (all, $p < .05$).

Conclusion: Our results show that one bout of yoga was able to improve recovery from an acute stress task in healthy individuals. These positive preliminary findings encourage further investigation in at-risk populations in which the magnitude of effects may be greater, and support the use of yoga for stress recovery.

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O195

COPING WITH DEBT: LOANS, BUT NOT TAXES, ELICIT MALADAPTIVE CARDIOVASCULAR STRESS RESPONSES

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Introduction: The global financial crisis has left governments struggling to reduce their budget deficits. Loans and taxes are two important financial instruments for governments to close their budget gaps. According to models of temporal discounting and expected utility individuals should experience loans as a greater loss than taxes, depleting psychological resources and reducing individuals' capacity to cope with stressors. The present research examined patterns of cardiovascular (CV) reactivity associated with exposure to loans or taxes.

Methods: We randomized 73 students to one of three groups: loans, taxes, control (baseline). Participants in the experimental groups imagined finishing university with debts and having to repay the sums outstanding as a proportion of their salaried income over the next 30 years either via a *loan* repayment, or via *taxes*. Participants in the control group imagined finishing university, and then working in salaried employment over the next 30 years. All participants then performed a variant of the Trier Social Stress Test (TSST), whilst CV responses were monitored [BP (blood pressure), ECG (electrocardiogram), ICG (impedance cardiogram)].

Results: Compared to the control group, participants in the loan group exhibited maladaptive CV responses during the stress task (higher BP and higher total peripheral resistance [TPR]). Conversely, participants in the taxes exhibited more adaptive CV responses and did not differ from the control group.

Conclusions: Economic considerations have dominated debates surrounding macro-financial performance. The present research highlights the need to consider the psychological costs and benefits of tax-based and loan-based financial instruments.

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O196

STRANGER AND NONSTRANGER HARASSMENT: COPING STRATEGIES AND BARRIERS TO SUPPORT SEEKING

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Introduction: Sexual harassment is a pervasive issue disproportionately affecting women. The high incidence of sexual harassment and associated negative outcomes constitutes a significant public health issue. Past research employing Stress-Coping theory suggests women cope differently with sexual harassment depending on the context

and relationship with perpetrator. The current study was designed to examine women's coping in response to sexual harassment perpetrated by strangers and known persons (i.e. nonstrangers), and barriers to support seeking.

Methods: A mixed methods design was used, 772 participants completed validated measures and open-ended questions in an online survey. Open-ended questions focused on how women coped with harassment and reasons they did not seek support. Data were analyzed using SPSS and NVivo.

Results: Findings revealed that 84% of the sample experienced both forms of sexual harassment in the past two years. On average participants first experienced sexual harassment at the age of 13–14 years old. Passive coping strategies were most commonly employed in both contexts. Thematic analyses revealed key barriers to support seeking were victim blaming, shame, and normalization. A core theme was having struggled to cope with sexual harassment experienced at a young age.

Conclusions: Participants used a range of active and passive coping strategies, including angry responses and avoidance (e.g. by restriction of movement in public spaces). Qualitative findings revealed multiple barriers to support seeking and limited knowledge of coping options available during adolescence. Further research is needed to better understand adolescents' experiences of sexual harassment in order to inform interventions for this vulnerable population.

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O197

USING GENDER AS ANALYTICAL TOOL IN AN ANALYSIS OF A MANAGER'S HEALTH: REFLECTION ON LIFE-HISTORY METHOD
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Introduction: It is a lack of research on the meanings of gender dynamism in relation to manager's health in Sweden. The purpose of this paper was therefore to reflect on whether gender form, - content and/or, - arena, either contribute to reproduce or transform surrounding condition on the job and in the family and also its consequences for health, both on individual and family level.

Methods: A semi-structured life-history interview was conducted with a former manager on the basis of gender theory and written verbatim into a transcript. A life-history case was elaborated using gender as an analytical tool. By sorting and comparing already gendered life events, both on the job and in the family, the main findings evolved.

Results: Paradoxically a turning point in Jan's life became prominent with a personal crisis, and this was explained by how several minor shifts of gendered form, - content and - arena co-occurred. This resulted in that a gender neutral form of agency appeared possible to try out in practice. When this was done the conditions on the job and in the family were shaped in accordance with what is meant with good lives for *all*.

Conclusion: In most gender research the force of gender is limited due to its cross-sectional focus through time. But with the life-history research gender relations become prominent in its multiplicity, illuminating minor shifts of ongoing processes of transformation, understood as patterns of agency.

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O198

LOSS OF HEALTHY LIFE YEARS BETWEEN AGES 50–75 YEARS ATTRIBUTED TO JOB STRAIN: ANALYSES OF 64,533 INDIVIDUALS FROM FOUR PROSPECTIVE EUROPEAN COHORT STUDIES

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Introduction: Poor working conditions potentially limit quality of life and the possibilities for individuals to remain in paid employment because of poor health. However, no studies so far have investigated how psychosocial working conditions might impact on how long older workers can expect to stay healthy. This study examines whether job strain in older workers is associated with healthy life expectancy (HLE).

Methods: We used repeated measures data for 64,533 individuals from four cohort studies: Whitehall II (UK), Finnish Public Sector Study (Finland), GAZEL (France), and Swedish Longitudinal Occupational Survey of Health (Sweden). Job strain at baseline and two different measures of HLE were computed based on self-rated health and chronic health conditions. Multistate life table models were used to estimate partial life expectancy (LE) and HLE from ages 50 to 75 by job strain, cohort, occupational position and sex.

Results: Job strain was consistently related to shorter HLE, but not total LE. Particularly men in lower occupational positions with job strain had shorter HLE. The HLE in good self-rated health was 2–3 years shorter in this group. The corresponding HLE based on chronic disease was almost 2 years shorter although the relation was less pronounced for GAZEL. Women with job strain in lower occupational positions also lived 1–2 fewer years in good health.

Conclusions: The results indicate that job strain affects how long people remain healthy, and that interventions to prevent high job strain in older workers might enable people to work for longer in good health.

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O199

ASSOCIATION BETWEEN OCCUPATIONAL STRESS AND HUMAN ERRORS IN EXPERIENCED TRAIN DRIVERS: A POPULATION-BASED NATIONWIDE STUDY IN SOUTH KOREA
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Introduction: Human error is defined as an unintended error that is attributable to humans rather than machines, and that is important to avoid to prevent accidents. The purpose of this study is to investigate the association between occupational stress and human errors among experienced train drivers.

Method: A total of 4,351 male Korean train drivers who have 5 year or more experience were analyzed who completed the survey. Self-administered questionnaires were used to assess socio-demographics, the Korean Occupational Stress Scale (KOSS), the Center for Epidemiologic Studies Depression Scale, the State-Trait Anxiety Inventory, the Alcohol Use Disorder Identification Test.

Results: 307 (6.6%) showed more than one human error per 5 years. They had generally high scores in physical environment, job demand, interpersonal conflict, job insecurity, organization system and lack of reward subscales of KOSS. Each of the eight subscales of KOSS was categorized into 4 quartile groups. Highest quartile of KOSS subscales except insufficient job control and lack of reward stress were associated with higher human error rate an individual reported. The significantly increased odds ratios in the highest scoring group compared to the lowest scoring group for the effect of occupational stress on human error rate remained after adjusting age, marital status, education year, career duration, anxiety, depression and problematic alcohol drinking status.

Conclusions: These results from a large number of respondents suggested that occupational stress is associated with human error rate. Further study should design a prospective study to understand a causal relationship between occupational stress and human error.

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O200

INTELLECTUAL ENGAGEMENT AT WORK IN RELATION TO MOBILITY AND PAIN 20 YEARS LATER AFTER RETIREMENT

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Introduction: Mobility problems and musculoskeletal pain are related to quality of life and independence in advanced old age, as well as societal costs for care. Most adults spend a considerable amount of time at work, making working conditions a major player in late-life health outcomes. However, very few studies to date have examined intellectual engagement at work (measured as work complexity) in relation to pain and mobility in late-life.

Methods: Swedish nationally representative samples, from 1968, 1981, and 1991 were re-interviewed 1992, 2002, 2004, and 2011 (69+) with 20-24 years follow-up time (women, n=1121; men, n=785). Ordered logistic regressions were used. **Outcomes:** indices of self-reported mobility and musculoskeletal pain. **Work complexity:** overall work complexity, complexity of working with data, and complexity of working with people. **Control variables:** sex, age, follow-up year, education, social class, education, mobility at baseline, and musculoskeletal pain at baseline and follow-up.

Results: Overall complexity and complexity of work with people were significantly associated with musculoskeletal pain in advanced old age controlling for sex, age, and mobility at baseline. Also controlling for education and social class reduced this association to non-significant. Overall work complexity and complexity of work with data were associated with mobility in advanced old age after considering all control variables.

Conclusion: Intellectual engagement at work measured as work complexity seems to be important for late-life mobility even after controlling for many factors, e.g. education, social class, and pain both at baseline and follow-up.

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O201

THE EVALUATION OF THE CUMULATIVE PSYCHOSOCIAL RISK AT WORK WITH A COMPOSITE RISK SCORE IN A POPULATION BASED SURVEY

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Introduction and goals: We developed a composite score to estimate the cumulative effect of multiple work related stressors based on the Copenhagen Psychosocial Questionnaire (COPSOQ-II) to facilitate the implementation of occupational health directives regarding the assessment and management of psychosocial risk at work.

Methods: We conducted an on-line work stress survey in Hungary including 13104 actively working individuals, representative of the working population according to gender, age groups, education and occupational sectors. We used 22 scales on the work environment and 4 outcome scales of the COPSOQ II. A composite psychosocial risk score (CPRS) reflecting the number of risk factors was calculated.

Results: All work environment scales correlated significantly with the outcome scales (partial correlation controlled for gender, age groups and education ranged $r=0.18-0.45$ for “stress” and “burnout”, and $r=0.14-0.33$ for “troubles sleeping” and “self-rated health”). The CPRS was more strongly correlated with the outcome scales: $r=0.51$ for “burnout”, $r=0.50$ for “stress”, $r=0.37$ for “troubles sleeping” and $r=-0.35$ for “self-rated health”. The prevalence of negative health outcomes increased with CPRS dramatically (from 4-16% up to 66-88%). We determined 5 risk categories based on the CPRS and the prevalence of negative health outcomes. In the “high risk” compared to the “no risk” category, the odds ratio was 20.62 for high stress; 21.25 for high burnout; 5.89 for sleeping troubles; and 7.84 for poor self-rated health.

Conclusions: Although the cross-sectional design limit any conclusions about causality, the composite psychosocial risk score proved to be a powerful predictor of self-reported negative health outcomes.

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O202

JOY AND PURPOSE AT WORK – KEY MEDIATORS FROM WORK RELATED RESOURCES AND WORK STRESS TO HEALTH AND PRODUCTIVITY

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Introduction: The past decades have advanced our understanding of work related stress by testing a variety of psychosocial constructs such as job-strain, effort-reward imbalance, organizational justice or social support at work. To date positive constructs such as enjoying one's work or perceiving purpose of work have received comparatively little attention. The aim of the study was to elucidate the relevance of “positive” factors,

specifically a) work adding purpose to one's life, b) enjoying work and c) being full of hope about the future.

Methods: Using a repeated measures design (baseline & 24-month follow-up, $n = 3875$ questionnaires) we employed structural equation modelling (SEM) to elucidate latent constructs within a purpose developed short survey (31 items) that included measures of health related losses of productivity (HRLP), 2-items scales assessing the aforementioned constructs, subjective health and external stressors. An independent representative population based sample ($n = 2900$) was employed as a validation dataset.

Results: SEM revealed a latent factor comprising of two items related to enjoying one's work, the sense of one's work adding purpose to life and being full of hope as the best fitting solution. This latent construct, labelled "FreuSinn" (the German short form of joy and purpose) predicted subjective health (standardized $\beta = 0.58$) with direct paths from resources at work ($\beta = 0.4$) and job-strain ($\beta = -0.5$) to "FreuSinn". Overall variation of "FreuSinn" explained almost 50% of the variance in HRLP.

Conclusion: Joy and purpose at work mediate between psychosocial conditions at work and health / HRLP.

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O203

INCREASES IN SELF-REGULATORY SKILLS AND AUTOMATICITY MEDIATE THE EFFECT OF A HABIT BASED INTERVENTION ON WEIGHT LOSS

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Introduction: The aim of habit-based interventions is to promote the automaticity of healthy behaviors. However, they may also enhance self-regulatory skills, as planning and goal setting are required in the early stages of habit development. The 10TT trial tested a leaflet intervention based on habit-formation theory and delivered through primary care in the UK. Preliminary results showed that patients allocated to 10TT lost significantly more weight over 3 months than those allocated to usual care. The present analysis tested the hypotheses that i) 10TT would increase both automaticity of healthy behaviors and self-regulatory skills, and ii) that these changes would mediate the effect of 10TT on weight loss.

Methods: 537 obese patients from primary care in the UK were randomized (ratio 1:1) to receive 10TT or usual care. At baseline and 3 months, patients were weighed and completed validated questionnaires for self-regulation and automaticity. Post-treatment effects were examined within-groups using paired t-tests and between-groups using ANCOVA. Mediation was assessed using the Sobel test.

Results: Self-regulatory skills and automaticity increased significantly over 3 months in both groups. However, patients who were given 10TT reported greater increases in their self-regulatory skills ($p = .019$) and in the automaticity of target behaviors ($p = .003$) than those who received usual care. Changes in both self-regulatory skills and automaticity mediated the effect of the intervention on weight loss (Sobel test, $z = 2.42$, $p = .01$ and, $z = 2.39$, $p = .01$, respectively).

Conclusions: As hypothesized, a habit-based intervention, improved both automaticity of healthy behaviors and self-regulatory skills, which in turn promoted weight loss.

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O204

AN INTERVENTION TO FACILITATE THE IMPLEMENTATION OF OBESITY PREVENTION POLICIES AND PRACTICES IN CHILDCARE SERVICES: A RANDOMISED CONTROLLED TRIAL
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Introduction: Supporting childcare services to implement policies and practices which encourage children to eat healthily and be physically active can contribute to a reduction in the health burden of excessive weight gain in childhood. Few trials, however, have been conducted to examine the strategies that may be most effective in improving implementation of such policies and practices in this setting. The aim of this study was to assess the effectiveness of a multi-component intervention in increasing the implementation of obesity prevention policies and practices by childcare services.

Methods: An RCT was conducted in 128 childcare services. The 12-month intensive intervention included the following strategies: securing executive support and staff consensus, staff training, academic detailing, tools and resources, support staff, monitoring and feedback, and communications strategies. Intervention effectiveness was assessed via telephone surveys with service managers conducted at baseline and post-intervention. Child dietary intake and physical activity levels were also assessed via direct observation in a random sub-sample of services at follow-up.

Results: Post-intervention, 44% of intervention group childcare services reported implementing all seven of the targeted obesity prevention policies and practices, which did not significantly differ from control group childcare services (37%, $p = 0.44$). There were no significant differences between groups at follow-up on measures of child dietary intake or physical activity.

Conclusions: Key learnings included the difficulty of implementing multiple changes to childcare services environments simultaneously. Further, there is a need for sound measures of implementation constructs to enable the development of more efficient and effective interventions.

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O205

AN M-HEALTH INTERVENTION FOR IMPROVING WELLBEING AND WEIGHT MAINTENANCE OUTCOMES: LESSONS FROM A RANDOMISED CONTROLLED TRIAL

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Introduction: mHealth applications are increasingly accessible and possess the potential for personalized, real-time feedback. Little is known about the effectiveness of apps for behavioral intervention. We aimed to compare a weight maintenance-focused smartphone app applying behavioral techniques targeting weight, food, exercise, mood and stress with an app targeting only weight, food and exercise.

Methods: Eighty-eight adults (lost 5% of body weight within last 2 years) were recruited via local media. Participants were randomized to the full or control app condition. Over 24 weeks, the effect of the apps on weight, diet quality, and psychological wellbeing was assessed.

Results: Of starters, 69.3% completed week 24. Mixed models suggested no significant changes in weight for users of either app; 52.5% remained within 2% of starting weight. Increases in weight loss self-efficacy and satisfaction with life occurred in both groups. Those receiving the full app remained active users for significantly longer than controls and felt more supported. Supplementary analyses were performed to better help understand intervention engagement, uptake and its effect on psychological and weight-related outcomes. Being highly engaged with the app did not relate to the app condition or weight changes observed. Those who were more likely to be successful at weight maintenance over 24 weeks had better diet quality and exercise habits at baseline, but no other discrepancies in psychological measures.

Conclusions: The inclusion of mood and stress monitoring showed limited success at increasing behavior change or wellbeing when compared to an app focusing solely on weight, food and exercise.

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O206

THE POTENTIAL OF ONLINE CANTEENS TO DELIVER PUBLIC HEALTH NUTRITION INTERVENTIONS TO SCHOOL COMMUNITIES
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Introduction: School canteens represent an opportune setting for implementing initiatives to improve children's nutrition. Online canteens, where menu items are selected and paid for online, are increasingly popular in Australian schools, and represent an attractive opportunity to deliver interventions to encourage healthy purchasing. However, the potential of online canteens to deliver such interventions has not been formally investigated. This study aimed to 1) assess awareness and use of online canteens among primary school principals 2) explore whether these factors differ by school characteristics (sector, size, rurality, disadvantage), 3) identify barriers to use, and 4) assess acceptability of nutrition intervention strategies that could be implemented through an online canteen.

Methods: A telephone survey of 123 primary school principals within the Hunter New England Region of NSW, Australia, was conducted from September to November 2014.

Results: Among surveyed principals, 56% (n=68) were aware of online canteens, 8% had implemented an online canteen, and 38% were likely to in the future. A higher proportion of medium/large schools (≥160 students) were aware of, or using online canteens. However, there were no differences in awareness or use in terms of school rurality or socioeconomic advantage. Parent internet access was the most common barrier to online canteen use, and the majority of principals (71–93%) agreed that it would be acceptable to implement a range of consumer behavior strategies via an online canteen.

Conclusions: Nutrition interventions delivered via online canteens appear acceptable and have the potential to reach a large proportion of school communities in the future.

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O207

SCREENING FOR OBESITY AND BRIEF INTERVENTION FOR WEIGHT LOSS IN PRIMARY CARE: A RANDOMISED TRIAL

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Introduction: Obesity is a common cause of non-communicable disease in many countries. Guidelines recommend doctors screen and offer brief advice to motivate weight loss. No trials show whether this is acceptable or effective.

Methods: Patients consulting 137 primary care physicians in the UK were screened. At the end of the consultation, the physician randomized participants to one of two 30-second interventions. In the active intervention, the physician offered referral to a weight management course, ensured the patient left with an appointment, and offered follow-up. In the control intervention, the physician advised the patient their health would benefit from weight loss. Participants rated the appropriateness and helpfulness of the physician intervention. The primary outcome was weight change at 12 months.

Results: Of 8403 people screened, 2684 (32%) were obese, 83% agreed to participate and 1882 were eligible and enrolled. 722 (76.8%) of 940 participants in the active condition agreed to attend the weight management group and 379 (40.3%) attended, compared with 82 (8.7%) of the 942 participants in the control group. Three participants in the active and one participant in the control group thought the intervention was both inappropriate and unhelpful (0.2%) and 756 (80.3%) thought it appropriate and helpful. Mean weight change at 12 months was 2.43 kg in the active and 1.04 in the control condition, an adjusted difference (95% confidence interval) of 1.43 (0.89 to 1.97).

Conclusion: A physician-delivered behaviorally-informed very brief opportunistic intervention is acceptable to patients and an effective way to reduce population mean weight.

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O208

EFFICACY OF A GENDER-TAILORED INTERVENTION TO PREVENT WEIGHT REGAIN IN MEN OVER THREE YEARS: A WEIGHT LOSS MAINTENANCE RCT

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Introduction: Weight regain after weight loss is common. Although weight loss maintenance (WLM) programs can reduce regain, few are scalable and none have targeted men. In this study, we examined the efficacy of a gender-tailored WLM program to prevent weight regain in overweight/obese men over three years.

Methods: Ninety-two men who lost 4kg or more during the 3-month 'SHED-IT Weight Loss Program' were randomized to receive: (i) the additional 6-month 'SHED-IT WLM Program' (WL+WLM; n=47) or (ii) no additional resources (WL-Only; n=45). Both programs were

gender-tailored and self-administered to increase engagement and scalability. The WLM program included written materials, motivational messages (SMS, video emails) and other resources (e.g., pedometer, elastic tubing resistance training device). Relative to randomization, participants were assessed at 'minus 3 months' (pre-weight loss), '0 months' (post-weight loss + randomization into WLM), '6 months', '1-year' (primary endpoint) and '3 years'.

Results: At randomization, the mean (SD) weight loss was 7.3kg (2.5). Retention was 83% at 1-year and 71% at 3 years. Intention-to-treat linear mixed models showed the WL+WLM group regained significantly less weight than the WL-Only group at 6 months (mean difference: -1.9kg, 95%CI -3.7,-0.1), but this effect was not observed at 1- or 3 years. At 3 years, strong WLM effects were observed in both the WL-Only group (59% maintenance) and the WL+WLM group (51% maintenance).

Conclusions: Men demonstrated clinically meaningful WLM up to three years after losing weight with a gender-tailored, self-administered weight loss program. A supplementary WLM program provided additional benefit in the short-term only.

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O209

SCREENING FOR SEVERE FATIGUE IN NEWLY DIAGNOSED BREAST AND COLORECTAL CANCER PATIENTS WITH THE DISTRESS THERMOMETER

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Introduction: Internationally, the Distress Thermometer and associated Problem List are increasingly implemented in oncology as screening tool for psychological distress. Cancer-related fatigue is a common problem that is often overlooked in clinical practice. In the current study, we examined if severe fatigue in cancer patients can be identified with the fatigue item of the Problem List.

Methods: A study sample of newly diagnosed breast ($N=334$) and colorectal ($N=179$) cancer patients was used. Severe fatigue was defined as a positive score on the fatigue item of the Problem List, and the Fatigue Severity subscale of the Checklist Individual Strength was used as gold standard measure for severe fatigue.

Results: In total, 78% of breast cancer patients and 81% of colorectal cancer patients were correctly identified with the fatigue item. The sensitivity was 89% in breast cancer patients and 91% in colorectal cancer patients. The specificity was 75% in breast cancer patients and 77% in colorectal cancer patients. The positive predictive value was 53% in breast cancer patients and 64% in colorectal cancer patients, whereas the negative predictive value was 95% in both tumor types.

Conclusions: The mean sensitivity of both groups of 90% shows that the fatigue item of the Problem List can be used to quickly detect cases of severe fatigue. The mean specificity of 76% illustrates that if patients indicate fatigue as a problem, a validated fatigue questionnaire with cut-off point for severe fatigue is needed to exclude false positives and to confirm if these patients are severely fatigued.

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O210

COMORBIDITY OF DEPRESSION, ANXIETY, AND FATIGUE IN CANCER PATIENTS RECEIVING PSYCHOLOGICAL CARE

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Introduction: This study aimed to examine: (1) subgroups of cancer patients with distinct comorbidity patterns of depression, anxiety, and fatigue, (2) how individuals transitioned between these patterns, and (3) whether socio-demographic, clinical, and psychological care characteristics distinguished patients' transitions.

Methods: This naturalistic, longitudinal study focused on 241 cancer patients receiving psycho-oncological care in the Netherlands. Data were collected before initiation of psychological care (T1), three (T2) and nine months thereafter (T3). Latent transition analysis was performed examining research questions.

Results: Three distinct comorbidity patterns were identified: class 1 ('mood disturbances and fatigue'), class 2 ('mood disturbances'), and class 3 ('few symptoms of mood disturbances and fatigue'). Half of those in class 1 remained in this group from T1 to T3, a quarter transitioned to class 2, and another quarter to class 3. Baseline physical symptoms distinguished these transitions: those with more physical symptoms tended to remain stable. Half of patients in class 2 remained stable from T1 to T3, 46% moved into class 3, and 8% into class 1. Baseline physical symptoms and years after cancer diagnosis significantly distinguished these transitions: the 8% moving to class 1 had more physical symptoms and were longer after cancer diagnosis. Most patients in class 3 remained stable from T1 to T3, and predictors of transitions could not be examined.

Conclusions: Three distinct comorbidity patterns of depression, anxiety, and fatigue were identified, and exhibited different symptom courses longitudinally. Those with poor physical health tended to report elevated mood disturbances and fatigue during psychological care.

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O211

RISK FACTORS, PREVALENCE, AND COURSE OF SEVERE FATIGUE AFTER BREAST CANCER TREATMENT: A META-ANALYSIS INVOLVING 12,327 BREAST CANCER SURVIVORS

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Introduction: Severe fatigue is among the most troublesome cancer-related symptoms. This was the first meta-analysis that examined (i) demographic, disease-related, and treatment-related risk factors, (ii) the prevalence, and (iii) the course of severe fatigue following breast cancer treatment.

Methods: PubMed, PsycINFO, Cochrane, CINAHL, and Web of Science were systematically searched from inception up to November 23th 2015. Inverse variance random effects analyses were performed.

Results: Twenty-seven studies were included (N=12,327). The risk for severe fatigue was lower in breast cancer survivors who had a partner, and were treated with surgery and surgery plus radiotherapy (RR respectively 0.96, 95% CI 0.93-0.98; 0.83, 95% CI 0.70-0.98; 0.87, 95% CI 0.78-0.96). Survivors who had stage II or III cancer, who were treated with chemotherapy, who were treated with surgery, radiotherapy and chemotherapy, and this combination plus hormone therapy were at higher risk (RR respectively 1.18, 95% CI 1.08-1.28; 1.12, 95% CI 1.06-1.19; 1.18, 95% CI 1.05-1.33; 1.38, 95% CI 1.15-1.66). The pooled prevalence of severe fatigue was 26.9% (95% CI 23.2-31.0), but this should be interpreted with caution because of high heterogeneity. A relatively large decrease in the prevalence of severe fatigue seemed to occur in the first half year after treatment completion.

Conclusions: Approximately one in four breast cancer survivors suffers from severe fatigue. Risk factors of severe fatigue were higher disease stages, chemotherapy and receiving the combination of surgery, radiotherapy and chemotherapy, both with and without hormone therapy. Having a partner, receiving only surgery, and surgery plus radiotherapy decreased the risk.

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O212

PHYSICAL BEHAVIOR PROFILES IN CANCER-RELATED FATIGUE

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Introduction: Increasing physical activity can reduce chronic cancer-related fatigue (CCRF). However, outcomes on physical activity amounts represent only one dimension of physical behavior (PB), whereas other dimensions of PB or their interactions might be just as – or even more – important and clinically relevant. We studied how these PB dimensions cohere among patients that suffer from CCRF by means of deriving PB profiles, and whether such profiles can be predicted by fatigue severity.

Methods: Participants are recruited from a randomized controlled trial for CCRF. Accelerometer data (>3 days with >600 minutes) was used from 164 participants. A latent profiles analysis was performed with five key PB measures: both physical activity

amounts (physical activity level (PAL), sedentary, moderate-to-vigorous intensity (MVPA)) and bout length distributions (prolonged SB (>30 minutes) and prolonged MVPA (>10 minutes)). Overall correlations were modelled between PAL and the other indicators except prolonged MVPA, and between both sedentary measures. Fatigue severity (Checklist Individual Strength) was studied as predictor.

Results: A 5-class model was the best solution based on the Bayesian Information Criteria of models for k=1:6. Most distinctive single measure was MVPA, prolonged SB was least distinctive. With increasing fatigue severity, odds for the ‘most inactive’ profile (N=53) increased relative to the ‘average’ profile (N=63; LO=0.088, *p*=.044) and the ‘high prolonged MVPA’ profile (N=14; LO=0.101; *p*=.006).

Conclusions: Latent profiles analysis of three amount measures and two bout length measures revealed five PB profiles. Although all participants were severely fatigued, differences in fatigue severity were established between two pairs of profiles.

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O213

EFFECTIVENESS OF TWO INTERNET INTERVENTIONS FOR CANCER-RELATED FATIGUE: RESULTS OF A 3-ARMED RANDOMIZED CONTROLLED TRIAL ‘FITTER NA KANKER’

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Introduction: Physical activity and psychosocial interventions specifically designed to reduce cancer-related fatigue (CRF) have shown to be effective. As easily accessible interventions are needed, we have developed two different internet interventions aimed at reducing fatigue severity. The effectiveness was studied.

Methods: Participants (N=179), all suffering from severe fatigue, had finished curative-intent cancer treatment and were randomized into: 1) a physiotherapist guided ambulant activity feedback therapy (AAF) (N=61), 2) a psychologist guided online mindfulness-based cognitive therapy (eMBCT) (N=56), or 3) an active control condition receiving psycho-educational e-mails (PE) (N=50). All interventions were 9 weeks. Outcomes were fatigue severity and distress, assessed at baseline, two weeks post-intervention, and at six months after baseline (T2). Fatigue severity was also assessed three times during the intervention (week 3, 6, 9). The effectiveness was investigated using a multiple group, piece-wise latent growth model. The attrition rate was calculated.

Results: Fatigue severity significantly decreased between baseline and T2 in both the AAF and eMBCT condition, compared to the PE condition. Distress did not decrease in both interventions compared to PE condition. In the AAF 76% (N=45) adhered to treatment, and in the eMBCT condition 59% (N=32) adhered to treatment.

Conclusions: eMBCT and AAF are effective interventions for managing fatigue severity, though not for everyone. Recommendations for implementation are discussed.

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O214

EFFICACY OF TAILORED EXERCISE THERAPY ON PHYSICAL FUNCTIONING IN PATIENTS WITH KNEE OSTEOARTHRITIS AND COMORBIDITY: A RANDOMIZED CONTROLLED TRIAL

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Introduction: Exercise therapy is a key intervention in the management of knee osteoarthritis (KOA). Comorbidity is highly prevalent in KOA and interferes with the application of exercise therapy, contributing to nonadherence. This study aimed to evaluate the efficacy on physical functioning and safety of tailored exercise therapy in patients with KOA and comorbidity.

Methods: A single-blind, randomized controlled trial, comparing comorbidity-adapted exercise therapy to a control group. Measurements were performed at baseline, after 20 weeks (post-treatment) and at 3 months after treatment. Participants had a clinical diagnosis of KOA and at least one of the target comorbidities: coronary disease, heart failure, type 2 diabetes, chronic obstructive pulmonary disease or obesity, with severity score ≥ 2 on the Cumulative Illness Rating Scale. Primary outcome measures: Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) subscale physical functioning and 6-minute walking test (6MWT).

Results: In total, 126 participants were randomized, with 63 in the intervention group and 63 in the control group. Physical functioning improved over time in the intervention compared to the control group (WOMAC (B= -7.43, 95%CI -9.99 to -4.87, $p < .001$) and the 6MWT (B= 34.16, 95%CI 17.68 to 50.64, $p < .001$)). No serious adverse events occurred during the intervention.

Conclusion: This is the first study showing that tailored exercise therapy is efficacious in improving physical functioning and safe in patients with KOA and comorbidities. These results should encourage clinicians to consider exercise therapy as a treatment option for patients with KOA, even in the presence of comorbidity.

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O215

PSYCHOLOGICAL INTERVENTIONS FOR RHEUMATOID ARTHRITIS: A SYSTEMATIC REVIEW OF REVIEWS

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Introduction: Rheumatoid arthritis (RA) is a long-term, progressive autoimmune disease. Many patients continue to experience symptoms despite pharmacological treatment. RA medications also have a variety of side-effects making psychological interventions an important but often overlooked option. The primary aim of this research was to summarize evidence from multiple systematic reviews of psychological interventions for patients with RA to determine their effectiveness in improving outcomes.

Method: Electronic searches of 6 databases (CDSR, DARE, EMBASE, MEDLINE, CINAHL, PsycINFO) from January 2000 to June 2015. Main inclusion criteria were: systematic reviews of randomized controlled trials (RCTs) of psychological interventions, including participants with RA aged ≥ 18 years, reporting findings for at least one of the primary outcomes and published in English. The quality of the selected reviews was assessed using the Assessment of Multiple Systematic Reviews (AMSTAR) Checklist.

Results: 8 systematic reviews published between 2002 and 2013 were selected for inclusion. Psychological interventions had small positive short-term effects on pain, fatigue, functional disability, psychological status and disease activity. There was some evidence that coping and self-efficacy were strengthened more by psychological interventions and that these improvements were maintained over a longer period.

Conclusion: Psychological interventions have small positive effects on outcomes in adults with RA. Future research is needed to examine patient characteristics which make them more or less responsive to these interventions, whether changes are mediated by psychological factors and to develop strategies to increase and maintain improvements over time.

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O216

BARRIERS AND FACILITATORS TO GENERAL PRACTITIONER USE OF EXERCISE AND WEIGHT-LOSS INTERVENTIONS FOR MANAGING KNEE OSTEOARTHRITIS

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Introduction: Osteoarthritis (OA) is a highly prevalent and costly chronic condition, and is the 8th most-managed problem by Australian GPs. The knee is the most commonly affected lower-limb joint. There is now strong evidence to support strengthening exercise, weight loss and facilitation of self-management for treating knee OA. However, Australian studies have shown that GPs tend to under-emphasize these options in favor of drug and surgical management. This qualitative study was performed to determine the reasons for the miss-match between recommended and current GP practice.

Methods: Eleven GPs participated in telephone-based semi-structured interviews. Interview questions focused on gaining an understanding of the barriers, and the knowledge/beliefs that may act as barriers, to 1) diagnosing knee OA using clinical criteria (without imaging), 2) communicating the diagnosis and recommended management with patients, and 3) promoting exercise and weight-loss as first-line treatments. We used deductive thematic analysis anchoring the data to the COM-B behavioral analysis framework (Capability/Opportunity/Motivation-Behavior).

Results: Themes identified were: 1) inaccurate knowledge of disease processes and progression, lack of knowledge of effective exercise and weight-loss treatments, and inadequate skills to facilitate lifestyle changes (psychological capability), 2) system-related barriers and insufficient patient resources (physical opportunity), 3) habit and uneasiness (automatic motivation), and 4) influence of patient expectations and of GP assumptions about patients, and the relative ease of delivering traditional management (reflective motivations). Facilitators included knowledge, longer consultations and software solutions.

Conclusions: The barriers may contribute to feelings of pessimism among GPs when managing knee OA. Implementation interventions should target these barriers.

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O217

DOES INFORMATION BECOME ACTUAL KNOWLEDGE IN SURGICAL SPINE PATIENTS? A QUALITATIVE STUDY

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Introduction: Communication with patients in clinical practice and its inherent challenges is gaining increased attention. Despite common clinical assumptions that better patient information creates more knowledge of the clinical procedures in surgical patients, such assumptions often seem contradicted by the post-surgical health behavior of patients. The purpose of this study was to elucidate how patients undergoing spinal fusion surgery manage the information provided to them and adjust to it in their life after surgery.

Methods: The study employed standard qualitative methods of ethnographic observation and semi-structured interview with a total of 14 individuals, i.e. spinal fusion patients (n=6) and clinicians (n= 8) over a four month period in 2014 to elucidate the experience of and adjustment to information in clinical encounters.

Results: We identified four strategies for managing information on spinal surgery and rehabilitation employed by the patients. This documents the knowledge process in surgical patients as an active process of adjustment. Our observations suggest that pre-understandings and previous experience is central to the knowledge strategies employed by patients.

Conclusions: The study reveals how communication in clinical practice is not a simple sender – receiver relation with the health professional as the active part and the patient as a passive recipient. It points to challenges in clinical practice for making information become actual knowledge in the patients.

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O218

A TELEPHONE-BASED LIFESTYLE BEHAVIOURAL INTERVENTION FOR OVERWEIGHT OR OBESE PATIENTS WITH LOW BACK PAIN.

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Introduction: Around 70% patients with chronic low back pain who are referred for orthopedic consultation are overweight or obese, a health risk associated with poor prognosis of low back pain. Despite this only 21% of these patients receive support for weight loss before or during their wait for consultation. The study aimed to evaluate the effectiveness of a telephone-based lifestyle behavioral intervention for patients referred for orthopedic consultation for chronic low back pain, who are overweight or obese.

Methods: A randomized controlled trial of 160 patients referred to an orthopedic outpatient clinic was conducted. The intervention group received an in-depth clinical advice and education session and a telephone-based behavior change intervention, focusing on weight reduction and the adoption of a healthy lifestyle. The controls received usual care. The primary outcome, pain intensity was assessed at 2, 6, 10, 14, 18, 22 weeks.

Results: Recruitment was completed in 22 weeks, 92% of the eligible patients in the cohort described above consented to inclusion in the RCT. Adherence to the lifestyle program at mid-point was 75%. There was a 15% reduction in 'willingness to have surgery' in the intervention group following the advice and education intervention. Six-month follow up has been completed with a follow-up rate of 87%.

Conclusions: This is the first randomized controlled trial of an integrated clinical care and lifestyle behavioral intervention targeting patients with low back pain. Full results of the trial will be presented at the ICBM.

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O219

A WEIGHT MANAGEMENT AND HEALTHY LIFESTYLE PROGRAM FOR OVERWEIGHT AND OBESE PATIENTS WITH KNEE OSTEOARTHRITIS

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Introduction: Overweight and obesity are indicators of poor prognosis and major drivers for the need for joint replacement surgery for knee osteoarthritis. However, many patients are referred for surgery without having trialed weight reduction interventions. This study will assess the effectiveness of a telephone-based weight management and healthy lifestyle program in patients with knee osteoarthritis who are overweight or obese.

Methods: A randomized controlled trial of 120 overweight and obese patients with knee osteoarthritis referred for surgical consultation was conducted. Patients were allocated to a telephone-based weight loss intervention or usual care. The primary outcome, pain

intensity was measured over six months. Secondary outcomes include, weight loss, physical function, quality of life, and perceived need for surgery.

Results: Recruitment was completed in 7 weeks, 87% of the eligible patients in the cohort described above consented to inclusion in the RCT. Adherence to the weight management and healthy lifestyle program at mid-point was 75%. Six-month follow up has been completed with a follow-up rate of 93%. Final data collection is complete and results will be reported at the ICBM.

Conclusions: This is the first randomized controlled trial to evaluate the effectiveness of a telephone-based weight management program for patients with knee osteoarthritis who are overweight or obese and referred for surgical intervention. The intervention has the potential to reduce the burden of overweight and obesity and the severity of osteoarthritis.

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O220

STANDARDIZATION OF THE CANCER HEALTH LITERACY TEST IN A NON-CANCER POPULATION

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Introduction: The Cancer Health Literacy Test-6 (CHLT-6) was originally developed in a cancer population to identify persons with limited cancer health literacy (LCHL). There is no instrument to identify individuals with LCHL in a non-cancer populations such as caregivers and epidemiologic samples. This study aims to test if the CHLT-6 can be used to identify persons with LCHL in non-cancer samples.

Methods: A patient sample of 512 persons without cancer was used to test the CHLT-6 measurement structure and externally validate the test. Latent class analysis was used to identify persons with LCHL. Measurement invariance tests were performed to demonstrate group equivalence and justify prevalence estimates.

Results: Two classes were clearly separated by the CHLT-6 items. Measurement invariance tests showed equivalence of conditional probabilities between gender, race/ethnicity, and educational groups. There were significant group differences in prevalence of LCHL. The CHLT-6 was externally validated using race/ethnicity, education, and income. Overall results were very similar to those reported in the cancer population.

Conclusions: This study provides a strong support for the applicability of CHLT-6 in non-cancer populations.

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O221

ATTITUDES TOWARDS THE FAECAL OCCULT BLOOD TEST (FOBT) VERSUS THE FAECAL IMMUNOCHEMICAL TEST (FIT) FOR COLORECTAL CANCER SCREENING

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Introduction: Colorectal cancer screening is key to early detection but uptake is sub-optimal. The imminent introduction of the single-sample Fecal Immunochemical Test (FIT) in Scotland may lead to increased

uptake as compared to the current Fecal Occult Blood Test (FOBT), but underlying reasons are yet to be determined. The aim was to evaluate attitudes and intentions towards completing the FIT compared to the current FOBT test.

Methods: 200 adults rated both the FOBT and the FIT with regard to ease of completion, perceived disgust and intention to complete and return.

Results: Participants reported higher intention to complete and return the FIT versus the FOBT. Overall, 85.0% of participants agreed or strongly agreed that they would intend to complete and return the FIT compared to 65.5% for the FOBT. FIT was also perceived to be easier to complete (mean difference 0.85, 95% CI (0.70, 1.01) and much less disgusting (mean difference 1.11, 95% CI (0.94, 1.27)).

Conclusions: People reported higher intentions to complete and return a FIT than a FOBT test, due to the perception that it is easier and less disgusting to complete. The findings suggest that the introduction of the FIT as standard could result in a notable increase in screening uptake.

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O222

COPING STRATEGIES AND CANCER INCIDENCE AND MORTALITY: THE JAPAN PUBLIC HEALTH CENTER-BASED PROSPECTIVE STUDY

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Introduction: Psychological stress is a modifiable risk factor for health outcomes and can be managed through coping mechanisms. Biological and behavioral hypotheses have been proposed to explain the association between stress coping strategies and cancer outcomes. The primary aim of the current study was to identify the impact of premorbid coping behaviors and strategies on cancer incidence and mortality. This would allow us to determine the direction of the current hypotheses.

Methods: The Japan Public Health Center-based Study asked questions on coping behaviors in its 10-year follow-up survey. 55,130 subjects aged 50-79 without a history of cancer diagnosis and who provided complete answers on coping were included in analyses on cancer incidence and mortality. Hazard Ratios (HR) according to coping style were determined using Cox regression models adjusted for known confounders for cancer. Results: Mean follow-up time was 9.5 years for cancer incidence and 9.8 years for cancer mortality. The utilization of the approach-oriented coping strategy (HR=0.85, 95% CI: 0.72–0.99) and a behavior of positive reappraisal (HR=0.84, 95% CI: 0.72–0.97) was associated with a reduced risk of cancer mortality. The approach-oriented coping strategy was further associated with localized cancer incidence (HR=1.13, 95% CI: 1.01–1.27) and screening-detected cancers (HR=1.35, 95% CI: 1.15–1.58). The avoidance-oriented coping strategy was inversely associated with cancer incidence (HR=0.69, 95% CI: 0.50–0.94) only after excluding events occurring in the first three years of follow-up.

Conclusion: The results of this study may favor the behavioral hypothesis to explain associations between premorbid coping styles and cancer outcomes.

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O223

A PILOT CLUSTER RANDOMISED TRIAL OF ELECTRONIC FEEDBACK, ONLINE AND TELEPHONE SUPPORT ON MULTIPLE HEALTH BEHAVIOURS AMONG VOCATIONAL EDUCATION STUDENTS

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Introduction & Purpose: Despite vocational education students reporting high rates of health risk behaviors, no prior trials have addressed such behaviors in this population. We examined the effectiveness of providing vocational education students with electronic feedback and online and telephone services on smoking rates, risky alcohol use, fruit and vegetable intake and physical activity levels.

Methods: At baseline, 100 Technical and Further Education classes were randomly assigned to: (i) an intervention group that received electronic feedback and referral to online and telephone support for each health behavior that did not meet Australian guidelines; or (ii) a no treatment control group. Logistic regression and linear regressions fit within a Generalized Estimating Equation framework tested for significant between-group differences in smoking, alcohol consumption per week, fruit per day, vegetables per day, and weekly physical activity.

Results: Overall 968 students participated (consent rate=97.9%). Participants were 74% male, had a mean age of 22.6 years (SD=8.6) and 40% had completed Year 10 as their highest level of education. At baseline, 37.2% smoked tobacco, the mean standard drinks of alcohol per week was 11.4 (SD=19.2), mean serves of fruit daily was 1.7 (SD=1.3), mean serves of vegetables daily was 2.4 (SD=1.4) and mean metabolic equivalent minutes of physical activity per week was 2045 (SD=1410). Preliminary findings revealed that at 6-months follow-up all five primary outcomes favored the intervention condition over the control condition.

Conclusions: Electronic feedback and online and telephone support has potential to address multiple modifiable determinants of disease among vocational education students.

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O224

EFFICACY OF MINIMAL ONLINE INTERVENTIONS TO MANAGE FOOD CRAVINGS

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Introduction: Food cravings can lead to compulsive eating and obesity-related health issues, which are associated with increased cancer risk. Psychological techniques such as mindfulness have shown promise in reducing unwanted and intrusive food-associated thoughts, but methods typically involve clinician-led training sessions over a number of weeks and are time and cost intensive. This study developed and tested the efficacy of two minimal, online intervention strategies to assist with the self-management of food cravings after two weeks and one month.

Methods: Female participants ($N = 164$; m age = 32) who self-identified as struggling with cravings for food were recruited through local media. They completed online measures of cravings, mood and state mindfulness before being randomized to either: (1) a minimal mindfulness intervention, or (2) a minimal thought suppression intervention. Measures were taken at baseline, two weeks and one month follow-up.

Results: Repeated measures analyses revealed that: (1) after two weeks, food cravings and depressed mood had reduced significantly in both groups, however, there was a significantly greater reduction in food cravings in participants who received the thought suppression intervention; (2) these findings were maintained after one month ($ps < .05$)

Conclusions: This study provides preliminary evidence that minimal online interventions are useful for assisting in the self-management of intrusive food cravings over a sustained period, with the potential to reach a large segment of the general population. Contrary to prediction, thought suppression techniques worked better than mindfulness. Theoretical and practical implications are discussed.

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O482

COGNITIVE AND PSYCHOSOCIAL DETERMINANTS OF COLORECTAL CANCER SCREENING BEHAVIOR AMONG AN ITALIAN POPULATION.

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Introduction: Colorectal cancer (CRC) is the third most prevalent form of cancer in Italy. Following the introduction in 2005 of a nationwide screening program, biennial fecal occult blood testing (FOBT) is currently offered to all Italian adults aged 50–69 registered with a general practice. Nevertheless, the overall uptake is still suboptimal. As the reasons for this low uptake are mostly unknown, the current study aims at examining cognitive and psychosocial predictors of CRC screening attendance.

Methods: A sample of 50 years old Milan-area residents ($N=140$) that were invited to undergo CRC screening for the first time, completed a survey measuring cognitive factors and psychosocial correlates of cancer screening, such as health literacy, self-efficacy, CRC susceptibility, CRC severity, CRC salience, social influence and cancer worries. Survey data were subsequently matched with respondents' behavior (whether participants underwent the screening test or not) that was provided by the USL official register 12 months after the formal screening invitation.

Results: Decisional self-efficacy, salience and social support were strongly associated with CRC screening attendance. Functional and declarative health literacy, perceived susceptibility, cancer worries,

and the perceived FOBT efficacy were shown not to be associated CRC screening behavior.

Conclusion: This study confirms that psychosocial variables are important factors in explaining people's health-related beliefs and behaviors. A better understanding of the role played by psychosocial factors provides important insights into the individual's decision to undergo CRC screening as a preventive activity, and will therefore be essential for the design of targeted interventions to increase screening uptake.

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Health behaviors, cerebrovascular lesions and cognitive function

S225

HEALTH BEHAVIOURS, CEREBROVASCULAR LESIONS AND COGNITIVE FUNCTION

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Cognitive disorders in aging have posed tremendous burden to individuals and the society as worldwide population ages. In the last 1-2 decades, epidemiologic research has indicated that lifestyles and related factors (e.g., smoking, diets, overweight or obesity, hypertension, and diabetes) significantly contribute to cognitive deterioration in aging, possibly through their impacts on cerebrovascular lesions (e.g., cerebral small vessel disease) and neurodegeneration (e.g., hippocampal atrophy). In addition, certain lifestyle factors (e.g., physical activity, cognitive activity, and social engagement) may help maintain cognitive function in aging by increasing cognitive reserve and brain plasticity. This provides the potential for active intervention towards lifestyle and behavioral factors to maintain cognitive function in aging. In this symposium, Dr Qiu (Sweden) will summarize the epidemiological evidence linking lifestyles and health behavior factors to cerebral small vessel disease and cognitive deterioration in aging (e.g., cognitive decline and dementia). Dr Li (China) and Dr Anstey (Australia) will present new evidence for multimodal interventions towards lifestyles factors (e.g., physical activity and diets) in maintaining cognitive ability in aging and reducing risk of dementia. Dr Chen (Singapore) will act as discussant, discussing potential strategies (e.g., population-based and web-based intervention approaches) that could translate research findings into health benefits in aging, especially cognitive benefits as well as exploring future research priorities. This topic is of high relevance for the aging society given that phenotypes of cognitive aging (e.g., cognitive impairment and dementia) are highly prevalent among older people and that these conditions have had significant economic and societal consequences.

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HEALTH BEHAVIOURS, CEREBRAL SMALL VESSEL DISEASE AND COGNITIVE AGING

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Introduction: Lifestyles and health behaviors in middle age and later in life have been associated with cognitive deterioration in aging. We summarize the evidence supporting the hypothesis that cerebral small vessel disease (SVD) resulted from long-term exposure to unhealthy lifestyles and behaviors may contribute to the phenotypes of cognitive aging.

Methods: We review population-based epidemiological studies that investigate lifestyles (e.g., smoking, sedentary lifestyle) and related factors (e.g., obesity, hypertension, and diabetes), cerebrovascular lesions, and cognitive aging. Cerebral SVDs (e.g., white matter lesions and brain infarcts) were assessed using magnetic resonance neuroimaging and autopsy. Phenotypes of cognitive aging refer to cognitive decline, mild cognitive impairment, and dementia.

Results: In the past 1-2 decades, evidence from epidemiological research supports the link of lifestyle-related risk factors (e.g., smoking, physical inactivity, midlife obesity, and hypertension) and vascular diseases (e.g., diabetes and cerebrovascular disease) with mild cognitive impairment and dementia. Population-based neuroimaging and post-mortem studies demonstrated that mixed cerebrovascular and neurodegenerative pathologies were found in a large majority of dementia cases, and further revealed that the associations of lifestyle-related factors with measures of cognitive aging are largely mediated through cerebrovascular (e.g., SVD) and neurodegenerative (e.g., hippocampal and medial temporal lobe atrophy) lesions.

Conclusions: Observational epidemiological studies have so far provided rather strong evidence that interventions that target multiple lifestyle, health behavior risk factors, and related disorders are likely to slow down the process of cognitive deterioration in aging, and delay the onset of dementia. However, translational research data are sparse.

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S227

MULTIMODAL (COGNITIVE-PHYSICAL-PSYCHOLOGICAL) INTERVENTION TO IMPROVE BRAIN PLASTISICTY AND COGNITION IN OLDER ADULTS

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Introduction: Cognitive, physical and social activities are cognitively beneficial for older adults, but it is rare to find interventions that have been conducted with the combination of all three components. This controlled non-randomized trial investigated the synergistic effects of a multimodal intervention on cognition, well-being and brain plasticity in a sample of healthy older adults.

Methods: Four groups with a total of 188 older adults respectively received either multimodal intervention (cognitive training, Taichi exercise and psychological counselling), cognitive plus Taichi training, cognitive training, or lectures (active control group) during six weeks. Seventeen participants in the multimodal intervention group and 17 controls completed resting-state functional magnetic resonance imaging scanning before and after intervention. Cognitive performance and well-being were assessed at baseline, post-intervention and 3-month follow-up.

Results: A total of 156 participants completed intervention and 134 were available at follow-up. Compared to the control group, the three

intervention groups showed improvements to varying degrees on cognitive function. The cognitive plus Taichi group had largest increase with the multimodal group as second best at post-intervention, while both group showed equivalent maintenance effects on cognition at follow-up. Enhancement and maintenance on well-being were only found in the multimodal group. Moreover, the multimodal intervention induced strengthened functional connectivity between the medial prefrontal cortex and medial temporal lobe, as well as regional alterations of intrinsic activity in frontal, temporal and cerebellum regions.

Conclusions: The multimodal intervention is helpful for preserving brain and cognitive function during old age, and has advantages in comprehensive promotion of both cognitive and emotional well-being.

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DEMMENTIA RISK REDUCTION TRIALS TARGETING DIET AND PHYSICAL ACTIVITY

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Introduction: A set of modifiable lifestyle and behavioral risk factors for dementia has been established with new risk factors currently being evaluated. A key challenge for knowledge translation is how to translate findings from epidemiology into interventions. A program of work on online dementia risk reduction trials will be described. The evaluation of the interventions has used randomized controlled trial (RCT) methodology. Consumers were engaged during the trial development.

Methods: An RCT design was used to evaluate the Body Brain Life (BBL) program and a newer intervention called BBL-Fit. BBL-Fit incorporates a coaching session on physical activity and diet. Risk was measured on the ANU Alzheimer's Disease Risk Index (ANU-ADRI).

Results: The BBL intervention program reduced risk of dementia in middle-aged adults. This was primarily related to improvement in protective factors. Data from BBL-Fit are currently being analyzed. This early work demonstrates the feasibility and acceptability of this intervention program. Research needs to focus on identifying the best behavioral change techniques.

Conclusion: Online dementia risk reduction trials appear to be effective in specific types of individuals. Long term maintenance of lifestyle change has not been evaluated. Online interventions provide an inexpensive approach to population health promotion.

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O229

INTERNET USE AMONG ORTHOPAEDIC TRAUMA PATIENTS

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Introduction: In Australia, approximately 83% of households have internet access which is increasing with 4G technologies and the National Broadband Network. Further, health behavior change interventions delivered online are becoming increasingly popular as they have a relative low cost per user and can be available anywhere any time. Despite this, access to and frequency of internet use among orthopedic trauma patients is not well known.

Methods: A cross sectional survey was conducted at two New South Wales level one trauma facilities with all orthopedic trauma patients. Across a 15-month study period, eligible patients were approached while in hospital and invited to complete an online health behavior survey.

Results: Data collection will be finalized by July 2016. Interim results from 641 surveys completed found that 54% of patients accessed the internet daily, and 64% accessed the internet using their own computer. Daily internet usage was found to be higher among males (66%) than females (33%). Interest in using an online program was split, with 51% indicating they would use the internet to help improve their health. Males were more likely to be interested in using the internet to improve their health (59%) as opposed to females (41%). Information from the full data sample will be discussed in detail.

Conclusions: Understanding internet usage among the orthopedic trauma population is a precursor to the development of appropriate internet-based healthcare interventions. Internet programs may be better targeted at younger males.

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O230

PROMOTING WELL-BEING IN INTERPERSONAL, COMMUNITY, OCCUPATIONAL, PHYSICAL, PSYCHOLOGICAL, AND ECONOMIC DOMAINS USING ONLINE TECHNOLOGIES AND GAMES: A RANDOMIZED CONTROLLED TRIAL OF "FUN FOR WELLNESS"

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Introduction: Well-being is important because it relates to positive outcomes in mental and physical health, among other areas of life. To improve well-being feelings, actions, and self-efficacy, we tested the effects of an online intervention, Fun For Wellness (FFW), designed to promote Interpersonal, Community, Occupational, Physical, Psychological, and Economic (I COPPE) well-being. This study will test the hypothesis that FFW will have a direct effect on well-being self-efficacy, which, in turn, will exert a direct effect on (a) well-being feelings and (b) well-being actions.

Methods: Participants were 500 university faculty and staff who were given 30 day access to FFW or a control website with links to health information. The intervention promotes specific skills based on seven drivers of change: Behaviors, Emotions, Thoughts, Interactions, Context, Awareness, and Next steps (BET I CAN). Intervention components include an interactive self-assessment, videos with professional actors, mini-games, wellness coaches, and evidence-based information.

The design was a longitudinal, two-group, randomized controlled trial. Survey data from baseline, 30, and 60 days will be analyzed using Complier Average Causal Effect methodology.

Results: We will present results testing the hypothesis that FFW will have a direct effect on well-being self-efficacy, which, in turn, will exert a direct effect on (a) well-being feelings and (b) well-being actions.

Conclusions: Conclusions will be included in the abstract when the data have been analyzed.

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O231

PREVENTING OBESITY IN INFANCY: OUTCOMES OF THE GROWING HEALTHY M-HEALTH INTERVENTION

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Introduction: A number of Infant feeding behaviors are associated with obesity and are potentially modifiable. Providing support to parents to promote healthy infant feeding using mobile phone apps (mHealth interventions) is a novel, yet untested approach. This paper will report on the effectiveness of an mHealth intervention, in influencing key infant feeding behaviors.

Methods: A quasi-experimental design was used with a mHealth intervention group and a concurrent non-randomized comparison group. Parents with an infant less than 3 months of age were recruited via health practitioners, face-to-face and online. Intervention participants received a mobile phone app or access to a website aimed at promoting healthy infant feeding behaviors. Parents received 3 push notifications /SMS a week tailored to their baby's age and feeding mode linking to further information on the app/website. Data were collected using online surveys at baseline and when infants were 6 and 9 months old.

Results: A total of 323 participants were recruited to the intervention and 380 to the comparison group. Retention to date for the 6 month and 9 month surveys is 80% and 73% respectively. The final 9 month survey will be complete by June 2016. To date, 92% of participants reported the content easy to understand and 86% would recommend it to a friend. Final results on the effectiveness of the intervention in improving infant feeding behaviors will be presented at the conference.

Conclusions: This study will provide new information about the effectiveness of a novel mHealth intervention in influencing healthy infant feeding behaviors.

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CAN A MHEALTH PROGRAM INFLUENCE INFANT FEEDING? AN EXPLORATION OF THE EFFECTS OF THE GROWING HEALTHY PROGRAM ON MOTHERS' FEEDING BEHAVIOURS AND THEIR ANTECEDENTS

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Introduction: A number of maternal infant feeding behaviors are associated with obesity in infants, and may be modifiable. According to the behavioral model COM-B, engaging in health Behaviors is an interaction between an individual's Capability (e.g. knowledge), Opportunity (e.g. support and advice) and Motivation (e.g. plans and emotions). The m-health program *Growing healthy* aims to promote healthy infant feeding practices by targeting these elements using specified behavior change techniques. These mechanisms underpinning mothers' uptake of healthy infant feeding practices within the program are reported here.

Methods: The 323 participants in the *Growing healthy* program were invited to participate in one-on-one telephone interviews when their infants were aged 6-9 months. The semi-structured guide was developed to explore the effects of the program on milk feeding behaviors (including the duration of breastfeeding and best-practice formula feeding) and their antecedents as described in COM-B. Interviews were audiotaped, transcribed and thematic analysis performed.

Results: Mothers of 25 infants (15 boys) aged 6-10 months participated. Participants thought the program influenced their Capability (e.g. by enhancing knowledge about how to mixed-feed) and Opportunity (e.g. by providing a reliable source of information about how to formula feed or by making information readily available) more so than Motivation (e.g. by changing plans and goals about breastfeeding duration).

Conclusions: When evaluating interventions it is important to understand and explain participants' uptake of the target health behaviors so that adjustments can be made to the program to improve outcomes.

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O233

PERCEIVED LEVELS OF E-HEALTH LITERACY AND RELIABILITY OF THE HEALTH INFORMATION ON THE INTERNET: AN EXPLORATORY APPROACH

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Introduction: The search for health information on the Internet has been growing in recent decades. This behavior has revealed important implications for health care, doctor-patient relationship, adoption of health-related behaviors and disease management, either in patients or in the community. The aims of the present study are: (1) To analyze the perception of literacy levels in e-health and the reliability of the Internet for health issues in a sample of adults; (2) to examine the literacy levels in e-health and the perception of the internet reliability according to gender, age group and education.

Methods: 279 participants, (both sexes) aged between 18 to 86 years (M = 43, SD = 13.7) completed an online survey assessing perceived levels of e-health literacy and the perceived reliability of the internet for health information, as well as socio-demographic information.

Results: The perceived levels of e-health literacy were satisfactory and were associated with a stronger belief in the reliability of the internet for health information. There were main effects of age group and education on the measures studied.

Conclusions: Information is a key factor in health literacy and the Internet is one of the most important resource for health information. However,

the constraints imposed when people do not have the necessary skills to "surf" the Internet may be influenced by socio - demographic factors. The differences found suggest the need to tailor internet use according to user typologies.

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O234

REAL-TIME REMOTELY MONITORED EXERCISE IS COMPARABLE TO TRADITIONALLY SUPERVISED PROGRAMMES FOR CORONARY HEART DISEASE PATIENTS: NESTED PILOT RESULTS FROM THE REMOTE-CR NON-INFERIORITY RCT

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Introduction: Accessibility barriers constrain utilization of traditional supervised exercise-based cardiac rehabilitation (exCR). Home-based interventions improve access but relinquish oversight from clinical exercise specialists. Mobile health (mHealth) technologies can bridge these gaps by distributing clinical expertise to remotely located individuals.

Methods: 162 adults with coronary heart disease were randomized (1:1) to 12 weeks of remote (INT) or center-based (CON) exCR. INT included real-time remote physiological monitoring/coaching, behavior change, and social support delivered via a novel mHealth platform comprising smartphones, wearable sensors, and custom software. CON comprised traditionally supervised exCR. Programmes aligned with evidence-based exCR guidelines; both groups could access usual care services. Outcomes included change-from-baseline aerobic exercise capacity ($\dot{V}O_{2max}$, primary), cardiovascular risk factors and psychological outcomes. We hypothesized remote exCR would be non-inferior to center-based exCR (inferiority margin = $-1.75 \text{ ml}\cdot\text{kg}^{-1}\cdot\text{min}^{-1}$).

Results: Nested pilot results (n=76) indicate both groups improved $\dot{V}O_{2max}$ (INT $\Delta=2.92 \text{ ml}\cdot\text{kg}^{-1}\cdot\text{min}^{-1}$ [1.52 to 4.32]; CON $\Delta=2.76 \text{ ml}\cdot\text{kg}^{-1}\cdot\text{min}^{-1}$ [1.39–4.12], both $P<0.001$), with no between-group difference ($0.16 \text{ ml}\cdot\text{kg}^{-1}\cdot\text{min}^{-1}$, [-1.79–2.12], $P=.87$). Both groups improved physical activity (PA; INT $\Delta=2786 \text{ METmin}\cdot\text{week}^{-1}$ [1264–4308], $P=.001$; CON $\Delta=3149 \text{ METmin}\cdot\text{week}^{-1}$ [1666–4631], $P<.001$), and task self-efficacy (INT $\Delta=12.87\%$ [8.54–17.19]; CON $\Delta=12.86\%$ [8.66–17.08], both $P<.001$). INT acceptability and usability were highly rated; 28/31 INT participants who attended follow-up would choose remote exCR if available via usual care.

Conclusions: Remote and center-based exCR had comparable effects on $\dot{V}O_{2max}$, PA and task self-efficacy. Remotely exCR could increase service utilization by providing additional options for patients whose needs are not currently met. Full trial results will be available at ISBM 2016.

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THE 'TACTA' PRINCIPLE: A FRAMEWORK FOR SPECIFYING BEHAVIOUR AND ITS COMPLEXITY IN BEHAVIOUR CHANGE RESEARCH

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Introduction: Designing behavior change interventions first requires specification of the target behavior and its complexity. An existing framework for specifying behaviors proposes four components: Target, Action, Context, Time (TACT). This framework requires elaboration to include the person performing the behavior (Actor). We propose guidance for specifying health-related behaviors and their complexity, using a "TACTA" framework, illustrated in three studies.

Methods: Feedback documents from "audit-and-feedback" interventions aiming to reduce unnecessary blood transfusions (Study 1) and behavioral descriptions from interviews with hospital transfusion staff about their response to feedback (Study 2) were coded using TACTA. Study 3 investigated complexity. Three behaviors involved in managing Type 2 diabetes, specified by a multi-disciplinary team, were coded using TACTA. Primary care staff completed checklists about the three behaviors. Complexity was identified from the number of components in each TACTA domain.

Results: Study 1: Target and Action were specified more frequently in feedback documents than Time, Context or Actor (71%, 83%, 32%, 15%, 10% respectively). Study 2 participants (N=19) framed behaviors more in terms of Action and Actor (100%, 67%) than Target, Context or Time (58%, 25%, 33%). Study 3: TACTA coding suggested that *Providing weight management advice* was the most complex behavior. Primary care staff (n=678) endorsed 4.5, 2.6 and 3.8 component actions involved in *Providing weight management advice*; *Providing general education*; and *Providing advice about self-management*, respectively.

Conclusions: The TACTA framework can be applied to better specify behavior. Consideration of complexity in different TACTA domains may enhance methods of intervention design and evaluation.

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O236

NEXT LEVEL HEALTH: AN INTEGRATED HEALTH PROGRAMME USING MULTIPLE BEHAVIOUR CHANGE TO DEVELOP A BALANCED HEALTH PRACTICE FOR WOMEN

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Introduction: Achieving good health requires the ability to balance multiple health determinants (i.e. physical activity, nutrition, sleep, eating behavior, stress management self-care). Interventions typically limit focus to one or two determinants to avoid overburdening participants. However, disregarding the influence of other determinants could impact the long-term benefits of the intervention. Next Level Health (NLH) programme offers a pragmatic design to help women develop a balanced health practice by integrating small achievable goals across a range of determinants, where pace and specifics of change are determined by the individual. The aim of this presentation is to explore how women's attitudes and behaviors towards these determinants have changed upon completion of the NLH programme.

Methods: 60 women (19-40y) attended monthly one-on-one sessions to manage goals, as well as accessing a social media group for indirect support. Attitude and behaviors in physical activity, nutrition, eating behavior, sleep, self-care and stress were surveyed at programme start (month 0), end (month 6) and follow-up (month 12). Programme evaluations provided qualitative data to determine women's self-reported attitude and behavior changes associated with each determinant.

Results: Results from the 6 month period will be presented. Positive changes in attitude and behavior associated with determinants have been demonstrated by women who have completed the programme.

Conclusions: NLH is the first programme to focus on long-term health by simultaneously integrating changes to physical activity, nutrition, sleep, self-care, stress management and eating behavior. The NLH programme could provide a novel framework for health promotion in a wider population.

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O237

THE SMART GENERATION TRIAL: A BRIEF COMMUNICATION DESIGNED FOR ADOLESCENTS PROMOTING AVOIDING ALCOHOL BEFORE THE AGE OF 18

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Introduction: Despite the NHMRC recommending adolescents avoid alcohol before the age of 18, up to 80 % of Australian children report having consumed alcohol in their lifetime. This presentation will briefly outline, methods and procedures used to develop a brief communication aimed adolescents and parents to promote adolescents not drinking alcohol before the age of 18.

Method: The intervention was part of a randomized control community trial (RCT) in Australia. The trial uses Communities that Care (CTC) framework and methodology to build capacity within communities to implement evidence-based prevention strategies to prevent and reduce adolescent alcohol consumption. The trial is badged as the *Smart Generation* trial. It is the first RCT using the CTC process in Australia. The trial targets Year 7 and 8 students and their parents. Fourteen intervention and 14 control communities across Victoria, Queensland and Western Australia were matched on socio-economic status, location and size. The intervention sites initiated three components: 1) community mobilization; 2) a brief communication aimed at raising awareness and increasing adoption of the National Health and Medical Research Council (NHMRC) alcohol guidelines; these guidelines recommend adolescents avoid the consumption of alcohol before the age of 18; 3) the reduction of alcohol sales and supply of alcohol to adolescents.

Results: the findings indicate that the brief communication changed parent behavior and adolescents intention to consume alcohol before the age of 18.
Conclusion: brief communications about alcohol-related behavior, can be an economical and efficient method way of achieving of population behavior change.

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O238

CHANGE PROCESSES AND EFFECTIVENESS IN GROUP-BASED WEIGHT LOSS INTERVENTIONS

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Introduction: Groups are often used to promote health by facilitating behavioral and other psychological change. However, there is limited evidence on change processes in, and the effectiveness of, group-based health interventions. The aim of this PhD research was to improve

understanding of whether and how groups promote change in diet, physical activity and weight-loss interventions.

Methods: Two reviews were undertaken: a scoping review of theories and concepts relevant to understanding how groups facilitate personal change, and a systematic review and meta-analysis of group-based diet and physical activity interventions to support weight-loss in overweight and obese adults. A checklist for improving design and reporting of group-based behavior-change interventions was then developed.

Results: Various theories and concepts relevant to group processes (e.g. social comparisons, influence) and group dynamics (e.g. group cohesion, norms) were identified as being relevant to the effective use of groups in health interventions. The systematic review including 52 group-based interventions showed that they can be effective in facilitating ~3kg weight loss up to 24 months. However, interventions varied greatly in terms of their design and effectiveness, and details of group characteristics, group facilitation, and group-specific change techniques were rarely reported. Consequently, the checklist proposes 26 elements related to design, content, participant and facilitator characteristics that are important in designing, reporting and comparing group-based behavior-change interventions.

Conclusions: Groups provide opportunities to effectively facilitate health-related behavior and other psychological change, but currently there is insufficient focus on intra-group processes in interventions, as illustrated in research on group-based weight loss programmes.

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O239

GROUP INTERVENTIONS FACILITATE NORMATIVE CHANGE: INVESTIGATING THE MECHANISM OF ACTION IN EATING DISORDER PREVENTION GROUPS

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Introduction: Group interventions for preventing mental illness have proven very effective, however, there is little consensus on their mechanism of action. Often group-based interventions have been recommended on the grounds of their cost-effectiveness, and the mechanisms of action are assumed to be similar to individual therapy (i.e., cognitive). However, this reasoning overlooks the role of group processes and in particular, social influence, which are of clear relevance to interventions delivered in groups. In the present study, we posit that normative change is a plausible mechanism and provide a test of this in an eating disorder prevention group program.

Methods: Participants were 112 women aged 15-25 years with body, shape or weight concerns. Participants completed questionnaires at the beginning, after each of the four group-based sessions, and at the end of the program.

Findings: Results indicated that participants experienced a significant reduction in thin-ideal internalization, body dissatisfaction and dieting intentions across the course of the program. These decrements were preceded by changes in group norms. Changes in both descriptive norms and injunctive norms in the first half of the program predicted improvement in thin-ideal internalization, body dissatisfaction and dieting intentions in the second half of the program.

Conclusions: This study demonstrates the role of group processes, and social influence in particular, in the etiology of mental illness. Furthermore, these results suggest that group-based interventions are effective to the degree that they generate normative change within at-risk groups.

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O240

MECHANISMS OF ACTION IN GROUP INTERVENTIONS (MAGI) STUDY: INITIAL FINDINGS AND A CONCEPTUAL FRAMEWORK
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Introduction: There is extensive research and theory on how groups facilitate change, but this has been given limited consideration in health-related behavior change interventions. A detailed analysis of how these processes operate in practice is therefore required to enhance understanding. **Methods:** The MAGI study is using primarily qualitative methods to develop a conceptual framework of group processes and group-sensitive and group-specific change techniques. This involves: (1) developing an initial framework using literature on theories, change techniques, qualitative studies and assessment tools relevant to group interventions; (2) gaining expert and lay feedback on this framework and piloting and refining it by coding 10 transcripts of recorded group sessions from three group-based weight loss programmes; and (3) populating a refined framework with examples of processes and techniques operating in practice by coding transcripts of a further 28 group sessions. It is hoped the framework can then be used to identify group-specific components potentially linked to greater engagement and effectiveness. **Results:** A framework, synthesizing key concepts for identifying and understanding the operation of group processes in health behavior change interventions, will be presented. It will be populated with practical examples, initially stemming from ongoing qualitative analyses of session recordings from group-based weight loss programmes. **Conclusions:** It will be important to gain feedback on our developing framework from practitioners and researchers working in different areas prior to the final phase of our study, and with a view to identifying implications for improving the design, evaluation and delivery of future group-based health interventions.

Results: A framework, synthesizing key concepts for identifying and understanding the operation of group processes in health behavior change interventions, will be presented. It will be populated with practical examples, initially stemming from ongoing qualitative analyses of session recordings from group-based weight loss programmes.

Conclusions: It will be important to gain feedback on our developing framework from practitioners and researchers working in different areas prior to the final phase of our study, and with a view to identifying implications for improving the design, evaluation and delivery of future group-based health interventions.

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O241

SOCIAL AND BEHAVIORAL DETERMINANTS FOR DENTAL CARIES OF CHILDREN 7-12 YEARS OLD IN SOUTH PART OF IRAN

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Introduction: The role of socio-behavioral factors in oral disease is evidenced in world wide. The purpose of this study was to investigate the effect of selected social-behavioral variables on dental caries in 7 to 12-year-old school children in Bandar Abbas, Iran.

Methods: A cross-sectional study was conducted on 768 randomly selected school children, using prevalence of dental caries and the decayed, missing, filled (DMF) indices. A self-administered questionnaire applied for related data gathering. Data were analyzed by using univariate logistic regression and Odds Ratio (OR), using SPSS software.

Results: The prevalence of dental caries was 65.2% and the mean DMFT index was 1.8±1.87 with significant differences between gender and age,

p-value=0.009 and 0.001 respectively. Odds ratio indicated that age, gender, frequency of tooth brushing, sugary snack consumption, mother's level of education, mother's occupation, and number of sibling were associated with dental caries. The effects of fathers' education, father's occupation and dental floss were not significant on dental caries.

Conclusion: The findings of this study suggested to improve dental services and implement educational programs for mothers and pupils. Comprehensive and effective strategies will be needed to reduce the sugary snack among school children.

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O242

WORKING SOON AFTER INJURY: A STUDY OF INJURED MĀORI
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Introduction: Like other indigenous populations throughout the world, Māori in New Zealand experience large health inequities; injury and injury-related outcomes are no exceptions. Important post-injury outcomes for workers are maintaining employment or timely and sustainable return to work if requiring time off after injury. This paper investigates work participation for injured Māori and aims to identify pre-injury socio-demographic, health and psychosocial and injury-related predictors for Māori being in work three months after injury.

Methods: The national longitudinal Prospective Outcomes of Injury Study recruited 566 injured Māori from New Zealand's no-fault injury insurer, the Accident Compensation Corporation, entitlement claims register. Of these, 521 (92%) were working for pay prior to injury. Multivariable models estimated relative risks to identify predictors of being in work soon after injury.

Results: Almost two-thirds (64%) of those who were working for pay prior to injury were doing so three months post-injury. Provisional key findings include, being financially secure, 'professional workers' or having an injury of low or moderate severity, independently predicted working three months post-injury. Additionally, there was some evidence to suggest that sustaining a non-work-related injury or having a job with frequent repetitive hand movements, independently predicted working three months post-injury.

Conclusions: Our results provide evidence that a number of independent pre-injury and injury-related characteristics predict working soon after injury and help identify areas where increased focus might be required to support increased, and timely, participation in work soon after injury.

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O243

PREDICTORS OF SELF-REPORTED DISABILITY IN ADULTS WITH NON-SPECIFIC CHRONIC LOW BACK PAIN LIVING IN RURAL NIGERIA

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Introduction: Non-specific chronic low back pain (CLBP) is a common cause of disability in Nigeria, exacerbated by poverty and limited access to health care in rural areas. Biopsychosocial factors are associated with CLBP-related disability in developed countries; however, no research has explored these factors in relation to CLBP in rural Africa. This study aimed to identify biopsychosocial factors associated with disability in people with CLBP in rural Nigeria.

Methods: An exploratory cross-sectional study of adults with CLBP in Enugu state, South-eastern Nigeria. Multistage cluster sampling was used to select rural communities and stratified randomized sampling to select participants. Questionnaires were cross-culturally adapted and validated for interviewer-administration. Ten community health workers were trained to collect data from these communities. The criterion variable was disability (Roland Morris Disability Questionnaire); predictor variables included: pain, anxiety, depression, coping, social support, illness perceptions and beliefs. Statistical analysis assessed correlations between variables and hierarchical multiple regression was used to uncover the unique variance explained by each significant predictor.

Results: 200 participants were recruited (56% female, mean age 48.6 years, 7 years education). Multiple regression controlling for sex, age, education revealed a significant model (R^2 change=0.50, $F(7, 189)=37.39$, $p<0.0005$) explaining 62% of the variance in disability (adjusted $R^2=0.62$). Illness perceptions ($\beta=0.30$; $p<0.0005$), pain ($\beta=0.25$; $p<0.0005$), catastrophizing ($\beta=0.21$; $p=0.001$), fear avoidance beliefs ($\beta=0.20$; $p=0.001$) and anxiety ($\beta=0.14$; $p=0.034$) were significant predictors.

Conclusions: Psychosocial factors are important predictors of disability in people with CLBP in rural Nigeria. Interventions developed to target these factors may improve management of CLBP in Nigeria.

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O244

THE EXPERIENCE OF PREGNANCY AND EARLY MOTHERHOOD IN MOTHERS OF ADVANCED MATERNAL AGE

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Introduction: There is a considerable trend towards delayed childbearing in Australia and other Western nations. Advanced maternal age is associated with several adverse biological and obstetric outcomes. However, older motherhood has also been associated with psychosocial factors that may be of benefit in childrearing and these have not yet been fully explored. This study examined the factors influencing timing of first childbearing in women aged 35 and over (advanced maternal age) and their experience of early motherhood.

Methods: Thirty-eight women who were pregnant with their first child or had had their first baby in the last eighteen months, and

were 35 or older during pregnancy completed an online structured interview to examine the factors contributing to the timing of their pregnancy, their sense of readiness and preparedness for pregnancy, their experience of pregnancy and motherhood, and the advantages and disadvantages they perceived to be associated with motherhood at an older age.

Results: Relationships, career, travel, financial and emotional stability, and fertility were the main factors influencing the timing of pregnancy in the sample. Most women in the sample reported readiness for pregnancy, and most reported worrying about the biological and psychosocial risks associated with their pregnancy.

Conclusions: Despite concerns about the physical disadvantages associated with advanced maternal age, the psychosocial profile of the women of advanced maternal age surveyed may contribute to an advantageous environment in which to rear children. The results reported have implications for the provision of medical and psychological care to women in this population.

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O245

COMMUNITIES OF FAITH AND HEALTH EATING – A MULTILEVEL STUDY OF SEVENTH-DAY ADVENTIST CONGREGATIONS IN MALAYSIA

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Introduction: Neighborhood characteristics have an effect on the health of the people living in the neighborhood beyond the individual characteristics. Neighbourhood might affect the health of its residents by influencing health behavior. Religion is a community activity and religious congregation could be considered a community of faith and similar to neighborhoods. Thus, the characteristics of a religious congregation might influence the health behavior and health of the congregants. The purpose of this study was to examine whether congregational size and religious conservatism would be significantly associated with the quality of members' diets even after taking account of their demographics and individual levels of religiosity.

Methods: Data from survey of 574 Seventh-Day Adventists of 41 congregations in West Malaysia were analyzed using multilevel linear regression.

Results: Congregational conservatism predicted individual dietary habit above and beyond individual characteristics; a higher congregational conservatism was positively associated with better individual dietary habit scores. Individual from more conservative congregations might be exposed more to health promotion activities and receive more social support to practice healthy eating. They might feel the social pressure to conform to a healthier diet. Congregational size was not significantly associated with dietary habit. All the Adventist congregations in West Malaysia are small and the effect of congregational size might not be sufficiently strong to influence the dietary habit of the congregants.

Conclusions: The finding supports the role of religious congregations as a potential channel to promote health by encouraging the congregants to adopt a healthy diet.

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O246

ASSOCIATION OF HABITUAL SPEEDING AND UNSAFE VEHICLES WITH CAR CRASH INJURIES IN FIJI: A CASE CONTROL STUDY

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Introduction: Reducing risky driving and unsafe vehicles are key pillars of global road safety efforts. In the absence of robust epidemiological evidence from low- and middle-income Pacific nations, we investigated the contribution of speeding and unsafe vehicles to road crashes in Viti Levu, Fiji.

Methods: This analysis is based on data collected from a population-based case-control study of 154 four-wheeled motor vehicles involved in crashes where at least one occupant died or was hospitalized (cases) and a random road survey of 752 four-wheeled vehicles (controls). Self-reported data on a range of potential risk factors were collected from drivers (or proxies). Multivariable models examined the main effects of interest.

Results: Following adjustment for important demographic factors, significant excesses in the odds of injury-involved motor vehicle crashes (MVCs) were associated with vehicles older than 10 years (OR 1.99; 95% CI: 1.27-3.12); vehicles with seat belts only in front seats (OR 2.03; 95% CI: 1.19-3.46); and vehicles driven by people who report speeding up when being passed (OR 3.40; 95% CI: 1.51-7.65).

Conclusions: While this study based on self-reported data cannot exclude residual confounding from measured and unmeasured factors, the findings suggest speeding, and driving vehicles older than 10 years or without a full complement of seatbelts are important risk factors associated with a 2-3 fold increase in the odds of serious injury-involved MVCs in Fiji. The findings support the need to strengthen road safety efforts in less-resourced Pacific countries and implement and enforce legislative policies promoting responsible driving behaviors and safer vehicles.

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O247

EFFECTS OF A BRIEF WEB-BASED ‘SOCIAL NORMS’ INTERVENTION ON CANNABIS USE AMONG GERMAN UNIVERSITY STUDENTS: RESULTS OF A CLUSTER-CONTROLLED TRIAL

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Introduction: Previous research suggests that students tend to overestimate cannabis use in their peer group and that this misperception is predictive of higher personal use. Few studies have investigated whether participation in a ‘social norms’ feedback contrasting misperceptions with previously assessed actual use leads to reduced cannabis consumption in university students. The objective of this cluster-controlled trial was to examine the effects of a web-based ‘social norms’ intervention on substance use, including cannabis, in students enrolled at intervention compared to control universities with delayed intervention.

Methods: Students were recruited at eight universities in four regions in Germany. In each region, one site served as intervention and one site as control. 4,521 students (59% female) completed the web-based baseline and 1,302 (59% female) the follow-up survey on personal and perceived peer cannabis use. Intervention participants (n=442) received feedback contrasting personal and perceived peer use with previously assessed use and perceptions of same-sex, same-university peers. Data were analyzed using Generalized Linear Mixed Models.

Results: At baseline, 46% of students perceived cannabis use in their peer group to be higher (36% equal, 18% lower) than their own use. In addition, 84% thought that the majority of their peers approved of using cannabis. Relative to control universities, normative feedback was associated with higher odds for not increasing cannabis consumption (AOR: 1.37, 95% CI: 1.04-1.82) between baseline and follow-up.

Conclusions: This study was the first German cluster-controlled trial suggesting beneficial effects of a ‘social norms’ feedback on cannabis consumption in a large university student sample.

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O248

THE ROLE OF EXPECTANCY IN CAFFEINE WITHDRAWAL

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Introduction: Expectancies play an important role in health. The most obvious example is the placebo effect, where research indicates that positive expectancies can enhance the efficacy of an ingested drug. However the effect of the expectancies surrounding absence of a drug has received relatively little attention.

Methods: In Experiment 1 moderate to severe coffee drinkers had their daily dose of caffeine reduced from 300 mg to 0 mg over five days. All participants’ dose reduction schedule was the same. One half of participants (Informed Group) were given truthful information about this dosing schedule. The other half (Misinformed Group) were told that their dose would remain at 300 mg for three days then drop to 0 mg on the final day. Experiment 2 applied a similar design but also included a group that received no information about dose reduction.

Results: In Experiment 1 the two groups showed a significant difference in the trajectory of withdrawal symptoms over the five days, with the Misinformed group reporting lower caffeine withdrawal symptoms on the first three days than the Informed group but higher withdrawal symptoms on the final day. In Experiment 2 the Non-Informed group reported higher withdrawal than both Informed and Misinformed groups in the afternoon across the five days, whereas the Misinformed group reported lower withdrawal symptoms than the Misinformed and Non-Informed group in the morning.

Conclusions: These results suggest that expecting a reduction in dose can exacerbate drug withdrawal symptoms. This may have important implications for tapered-dose-reductions during treatment of addiction.

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O249

INTEGRITY, HEALTH OR BEHAVIOUR: MEDIA FRAMING OF SPORTS WAGERING IN AUSTRALIA

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Introduction: Sports wagering is a newly emerging segment of the gambling market with researchers estimating that anywhere between 5–20% of problem gamblers attribute their gambling harm to sports wagering. In Australia, the promotion of sports wagering during sporting events (particularly those aimed at children) has been an issue of growing public concern. Concerns relate to the impact of promotions on the normalization of gambling in the community. This study aimed to compare how different stakeholders discussed the risks and benefits of the association between wagering providers and sport in the Australian print media.

Methods: A content analysis of twelve major Australian newspapers were analyzed for articles discussing sports wagering. Articles were analyzed and coded for using a mixed method constant comparative approach across two time periods.

Results: There were differences in how representatives from various stakeholder groups discussed sports wagering. For example, industry and sporting organizations argued that sports organizations should be allowed to promote their products to prevent illegal offshore betting. They also argued that partnerships between the gambling industry and sporting organizations were important for sports integrity. Health professionals, advocates and politicians were critical of the promotion of wagering during sport, highlighting the negative impacts of these associations on the gambling behaviors of young men and children.

Conclusions: Research into other public health issues has identified that media ‘issue’ framing influences public opinion (and behavior) and policy decisions. Researchers should explore how advocates can more effectively respond to the public framing of sports wagering by the sporting organizations and the wagering industry.

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O250

DO CHILDREN IMPLICITLY ASSOCIATE UNHEALTHY COMMODITY PRODUCTS WITH SPORT? A STUDY OF CHILDREN’S RECALL OF AUSTRALIAN JERSEY SPONSORS.

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Introduction: Sports sponsorship in Australia is saturated with marketing for unhealthy commodity products such as alcohol, gambling and junk food. It has been suggested that these sponsorship relationships can negatively impact audiences by encouraging unhealthy behaviors, particularly children. Research has shown that the promotion of unhealthy commodity products can influence consumption intentions and behaviors in children watching sport.

Methods: This study explored children’s implicit and explicit recall of sports jersey sponsorships of seven sporting teams in Australia from a range of sporting codes. Children aged 5–12 years were asked to

participate in an activity that involved arranging magnets containing sporting team logos with product logos on a whiteboard.

Results: Three quarters of the 85 children recruited identified at least one correct jersey sponsorship relationship. Children associated specific product types (alcohol, gambling or junk food) with particular sporting codes in the study (Basketball, Cricket and Football, AFL and NRL). Older children in the study correctly identified more sponsorship relationships than younger children. Older children were also more likely to recognize the products on the whiteboards as sponsors of the sporting teams.

Conclusions: This research has shown that children aged twelve or younger implicitly recognize shirt sponsorships in sport. This suggests that children may, through repeated and sustained exposure to unhealthy commodity products during professional sporting matches, begin to see these products more favorably and as a normal part of everyday life. Further research is required to determine the effect this recall may have on the consumption of unhealthy commodity products.

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O251

ARE UNIVERSAL SCHOOL-BASED PROTECTIVE FACTOR INTERVENTIONS EFFECTIVE IN REDUCING ADOLESCENT SUBSTANCE USE? RESULTS FROM A SYSTEMATIC REVIEW

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Introduction: Initiation of tobacco, alcohol and illicit substance use typically occurs during adolescence, with the school setting recommended for universal interventions to reduce such use. Strengthening adolescent individual (e.g. self-efficacy) and environmental (e.g. caring relationships with adults) resilience protective factors is a suggested strategy for reducing adolescent substance use, however existing systematic reviews have not specifically examined the effectiveness of such interventions in reducing substance use prevalence.

Methods: A systematic review examined whether universal school-based interventions addressing individual and environmental resilience protective factors are effective in reducing adolescent substance use. Eligibility criteria included: randomized controlled trials; participants 5–18 years; tobacco, alcohol or illicit substance use outcome; school-based intervention targeting individual and environmental protective factors (of any intervention approach). Trial effects were synthesized via meta-analyses for binary tobacco, alcohol and illicit substance use outcomes with effect sizes reported using odds ratios. Subgroup analyses (intervention duration (<3, ≥3 years), setting (school, school/family, school/family/community), long term follow-up (≥1 year)) were undertaken.

Results: An overall intervention effect was found when data from included studies were pooled for alcohol (n=11; p=0.04) and illicit substance use (n=9; p=0.01), but not for tobacco use (n=10). Of subgroups examined, overall intervention effects were found for alcohol (school/family interventions) and illicit substance use (school interventions; long term follow up) only.

Conclusions: Universal school-based interventions that address individual and environmental resilience protective factors are effective in reducing adolescent alcohol and illicit substance use, but not tobacco use. Policy and practice implications of these results will be discussed.

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O269

CO-OCCURRING DEPRESSION, TOBACCO AND ALCOHOL USE IN A SAMPLE OF HEAD AND NECK CANCER PATIENTS UNDERGOING RADIOTHERAPY

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Introduction: Available evidence indicates that a substantial proportion of patients with head and neck cancer (HNC) continue to smoke and drink alcohol hazardingly post diagnosis. Mental health problems, particularly depression are also reported to be highly prevalent in this population. However little data is available on the co-occurrence of these factors within HNC. Their potential influence on quality of life, treatment efficacy and survival, warrants further investigation. This study aimed to describe the rates of these factors within a sample HNC patients about to undergo radiotherapy.

Methods: As part of a NHRMC funded, stepped-wedge randomized controlled trial, baseline data on smoking characteristics, alcohol use and depressive symptoms were collected from a sample of HNC patients from four Australian radiotherapy departments.

Results: The mean age of patients (n=269) was 58 years and 80% were male. 13% (n=35/267) and 63% (n=169/267) of patients identified as current and former smokers respectively. However, using biochemical verification and a newly recommended CO cutoff of >3ppm, 34% (n=83/246) of patients met criteria for current smoking. 31% of patients met criteria for harmful drinking. 10% of patients met criteria for comorbid harmful drinking and at least mild depressive symptoms.

Conclusions: The results of this study indicate that some of the patients may be continuing to smoke despite reporting abstinence. A proportion of the sample may have quit smoking post diagnosis and be vulnerable to relapse. Co-occurrence of tobacco and alcohol use as well as depressive symptoms indicate that interventions may also need to address these comorbid factors.

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O252

PARENTAL FEEDING PRACTICES ASSOCIATED WITH CHILDREN'S EATING AND WEIGHT: WHAT ARE PARENTS OF TODDLERS AND PRE-SCHOOLERS DOING?

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Introduction: Parent feeding practices are associated with children's eating behaviors and weight, yet few studies report to what extent parents already use such feeding practices, and this limits understanding of behaviors to target to promote children's healthy growth.

Methods: This study combined data from 4 Australasian trials, each using the Comprehensive Feeding Practices Questionnaire (CFPQ). Means and standard deviations for each CFPQ dimension were calculated for toddlers (1.3-2 years; n=1344) and preschoolers (4-5 years; n=795). Parents came from a range of socioeconomic backgrounds. Scores were categorized by frequency, and percentages in each category calculated. Mixed effects regression analysis determined associations between socio-demographic characteristics and feeding practices.

Results: In both age groups parents reported extensive use of some CFPQ dimensions including *modelling*, *encourage balance and variety* and *healthy environment*. Very few parents reported regular use of *emotion regulation* and *restriction for weight control* (preschool group only). There was variation in parents' use of *child control*, *restriction for health* and *pressure to eat*. Parents of preschool children reported greater use of *food as a reward* than parents of toddlers. Parents used more *restriction for health* and less *pressure to eat* with obese children.

Conclusions: Some parental feeding practices such as *modelling* and *healthy environment* are important, but we're unlikely to detect effects in intervention studies as most parents report adoption of best practice already. In contrast, use of *food as a reward* and *pressure to eat* may be more likely to provide evidence of effect in behavior change interventions.

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O253

ASSESSING THE INFLUENCE OF MOTHER-CHILD MEALTIME BEHAVIOURS ON PRESCHOOLERS' EATING AND WEIGHT PATTERNS

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Introduction: Maternal and child mealtime behaviors have been implicated in the development of preschoolers' eating and weight patterns. However, much of the research has largely focused on investigating mothers only, overlooking the contribution of child characteristics that may impact mealtime interactions and routines. The aim of this study was to comprehensively assess the influence of both maternal and child mealtime behaviors on child eating and weight outcomes.

Methods: Ninety-four mothers and their children (3.03 ± 0.75 years) were filmed during two home-based mealtimes, set 12 months apart. Recordings were used to assess mutual mother-child responsiveness, shared positive affect, maternal control relating to food issues and child feeding compliance. Objective BMI and maternal reports of child eating and diet were also collected. A series of correlations and regressions were performed to examine relationships between maternal and child mealtime behavior variables and child eating and weight outcomes at both time points.

Results: Dyads characterized as experiencing higher levels of mutual mother-child responsiveness and shared positive affect during mealtimes were less likely to require the exertion of high levels of maternal feeding control to accomplish greater child feeding compliance. Maternal responsiveness was concurrently inversely associated with child fussy eating while mutual mother-child responsiveness and shared positive affect were positively associated with child healthy diet after 12 months.

Conclusion: Shared mealtime behaviors were associated with child eating and weight. Childhood obesity research should consider the potential influence that dyadic mother-child mealtime behaviors may have on strategies aimed at altering child feeding and weight trajectories.

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O254

UNDERSTANDING MATERNAL DIETARY CHOICES DURING PREGNANCY: THE ROLE OF SOCIAL NORMS AND MINDFUL EATING

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Introduction: Serious health complications associated with excessive weight have been documented for pregnant women and their babies during pregnancy, birth and beyond. Whilst research has focused on identifying particular foods that can be either detrimental or essential for the developing baby, little is known about factors influencing pregnant women's dietary choices. This study examined a potential external influence, descriptive and injunctive social norms, and a potential internal influence, mindful eating, on pregnant women's self-reported diet.

Methods: Pregnant women ($N = 139$) completed a questionnaire that included measures of self-reported consumption of healthy foods and unhealthy foods, descriptive and injunctive norms related to diet during pregnancy and the Mindful Eating Questionnaire (MEQ). Hierarchical multiple regressions were conducted to assess the extent to which descriptive and injunctive norms and mindful eating account for variance in consumption of healthy and unhealthy foods.

Results: No significant associations were observed between norms and self-reported dietary behavior. Mindful eating was found to play a role in pregnant women's eating behavior, with the awareness subscale of the MEQ significantly associated with healthy eating and the emotional subscale associated with unhealthy eating. Age was also associated with consumption of unhealthy foods such that younger pregnant women reported consuming more unhealthy snacks and fast food meals.

Conclusions: The associations between mindful eating and dietary behavior suggests that improving mindfulness related to food consumption before and during pregnancy may provide a low risk alternative to dieting in addressing gestational weight gain.

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O255

ARE BABIES CONCEIVED DURING RAMADAN BORN SMALLER AND SOONER THAN BABIES CONCEIVED AT OTHER TIMES OF THE YEAR?

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Introduction: It is not known whether infants exposed to intermittent maternal fasting at conception are born smaller or sooner than those who are not. Doctors are therefore unsure about what advice to give women about the safety of Ramadan fasting.

Methods: This cohort study aimed to compare birth weight and rates of preterm birth in infants born to Muslim mothers who were conceived during Ramadan with their counterparts who had been conceived at other times of the year. Mothers were considered exposed if they were Muslim and Ramadan overlapped with their infant conception date, estimated to be 14 days after the last menstrual period (LMP). Infants were included as

exposed if their estimated conception date was in the first 21 days of Ramadan or seven days before Ramadan.

Results: After adjusting for gestational age, maternal age, infant gender, maternal BMI, smoking status, gestational diabetes there was no significant difference in birth weight between infants born to Muslim mothers who were conceived during Ramadan ($n=479$) and those not conceived during Ramadan ($n=4677$) (mean diff=24.3 grams, 95% CI= -16.4, 64.9). There was no difference in rates of preterm births in exposed and unexposed cases (5.2% vs 4.9%; OR=1.08, 0.71, 1.65). Sensitivity analysis where conception date was assumed to be 10 days after the LMP did not change the results.

Conclusions: Muslim women can be advised that Ramadan fasting is unlikely to have a detrimental effect on the size of their baby and appears not to increase the risk of preterm birth.

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O256

CHILDHOOD DIETARY TRAJECTORIES, ADIPOSITY AND CARDIOVASCULAR HEALTH: A COMMUNITY-BASED LONGITUDINAL STUDY

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Introduction: With the intention to inform future public health initiatives, we examined the extent to which childhood dietary trajectories predict adolescent cardiovascular (CV) health and adiposity.

Methods: *Design:* Longitudinal study with 188 children in a community sample followed over 8 waves (4 to 14 years). *Exposure:* Repeated 4-day records of 'frequency consumed yesterday' for 14 dietary marker items, coded into a daily score (range 0-5) with higher scores indicating more healthful diet. *Outcomes:* Body composition (BMI z-score; waist circumference; percent body fat) and CV health (blood pressure; augmentation index; heart rate; arterial pressure; pulse wave velocity). *Analysis:* Latent class analysis was used to derive and allocate participants to 'typical' dietary trajectories. Adjusted linear regression models then assessed relationships between trajectories and adiposity and CV health, adjusted for the *a priori* confounders of age, sex, puberty, neighborhood disadvantage, maternal education and BMI (for CV outcomes).

Results: Three dietary trajectories emerged: (1) Unhealthful (14%), (2) Partly Healthful (57%), and (3) Always Healthful (29%). Dietary trajectories did not predict adolescent adiposity, and the Unhealthful and Always Healthful trajectories showed similar CV health. Compared to the Unhealthful, the Partly Healthful trajectory showed lower diastolic blood pressure (-2.9mmHg), arterial pressure (-3.7mmHg) and resting heart rate (-5.7bpm).

Conclusions: Childhood dietary patterns measured prospectively and repeatedly over a decade showed surprisingly few associations with either adolescent adiposity or CV functional measures, although the three significant associations seen for the latter were in the expected direction. Possible reasons and implications for population health will be discussed.

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O257

ASPECTS OF FOOD LITERACY AND FRUIT AND VEGETABLE INTAKE AMONG ADOLESCENTS

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Introduction: Adolescent diets are characterized by low fruit and vegetable intake. Food procurement, meal planning and preparation are components of food literacy which may support healthy eating patterns throughout life. We examined associations between components of food literacy and fruit and vegetable consumption in adolescents.

Methods: Cross-sectional survey of 1022 Year 11 students (17±0.4 years) in Victoria, Australia. Participants reported serves/day of fruit and vegetables, frequency of involvement in food-related tasks such as food procurement, meal planning and preparation (5 items summed, Cronbach's alpha=0.75), and confidence in preparing food and reading/understanding food labels (3 items summed, Cronbach's alpha=0.77). Multiple linear regression examined associations of involvement in food-related tasks and cooking confidence with serves of fruit and vegetables, adjusted for sex and maternal education (n=952)

Results: On average, participants reported consuming 2.2 (SD=1.4) serves/day of fruit and 2.4 (SD=1.3) serves/day of vegetables. About half (55%) felt very or extremely confident they could cook a range of dishes. Over the past month, 60% shopped/helped shop for food, 37% prepared on their own, and 62% helped prepare, a meal for their household at least once/week. Both frequency of involvement in food-related tasks (B=0.02, 95%CI=0.01-0.03) and cooking confidence (B=0.05, 95%CI=0.03-0.08) were associated with fruit intake, but explained little variance (4%). Only cooking confidence was associated with vegetable intake (B=0.12, 95%CI=0.09-0.15); the model explained 10% of variance.

Conclusions: Longitudinal research is needed to establish whether cooking confidence and involvement in food-related tasks in late adolescence result in better dietary habits in young adulthood.

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O258

PHYSICAL ACTIVITY AND SEDENTARY BEHAVIOUR IN A FLEXIBLE WORKPLACE: EMPLOYEE AND MANAGEMENT PERCEPTIONS AND STRATEGIES FOR INTERVENTION

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Introduction: Workplaces that enable employees to vary their work hours and work off-site (flexible work practices) present a new context for health promotion. There is a need for more research to understand employees' experiences and inform potential intervention strategies in this context. This study examined employees' and managers' perceptions of the impact of flexible work practices on physical activity (PA) and sedentary behavior (SB), and preferred intervention strategies.

Methods: Office-based employees (n=28) were stratified into three groups based on self-reported PA level (high, medium, low) and attended a 1 hour focus group. Managers (n=10) attended a separate 1 hour focus group. Participants were asked to comment on the impact of flexible work practices on PA and SB, and to identify important components of intervention strategies.

Results: Employees felt that flexible working practices did not impact on recreational PA. However, all groups believed that occupational sitting time had increased. Both employees and managers were interested in workplace interventions that focused on individual managing their own behavior (vs e.g. environmental change). Employees also felt it was important for interventions to be accessible from any location, and to include an element of online social support due to the 'disconnection' of staff in different work locations.

Conclusions: Workplace interventions for reducing occupational sitting time may be more acceptable than increasing recreational activity. Intervention strategies for workplaces with flexible work practices should aim to include elements to promote self-management and social connectedness, and not be embedded in the office site.

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O259

DOES INTERNET-BASED COGNITIVE BEHAVIORAL THERAPY (iCBT) PREVENT MAJOR DEPRESSIVE EPISODE FOR WORKERS? A 12-MONTH FOLLOW-UP OF A RANDOMIZED CONTROLLED TRIAL

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Introduction: In this study we investigated whether an Internet-based computerized cognitive behavioral therapy (iCBT) program can decrease the risk of DSM-IV-TR major depressive episodes (MDE) during a 12-month follow-up of a randomized controlled trial of Japanese workers.

Methods: Participants were recruited from one company and three departments of another company. Those participants who did not experience MDE in the past month were randomly allocated to intervention or control groups (n = 381 for each). A 6-week, six-lesson iCBT program was provided to the intervention group. While the control group only received the usual preventive mental health service for the first 6 months, the control group was given a chance to undertake the iCBT program after a 6-month follow-up. The primary outcome was a new onset of DSM-IV-TR MDE during the 12-month follow-up, as assessed by means of the web version of the WHO Composite International Diagnostic Interview (CIDI), version 3.0 depression section.

Results: The intervention group had a significantly lower incidence of MDE at the 12-month follow-up than the control group (Log-rank $\chi^2 = 7.04$, $p < 0.01$). The hazard ratio for the intervention group was 0.22 (95% confidence interval 0.06–0.75), when estimated by the Cox proportional hazard model.

Conclusions: The present study demonstrates that an iCBT program is effective in preventing MDE in the working population. However, it should be noted that MDE was measured by self-report, while the CIDI can measure the episodes more strictly following DSM-IV criteria.

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O260

ENUMERATING THE “GOOGLE-EFFECT” – THE ADDED VALUE OF COMPREHENSIVE WELL-BEING AT WORK INTERVENTIONS OVER TRADITIONAL HEALTH PROMOTION

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Introduction: Several companies employ multimodal complex interventions to improve well-being at work (e.g. Google or Zappo). To assess the incremental benefit over and above traditional worksite-wellness programs, we prospectively evaluated the effect of a comprehensive program addressing structural aspects, work organization and work culture.

Methods: Population: Two sites of the AbbVie pharmaceutical company (n = 2.500 employees). Baseline and 24-month follow up. Intervention site (n = 300), controls: larger site (n = 1900) and sales force (n = 300). The intervention employed a comprehensive participatory approach to changing structure (new building and office design), work organization (e.g. rules about home-office), relationships (leadership culture) and core values. The control intervention was a new company-wide intense comprehensive wellness program. Primary outcomes were health related loss of productivity (HRLP), and long-term heart rate variability (n = 113). Secondary outcomes were subjective health, perceived enjoyment and purpose of work, resources (leadership, team), work-privacy conflict.

Results: Combined multilevel and structural equation modeling revealed improved HRLP (standardized β (s β) = 0.04, p = 0.04), increased enjoyment and purpose at work (s β = 0.13, p < 0.001), subjective health (s β = 0.04, p = 0.04), and resources at work (s β = 0.12, p < 0.001). Heart-rate variability during periods of high work intensity showed a significant improvement compared to prior to the intervention (n = 113, s β = 0.1, p < 0.01).

Conclusions: A complex intervention addressing structure, work organization, and culture improved productivity estimates, subjective health and perceived work quality above an intense worksite wellness program alone.

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O261

EFFECT OF MINDFULNESS TRAINING ON THE COURSE OF PSYCHOLOGICAL DISTRESS AND POSITIVE MENTAL HEALTH OF MEDICAL STUDENTS DURING THEIR CLINICAL CLERKSHIPS. A CLUSTER-RANDOMIZED CONTROLLED TRIAL.

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Introduction: Psychological distress is common in medical students and related to reduced work satisfaction as physician. This study was conducted to determine the effect of mindfulness based stress reduction training (MBSR) at the start of clinical clerkships compared to clerkships as usual (CAU) on the course of personal and work-related measures of psychological distress and positive mental health during clerkships.

Methods: A Cluster-randomized controlled trial was conducted. Before randomization, all participating students completed an online baseline assessment. Eighty-three students were cluster randomized by class to follow their clinical clerkships as usual (CAU) and 84 to follow the MBSR training. Follow-up was sent at 3, 7, 12, 15 and 20 months after baseline. The main outcome measures were psychological distress (BSI, primary outcome measure) and positive mental health (MHC-sf). Dysfunctional cognitions (IBI), life satisfaction (LiSat-9), mindfulness skills (FFMQ) and physician empathy (JSPE) were secondary measures. Multilevel mixed-effects models were used to analyze the data.

Results: Of 232 eligible fourth-year medical students starting their clinical clerkships, 167 participants (72%) were randomized, 83 to MBSR and 84 to CAU. The MBSR group overall reported a lower level of psychological distress $F(5, 627) = 2.51, p = .03$, and higher positive mental health, $F(5, 590) = 3.88, p = .002$ over the course of 20-months post-intervention. **Conclusions:** Completion of MBSR during clerkships is feasible and positively influences the course of psychological distress and positive mental health over time.

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O262

MINDFULNESS-BASED STRESS REDUCTION FOR MEDICAL RESIDENTS: EFFECTS ON BURNOUT AND WELLBEING. A RANDOMIZED CONTROLLED TRIAL.

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Introduction: Burnout among Dutch medical residents is high: 20% suffers from burnout, of which 6% has a severe burnout. Interventions to prevent burnout in medical residents are scarce. However, research shows that mindfulness might be an effective intervention to reduce burnout symptoms and increase wellbeing. The aim of this study is to examine the effectiveness of a Mindfulness-Based Stress Reduction (MBSR) training on burnout and wellbeing in medical residents.

Methods: A randomized controlled trial was conducted (n=148) comparing MBSR training (n=80) with a 3-months waiting list control condition (n=68) in medical residents at the Radboudumc. Assessments took place at baseline and at the end of training. The primary outcome measure was burnout, measured by the UBOS. Secondary outcome measures are Work-Home interference (SWING), Mental Health (MHC), and Empathy (JSPE). ANCOVA analyses were conducted to analyze the effects of the training.

Results: The majority of the participants were female (88%) with a mean age 31 years. In the MBSR group, 4 residents did not start the intervention and 8 dropped out. At baseline, 27% of the participants reported high burnout symptoms. Trial outcome data (intention-to-treat and per protocol) are currently being analyzed and results will be presented at the ICBM.

Conclusions: This trial will provide insight into the effectiveness of MBSR training on burnout and wellbeing in medical residents. Trial results will be discussed.

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O263

FEASIBILITY AND EFFECTIVENESS OF A ‘MINDFUL LEADERSHIP’ TRAINING FOR MEDICAL SPECIALISTS. A CONTROLLED PILOT STUDY.

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Introduction: Among medical specialists, burnout, attrition, and low work satisfaction is a growing concern. This has a negative impact on their own wellbeing, but also on their performance, quality of patient care and leadership. Several studies indicate that mindfulness can reduce burnout symptoms, psychological distress, and increase life satisfaction, empathy in healthcare professionals, however little is known about the effects in medical specialists and particularly on their leadership. The current pilot study evaluates the effects of a ‘Mindful leadership’ course on psychological wellbeing, burnout and leadership in medical specialists. More in-depth information on effects and feasibility of the training was collected by means of semi-structured individual and focus group interviews.

Methods: 1. A non-randomized controlled pre-post evaluation using self-administered questionnaires on mental health, work-home interference, life satisfaction, self-compassion, burnout, worry and ethical leadership at work. These were filled in 4 months before (control period), at start of, at the end of and 6 months after the course. 2. A qualitative study among a subset of the participants using semi-structured interviews about the effect of the course on their leadership one year after the training.

Results: Four cohorts of medical specialists (N=52) were trained. Twenty-six medical specialists participated in the control condition. Results of the quantitative and qualitative study will be presented, followed by a discussion on possibilities for future research.

Conclusion: This pilot study will provide insight into the feasibility and effectiveness of a course on ‘Mindful leadership’ in medical specialists.

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P264

THE “WALK OF SHAME”: UNDERSTANDING GAMBLING STIGMA

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Introduction: It is recognized that problem gambling is a highly stigmatized condition. However, there is limited information about the effects of stigma beyond the narrow group of problem gamblers, and a limited understanding of why problem gambling is stigmatized.

Methods: The research involved in depth qualitative interviews with 100 gamblers in Victoria, Australia. Thematic analysis was used to analyze the data.

Results: Problem gambling was clearly stigmatized, as has been found previously. There was evidence that problem gambling was seen as an issue of personal responsibility, and that this contributed to stigma. Problem gamblers were seen as “irresponsible”, “undisciplined” and “uncontrolled”. However, effects of stigma were also seen on lower risk gamblers. Gaming machine players were also stigmatized, even by problem gamblers.

Conclusions: Gambling stigma extends beyond the narrow group of problem gamblers, and affects a much wider group of gamblers. Approaches to gambling harm which focus on personal responsibility for gambling behavior may increase stigma.

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A COMPARATIVE STUDY OF COGNITIVE REPRESENTATIONS AMONG INDIVIDUALS WITH ALCOHOL DEPENDENCE SYNDROME AND HEALTHY INDIVIDUALS

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Introduction: Alcohol dependence has become a worldwide crisis as it is associated with adverse social, economic, physical and mental consequences. As per the World Health Organization report alcohol consumption led to 5.9% of all global deaths in year 2012. Few studies has conducted a comprehensive & objective evaluation of cognitive elements among individuals with substance use. In this study we aimed to identify underlying deeper cognition among these individuals as it is well known that dysfunctional cognition leads to dysfunctional behavior and which may be in form of addictive behaviors.

Methods: This is a cross sectional study wherein total 10 male adults diagnosed with Alcohol Dependence Syndrome (ADS) recruited from National Drug Dependence Treatment Centre, AIIMS and 10 healthy individuals from community or clinical set up. The two groups are matched in terms of age and socio-economic status and compared on a diverse set of cognitive measures (Young Schema Questionnaire, Dysfunctional Attitude Scale, and Cognitive Distortion Scale and Automatic Thought Questionnaire) using t test.

Results: Findings demonstrates that the ADS group scored higher than the healthy individuals on 11 of the 18 early maladaptive schemas. Both groups also differed on cognitive distortion of mind reading, catastrophization, emotional reasoning, overgeneralization and personalization. In addition, ADS groups scored higher on dysfunctional attitude and automatic thoughts.

Conclusion: Findings suggest that dysfunctional underlying deeper cognition may be an important target of intervention for alcohol dependence treatment programmes and may result in improved treatment outcomes and decreased relapse rate.

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INVESTIGATION OF COLLEGE STUDENTS' INTERNET ADDICTION AND ANALYSIS OF ITS CORRELATION WITH IMPULSIVE CHOICE

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Introduction: To investigate on the students' network usage, addiction and influencing factors at a certain university and analyze its correlation with impulsive choice.

Methods: Multi class sampling method was applied. 1777 students were selected from the Schools of Clinical Medicine, Nursing, Public Health, Mental Health, Medical Laboratory Science, and the Department of Stomatology, School of Pharmacy, School of Management and Department of Biology. This included 1534 medical majors, accounting for 86.3% of the sample, and 243 non-medical majors, accounting for 13.7% of the sample.

Results: 121 students were found to be addicted to the internet, accounting for 6.8% of the selected students. A total of 1656 students were free from internet addiction, accounting for 93.2% of the selected students. Among all the addicts, 96 were from medical majors, accounting for

79.3% and 25 were from non-medical majors, accounting for 20.7%. Boys preferred computer games while girls preferred to watch movies, listen to music and shop. At the same time, most of the junior students and non-medical majors played games online. Students who spent 5 and more hours every day on the internet accounted for 3.4%. Medical majors usually used their cellphones while non-medical majors mostly were online at their dorms. Probably due to the boys' preference for computer games, a larger proportion of boys were online at school dorms and internet bars off the campus. Most of the girls chose to use their cell phones. More junior students used the internet at dorms while more senior students used their cellphones. Regarding, the function of medical knowledge on the prevention and treatment of internet addiction, 9.8% of the students held that medical knowledge had a great effect on the prevention and treatment of internet addiction, 61.5% believed in a general effect, while 28.6% of the students thought it useless. The multi factor analysis showed that grade, home address and the communication with parents all attribute to internet addiction. Internet addiction was significantly associated with impulsiveness, and 3 dimensionality of impulsive choice ($P < 0.01$). Conclusion: There is higher incidence of internet addiction among the junior students, those from urban areas and those who lack communication with parents. Grade, home address and situation of communicating with parents are the important factors for internet addiction. Internet addiction is close association with impulsive choice.

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ASSOCIATIONS BETWEEN COGNITIVE STYLE, PSYCHIATRIC COMORBIDITY AND ALCOHOL CONSUMPTION AT HEALTHY UNDERGRADUATE MEDICAL STUDENTS

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Introduction: The aim of this study was to describe the strength of associations between alcohol consumption, self-efficacy, hardiness, anxiety, depression and self-esteem in healthy undergraduate medical students.

Methods: 80 participants (mean age = 21.15, SD = 3.07) (40 in the 1st year (14♂, 26♀, mean age = 18.13, SD = 3.35) and 40 in the last year of study (15♂, 25♀, mean age = 24.18, SD = 1.46) were tested for alcohol consumption (CAGE Questionnaire), anxiety and depression (HAD), hardiness (AHS), self-efficacy (SES) and self-esteem (Rosenberg's Self-Esteem Scale). *t* tests for independent samples, Pearson correlations and linear regression were performed to compute the significance of associations between the study variables.

Results: Across the whole sample, risky consumption of alcohol was met at 23.80%. First year respondents were characterized by higher alcohol consumption ($t = -2.776, p < .01$) and anxiety (36.3%) ($t = 2.126, p = .037$). Depression was met at 10%, with no differences by study years ($t = .739, ns$). Self-esteem was generally under the expected value, with 80% of all participants displaying average and 20% low self-esteem. Alcohol consumption correlated positively with anxiety ($r = .25, p < .025$) and negatively with hardiness ($r = -.28, p < .01$) and self-efficacy ($r = -.33, p < .003$).

Conclusions: The results of this study point out a risky group for alcohol consumption (males, at the beginning of the academic track). Design of better academic stress management programs should consider, beside psychiatric symptoms (e.g. anxiety), characteristics such as hardiness and self-efficacy.

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COGNITIVE DISTORTIONS AND EFFECT OF COGNITIVE THERAPY ON PERSONS WITH ALCOHOL DEPENDENCE SYNDROME IN A TERTIARY CARE CENTRE OF NORTHERN INDIA

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Introduction: Alcohol Dependence Syndrome (ADS) is a chronic relapsing illness and presence of cognitive distortions play important role in relapse, modifying these distortions may reduce the relapse rate. There is dearth of studies on ADS to see cognitive distortions and to modify or correct them. Several studies used CBT on ADS but mainly focused on behavioral techniques rather than using cognitive one. The present study was an attempt to find out cognitive distortions in ADS and to modify them by using cognitive therapy (CT).

Methods: A total 10 male subjects diagnosed with ADS were taken and randomized into two groups (5 subjects in intervention group and 5 subjects as waitlisted control). All the subjects were assessed on Young Schema Questionnaire (ASQ), Dysfunctional Attitude Questionnaire (DAQ), Cognitive Distortion Scale (CDS) and Automatic Thought Questionnaire (ATQ) at pre and post intervention. Six sessions of CT on weekly basis was given to 5 subjects in individual setting.

Results: Results were analyzed comparing pre and post score of each subject and total scores of this intervention group was compared with control group. Qualitative analysis was also done. All the 5 subjects in intervention group shown improvement in schema, dysfunctional attitude, cognitive distortions and automatic thoughts, whereas subjects in control group have not shown any improvement on any of the scale, hence suggests 6 sessions of CT might be effective in management of cognitive distortions.

Conclusions: CT may be an effective method to modify cognitive distortions in ADS and managing relapse.

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TRAITMAP: HARNESSING CONTINUOUS PERSONALISED FEEDBACK VIA SMARTPHONE SENSORS TO DISRUPT AND CHANGE ADDICTIVE BEHAVIOURS

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Introduction: Mental and substance use disorders (M/SUDs) are the leading cause of non-fatal illness worldwide, incurring substantial social and economic costs. The limited impact of behavioral interventions to treat M/SUD has prompted a shift toward more personality-informed approaches. Within psychiatry, evidence shows key personality traits can be used as endophenotypes for M/SUDs. In mobile health (mHealth) research, applications (apps) that detect risk behaviors and send users personalized feedback are likely to counter many of the harms associated with substance use.

Aims: To develop and test 'TraitMap', a novel mHealth system that combines self-report measures, continuous biomedical monitoring, and personalized feedback to support complex self-care in people with M/SUDs. Fully realized, TraitMap will detect drug cravings and personalize intervention to disrupt substance-related risk behaviors.

Methods: A 3-stage mHealth project involving 1) collection and analysis of multi-stakeholder feedback via online surveys, 2) design and evaluation of a prototype app tailored to people with M/SUDs, 3) a pilot trial to assess the impact of TraitMap on cravings and associated harms that will underpin the future design of a larger randomized controlled trial.

Results: Unlike previous trials, this project will be developed using ResearchKit, a software platform specifically tailored to medical research needs. Findings from world-leading medical research units show ResearchKit counters many of the methodological limitations and data loss that characterize Internet trials. By contrast, highly automated data collection features of ResearchKit will enable the study to streamline informed consent, prompt continued user participation, and collect infinitely richer data sets.

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INTERVENTION EFFECTS OF SELF-HELP BOOK ON INTERNET ADDICTIONS

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Introduction: In Indonesia, there are many internet users, and the numbers continues to increase from year to year. This increment leads to the increasing of internet addictions. The purpose of this study was to evaluate the effectiveness of a self-help book based on Cognitive Behavioral Therapy (CBT) principles on internet addictions.

Methods: The participants were seven undergraduate students, who had moderate internet addictions. Internet addiction was assessed by Young's Internet Addiction Test (IAT). This study used within-subjects experimental design with pre-post treatment design. Paired-sample t test was used as the analytical strategy.

Results: The result revealed that there were no difference in internet addiction, before and after treatment, featured with moderate effect size (*Cohen's d* = 0.498).

Conclusions: Self-help book may be useful for adolescents with internet addictions. There was a trend toward statistical significance, so further research needs to be done to determine whether a larger sample size would have detected a significant difference.

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DOES EXCESSIVE SMARTPHONE USE HAVE DETRIMENTAL EFFECTS ON SLEEP, STRESS, AND SOMATIC SYMPTOMS?

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Introduction: Smartphones have become the most used electronic devices and are often the first and last thing people check every day. Some people use their smartphone excessively and have problems disengaging from it; there are some reports that the checking and the person's 'availability' disrupt relaxation and leisure activities to the detriment of the users. Our aim was to investigate potential associations between excessive smartphone use, sleep disturbances, stress, and somatic symptoms.

Methods: A sample of German-speaking participants is currently being recruited in Internet forums and takes part in an online survey. They provide their age, sex, education and geographic area and answer questions regarding the frequency and duration of their mobile

phone or smartphone use and whether they engage in work-related smartphone activities (e.g. email). In addition, they filled in the 'Problematic Use of Mobile Phones Scale', the 'Pittsburgh Sleep Quality Index', the 'Perceived Stress Scale-10', and the 'Patient Health Questionnaire-15'.

Results: Bivariate correlations and regression analyses will be computed between excessive smartphone use and the health-related measures. A one-way ANOVA will be calculated to compare people using smartphones (i.e. online, providing applications), those using mobile phones (i.e., offline, not providing applications), and those using no mobile devices.

Conclusions: Clinical implications will be discussed.

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ANXIETY, DEPRESSION AND SUBSTANCE ABUSE AMONG ORTHOPAEDIC TRAUMA PATIENTS

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Introduction: Rates of anxiety and depression have been found to be high among individuals who have sustained orthopedic trauma, and anxiety or depression is associated with higher rates of alcohol and tobacco use. Managing mental health issues within the orthopedic trauma population, therefore, requires concomitant consideration of patient-level substance use and abuse.

Methods: A cross sectional survey was conducted at two New South Wales level one trauma facilities of orthopedic trauma patients. Across a 15-month study period, eligible patients were approached while in hospital and invited to participate in an online health behavior survey.

Results: Data collection will be finalized by July 2016. Interim results from the first 641 surveys found 21% of patients identified as current daily or occasional tobacco users, 29% were ex-smokers and 49% non-smokers. AUDIT-C measures indicated that 26% of patients identified as non-drinkers, 60.5% self-identified as non-heavy drinkers and 13% identified as heavy drinkers. Concurrent tobacco and heavy drink was found in 11% of current tobacco users. 17% of current tobacco users versus 9% of non-users reported having moderate to severe anxiety as measured by the GAD-7. Of the current tobacco users, 17% were above threshold for depression while 12% of non-users were above threshold for depression when measured using the PHQ-2.

Conclusions: It is important to understand the associations between anxiety or depression and substance use amongst hospitalized patients so that interventions aimed at targeting these behaviors can be developed.

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CORPORATE SOCIAL RESPONSIBILITY STRATEGIES OF MULTINATIONAL SPORTS WAGERING COMPANIES: A CONTENT ANALYSIS OF INDUSTRY DOCUMENTS

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Introduction: Sports wagering is a rapidly growing segment of the gambling market and has been identified as an unhealthy commodity industry (product). Research has shown that unhealthy commodity industries (e.g. tobacco and alcohol) employ a range of public relations and framing tactics in an attempt to influence public perception about their products and prevent regulatory reform. To date little is known about what public relations and framing tactics are being employed by the sports wagering industry. This study explored the way in which the sports wagering industry employs Corporate Social Responsibility (CSR) tactics to influence the public discourse around their industry and products.

Methods: Evidence of CSR strategies were identified in the annual or CSR reports of eight multinational sports wagering companies published between 2010 and 2014. These examples were then collated, analyzed and coded into a subsequent framework using a constant comparative method of analysis.

Results: A total of 203 CSR tactics were identified. The most widely used tactics were Responsible Practices and Community Funding and Engagement, while evidence of Responsibility Messages in Advertising was the least popular tactic.

Conclusions: The sports wagering industry appear to be using CSR to highlight their commitment to the consumer and to maintain positive relationships within the wider community. The CSR tactics identified are similar to those being used by other gambling mediums and unhealthy commodity industries. These findings serve as a guide into the way the sports wagering industry frame their products to manipulate the public discourse about their products and services to society.

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PARENT AND CHILD RECALL OF SPORTS WAGERING MARKETING IN DIFFERENT COMMUNITY ENVIRONMENTS

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Introduction: Gambling is a public health issue. In Australia there has been widespread public concern about children's exposure to sports wagering marketing. While some research has investigated child and parent opinions surrounding sports wagering marketing, there is a limited understanding about how children see and interact with sports wagering marketing and the impact this exposure may have on children's attitudes and behaviors towards gambling.

Methods: A mixed methods study of 152 families (parent and an 8 to 16 year old child) was conducted at sporting events (AFL, NRL and soccer) in New South Wales and Victoria. We used picture boards containing images of 12 marketing environments to assess where participants had seen sports wagering marketing. We then used qualitative techniques to prompt for what they had seen within these environments, the perceived influence of marketing via each of these channels and the normalization of sports wagering during sport.

Results: Children and parents stated that they had seen marketing for wagering in many environments predominantly on television, and at sporting venues/stadiums. Children were able to recall very specific examples of marketing which included company brand names, plot lines and promotions. The majority of participants believed sports wagering to be a normal part of sport.

Conclusions: This research demonstrates that children can identify sports wagering marketing in a range of environments and can also describe different aspects of the marketing. Regulation should focus on not only on the content of marketing, but also the places and spaces where wagering marketing can occur.

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EFFECTIVENESS OF A SCHOOL-BASED PROTECTIVE FACTOR INTERVENTION IN REDUCING ADOLESCENT TOBACCO, ALCOHOL AND ILLICIT SUBSTANCE USE

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Introduction: Tobacco, alcohol and illicit substance use initiation typically occurs during adolescence, with school settings recommended for universal interventions to reduce such use. Whilst strengthening individual (e.g. self-efficacy) and environmental (e.g. caring relationships with adults) protective factors is suggested as a possible strategy for reducing adolescent substance use, few studies have examined this potential.

Methods: A cluster-randomized controlled study examined the effectiveness of a universal school-based protective factor intervention in reducing student substance use in 32 Australian secondary schools (20 intervention;12 control). Participants were a cohort of Grade 7 (12-13years) students followed up in Grade 10 (15-16years). A three year intervention addressed individual and environmental protective factors via school curriculum, practices/programs, and community partnerships. Self-reported tobacco (recent), alcohol (recent, 'risk'), marijuana (recent), other illicit substance use (recent); and protective factor score (individual, environmental) data were analyzed at follow up using generalized mixed models to examine difference between groups.

Results: Follow-up data from 2149 students (intervention=1261; control=884; 69% of baseline cohort) were analyzed. No significant differences were found between intervention and control students for any substance use (tobacco OR:1.39,p=0.19; recent alcohol OR:1.13,p=0.51; 'risk' alcohol OR=0.98,p=0.89; marijuana OR=1.12,p=0.57; other illicit OR=1.19,p=0.54) or protective factor outcome (individual: MD=0,p=0.89; environmental: MD=-0.01,p=0.81).

Conclusions: The intervention was not effective in reducing student tobacco, alcohol or illicit substance use or increasing protective factor scores. Implications for further research will be discussed in the context of the potential for, and significant policy

and practice investment in universal school-based substance use prevention.

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EFFECTIVENESS OF A UNIVERSAL SCHOOL-BASED INTERVENTION IN REDUCING ADOLESCENT TOBACCO, ALCOHOL AND ILLICIT SUBSTANCE USE WITHIN STUDENT SUBGROUPS: EXPLORATORY ASSESSMENT

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Introduction: Substance use initiation typically occurs during adolescence, and universal interventions that address the individual (e.g. self-efficacy) and environmental (e.g. adult caring relationships) protective factors of adolescents are suggested to potentially reduce such use. However previous studies suggest variable effectiveness of universal interventions according to student socio-demographic and substance use characteristics.

Methods: An exploratory study, as part of a C-RCT, examined the effectiveness of a universal school-based protective factor intervention on substance use by adolescents according to their socio-demographic and substance use characteristics. A cohort of Grade 7 students (20 intervention/12 control secondary schools) were followed up in Grade 10 (15-16years), following a three year intervention. Self-reported tobacco (recent, cigarettes smoked), alcohol (recent, 'risk', drinks consumed), marijuana (recent), other illicit substance use (recent); and protective factor (individual, environmental) follow up data were analyzed using generalized linear mixed models to examine differences between groups within student subgroups (gender; socio-economic disadvantage: high/low; geographic location; major city/inner regional/outer regional remote; substance use: never used/used).

Results: Analysis of data from 2149 students (intervention=1261; control=844; 69% retention) showed no significant differences between groups in any subgroup for any outcome, with the exception of the low socio-economic disadvantage and regional/remote subgroups which showed an intervention effect among smokers on number of cigarettes smoked ($p=0.001$, $p=0.005$ respectively).

Conclusions: Negligible evidence of an intervention effect according to student socio-demographic or substance use characteristics was found. The reduction in number of cigarettes smoked among smokers from regional and remote and low socio-demographic areas suggests an intervention effect for such students.

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NEUROTENSIN RECEPTOR 1 CONTRIBUTES TO THE INCREASED SIDE-EFFECTS OF KAPPA OPIOID RECEPTOR IN DRUG ABUSE

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Introduction: Kappa opioid receptor and dynorphins (KOR/Dyn) system plays critical roles in the fine-tuning modulation of pain, analgesia, addiction, and analgesic effects could be achieved through the classical G-

protein-coupled pathway, while non G-protein-dependent pathway, especially the β -arrestin-dependent signaling, often leads to side-effects. Although mounting evidences have verified function overlaps between KOR/Dyn and neurotensin receptor 1 and neurotensin (NTR1/NT), little is known about the direct interaction between these two systems. This study was aimed to investigate the possibility of existence of KOR-NTR1 heterodimers and reveal their novel pharmacological characters.

Methods: Fluorescence and bioluminescence resonance energy transfer (FRET, BRET) and co-immunoprecipitation experiments were performed to verify the heterodimers composed of KOR and NTR1. Extended BRET was used to detect β -arrestins binding characters and Gi-protein coupling, enzyme-linked immunosorbent assay was used to study the intracellular cAMP levels, and western blotting studies focus on ERK1/2 were carried out to investigate the possible alteration of KOR mediated downstream signal transduction.

Results: We found that KOR and NTR1 could dimerize with each other and function as a particular pharmacological entity, which lead to an augmented β -arrestin-dependent signal transduction to KOR, while the dual occupancy of KOR-NTR1 heterodimers could turn the β -arrestin-dependent manner back to the Gi-protein-dependent pathway.

Conclusions: NTR1 should be involved in KOR mediated side-effects, owing to the promoted β -arrestin-dependent signaling of KOR caused by its heterodimerizing with NTR1. Data in dual occupancy of the heterodimers suggested an important role of NTR1/NT system in utilizing drug addiction-elevated KOR/Dyn system into full play with limited side-effects.

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THE EFFECTS OF NEAR MISS AND TYPE OF GAME ON THE LOSS AVERSION.

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Introduction: Near miss raises a sense of expectancy to win. Strategic games activate skill-oriented cognition and primary control, but non-strategic game activate ritual-oriented cognition and second control. It leads gamblers to have irrational anticipation to win and over confidence their subjective sense of control. The purpose of the present study was to investigate the effect of near miss and type of game on loss aversion.

Methods: 68 college students were participated. They weren't a problem gamblers and pathological gamblers based on Korean CPGI. The subjects were assigned to one of four experimental conditions, according to existence of near miss and type of game – strategic game and non-strategic game. They played the game shown on computer monitors. And the change of batting amount was measured as an indicator of loss aversion. **Results:** Near miss group showed significant decrease in loss aversions, and strategic game showed significant decrease in loss aversion than non-strategic group.

Conclusions: The results showed that the experience of near miss and of strategic game affect gambler's loss aversion and risky behavior, so these are risk factor to progress gambling behavior.

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SUICIDE IDEATION AND SUICIDE ATTEMPTS OF ALCOHOL USE DISORDERS: BASED ON THE INTERPERSONAL PSYCHOLOGICAL THEORY OF SUICIDE

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Introduction: Suicide behavior is a major problem in alcohol use disorders (AUD). The purpose of this study is to understand suicide ideation and suicide attempts of AUDs based on the Interpersonal Psychological Theory of Suicide (IPTs, Joiner, 2005)..

Methods: Participants were patients undergoing residential AUD treatment at local hospital in Gyeonggi-do and Seoul, Korea. The severity of AUD (AUDIT), thwarted belongingness, perceived burdensomeness, acquired capability for suicide and current suicide attempts were measured by self-report questionnaire. Total 177 samples were analyzed in this study.

Results: The severity of AUD not only directly affected to suicide ideation but indirectly through two interpersonal states: thwarted belongingness, perceived burdensomeness. Also suicide ideation was significantly related to current suicide attempt but the interaction among suicide ideation and acquired capability for suicide was not significantly related to current suicide attempts.

Conclusions: The results showed that for prevention of suicidal attempt of AUD, strategies of increase of AUD's belongingness and decrease of AUD's burdensomeness was needed.

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GENDER DIFFERENCES IN HEALTH RELATED BEHAVIORS AMONG COLLEGE STUDENTS

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Introduction: College is a time of transition and adaptation. It is often the time when students start experiencing changes in health related behaviors that frequently lead to at-risk behaviors. The purpose of this study was to examine gender differences in health related behaviors among college students.

Methods: Besides various demographic questions, 939 students from two mid-size public Universities in the U.S. completed the International Physical Activity Questionnaire (IPAQ; Booth, 2000), the Power of Food Scale (Lowe et al., 2008), and the Alcohol Use Disorders Identification Test (AUDIT; Babor, Higgins-Biddle, Saunders, & Monterio, 2001) as part of a larger study.

Results: The results indicated significant gender differences in levels of PA with men being significantly more physically active than women on Vigorous Days ($F(1,938) = 17.16, p < .001$). Twenty-six percent of students reported engaging in at-risk drinking with men reporting significantly higher engagement in heavy alcohol drinking than women ($F(1,938) = 7.42, p < .01$). On contrary, women reported significantly higher prevalence of uncontrolled eating than men both when food is available ($F(1,938) = 5.24, p < .05$) and present ($F(1,938) = 9.40, p < .01$). **Conclusions:** Although research has investigated health related behaviors and beliefs in college students, as of our knowledge a limited research has investigated such relationships focusing on gender differences. Targeting gender-specific cognitive concepts might be of great interest for future research.

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ATTENTION BIAS MODIFICATION FOR IRRITABLE BOWEL SYNDROME

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Introduction: One of the pathophysiological features of irritable bowel syndrome (IBS) is the presence of psychological abnormalities, including attentional abnormality. In this intervention-based study, we investigated the effect of Attention Bias Modification (ABM) therapy in patients with IBS. We hypothesized that the attentional abnormality in IBS would be normalized after ABM implementation, as indicated by event-related potentials (ERPs).

Methods: Thirteen patients with IBS and 10 healthy participants took part in this study. Five ABM intervention sessions were provided over a 2-month period. One session of ABM comprised 128 trials, resulting in a total of 640 trials across the intervention period. ERPs were measured during the first and fifth sessions using the international 10-20 system for EEG. Activity at the right parietal P4 electrode was measured, P100 activity at which has been associated with the attention component of facial expression.

Results: We found a significant difference in P100 latency at electrode P4 in session 1 (108 ± 8 vs. 97 ± 14 , $t = -2.51$, $p = 0.0203$), but not in session 5 (94 ± 11 vs. 93 ± 11 , $t = -0.397$, $p = 0.6954$, $r = 0.09$). Moreover, after the ABM, psychological abnormalities were normalized in patients with IBS. **Conclusions:** These results suggest that the implementation of ABM in patients with IBS may normalize brain function associated with attention.

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EXERCISE AND COGNITIVE BIAS MODIFICATION TRAINING IN ADULTS: EFFECTS ON SELF-REPORTED ANXIETY

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Introduction: In the last couple of decades evidence has gathered that individuals suffering from anxiety tend to interpret ambiguous information as threatening. Taking the causal role of this interpretative bias in anxiety, it has been confirmed that modifying these biases in clinical and non-clinical populations can influence anxiety symptoms and its future vulnerability. The study was designed to investigate the potential relationship between threat-related biases in anxiety and exercise.

Methods: Healthy adults in the age range of 18-60 years (mean age=29.11; S.D=6.9, men and women) were randomly assigned to one of three conditions: exercise and positive Cognitive Bias Modification (CBM) training, exercise or a control condition ($n = 3 \times 12$). They attended a single session of exercise and a session of training on the same day. A two-tailed paired t-test was used to identify effectiveness of exercise on anxiety.

Results: Those in the exercise group were less state and trait anxious after completion of the experiment on a measure of State-Trait Anxiety Inventory (STAI; Spielberger, 1983), compared to both the controls and those in exercise and positive CBM condition. Additionally, no significant effects were observed on state anxiety in the exercise plus CBM group, though they were less trait-anxious after completion of the training.

Conclusions: Some of the clinical potentials of exercise and positive cognitive bias modification in groups of healthy individuals were found. The mixed pattern of findings however renders them inconclusive, leaving interpretations of the potential therapeutic benefits of positive CBM training open for future research.

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BEHAVIOURAL MEDICINE: LIFESTYLE MODIFICATION ADVICE TO CONTROL METABOLIC DISEASES IN A NIGERIAN RURAL POPULATION

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Introduction: Lifestyle modification reduces the risk of developing e.g. cardiovascular disease, diabetes and its complications. Lifestyle change is perhaps not fully utilized in Nigeria, yet constitutes a driving force in combating the rising prevalence of metabolic diseases. Hence, this pilot study investigated the extent of lifestyle modification advice in Nigerian adults.

Methods: A cross-sectional study was undertaken in Ndokwa West, Delta State of Nigeria. Four hundred and eighteen (418) apparently healthy adults aged 18 years and above were sampled. The WHO STEPwise questionnaire on risk assessment was used to elicit information on lifestyle advice from the subjects. Fasting blood glucose was also measured in these individuals, using CardioChek® analyzer.

Results: Few (18.4%) respondents confirmed they were advised to quit tobacco smoking, and 29.3% acknowledged being asked to reduce salt in their diet. However, 33.9% of the subjects reported they were instructed to eat at least five servings of fruits/vegetables each day; and 25%, admitted being encouraged to reduce fats in their diet. Only 30.3% said they were prompted to start or engage in more physical activity, and 27.8% agreed they were admonished to maintain a healthy body weight or lose weight. Of the sampled cohort, 58.9% were hyperglycemic and 41.1%, normal blood glucose level.

Conclusions: There is large number of people who are hyperglycemic and those that may be living lifestyles that promote metabolic diseases such as diabetes in Nigeria. Future studies need to trail such cohorts to ascertain the extent to which they heed advice on lifestyle modification.

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PSYCHOBIOLOGICAL OUTCOMES IN PARENTS AND THEIR INFANTS AFTER FETAL OR POSTNATAL DIAGNOSIS OF COMPLEX CONGENITAL HEART DISEASE

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Background: Congenital heart disease (CHD) affects 1 in 100 newborns and contributes significantly to disease-related disability. Over 50% of babies with complex CHD are diagnosed antenatally. These infants are often separated from their mother at birth and experience invasive medical procedures. This can have profound developmental consequences, with early life experiences shaping brain development, the immune system, and responses to stress. This prospective cohort study examines: the prevalence and predictors of psychological morbidity in parents following fetal or postnatal CHD diagnosis, and the association between parental anxiety during pregnancy and infant socioemotional, biobehavioral and neurodevelopmental outcomes.

Methods: Parents of babies with a fetal or postnatal diagnosis of complex CHD ($n=169$) or healthy fetal morphology scan at 18-20 weeks gestation ($n=74$) complete clinical interviews and validated surveys (3-months post-diagnosis, 3-, 6-, 12-months postpartum). Salivary cortisol is collected during pregnancy (mothers) and 12-months postpartum (mothers, infants). Mother-infant interaction at 6-months and infant outcomes at 12-months (Bayley Scales of Infant Development, Strange Situation Procedure) are also assessed.

Results: Three months post-diagnosis, 46% and 42% of mothers in the fetal and postnatal groups respectively, report anxiety warranting clinical intervention, compared to 17% of mothers of healthy infants. Similarly, 50% and 46% of fathers in the fetal and postnatal groups report anxiety warranting intervention, compared to 13% of fathers of healthy infants. Post-diagnosis, 14% of fathers report self-harm ideation.

Discussion: Links between parental anxiety and infant outcomes are being investigated. Results will inform models of clinical care for infants with CHD and their parents.

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ASSESSMENT OF HORMONAL PARAMETERS IN LONG-TERM KARATE PRACTITIONERS

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Introduction: Karate is a Japanese martial art which is widely practiced in the Western world as a form of self-defense, as well as a discipline to achieve physical and mental balance. However, little is known with respect to its specific psychobiological effects, particularly in relation to the

influence that karate may exert on the endocrine system. Thus, in the present study we analyzed the effects of regular karate practice on several hormonal parameters.

Methods: 27 healthy volunteer subjects participated in the study, of whom 15 were allocated to the experimental group, and 12 were assigned to the control group. Experimental subjects were karate players with a minimum of 3 years of practice in this discipline. Blood samples for the quantification of hormonal parameters (TSH, T3, T4, PTH, ACTH, cortisol, and DHEA) were taken in both groups. To compare the means of the control and experimental group, a t-test for independent groups was performed in each dependent variable.

Results: Significant differences between the experimental and control group were found in T3, T4, and cortisol, with karate players showing lower blood levels of these hormones than control.

Conclusions: These findings reveal that long-term karate practice is associated to a significant endocrine modulation, which suggests interesting psychobiological implications, and lends itself to potential clinical considerations. Further research is needed to properly assess the scope of the peculiar hormonal profile displayed by advanced karate practitioners.

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IMMUNE MODULATION AFTER LONG-TERM KARATE PRACTICE

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Introduction: Karate is a Japanese martial arts system which traces its roots back to China, and is nowadays widely popular both as a method of self-defense, as well as a discipline with potential physical and psychological benefits. However, karate has been scarcely investigated from a psychobiological perspective, and its effects on the immune system remain virtually unknown. Therefore, we designed the present study with the aim of analyzing the effects of several years of regular karate practice on different immune parameters.

Methods: 27 healthy volunteer subjects participated in the study, 15 being allocated to the experimental group, and 12 to the control group. Experimental subjects were all karate players who had practiced this martial art for a minimum of three years. Blood samples for the quantification of immune parameters (leukocytes, neutrophils, monocytes, eosinophils, basophils, lymphocytes, IgG, IgA, IgM, IgE) were taken in both groups. As statistical analysis, a t-test for independent groups was performed in each dependent variable.

Results: Compared to the control group, karate practitioners exhibited a significantly higher number of leukocytes, monocytes, and lymphocytes, as well as greater serum concentrations of IgG and IgM.

Conclusions: Our findings show that long-term karate practice is related to a broad modulation of immune parameters, including leukocytes counts as well as immunoglobulin concentrations. This peculiar immunomodulatory profile, apart from its psychobiological relevance, may have noteworthy clinical implications. Further investigation would be necessary to fully elucidate the influence that long-term karate training can exert on the immune system.

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STRESSFUL THOUGHTS, UNHEALTHY LIVES: EXAMINING THE ROLE OF PERSEVERATIVE COGNITIONS ON PSYCHOLOGICAL AND PHYSICAL HEALTH

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Introduction: Stressful thoughts (e.g., worrying about upcoming deadlines) relate to poor health. Broadly, such perseverative cognitions [PCs] have been identified as a risk predictor for poor health. Most work has compared individuals of varying levels of PCs, a *between-person approach* (who is at risk?); less understood is what happens when an individual engages in PCs in everyday life. This *within-person* approach can examine individuals over time (are time-varying PCs related to health processes?) and identify putative mechanisms whereby PCs contribute to poor health.

Methods: In Study 1 (between-person), a community sample ($n = 334$) completed measures of PCs, and psychological and physical health. In Study 2 (within-person), participants with chronic illness ($n = 128$) completed seven days of ecological momentary assessments five times per day measuring the severity of stressful thoughts (PCs), affect, and restrictions due to illness.

Results: Structural equation models (Study 1) testing PCs predicting health found that those who engaged in more PCs had greater depressed mood, pain symptoms, blood pressure, waking cortisol, and poor metabolic control (e.g., HbA1c) than those with less PCs. Within-person multilevel models (Study 2) testing time-varying PCs predicting momentary health indicators found that more severe stressful thoughts predicted worse mood and more illness restrictions than when that person had less stressful thoughts.

Conclusions: Those reporting more PCs have worse psychological and physical health (between-person). Moreover, when a person engages in PCs, health indicators were worse (within-person). These findings converge on the view that PCs are a common mechanism contributing to poor health.

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MUSIC PREFERENCE AMONG ASTHMATICS.

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Introduction: Researches identified patterns of relations between the music-preference and various psychological constructs, personality and cognitive styles. The purpose of the study is to investigate how individual differences in musical preferences are explained by the disease specific and/or individual characteristic of patients with asthma.

Methods: Authors. Study examined 86 outpatients (M/F 29/57; age: 53.16 (SD=13.27) with disease diagnosed according to guidelines of GINA. Asthma control (ACT), quality of life (AQLQ), general health

questionnaire (GHQ), spirometry and respiratory drive were assessed. Patients were asked to indicate their preferences for music (scoring from 0 to 10 points) from 24 different, 1-minute samples of relaxing music genres prepared by professional music therapist.

Results: Group of recordings performed by orchestra was scored higher (mean 7.17 OS=2.06) than those played on a piano (mean 6.4 SD=1.88) and the modern classical music with electronic sounds (mean 5.15; SD=1.58) $p<0.001$. The findings held truth when analyzed separately for women and men; where female scored all groups of recordings higher than men did ($p<0.005$). Music preference for orchestra music were linked to inspiratory muscles strength $r=-0.34$ $p<0.001$, expiratory muscle strength $r=-0.24$ $p<0.05$, forced vital capacity $r=-0.25$ $p<0.05$ and age of asthmatics $r=0.24$ $p<0.05$. Analyses of GHQ and AQOL results did not revealed any correlation with music preference.

Conclusion: The application of these findings might be used by clinicians and music therapists for proper designing of therapeutic interventions dedicated to patients with asthma.

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THE TYPE OF WALKING TRAINING MODIFIES PSYCHOPATHOLOGY IN INTERMITTENT CLAUDICATION

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Introduction: The influence of psychological state on an intensity of intermittent claudication (IC) in subjects with peripheral artery disease hasn't been well described. In our RCT two types of treadmill walking training were performed: to moderate claudication pain vs pain-free. The results were compared with respect to their effects on walking ability and psychopathology.

Methods: A total of 59 consecutive outpatients with stable IC were randomized to training programmes, both performed 3 times a week for 3 months. Changes in the *claudication onset time* (COT), the peak walking time (PWT) and psychopathology (David Goldberg's General Health Questionnaire – GHQ - 28 on subscales: A - somatic symptoms, B - anxiety and insomnia, C - social dysfunction, D - severe depression) were assessed before and after the program.

Results: 52 patients (mean age: 65,20 SD=7,60; ABI [ankle-brachial index]: $\bar{x}=0,51$ SD=0,16) completed the training program. There was significant difference in COT and PWT for all subjects: $\bar{x}=154,61$ SD=63,94 vs $\bar{x}=304,46$ SD=162,33 and $\bar{x}=470,81$ SD=187,12 vs $\bar{x}=898,0$ SD=358,72, respectively. We observed an improvement in examined patients' general health condition ($p<0,05$); post-training scores of GHQ - 28 were lower: $\bar{x}=20,54$ SD=12,41 vs $\bar{x}=24,17$ SD=10,91. Although both groups improved walking abilities, the moderate training group as compared to the pain-free training group decreased also GHQ - 28 scores (subscales: A, D and total result) ($p<0.001$).

Conclusions: Both pain-free treadmill training and the moderate treadmill training have similar efficacy on walking ability in patients with IC, however training in pain condition improves also psychological wellbeing.

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DIFFERENCES BETWEEN DEPRESSIVE MEN WITH AND WITHOUT OBSTRUCTIVE SLEEP APNEA

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Introduction: There is often the comorbidity of obstructive sleep apnea (OSA) and depression. The patients with depression often visit sleep clinic with suspected OSA. The purpose of this study is to clarify any differences in severity or symptoms of depression between depressive patients with and without OSA.

Method: The subjects were 127 men suffered from depression, who were suspected to have OSA because of their excessive daytime sleepiness or non-restorative sleep. They were hospitalized for undergoing polysomnography (PSG) and answered the semi-structured interviews using the Hamilton Depression Rating Scale (HAM-D) before PSG. Sleepiness was assessed using the Epworth Sleepiness Scale (ESS) before hospitalization. Their characteristics were analyzed by the severity of OSA. Results: By the apnea-hypopnea index (AHI) of PSG, these patients were categorized; 49 men (AHI<5, non-OSA), 51 men (5≤AHI<30, mild to moderate OSA), and 27 men (30≤AHI, severe OSA). Severe OSA men were obese than non-OSA men. Mild to moderate OSA men were older than non-OSA men. There were significantly more severe OSA smoker and mild to moderate OSA ex-smoker. Dunnett's test adjusted for age, body mass index, and smoking showed severe OSA men had less difficulty in getting to sleep than non-OSA men, although there was no significant difference in ESS score or HAM-D score of them.

Conclusion: Not only obese depressive men but also depressive men without difficulty in getting to sleep might be suffered from OSA.

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A RESTING-STATE FUNCTIONAL MAGNETIC RESONANCE IMAGING RESEARCH ABOUT MAJOR DEPRESSION WITH DIFFERENT TCM SYNDROME PATTERNS: HEART-SPLEEN DEFICIENCY AND LIVER-QI STAGNATION

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Introduction: Major Depression (MD) is a common mental disorder, occurring in about 15% of the population. Brain Functional Magnetic Resonance Imaging (fMRI) is a method to research the brain activity non-invasive. As we know, depressive patients often manifest through somatic complaints, and Traditional Chinese Medicine (TCM) syndrome differentiation is also based on somatic symptoms. According to the TCM theory, we generalized depression into two major syndrome patterns: Heart-spleen Deficiency (HSD) and Liver-qi Stagnation (LQS). We expect to find out the Neurological basis of the two patterns of MD.

Methods: We divide the depressive patients into two groups based on TCM theory: HSD and LQS. Finally, we get 21 HSD depressed patients, 21 LQS depressed patients and 19 normal controls (NC), and let them to take Resting-state fMRI tests. Then we use Degree Centrality (DC) to mapping the brain function, analyze the data and make comparison between the three groups.

Results: 1. Compare to NC group, the other two groups both showed significantly decreased brain function at right Precuneus. 2. Compare with the SLQ group, HSD group's brain function is also decreased at right Precuneus.

Conclusion: Precuneus is responsible for collect information from our own and surrounding, then distribute them. Therefore, we think it may also dispose the sensory information, and let the depressive patients produce paresthesia and various somatic symptoms. The two TCM syndrome pattern groups' patients also get brain function difference at that region. We need further research to find the somatosensory differences brain function network.

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THE CHARACTERISTIC OF CLINICAL SYMPTOM OF DEPRESSIVE AND ANXIOUS PATIENTS VISITING AT TCM CLINICS OF GENERAL HOSPITAL IN BEIJING

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Introduction: There is a part of patients with depressive and anxiety tendency in TCM clinic of general hospital in Beijing. Due to its complicated symptoms complaints, it is difficult to be distinguished. Through the study on clinical symptom characteristic of patients with depressive and anxiety tendency, we intend to improve the clinical recognition of mood disorders.

Methods: SCL-90 and physical symptoms questionnaire were used for the patients in TCM clinic of general hospital in Beijing. 5301 questionnaires were complete and useful. Among them, 390 who had more than 2 grades in both depression and anxiety score in SCL-90. We selected randomly 390 who had less than 2 grades in both depression and anxiety score into control group to be matched by gender and age. The relationship between mood disorders and symptoms of patients was analyzed by Chi-square test and Binary Logistic Regression.

Results: 1. The rate of depressive and anxiety tendency in these patients was 7.36%. The top six symptoms in frequency were insomnia (29.2%), debilitation (28.5%), tinnitus (28.0%), palpitation (27.2%), paraesthesia pharyngis (26.7%), and dizziness (26.2%). 2. The result by Chi-square test indicated that the differences of insomnia ($X^2=15.17$, $P<0.01$), debilitation ($X^2=4.99$, $P=0.03$), tinnitus ($X^2=5.87$, $P=0.02$), palpitation ($X^2=22.18$, $P<0.01$), paraesthesia pharyngis ($X^2=11.49$, $P<0.01$) were significant in depression group and control group. 3. These five significant variables were analyzed by Binary Logistic Regression. Palpitation (OR=1.906, $P<0.01$, 95%CI=1.315-2.764), insomnia (OR=1.696, $P<0.01$, 95%CI=1.315-2.764), paraesthesia pharyngis (OR =1.613, $P<0.01$, 95%CI= 1.127-2.308).

Conclusions: 1. The depressive and anxious tendency in patients have mainly the following symptoms: insomnia, debilitation, tinnitus, palpitation, paraesthesia pharyngis, and dizziness.

2. Insomnia, palpitation and paraesthesia pharyngis are all best typically clinical symptoms of patients.

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CONVERGENCE OF PSYCHIATRIC SYMPTOMS AND RESTLESS LEGS SYNDROME: A CROSS-SECTIONAL STUDY IN AN ELDERLY FRENCH POPULATION

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Introduction: Restless legs syndrome (RLS) is purportedly associated with depression. However few studies have controlled for anxiety disorder comorbidity and the somatic disturbances experienced as part of depression and anxiety.

Methods: Cross-sectional study of 1493 elderly participants (median age 80.6 years, 64 % women) from Dijon, France. RLS was assessed using the minimal diagnostic criteria of the International Restless Legs Study Group. Participants underwent structured interview for depression, dysthymia and generalized anxiety disorder (GAD). Participants also completed the Centre for Epidemiological Studies-Depression scale (CES-D). The association between RLS and psychiatric disorders, or their symptoms was examined using logistic regression, adjusted for 20 covariates. Results: The prevalence of RLS was 18.9%. Analysis of the three key RLS symptoms showed significant associations with GAD-depression comorbidity (range of odds ratios 2.62-2.97) and also GAD (range of odds ratios 2.57-2.91) but not isolated depression. In somatic symptom analysis, RLS was associated with the depression symptom tiredness and lethargy (OR 1.66; 95% CI 1.03-2.66, $p = .037$). RLS was also associated with CES-D symptoms restless sleep (OR 1.14; 95% CI 1.01-1.30, $p = .04$) and talked less than usual (OR 1.27; 95% CI 1.02-1.58, $p = .04$).

Conclusions: RLS is strongly associated with GAD and GAD-depression comorbidity, but to a lesser extent with isolated depression. The finding that somatic depression symptoms were associated with RLS suggests that the depression and RLS link is driven by sleep-wake disturbances.

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PREVALENCE OF OBSTRUCTIVE SLEEP APNOEA IN CARDIAC PATIENTS: A SYSTEMATIC REVIEW AND SECONDARY ANALYSIS

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Introduction: There is growing recognition that sleep disorders such as obstructive sleep apnea (OSA) may impede the recovery of acute coronary syndrome (ACS) patients. We aimed to investigate the prevalence of OSA in ACS patients via, systematic review, meta-analysis and secondary analysis.

Methods: This was a two-phase study. First, a systematic review and meta-analysis was conducted in order to estimate the prevalence of OSA in ACS patients. Second, a secondary analysis in a cardiac patient population (N=134) over a 12-month period aimed to assess the relationship between self-reported sleep disorders, treatment adherence, self-efficacy, anxiety and depression. Sleep disturbance was measured using a recode of the Beck Depression Inventory item 16. Anxiety and depression were assessed by the Hospital Anxiety and Depression Scale. Path analysis was performed with Mplus to assess the relationship between variables.

Results: The prevalence of OSA in ACS patients using objective measures confirmed that up to three-quarters of ACS patients have at least mild OSA, and close to a half have moderate or severe OSA. Much of the variability in prevalence estimations is due to variations in timing of the assessment and the variability in assessment methods. In the secondary analysis, sleep disturbance at 4 months post-ACS event was associated with reduced treatment adherence and self-efficacy, and higher anxiety and depression scores at 12 months.

Conclusions: Given the high prevalence of OSA in ACS patients and the consequences of not treating this condition, there may be a strong case for implementation of early screening in cardiac rehabilitation.

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SUBSTANCES APPLICABLE TO DECISION CRITERIA OF ATTENTION BIAS MODIFICATION BASED ON REACTION TIME AND CORRECTNESS IN JAPANESE PATIENTS WITH CEREBRAL APOPLEXY

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Introduction: Anxiety and/or depression is a common distressing symptoms in stroke survivors, it has on post-stroke disability and burden of care. Attention bias modification (ABM) may modify their negative cognitive bias, and can improve their mood. Although, little is known about an adaptive criterion to ABM in stroke patients. To estimate the usability of ABM for patients with cerebral stroke, we measured reaction time and correctness using ABM trainer system.

Method: Forty-five hospitalized patients, aged 69±12 yrs old were participated in this study. Participants were required to collect response during ABM trainer in 16 trials, we measured a correct response rates and reaction time (RT). To evaluate the cognitive functions, participants were answered the mini-mental state examination (MMSE), trail making test in part A (TMT-A). The correct data were acquired from the detected RT in ABM trials RT of >300ms and <3000ms for analysis. This study was approved by the ethics committee of Toda Chuo Rehabilitation Hospital and the ethics committee of Saitama Prefecture University.

Results: The rate of correct response were 81±17%, RT is 1172 ±916msec during total ABM trials. MMSE score were 27±4, TMT-A time were 150±151sec. Excluded data for analysis were 0±1.5 par subject. There were three participants who had more than 3 incorrect responses among 16 trials based on inclusion criteria of data analysis. All participants were completed in this study.

Conclusions: The results of this study indicated that stroke patients had potential ability enough to cope with ABM. The patients who gave the response more than 3 trials to mentioned exclusion criteria was dementia because of low score in MMSE and timeout in TMT-A. We suggest that exclusion criteria of ABM training for cerebral stroke was more than 3 trials of over-time within 16 trials.

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MULTIMORBIDITY PATTERNS AND FUNCTIONAL DEPENDENCE AMONG A RURAL ELDERLY POPULATION IN CHINA

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Introduction: The relationship between multimorbidity patterns and functional disability in old age is unclear. We investigate whether various multimorbidity patterns are differentially associated with functional dependence among a Chinese elderly population living in a rural area.

Methods: This cross-sectional study included 1480 participants (59.4% women) in the Confucius Hometown Aging Project on people aged ≥60 years and living in a rural community near Qufu, Shandong. In 2010-2011, data on demographics, lifestyles and health behaviors, chronic health conditions, and functional status were collected through interviews, clinical examinations, and laboratory tests carried out by trained medical staff following a questionnaire developed from the WHO STEPwise approach to Surveillance (STEPS) and Study on Global Ageing and Adult Health (SAGE). Functional dependence was defined as inability to perform at least one task either in activities of daily living (ADL) or instrumental ADL. Data were analyzed using exploratory factor analysis and multiple logistic models.

Results: We identified two multimorbidity patterns: pattern 1—cardiopulmonary (e.g., arrhythmia, coronary heart diseases, heart failure, asthma)-psychiatric (e.g., depression)-degenerative (e.g., visual and hearing impairments) disorders; pattern 2—cerebrovascular (e.g., stroke)-metabolic (e.g., hypertension, diabetes, dyslipidemia, obesity) disorders. Overall, multimorbidity (≥2 chronic conditions) was associated with multi-adjusted odds ratio of 2.21 (95% CI, 1.25-3.91) for functional disability. The multi-adjusted odds ratio of functional disability associated with pattern 1 and pattern 2 multimorbidity was 1.79(1.31-2.44) and 1.33(0.99-1.81), respectively.

Conclusions: Chronic multimorbidity, especially multimorbidity pattern characterized by cardiopulmonary, psychiatric, and degenerative disorders, is associated with an increased likelihood of functional dependence in old age.

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INTOLERANCE TO ENVIRONMENTAL ODOROUS CHEMICALS AND SOUNDS IN IRRITABLE BOWEL SYNDROME

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Introduction & Purpose: Central sensitization has been suggested as a mechanism underlying functional somatic syndromes (FSSs) and possibly also environmental intolerances, which motivated us to test the hypotheses of irritable bowel syndrome (IBS) showing (i) comorbidity with chemical and sound intolerance, other types of FSSs, and psychiatric disorders, and (ii) stronger than normal affective reactions to and behavioral disruptions from odorous chemicals and sounds in daily life.

Methods: Questionnaire data were used from the population-based Västerbotten Environmental Health Study (n=3406). Among the participants, 80 had a physician-based diagnosis of IBS and the remaining 3326 participants without IBS constituted a reference group. Affective reactions to and behavioral disruptions from odorous chemicals and sounds were assessed with the Chemical Sensitivity Scale for Sensory Hyperreactivity and the 11-item Noise Sensitivity Scale, respectively.

Results: The IBS group showed comorbidity with self-reported and physician-diagnosed chemical and sound intolerance (adjusted odds ratio, OR = 2.12–2.87), diagnosed fibromyalgia and migraine (OR = 3.10–6.28), and diagnosed PTSD, generalized anxiety syndrome, panic disorder and depression (OR = 3.71–10.17). Furthermore, the IBS group scored significantly higher than the referents on affective reactions to and behavioral disruptions from odorous chemicals and sounds.

Conclusions: Persons with IBS appear to experience intolerance to environmental odorous chemicals and sounds. The high comorbidity in the IBS sample with other types of FSSs and psychiatric disorders is in accordance with the notion of central sensitization in IBS. These results encourage future research on central sensitization in intolerance to chemicals and sounds in IBS.

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EMOTION REGULATION SKILLS IN PATIENTS WITH MEDICALLY UNEXPLAINED PHYSICAL SYMPTOMS

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Introduction: Although deficits in emotion regulation (ER) have been demonstrated to be an important etiological factor in several mental disorders medically unexplained physical symptoms (MUPS) research on ER is rather rare. The goal of this study was to compare ER-skills between healthy controls, patients with major depressive disorder (MDD), and MUPS-patients. Additionally, we examined predictors for symptom intensity in both clinical groups.

Methods: Ninety-nine healthy controls, 118 MDD-patients and 173 MUPS-patients completed the Emotion-Regulation Skills Questionnaire (ERSQ) and other self-report measures. To test for differences in ER-skills, we conducted two MANOVAs and post-hoc Scheffé tests. To identify predictors for symptom intensity in MUPS and MDD-patients, we conducted hierarchical linear regression analyses (step 1: demographic and control variables; step 2: ER-skills).

Results: Both MANOVAs and the post-hoc test indicated significant differences between controls and both clinical groups in terms of ER-skills ($p < .001$ – $p = .004$). Differences between MDD-group and MUPS-group were only significant for the scale “Self-Support” with MUPS-patients showing higher skills than the MDD-group ($p = .030$). The hierarchical model revealed that educational level ($p = .001$) and anxiety ($p < .001$) were significant predictors of symptom intensity in the MUPS-group. In the MDD-group anxiety was a significant predictor for depression ($p < .001$). Both regression models were significant ($p < .001$), but ER-Skills did not add predictive value to the models in step 2.

Conclusion: Our study reveals that MUPS-patients show a substantial lack of ER-skills compared to controls and that their deficits are comparable to MDD-patients. Further research concerning the causes and modification of these deficits seems indicated.

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DYSFUNCTIONAL REACTIVITY TO PSYCHOSOCIAL STRESS IN PATIENTS WITH FUNCTIONAL SOMATIC SYNDROMES

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Introduction: Functional somatic syndromes (FSS) are characterized by medically unexplained symptoms, such as fatigue, pain, and gastrointestinal problems. There is evidence of high psychosocial stress in FSS (e.g., due to interpersonal difficulties). At the same time, dysregulations of stress-responsive systems, such as the autonomic nervous system (ANS) and the hypothalamic–pituitary–adrenal (HPA) axis, are associated with fatigue and pain. This study was conducted to investigate, for the first time, whether patients with FSS show dysregulations in both HPA axis and ANS reactivity when exposed to a psychosocial stressor.

Methods: Data collection is ongoing and will be completed in 2016. So far, 40 patients with FSS and 16 healthy controls have completed the Trier Social Stress Test (TSST). The TSST exposes participants to social evaluation while they are performing a cognitive task. Salivary cortisol (HPA axis) and alpha-amylase (ANS) levels were repeatedly assessed (-30, -1, +10, +20, +30, +45, +60, +75, +90, and +120 min in relation to the beginning of the TSST).

Results: Patients with FSS were characterized by diminished overall cortisol levels ($p = .054$). Patients differed from healthy controls in that they showed a slightly flattened alpha-amylase pattern in response to the TSST ($p = .062$). No other group differences were found (all $p > .600$).

Conclusions: ANS and HPA axis dysregulations may contribute to the frequently observed low-grade inflammation in patients with FSS. As such, they may be directly involved in the pathophysiology of commonly reported medically unexplained symptoms, especially when patients experience psychosocial stress.

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THE KEY ROLE OF EMOTION DYSREGULATION IN FUNCTIONAL GASTROINTESTINAL DISTRESS

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Introduction: Higher scores of the personality trait neuroticism are associated with functional gastrointestinal disorders. A recent study showed that the relationship between neuroticism and GI-specific anxiety can partially be explained by dysfunctional cognitions: pain catastrophizing and hypochondria. It is unknown, however, what generalized traits, in turn, predict levels of these GI-related cognitions. We developed a model which can be simplistically described as: Neuroticism → Emotion regulation → Cognitions → Symptoms burden with the aim of better understanding the complex network of associations between neuroticism and gastrointestinal symptom burden.

Methods: A sample of young females ($N = 194$) completed a questionnaire battery consisting of GI symptom burden (GSRs), dispositional traits (neuroticism, mindfulness) and emotion regulation strategies (visceral sensitivity, pain catastrophizing, reappraisal, rumination, suppression).

Results: Path modelling revealed mindfulness and rumination to be important emotion regulation dispositions in our model in explaining the association between neuroticism and dysfunctional cognitions. Furthermore, the association between neuroticism and symptom severity was entirely explained by maladaptive cognitions and emotion regulation strategies (low mindfulness and high rumination, pain catastrophizing and GI-specific anxiety). Our a priori path model fitted these data well.

Discussion: These results help researchers understand how a neurotic personality can develop into FGIDs, and add to the literature on the important role that non GI-specific dysfunctional cognitions play in GI distress. The non-significance of reappraisal and suppression suggest the more general negative dispositions are more detrimental to individuals' psychological and physical state than more targeted emotion regulation strategies, which has implications for clinical health psychology.

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NEGATIVE APPRAISAL, GASTROINTESTINAL COPING STYLES AND GASTROINTESTINAL DISTRESS

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Introduction: Dysfunctional cognitions, including pain-catastrophizing and symptom-specific anxiety, correlate with greater functional gastrointestinal disorder (FGID) symptom burden. Researchers theorize that a tendency to negatively interpret benign gut sensations would factor into this established relationship. However, this has not been tested. We aimed to determine whether GI-specific negative appraisal (the interpretation of subtle gut sensations as stressful/threatening) predicted worse symptom burden, and if this was due to pain-catastrophizing and symptom-specific anxiety.

Method: 246 young females ($M_{age} = 20.73$) completed a multidimensional measure of appraisal (the Stress Appraisal Measure applied to a vignette describing ambiguous gut sensations), Pain Catastrophizing Scale (PCS), Visceral-Sensitivity Index (VSI) and the Gastrointestinal Symptom Rating Scale (GSRS) to assess symptom burden in a correlational design.

Results: Multiple dimensions of negative appraisal correlated with higher GSRS scores, PCS and VSI. Path modelling demonstrated that stress and threat appraisals significantly predicted VSI and PCS, which in turn significantly predicted GSRS. The relationship between appraisal and GSRS was entirely indirect via VSI/PCS. A large proportion of the variation in symptom burden scores was explained by this model (40%), with excellent model fit indices.

Conclusions: While the role of dysfunctional cognitions in functional health conditions is notably bi-directional, the current study presents evidence for how cycles of negative thoughts might begin: ambiguous gut sensations are interpreted as threatening/stressful, which can lead to increased catastrophizing and GI-specific anxiety, which in turn can result in greater GI symptom burden. These results have significant implications for FGID treatments, implicating the necessity of challenging negative appraisals.

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SOMATIZATION IS KEY IN THE OVERLAP BETWEEN FUNCTIONAL GASTROINTESTINAL DISORDERS AND OTHER FUNCTIONAL SOMATIC SYNDROMES

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Introduction: Functional gastrointestinal disorders (FGIDs) are often associated with pain, reduced quality-of-life, elevated anxiety and somatization. Similar findings have been reported in other functional somatic syndromes. The extent to which these associations are specific to gastrointestinal (GI) disorders has not been examined. This study aimed to estimate 1) the overlap between functional GI and extra-GI conditions within individuals, 2) level of GI and extra-GI symptom burden in sufferers of GI and extra-GI disorders and 3) the association between somatization and symptom burden in sufferers of GI and extra-GI disorders.

Methods: 129 individuals were sampled from gastroenterology clinics, chiropractic clinics and community samples. Standard diagnostic criteria were applied to GI disorders and extra-GI conditions. Due to overlap, individuals were categorized as meeting criteria for FGID only, extra-GI only, both FGID and extra-GI or neither.

Results: Among individuals who qualified for FGID or extra-GI syndromes 39% met criteria for both. Gastrointestinal Symptom Rating Scale (GSRS) scores were slightly higher in groups meeting FGID criteria. Somatic pain intensity scores were highest in groups meeting both extra-GI and FGID criteria. The association between somatization and both GSRS and somatic pain intensity was moderate to strong in all conditions.

Conclusions: There is strong co-morbidity between somatic disorders. Although somatization is elevated in FGIDs compared with extra-GI syndromes the correlation between somatization and somatic pain and GSRS is similar across conditions. This suggests that somatization may be a common factor in the brain-body connection across FGID and extra-GI functional somatic syndromes.

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A POPULATION-BASED STUDY OF THE RELATIONSHIP BETWEEN ANXIETY, HYPOCHONDRIASIS, HEALTH CARE SEEKING AND IRRITABLE BOWEL SYNDROME

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Introduction: The role of anxiety and other mood disorders in driving individuals to seek health care remains unresolved, particularly in the context of functional gastrointestinal disorders such as irritable bowel syndrome (IBS). This study sought to test a model in which health-related, rather than general, anxiety is the proximal driver of health care seeking, besides a role of IBS status.

Methods: 178 first year psychology students were recruited and completed anxiety as well as hypochondriasis instruments, reported on gastrointestinal (GI) and non-GI related health care seeking and reported on selected bowel symptoms. Path modeling was used to test the hypothesized model.

Results: While both general and health-related anxiety (hypochondriasis) were related to health care seeking, the association with general anxiety was fully accounted for by hypochondriasis. Hypochondriasis was positively associated with both GI and non-GI health care seeking but IBS was more clearly associated with non-GI health care seeking. It was also found that while IBS individuals scored higher on hypochondriasis the association was diminished among more frequent health care seekers.

Conclusions: This study found that health-specific anxiety rather than a generalized form of anxiety drives community members to consult family physicians. The strong association between IBS and non-GI consultations suggests it is something other than merely bowel symptoms that actually drives IBS individuals to their doctor. The moderating effect of health care consultation on the association between hypochondriasis and IBS suggests that physician consultation may ameliorate some of the anxiety associated with this, and perhaps other, functional gastrointestinal diseases.

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AN INTEGRATED APPROACH EXAMINING THE RELATIONSHIP OF COPING AND PSYCHOLOGICAL FACTORS WITH GASTROINTESTINAL SYMPTOM BURDEN

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Introduction: Functional gastrointestinal disorders (FGIDs) are common digestive illnesses with no organic etiology. These disorders are painful and can have a debilitating impact due to their high symptom burden. The

link between mood disorders and elevated levels of neuroticism to FGID outcomes has been established. These psychological factors, in addition to negative appraisal, coping, and somatization, have been examined in relation to gastrointestinal (GI) symptom severity and health-related quality of life. However, these associations have typically been analyzed in isolation. This study aimed to integrate and synthesize existing research to examine an a priori theoretical model and predictions to assess the psychological pathways to GI symptom burden.

Methods: Participants were 227 undergraduate students, and 23 outpatients from a gastroenterology unit with symptoms consistent with FGIDs. Survey measures of trait anxiety, depression, neuroticism, negative appraisal, coping, somatization, GI symptom severity and health-related quality of life were collected.

Results: Path analyses supported the hypothesized pathways of trait anxiety to negative appraisal, negative appraisal to coping, coping to somatization, somatization to GI symptom severity and health-related quality of life. In addition, the results revealed novel findings for the role of coping in GI symptom burden.

Conclusions: These findings are consistent with the biopsychosocial model of FGIDs, and also highlight the importance of considering the role of maladaptive coping strategies in the development and maintenance of GI symptom burden. These results have important implications for both future research and treatment options in this field.

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MEDIATORS OF COGNITIVE-BEHAVIORAL THERAPY IN IRRITABLE BOWEL SYNDROME: A META-ANALYSIS

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Introduction: Empirical data has shown that cognitive behavioral therapy (CBT) has small to medium effects in alleviating emotional distress and psychosomatic symptoms in Irritable Bowel Syndrome (IBS). However, the mechanisms through which CBT exerts its effect have been less investigated. Moreover, there is little empirical evidence clarifying the etiopathogenetic mechanisms involved in IBS. Having said that, a meta-analysis aimed at identifying and assessing the impact of the mediators identified in previous research is essential for several reasons: (1) it clarifies the mechanisms of change through which CBT exerts its beneficial effects for IBS, (2) it may improve CBT for IBS by designing intervention protocols that target those precise mechanism of change, (3) it may contribute to a better understanding of the etiopathogenetic mechanisms involved in IBS.

Methods: An extensive search of studies investigating the effects of CBT for IBS published before December 2015 was conducted. We selected studies that clearly define CBT intervention, that include IBS patients, report sufficient data to allow calculation of effect sizes and provide a clear mediation analysis of one or several variables on the outcome.

Results: Mediators that influence the effect of CBT on IBS symptom severity or IBS quality of life identified in the included articles were illness perception, catastrophizing, visceral sensitivity, gastrointestinal symptom-specific anxiety. Further analysis is included.

Conclusions: Identifying mediators can have a significant role in improving our understanding of the psychosomatic mechanisms involved in IBS, as well as the mechanisms of change needed to target when designing and implementing psychological interventions.

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ASSOCIATIONS BETWEEN FIBROMYALGIA AND ENVIRONMENTAL INTOLERANCE

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Introduction: Common suggested mechanisms for fibromyalgia and environmental intolerance (EI), such as central sensitization, neuroinflammation and infectious agents, indicate possible associations between these conditions. This motivated testing the hypotheses of fibromyalgia showing (i) high overlap with self-reported intolerance to odorous/pungent chemicals, electromagnetic fields (EMFs; electrical devices) and sounds, and (ii) high level of affective reactions to and behavioral disruptions from these environmental exposures.

Methods: Questionnaire data were used from the population-based Västerbotten Environmental Health Study (n=3406). Among the participants, 75 had a diagnosis of fibromyalgia, constituting a fibromyalgia group, and the remaining 3331 participants without fibromyalgia constituted a reference group. Affective reactions to and behavioral disruptions from odorous chemicals, EMFs and sounds were assessed with the Chemical Sensitivity Scale for Sensory Hyperreactivity, EMF Sensitivity Scale, and the 11-item Noise Sensitivity Scale, respectively.

Results: Odds ratios for comorbidity in the fibromyalgia group with the three EIs, adjusted for age and sex, ranged from 2.01 to 2.22. Reactions/disruptions from chemicals, EMFs and sounds were significantly higher in the fibromyalgia group than in the referent group.

Conclusions: The results suggest that fibromyalgia is associated with environmental intolerance attributed to chemicals, EMFs and sounds.

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DETERMINANTS OF PHYSICIANS' ACCEPTANCE OF RECOMMENDED DEFINITIVE THERAPIES BY AN ANTIBIOTIC COMPUTERISED DECISION SUPPORT SYSTEM

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Introduction: Antibiotic resistance is a public health crisis. Inappropriate antibiotic prescribing drives antibiotic resistance. Computerized decision support systems (CDSSs) guide decision making in prescribing, but physicians' acceptance of CDSS-recommended therapies remains low. We aimed to assess psychosocial factors associated with physicians' acceptance of CDSS recommendations for definitive antibiotic therapies.

Methods: We conducted a cross-sectional study involving physicians providing inpatient care in a 1600-bed adult tertiary-care hospital in Singapore. The hospital's home-grown antibiotic CDSS provides patient-specific antibiotic recommendations, at the point of prescribing. A self-administered 20-item questionnaire was used. Principal components analysis was performed to derive the latent factor structure which was later applied in the multivariable logistic regression analyses.

Results: Five factors were identified, with Cronbach's alpha for the scales ranging from 0.64 to 0.88. Of 210 physicians, about one-third (30%) would accept the CDSS's recommendations for definitive therapy of infections. After adjusting for seniority and clinical specialty, willingness to consult the CDSS for common and complex infections (OR 1.47, 95%CI 1.03-2.10) was positively associated with acceptance of CDSS recommendations. In contrast, physicians who would exercise personal or team discretion over the CDSS's recommendations were half as likely (OR 0.52, 95%CI 0.35-0.75) to accept the CDSS-recommended definitive antibiotic therapies.

Conclusions: The physician's willingness to consult a CDSS determined the acceptance of the CDSS's recommendations for definitive antibiotic therapy. More research is needed to understand the clinical scenarios for

which physicians would choose to exercise personal or team discretion over the CDSS, in order to enhance CDSSs to meet prescribing needs.

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WHAT ARE THE PSYCOSOCIAL FACTORS THAT DETERMINE INFLUENZA VACCINATION AMONG NURSES?

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Introduction: Influenza circulates year-round in tropical Singapore, causing significant morbidity annually. Free influenza vaccination is offered annually to nurses, yet vaccination uptake remains <80%. We assessed for psychosocial factors associated with the intention for vaccination among inpatient nurses.

Methods: We conducted a cross-sectional study on nurses attending mobile clinics for influenza vaccination in a 1600-bed adult tertiary-care hospital in Singapore. A 43-item self-administered questionnaire was used. Principal components analysis was performed to derive the latent factor structure which was later applied in the multivariable logistic regression analyses.

Results: Eight factors were identified, with Cronbach's alpha for the scales ranging from 0.36 to 0.87. Of 774 nurses, 71% expressed the intention to be vaccinated in the following year. After adjusting for age, specialty, seniority, and prior vaccination uptake, the strongest predictors of intention for future vaccination were awareness of vaccination benefits (OR 3.87, 95% CI 2.95-5.08) and perceived accessibility (OR 2.44, 95% CI 1.90-3.14). Resistance towards influenza vaccination (OR 0.24, 95% CI 0.18-0.31) and fear of vaccination (OR 0.74, 95% CI 0.59-0.92) were factors negatively associated with future vaccination intention.

Conclusions: Awareness of vaccination benefits and perceived vaccination accessibility were the strongest predictors of vaccination intention, and the fear of vaccination a negative predictor. Efforts should be targeted at disseminating the benefits of influenza vaccination, addressing fear, and increasing accessibility. A well-planned influenza vaccination education programme promoting the benefits and addressing the fear of vaccination, together with a highly accessible mobile vaccination service, could lead to higher vaccination uptake among nurses.

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AN EXERCISE INTERVENTION TO REDUCE ADVERSE EVENTS WITH HPV VACCINATION.

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Introduction: Human papillomavirus (HPV) is a necessary cause of cervical cancer which is preventable by vaccination. Australia first funded the HPV vaccine for teenage girls in 2007; however, only 73.1% are fully vaccinated. Challenges for adherence to HPV vaccination programs include high rates of local adverse events. Acute exercise has been reported to adjuvant vaccinations, and to reduce reported adverse events.

Therefore, the current study examines the effects of an exercise intervention on adverse events after HPV vaccination.

Method: Seventy-five students (11-13yrs) receiving the 1st dose of HPV vaccine were randomized to Control or Exercise groups. The Control-group received the vaccinations according to usual-care procedure while the Exercise-group completed a 15-min moderate exercise task prior to normal vaccination procedure. Participants completed a 7-day Adverse Event diary of pain, tenderness, redness and swelling at the site of vaccination with parental supervision.

Results: Average total number of days of reported adverse events in the Exercise-group was 2.4±1.8 days, and 2.8±2.2 days in the Control-group. In Exercise and Control groups average days of reported pain was 1.9±1.6 days and 2.1±2.0 days, tenderness 2.1±1.8 days and 2.4±2.3 days, redness 0.2±0.6 days and 0.6±1.3 days, and swelling 0.3±0.7 days and 0.5±1.0 days. These outcomes did not reach statistical significance, although trend toward lower values in Exercise-group were seen in redness (p=.09).

Conclusion: Exercise is a safe and easily implementable intervention which may improve immune responses and reduce adverse events; however, the current data shows no difference between exercise and control groups receiving the HPV vaccine.

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TELEPHONE-ADMINISTERED INTERPERSONAL PSYCHOTHERAPY ACUTELY REDUCES DEPRESSION IN HIV-INFECTED RURAL PERSONS

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Introduction: Because HIV-positive rural persons carry a 1.3 times greater risk of a depressive diagnosis than their urban counterparts, this randomized clinical trial tested whether telephone-administered interpersonal psychotherapy (tele-IPT) acutely relieved depressive symptoms in 132 HIV-infected rural persons from 28 U.S. states diagnosed with DSM-IV Major Depressive Disorder (MDD), partially remitted MDD, or Dysthymic Disorder.

Methods: Patients were randomized to either standard care (SC; n=62) or 9 sessions of one-on-one tele-IPT + SC (n=70). SC controls received no active study treatment but had access to community-based support services available to PLWH (e.g., support groups). Tele-IPT + SC patients were offered 9 tele-IPT sessions that discussed how the patient's depression was related to one of four interpersonal problems (interpersonal disputes, role transitions, grief, or interpersonal sensitivities). Tele-IPT patients completed self-report surveys assessing depressive symptoms, interpersonal problems, and social support immediately before and after treatment. SC controls completed post surveys coincident with their time-matched tele-IPT counterparts.

Results: 80% of tele-IPT patients completed all nine teletherapy sessions. A series of intent-to-treat (ITT), therapy completer, and sensitivity analyses assessed changes in depressive symptoms, interpersonal problems, and social support from pre- through post-intervention. Across all analyses, tele-IPT patients reported significantly lower depressive symptoms and interpersonal problems than SC controls; 22% of tele-IPT patients were categorized as *a priori* "responders" who reported ≥50% reductions in depressive symptoms compared to only 4% of SC controls in ITT analyses.

Conclusions: Brief tele-IPT acutely decreased depressive symptoms and interpersonal problems in depressed rural people living with HIV.

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HIV-INFECTED RURAL HETEROSEXUAL MEN EXPERIENCE MORE PSYCHOSOCIAL DIFFICULTIES THAN OTHER GROUPS. B. Heckman, T. Grimes, N. Weaver. College of Education, University of Georgia, ATHENS, GA, USA

Introduction: This study characterized differences between gay men, heterosexual men, and heterosexual women living with HIV/AIDS in rural areas of the United States. Between August 2010 and September 2014, non-governmental organizations (NGOs) in 28 U.S. states distributed recruitment brochures to their HIV-infected rural clients through face-to-face interactions, regular mail, and placement of study brochures in “high-traffic” areas of their facilities. All participants (N=132) were enrolled into a clinical trial testing if telephone-administered Interpersonal Psychotherapy (IPT) reduced depressive symptoms in HIV-infected rural persons diagnosed with depression. At pre-intervention, participants reported on depressive symptoms, interpersonal problems, perceptions of social support, and use of mental health support services.

Results: Based on their self-reported gender and sexual identity assessed in eligibility screenings, participants were assigned to one of three groups: (1) gay men (n=76); (2) heterosexual men (n=21); or (3) heterosexual women (n=53). Heterosexual men were more likely to be infected with HIV through injection drug use, more likely to be non-white, had been living with HIV for more years, were less likely to have progressed to AIDS, and completed fewer years of education. When controlling for demographic differences, rural heterosexual men living with HIV reported more depressive symptoms, the fewest social supports, and marginally higher interpersonal problems. Despite these differences, heterosexual men were less likely to have seen a psychologist in the past month and be prescribed anti-depressants.

Conclusions: Research is needed that explains why HIV-infected rural heterosexual men experience more psychosocial difficulties than other groups living with HIV/AIDS.

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PSYCHOSOCIAL BARRIERS TOWARDS HPV VACCINATION IN ROMANIA: IMPLICATIONS FOR REDUCING VACCINE HESITANCY A. Baban, M. Penta. Department of Psychology, Babes-Bolyai University, CLUJ-NAPOCA, Romania

Introduction: Vaccines are a major tool for promoting public health and for preventing many communicable diseases. The introduction of HPV vaccines represents a major advance in reducing the burden of HPV-associated diseases. This paper provides an overview of a series of studies that explored the reasons for vaccine hesitancy and refusal.

Methods: The results are based on a mixed methods approach: semi-structured interviews, focus-groups, and quantitative surveys that assessed knowledge, beliefs and attitudes toward vaccines. Content and thematic analysis was performed on qualitative data, and regression analysis was used to identify predictors of vaccination intentions. Participants were parents (N=32), health professionals (N=24) and college students (N=245).

Results: Our studies identified notable knowledge deficits and insufficient access to scientific facts. Parental concerns regarding vaccine safety negatively influenced their intentions to vaccinate their children. Mistrust in health authorities represented another important reason for parents to refuse vaccination. Participants’ attitudes proved to be shaped by several sources of information, including online and social media. Health professionals showed an incomplete understanding of beneficiaries’ needs and attitudes towards vaccination. Anticipated inaction regret was the strongest predictor of students’ vaccination intentions ($\beta=.37, p<.001$), followed by perceived susceptibility to infection and perceived vaccine safety. Conclusion: Vaccine hesitancy and refusal are highly prevalent among Romanian parents. Our results suggest that the lay public makes vaccine-related decisions based on emotional reasoning to anecdotes, rather than on scientific evidence. The role of identified barriers to vaccination will be discussed in terms of practical implications for designing effective vaccination campaigns.

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HIV STIGMA, PSYCHOLOGICAL DISTRESS AND METACOGNITION A Mullens¹, E Strod², L Stewart², S Deb³
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Introduction: The study examined whether the relationships between HIV stigma and depression and anxiety would be mediated by metacognitive beliefs and thought control strategies in men who have sex with men, living with HIV.

Methods: Men who have sex with men, living with HIV, completed an online survey that measured 30-item Metacognitions Questionnaire, thought control strategies (Thought Control Questionnaire), as well as symptoms of depression (Patient Health Questionnaire-9) and anxiety (Generalized Anxiety Disorder-7).

Results: The relationships between internalized and anticipated HIV stigma with depressive symptoms were mediated by Negative Metacognitive Beliefs and the use of Worry and Social thought control strategies. Negative Metacognitive Beliefs mediated the association between internalized HIV stigma and anxiety symptoms.

Discussion: The results are discussed in light of novel approaches to reducing HIV stigma, and interventions for HIV-positive men who have sex with men targeting negative cognitions to help reduce depression and anxiety.

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COGNITIVE FACTORS OF CONCURRENT MULTIPLE MALE SEX PARTNERSHIP AMONG CHINESE MEN WHO HAVE SEX WITH MEN A. M. S. Wu¹, J. T. F. Lau², Z. Wang², Lu Ma²
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Introduction: HIV among men who have sex with men (MSM) is a serious global public health concern. The majority of MSM has regular sex partners (MSMRP), and nearly half of those MSMRP have concurrent multiple male sex partnership (CMMSP) in mainland China. Despite of the existing evidence on the risk of spread of HIV heightened by CMMSP

among MSMRP, little is known about risk or protective factors of their CMMSP. Based on the theory of planned behavior (TPB), we examined cognitive factors of self-reported CMMSP in the past three months among MSMRP.

Methods: A cross-sectional study was conducted in Beijing in 2014 and successfully recruited 251 18- to 60-year-old Chinese MSMRP via multiple means, including outreaching in gay venues, online advertisement, and participants' referrals. Anonymous individual interviews with a structured questionnaire by fieldworkers were conducted in an NGO with privacy ensured. No incentive was given to the participants. Logistic regression analyses, which were adjusted for significant background variables, were conducted to test the association between cognitive factors and CMMSP.

Results: The prevalence of CMMSP was 48% in the sample. Demographic factors had no significant effect, while all cognitive factors were significantly associated with CMMSP: positive attitude was a risk factor, while negative attitude, injunctive/descriptive norms against CMMSP, and perceived behavioral control of refraining oneself from CMMSP are protective factors.

Conclusions: The findings supports the application of TPB to understanding CMMSP among MSMRP and facilitates the development of corresponding interventions, which are currently absent in existing HIV prevention programs.

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PERCEIVED INFORMATION TRUSTWORTHINESS AND PARENTS' RISK PERCEPTIONS REGARDING CHILDHOOD SEASONAL INFLUENZA VACCINATION IN HONG KONG

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Introduction: With the increasing access to a spectrum of information regarding influenza vaccination from various sources, parents' trust in information from these sources is crucial for their decision-making on children's influenza vaccination. This study examined how perceived trustworthiness of information from different sources was associated with parental risk perceptions regarding childhood seasonal influenza vaccination.

Methods: 1,389 parents of young children (aged 6 months-6 years) completed a randomly dialed telephone interview based on a standardized questionnaire. Exploratory factor analysis (EFA) extracted factors underlying information trust while logistic regression models enabled examining how perceived information trustworthiness was associated with risk perceptions of childhood influenza and influenza vaccination.

Results: Two factors related to information trust were extracted: trust in formal sources (government-agency sources) (Cronbach's $\alpha=0.79$) and trust in peers ($\alpha=0.76$). Parents with an educational level of \geq tertiary had more trust in formal information sources (OR=1.31, 95%CI: 1.02-1.68) but less trust in peers (OR=0.78, 95%CI: 0.63-0.97). Parents aged ≥ 45 years were less likely to trust peers (OR=0.57, 95%CI: 0.41-0.78). After adjustment for parental demographics, trust in formal information sources was positively associated with perceived child susceptibility to influenza (OR=1.33, 95%CI: 1.01-1.74), perceived benefit (OR=1.61, 95%CI: 1.24-2.08) and safety (OR=1.65, 95%CI: 1.25-2.17) of influenza vaccination for children, while more trust in peers was associated with feeling more anxious about the child being infected with influenza (OR=1.40, 95%CI: 1.11-1.76).

Conclusions: Information from formal sources appears associated with cognitive risk evaluation while that from peers is more associated with affective risk response.

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WHY MEN WOULD HAVE SAME-SEX BEHAVIOR?

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Introduction: Until December 2015, the highest proportion of HIV-AIDS cases in Bali was among men with heterosexual transmission and homosexual transmission in the second rank (Health Department Bali Province, 2015). The data was contradictive because Diamond (in Lehmilller, 2014) said that men sexually attracted by women. On the other hand, women are more flexible in sexual fluidity. The cumulative number of HIV-AIDS cases among men with homosexual transmission was around 200 fold cases among women and 40 fold cases among women by bisexual transmission. The significant difference appeared because same-sex behavior in men is more risk than in women. Based on the situation of HIV-AIDS epidemiology in Bali, the aim of the research was to find the psychological factors that influence men engage same-sex behavior.

Methods: The research used quantitative approach. Data collection used five scales which are the perception of masculinity, the perception of femininity, the tolerance of personal space, sexual attraction, and the tendency on same sex behavior. The subjects were 200 adult males in Bali. Data were analyzed by structural equation modelling.

Results: The result showed that all of the exogenous variables gave significant impacts on same-sex behavior as an endogenous variable. According to the analysis, perception of femininity, the tolerance of personal space, and sexual attraction gave positive impacts on same sex behavior. On the other hand, the impact of perception of masculinity was negative. The strongest predictor was the perception of femininity.

Conclusions: According to the result, exogenous variables in this research can predict the intention of same sex behavior among men. The result was support the research hypothesis. However, the external validity of same sex behavior scale, such as the frequency of intercourse and perceived sexual orientation among the participants need to be followed.

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HOW OFTEN IS IT ACCEPTABLE FOR PRESCHOOLERS TO CONSUME SUGAR-RICH FOODS AND DRINKS? ASSOCIATIONS BETWEEN PARENTS' VIEWS AND EDUCATIONAL LEVEL

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Introduction: Finnish 3-6-year-old children's sugar intake is above the recommended limit of 10 E%. The aim was to investigate parents' views on acceptable intake frequency of sugar-rich foods and drinks in children and their association with parental educational level.

Methods: A cross-sectional survey was conducted in Finland in autumn 2015. The parent of 469 3-6-year-old children reported education level and views on acceptable intake frequency of sugar-rich foods and drinks.

Chi-square was used to test associations between parents' views and parental educational level.

Results: The majority (> 70 %) of the parents thought it is acceptable to consume soft drinks, sugared juices, ice cream, sweet pastries, sweet cookies and sweets and chocolate once a week or less. Sugared cereals and muesli, sugared yoghurts, 100 % fruit juices and cocoa were seen as "everyday foods" and many (≥ 40) parents thought it is acceptable to consume these foods two or more times a week. Parents with highest educational level were less likely to report that it is acceptable to consume sugared cereals and muesli (35 % vs. 50 %) and cocoa (31 % vs. 47 %) two or more times a week and sweets and chocolate (75 % vs. 89 %) sugared soft drinks (14 % vs. 33 %) and sugared juices (46 % vs. 61 %) on a weekly basis.

Conclusions: Differences in parents' views on acceptable intake frequency exist between lower and higher educated parents. The relevance of parents' views in relation to actual food intake should be further studied.

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DIMENSIONS OF SUBJECTIVE SOCIAL STATUS, STATUS INCONSISTENCY, AND PSYCHOLOGICAL WELL-BEING IN CHINA

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Introduction: Stratification is multi-dimensional, involving economic resources and power. Previous studies have found that people's overall subjective status influences their psychological well-being, but they have not differentiated among dimensions of social stratification. Moreover, little recent research has addressed how discrepancies among hierarchies may affect psychological well-being. This study examines, in China, how people's 1) subjective wealth and power status and 2) discrepancy between the two hierarchies influence their psychological well-being.

Methods: The data are from the 2011 Chinese General Social Survey (N = 5,529). Four variables gauging psychological deficits are summed to index the negative aspect of psychological well-being. Happiness and life satisfaction are used to measure the positive aspect. The respondents were asked to place themselves on 10-rung ladders with regard to wealth and power. Diagonal mobility model is used to assess the effects of subjective power and wealth status and status inconsistency on psychological well-being.

Results: Most Chinese people rated themselves at the bottom of the power hierarchy, lower than their positions on the wealth hierarchy. Subjective wealth status has greater predictive power than subjective power status, although subjective power status predicts happiness and satisfaction. Contrary to our expectation, discrepancies between subjective wealth and power status do not predict psychological well-being.

Conclusion: The pervasive feeling of powerlessness probably reflects the lack of access to political power for ordinary people in an authoritarian state. Perceived powerlessness is a significant determinant of less happiness and lower life satisfaction. We do not find evidence for the detrimental effects of status inconsistency.

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OLDER ADULTS' INVOLVEMENT IN TREATMENT DECISION MAKING WITH THEIR PHYSICIAN: A CROSS-SECTIONAL STUDY APPRAISING MICRO-CULTURAL DIFFERENCES AMONG SWISS-GERMANS AND SWISS-ITALIANS

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Introduction: To date, in the area of treatment decision-making, cultural differences, apart few exceptions, have not been extensively integrated and appraised. The study's aim was to assess the role played by micro-cultural differences in seniors' involvement in treatment decision making between German- and Italian-speaking adults residing in Switzerland.

Methods: Through November 2014 and April 2015, a self-administered survey was completed by 444 Swiss-Italians and 382 Swiss-Germans randomly selected, and aged 65 to 80 years old (N = 826). The questionnaire included validated scales assessing preferred and experienced involvement in treatment decisions, psychological empowerment, self-efficacy, trust in physician, facilitation of patient involvement, and various measures of health information behaviors. Correlation analyses, Cross-tabulations analyses and *t*-tests were performed.

Results: Results indicated that Swiss-German seniors significantly preferred (ideal role) and experienced (actual role) higher involvement levels compared to their Swiss-Italian counterparts. German participants reported also higher scores on both psychological empowerment sub-dimensions evaluated (i.e., self-determination, competence). No statistical significant differences have been found with regard to total scores of self-efficacy, trust in physician, and facilitation of patient involvement. Eventually, Swiss-Germans showed higher levels of general health information seeking, as well as greater scores of perceived competence in retrieving health information, and less desire for health information.

Conclusions: The current study, to our knowledge, is the first effort outlining micro-cultural differences between German and Italian seniors residing in Switzerland. Healthcare professionals should acknowledge those alterations, supposedly triggered by individual traits (e.g., empowerment), in order to deliver the most suitable form of care to pensioners.

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A QUALITATIVE STUDY ON THE QUALITY OF LIFE (QOL) AMONG THE POPULATION OF GANGTOK, SIKKIM HIMALAYAS INDIA.

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Introduction: Study was conducted to determine the level of Quality of Life of the population of Gangtok, Sikkim, a fast developing city in Indian Himalayas.

Methods: Seventy-seven percent of subjects responded. Data collected on standardized structured interview schedule and self-administered (WHOQOL-BREF). Both Descriptive and Inferential statistics used. Data was entered in SPSS Syntax file and Analyzed by ICMR (Indian Council of Medical Research), New Delhi.

Results: Majority (82%) of the subjects belonged to the age group of 15 – 44 years, 61% of the subjects were married and living as married, 65% of the subjects have reported 'Very Good' and 'Good' quality of life and 75% of the female respondent reported 'Very Good' and 'Good' quality of life. Majority (57%) of the subjects have studied up to Higher Secondary Level and 31% are Post-Graduates, 69% of the subjects are 'Very Satisfied' and 'Satisfied' with their health status, 87% of the subjects reported having negative feelings

such as blue mood, despair, anxiety and depression ‘Very often’, ‘Quite often’ and ‘Always’. 16% of the subjects did not respond to the question ‘how satisfied are you with your sex life?’. A significant relationship between the age and physical health was found i.e. younger the age group better the physical health. Relationship between educational qualification and psychological and environmental domains were found. There was also a significant relationship between socio-economic status and the marital status with the physical, social, psychological and environmental domains

Conclusion: First ever population based study from the fast developing city in India.

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DIFFICULTIES ENCOUNTERED IN DAILY LIFE AMONG LOW-INCOME ELDERLY KOREAN RESIDENTS IN JAPAN

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Introduction: There is little known about how low-income elderly Korean residents in Japan are able to maintain healthy lifestyles in the context of unstable economic bases. This study describes the internal structure of the difficulties they face in daily life in their community.

Methods: Data were ethnographically collected (Spradley, 1979) from semi-structured interviews conducted in 2012-2013 with eight elderly Korean residents who lived in Japan. We analyzed the data in generating particular cultural meaning systems. First, we isolated the fundamental units of cultural knowledge from the data. Second, we searched for possible subsets that constitute the internal structure of domains.

Results: The data was arranged into three situations, with “severity of life without money” and “poor linguistic skills in first generation” being categorized into background characteristics of the participants. “Difficulty of joining the community”; “being reluctant to form relationships between Korean and Japanese people”; “recognition of the importance of having a connection with the Japanese”; “being unable to rely on others”; “multiple identities”; and “no prior experience with inconvenient medical services” were categorized into actual difficulties faced in daily life. “Being gradually integrated into the community” was categorized into coping behavior.

Conclusions: Participants encountered difficulty in building relationships with people in Japanese society and this was caused by their economic struggles and isolation. It is important to take care of their diverse backgrounds. We suggest encouraging them and their family to create greater links to their community in the wake of receiving health support.

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THE ROLE OF ALCOHOL IN FOUR-WHEEL MOTOR VEHICLE CRASHES IN FIJI

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Introduction: Globally, over 90% of road fatalities occur in low- and middle-income countries. While the role of alcohol in road traffic injuries

is widely acknowledged to be substantial, the contribution of alcohol to road injuries in Pacific Island countries and territories is poorly quantified. We investigated this risk in Viti Levu, Fiji, to inform regional road safety priorities as part of the Traffic Related Injuries in the Pacific (TRIP) project.

Methods: This population-based case control study of four-wheel motor vehicles comprised 140 vehicles involved in serious crashes where at least one person died or was hospitalized for 12 hours or more (cases) and a random sample of 752 vehicles recruited in roadside surveys (controls). Interviewer-administered questionnaires collected information from vehicle drivers on their patterns of alcohol use and a range of potential confounders. Multivariable logistic regression models were used to estimate the odds of various alcohol-related measures to injury crashes.

Results: Alcohol use by drivers during the 12 hours (cases 15%, controls 4%) prior to the crash/survey was associated with a three-fold increase in the odds of injury-involved crashes (OR 3.2, 95% CI 1.1-9.4). The related population attributable risk was 10% (95% CI 5.1 – 14.5). We found no significant excess risk of injury crashes associated with usual alcohol use including dependent drinking patterns.

Conclusions: Strengthening policies to reduce drink driving should be a high priority in Fiji and other rapidly motorizing Pacific Island countries, where relatively unforgiving roads compound the risks of serious road crashes.

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MARITAL ADJUSTMENT AND MARITAL SATISFACTION ON BALINESE WOMEN WHO LIVED IN NUCLEAR AND EXTENDED FAMILY

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Introduction: Ibrahim (2002) states that in general wives are more likely than husbands to perceive lower marital satisfaction. Surya (2001) said that to achieve a successful marriage, the individual must have the ability to adjust. Marital adjustment will be more complex for wives who live with in-laws. The purpose of this study is to determine the correlation between marital adjustment and marital satisfaction on Balinese women who lived in nuclear and extended family and to know the differentiation of marital adjustment and marital satisfaction on Balinese women who lived in nuclear and extended family.

Methods: This study use quantitative methods. Subjects were 116 Balinese women who were married. Data analysis entailed correlation and comparative analysis.

Results: The analyses show a positive and significant correlation between marital adjustment and marital satisfaction in Balinese women who live in a nuclear family with correlation $r=0.353$ ($p<0.05$) and probability 0,007 ($p<0,05$). Similarly, it was found that Balinese women who live in an extended family with correlation 0,518 ($r>0,05$) and probability 0,000 ($p<0,05$). Marital adjustment and marital satisfaction were not found to differ between Balinese women who live in a nuclear or an extended family.

Conclusions: The conclusion of this study finds a significant association between marital adjustment and marital satisfaction in Balinese women who live in nuclear and extended family. There are no differences in marital adjustment and marital satisfaction on Balinese women who live in a nuclear or extended family.

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INFLUENCE OF CHRONIC STRESS, DISCRIMINATION AND CHILDHOOD ADVERSITY ON THE CORTISOL AWAKENING RESPONSE AND ACUTE STRESS RESPONSE IN INDIGENOUS AND NON-INDIGENOUS UNIVERSITY STUDENTS

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Introduction: Indigenous peoples globally experience mental disorders at higher rates compared to the general population. Recently, alterations in neural stress processing have been studied as potential biological mechanisms underlying this health gradient. Here, we report on an integrative study of neuroendocrine regulation and stress processing and their psychosocial determinants.

Methods: We recruited 26 individuals of Indigenous Australian ancestry and 26 non-Indigenous individuals matched for aged and gender from a university setting. We assessed cortisol awakening response (CAR) by collecting saliva samples across three weekdays. In a separate experiment, we tested neuroendocrine and autonomous reactivity to a psychosocial stress paradigm (Trier Social Stress Test, TSST) using salivary cortisol and heart rate variability (HRV). Chronic stress (K6, PSS), childhood adversity (MAES), racism (MIRE), and general psychopathology (HSCL) were assessed to test the relationship between these variables and neuroendocrine measures.

Results: Relative to non-Indigenous participants, Indigenous participants had a flatter CAR. Interestingly, while in non-Indigenous participants chronic stress predicted a high CAR, the opposite relationship was found in Indigenous participants. We observed significantly lower time-domain measures of HRV in Indigenous participants. Frequency domain indices of HRV showed poorer recovery from stress in Indigenous participants, which was predicted by childhood adversity and internalized racism. Adverse childhood events were associated with blunted cortisol response to in the TSST in Indigenous participants.

Conclusion: Altogether our results demonstrate differential HPA-axis regulation and autonomic response to acute psychosocial stress in a sample of Indigenous Australians. Psychosocial variables differentially affected HPA-axis and stress response in Indigenous and non-Indigenous participants.

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COGNITIVE FUNCTIONING IN CORONARY ARTERY DISEASE PATIENTS: ASSOCIATIONS WITH THYROID HORMONES AND N-TERMINAL PRO-B-TYPE NATRIURETIC PEPTIDE

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Introduction: We have recently showed that altered thyroid function and increased rates of N-terminal pro-B-Type natriuretic peptide (NT-pro-

BNP) are highly prevalent in coronary artery disease (CAD) patients with heart failure, and are associated with unfavorable prognosis. The aim of the current study was to determine whether cognitive functioning of CAD patients is related with thyroid hormones (FT3, TT3) and NT-pro-BNP.

Methods: In total, 278 patients were enrolled in the study; 206 (74.1%) men; mean age of 58 years (SD=9). Patients were evaluated for demographic, clinical risk factors FT3, TT3, NT-pro-BNP levels. Mini-Mental State Examination was administered to evaluate patients' general mental status. Digit Span Test and Digit Symbol Test were used to assess auditory attention, mental flexibility, psychomotor performance and incidental learning. Trail Making Test A (TMT-A) was used to measure perceptual speed. Depressive symptoms were assessed with Hospital Anxiety and Depression scale. Data on NT-pro-BNP levels were not normally distributed and were natural-log transformed (ln).

Results: Univariate linear regression analysis revealed that FT3, TT3 and (ln)NT-pro-BNP were associated with almost all cognitive functioning measures of CAD patients. After adjusting for possible confounders, higher FT3 concentrations were independently associated with less time which individuals took to complete the Digit Symbol Test ($\beta=-.175$, $p<.022$) and less time to complete TMT-A ($\beta=-.173$, $p<.033$). Following the same adjustment (ln)NT-pro-BNP was also associated with TMT-A ($\beta=-.142$, $p<.019$).

Conclusions: Higher FT3 concentrations are associated with better psychomotor performance in CAD patients while NT-pro-BNP might worsen perceptual speed, independently from clinical risk factors and depressive symptoms.

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HOW CAN THE STRESS-DRIVEN DEPRESSION OF THE ELDERLY PEOPLE BE HANDLED EFFECTIVELY ? - EMPHASIS ON THE INTELLIGENT DECISION SUPPORT BY GENERAL BAYESIAN NETWORK

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Introduction: Elderly people are known to have a certain level of stress and depression. However, the recent health literature fails to demonstrate how stress affects depression levels for elderly people. Besides, health professionals need high quality decision support mechanisms with which they can conduct what-if and goal-seeking analyses to effectively assist the elderly people in handling their depression and stress as well in their daily lives.

Methods: We adopted a GBN (General Bayesian Network) to design a high quality of decision support mechanism for the sake of health professionals who care for elderly people. In this sense, we adopted GBN to provide experts-friendly decision support to health professionals. A total of 1,066 elderly people in KNHANES (Korea National Health and Nutrition Examination Survey) from 2008 to 2013 were selected for our empirical analyses. Explanatory variables for our study were carefully selected out of extensive literature survey. We adopted six years of KNHANES dataset, indicating that our results were based on long period of time capable of considering temporal patterns in the depression in the elderly.

Results: After implementing the proposed GBN-driven inference engine by using the KNHANES dataset, we successfully experimented what-if and goal-seeking analyses to see how the proposed mechanism can handle the complicated depression-and-stress problems for the elderly people. For example, what-if analysis was used to analyze the rate of the elderly experiencing depression by the degree of stress level when the elderly have chronic disease and activity limitations.

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ON THE TEMPORAL STABILITY OF STRESS MINDSET

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Introduction: Stress mindset theory claims that positive beliefs about stress promote positive responses and positive consequences, such as improved overall wellbeing stemming from stressful situations. Furthermore, negative beliefs about stress are thought to promote negative responses and consequences, such as decreased overall wellbeing. However, no research to date has investigated whether these beliefs about stress display temporal stability, a characteristic common to other mindsets and key to understanding how beliefs about stress may influence overall wellbeing. The aim of this study was to determine whether stress mindset is characterized by temporal stability, that is, stability over at least one month without any intervention.

Method: A sample of first-year Psychology students and community-based participants ($N=123$) from Australia, the USA, and the UK completed a short online survey measuring stress mindset (measured with the Stress Mindset Measure; higher scores represent more positive beliefs about stress), and other demographic characteristics. Assessments were undertaken at study entry and then again at 1-week, 1-month, and 3-months later.

Results: Mean stress mindset scores over the three months varied between 1.83 and 1.89 out of a possible total of 4. To test the temporal stability of stress mindset, three partial correlation analyses were conducted between initial stress mindset scores and scores at each follow-up assessment, controlling for relevant demographics. Analyses revealed strong positive relationships ($r^2s > .81$) between baseline and all follow-up assessments, indicative of temporal stability.

Conclusion: These findings provide evidence for the temporal stability of stress mindset, supporting this tenet of Stress Mindset Theory.

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RELATING STRESS MINDSET TO PERSONALITY, EMOTIONAL MANAGEMENT, ANXIETY, AND PERCEIVED STRESS

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Introduction: An individual's beliefs about stress (i.e., stress mindset) have been found to be associated with their health status. Evidence further suggests that stress mindset relates to an individual's, mood, overall wellbeing, resilience, cortisol levels, coping, and perceived stress levels. However, little is known about other psychological constructs associated with an individual's stress mindset. Understanding what it means for an individual to have a particular stress mindset may provide key insight into understanding how stress mindset relates to health. The aim of the study was to delineate the relationship between stress mindset and four constructs known to relate to the stress response: Personality, Emotional Management, Trait Anxiety, and Perceived Stress.

Method A sample of first-year Psychology students and community-based participants ($N=123$) completed an online survey assessing stress mindset (with the Stress Mindset Measure; higher scores are indicative of a more enhancing stress mindset), Personality (openness, conscientiousness, extraversion, agreeableness, neuroticism), Trait Anxiety, Emotional Management, Perceived Stress and demographics.

Results: Personality, trait anxiety, emotional management, and perceived stress were each regressed onto stress mindset in their own analyses, controlling for relevant demographics. Results suggested that those with greater emotional management ($B_{std} = .40$) and openness ($B_{std} = .29$), and less neuroticism ($B_{std} = -.41$), trait anxiety ($B_{std} = -.44$), and perceived stress ($B_{std} = -.43$) were more likely to hold an enhancing mindset over a debilitating mindset.

Conclusion: These findings add to our understanding of stress mindset by suggesting that having an enhancing or a debilitating stress mindset may be associated with different psychological profiles.

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UNDERSTANDING DISTRESS THROUGH THE LENS OF POSITIVE PSYCHOLOGY

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Introduction: There are a plethora of effective interventions based on psychological constructs designed to minimize psychological distress. Research in this area is, however, lacking a comprehensive model describing the inter-relationships of positive psychology components and the mechanism by which distress is minimized by these interventions. The aim of this study was to delineate an evidence-based model describing the inter-relationships of positive psychology factors as determinants of psychological distress.

Methods: An undergraduate sample ($N=299$, 75% female) completed a battery of online questionnaires for course credit. Measures assessed mindfulness, recollection of early parenting experiences, attachment security, and emotional dysregulation. Structural equation modelling was used to determine the best fit model for determining psychological distress (depression, anxiety, stress).

Results: The models proposed demonstrated a good fit to these data, with all three distress indices fitting a similar model. Each distress outcome was predicted by two recalled parenting experiences, namely paternal warmth and maternal rejection. Paternal warmth was associated with attachment avoidance, which in turn led to mindfulness, then emotion regulation, which predicted distress experiences. Maternal rejection, on the other hand was associated with attachment anxiety, which predicted mindfulness, then emotion regulation, which predicted reported distress. **Conclusions:** This study provides an important understanding of distress utilizing positive psychology-based interpersonal and intrapersonal variables associated with psychological functioning. The models proposed suggest that both mother-child and father-child relationships may have consequences for the development of effective intrapersonal processes associated with psychological distress.

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AUTOMATIC IDENTIFICATION OF FIREFIGHTERS WITH POST-TRAUMATIC STRESS DISORDER BASED ON DEMOGRAPHIC CHARACTERISTICS AND SELF-REPORTED ALCOHOL CONSUMPTION

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Introduction: Post-Traumatic Stress Disorder (PTSD) is an anxiety disorder that involves a specific set of symptoms which develop after experiencing, witnessing, or confronting stressful and traumatic events. With repeated exposure to such traumatic events, firefighters are at great risk for developing post-traumatic-stress (PTS) symptoms and related problems such as alcohol misuse, especially if they use alcohol as means of coping with stress. The purpose of our study was to build an automated predictor of PTSD in municipal firefighters, using three machine learning algorithms.

Methods: 740 municipal firefighters completed assessments of PTS symptoms, alcohol consumption, alcohol problems, drinking motives, and coping with stress as part of a larger study. We used data on PTS symptoms and alcohol related outcomes to train and test the machine learning algorithms, including Neural Network (NN), Naïve Bayes Method, and Decision Tree, to build and validate the automated predictor of PTSD in municipal firefighters.

Results: The results of this study indicated that the automatic predictors can successfully predict PTSD with the accuracy of 88.65% using Naïve Bayes and 91.76% using both NN and Decision Tree.

Conclusions: Even though the results are not 100% perfect, they are highly promising and show a great potential for quick and early identification of firefighters susceptible to PTSD and potentially alcohol related problems, which could help focus on less intense interventions among firefighters, such as education and simple advice rather than counseling, diagnostic evaluation, and treatment in more severe cases when firefighters with health related problems are identified in later stages.

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THE ANALYSIS OF WORK STRESS ON DIALYSIS NURSES AND EMERGENCY NURSES BY SOCIAL NETWORKS

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Introduction: Nurses are under work stress greater than the general industry. Through interpersonal networks, employees can gain support and reduce work stress. This study aims to use social networks (work network and friendship network) analysis to investigate how different units (acute and chronic), affect the positions and roles of the members in an organization.

Methods: The study used questionnaires survey. Analysis: work stress, job satisfaction, organizational citizenship behaviors and social networks.

Results: Emergency nurses and dialysis nurses both have the pressure of workload; Dialysis nurses feel the highest job satisfaction

when having work improvement, and emergency nurses feel the highest job satisfaction when working independently. Dialysis nurses have the highest organizational citizenship behaviors when protecting hospital resources, and emergency nurses have the highest organizational citizenship behaviors when doing their duties. Nurses have less pressure when having closer work networks, whereas they have greater pressure when having closer social interaction (friendship network). The younger the nurses are, the more social support they get. The older they are, the longer seniority and more children they have the higher organizational citizenship behaviors they have. The more social support for nurses, the less work stress and higher organizational citizenship behaviors they experience.

Conclusions: Medical Center should establish nursing support groups to enhance their interaction, and find out the groups or individuals with high work stress by social network, so as to provide them support and assistance.

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THE STUDY OF WORK STRESS AND SATISFACTION OF EMERGENCY NURSES BY SOCIAL NETWORKS - A CASE STUDY OF A MEDICAL CENTRE IN SOUTHERN TAIWAN

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Introduction: The medical environment of acute and critical care is full of stress, and nurses are the largest member of the team. Not only do they have to take care of patients, they also interact with colleagues and patient's families, so their pressure is varied. Interpersonal support is a feature of social networks in an interactive process, and can improve nurses' satisfaction, adapt to their life and work stress. This study discusses the positions of acute care nurses in social networks and how social networks affect their work stress and satisfaction.

Methods: Study questionnaire: stress, satisfaction, organizational citizenship behavior(OCB) and social networks.

Results: Emergency nurses have the highest satisfaction when improving their work or ability, the least satisfaction in bad working conditions. They have the greatest stress when having huge workload, facing death issues, lacking support, the least stress when confronting with doctors. The results show: Social networks can effectively derive OCB, and, through direct and indirect forms, generate "altruistic" behavior, thereby improve satisfaction and reduce work stress; The more centralized the work networks are, the higher OCB is produced. The more influential they feel their work is, the more satisfaction they get.

Conclusions: Emergency nurses often work together with others in the workplace, to make good use of ability, it's not only a sense of accomplishment, but also their satisfaction is high. However, they feel least satisfied with their compensation and benefits. When the nurses have better self-control, they feel less stress, which improves the harmony of the organization.

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STRESS MINDSET AND STRESS-RELATED OUTCOMES: A MODEL OF DELIBERATIVE AND IMPLICIT INFLUENCES ON BEHAVIOURAL MEDIATORS

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Introduction: Prior research has established that beliefs about the nature of stress as enhancing or debilitating (stress mindset) are influential in determining the effects of stress on health, wellbeing and performance outcomes. The aim of the current study is to develop and test a dual-phase model to determine the mechanisms through which this influence occurs.

Methods: A correlational design using online and experimental methods was adopted. Participants comprised university students aged 18–25 years, a population identified as highly stressed by the Australian Psychological Society Health and Wellbeing Australia Survey 2015. Participants are recruited using email, social media and subject pool online noticeboards to complete a lab-based questionnaire assessing measures of stress mindset, coping intentions and behaviors, and physical and psychological wellbeing. An implicit association test is also administered that assesses implicit beliefs about stress. Structural equation modelling is used to evaluate the model.

Results: Deliberative and non-conscious influences on behavioral mediators of the influence of stress mindset on stress-related outcomes are identified.

Conclusions: Understanding the mechanisms through which stress mindset influences stress-related outcomes is important for enhancing our understanding of how people are able to function more adaptively when under stress, and to maximize the effectiveness of interventions aimed at promoting thriving in the face of stress.

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UNDERSTANDING THE FACTORS THAT INFLUENCE RESILIENCE IN A CYCLONE PRONE POPULATION

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Introduction: Research in the field of climate change has identified that the severity of extreme weather events is likely to increase. As these events can have detrimental effects to both physical and mental health, it is important to understand the factors that promote resilience. Past studies suggest that resilience can be associated with how prepared individuals have been for these events in the past. The purpose of this research was to identify if this relationship occurs in a high risk population such as Townsville (North Queensland).

Methods: Participants (n=191) living in Townsville were recruited via social media to participate in a questionnaire. The questionnaire assessed variables including: age, experience, number of years in location, risk appraisal, coping appraisal, preparedness, resilience, psychological distress and more. Correlations between variables were performed as well as hierarchical multiple regressions to identify factors that predicted resilience.

Results: No significant relationships were found between preparedness and either resilience or psychological distress. However, it was found that self-efficacy (although not related to preparedness) was correlated to both resilience and psychological distress and was the strongest predictor in the multiple regression model.

Conclusions: These results suggest that in populations where weather threats are relatively severe and common, promoting preparedness may not increase resilience. As high risk populations are usually more prepared (through experience) there should be a separation of focus between preparing for the event and preparing for the outcome. This study suggests that preparing for the outcome (promoting resilience) may be facilitated by increasing individual self-efficacy.

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RECEIVED SOCIAL SUPPORT, EMOTION REGULATION, AND PROCESS OF PSYCHOLOGICALLY ACCEPTING ATHLETIC INJURIES

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Objective: To investigate the influence of emotion regulation (ER) and differences in received social support (RSS) on psychologically accepting athletic injuries, which consists of psychosocial recovery factor (PSRF) and athletic injury psychological acceptance (AIPA), as described by Tatsumi and Takenouchi (2014).

Methods: Athletes ($N=180$, mean age=20.27±1.02) that had experienced an athletic injury participated in the study. They completed a packet of questionnaires comprising RSS scale, ER scale, AIPA scale, and PSRF scale, which consists of two subscales: emotional stability (ES) and temporal perspective (TP).

Results: Participants were divided into High- and Low-RSS groups based on their mean RSS score. Next, a causal model, in which ER variables are mediated by PSRF and the influence on AIPA, was examined using multiple-group structural equation modelling. The fit indices for the model suggested a good fit to the data. The model also indicated several differences in the degree of RSS in path coefficients. It was suggested that in the High-RSS group, ER of emotional expression and positive reappraisal were functional, and these ER were positively mediated by ES and TP, which promoted AIPA. On the other hand it was suggested that ER of emotional suppression and positive reappraisal were functional, and these ER were positively mediated by TP, which promoted AIPA in the Low-RSS group. However, emotional suppression was also negatively mediated by ES, which obstructed AIPA.

Conclusions: The validity of the causal model was confirmed. However, it is suggested that differences in athletes' support environment should be considered when designing psychological interventions.

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THE EFFECT OF MINDFULNESS-BASED STRESS REDUCTION ON WOUND HEALING

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Introduction: Research has demonstrated that psychological factors can influence wound healing. However, little is known about the effect of mindfulness on healing. This study examined the effect of Mindfulness-Based Stress Reduction (MBSR) on the speed of

wound healing. The local production of pro-inflammatory cytokines and growth factors was studied as a potential underlying mechanism.

Methods: Forty-nine adults (8 male, 41 female) were randomly allocated to a wait-list control group (n = 26) or an 8-week MBSR group (n = 23). Before and after the intervention/waiting period, psychological questionnaires were administered. Next, a standardized blister suction procedure was performed to induce skin wounds on the forearm. Cytokines and growth factors were measured in wound exudate 3, 6, and 22 hours after wounding. Trans-epidermal water loss (TEWL) and wound surface area were assessed for 6 days at day 3-7 and 10 after wounding to monitor re-epithelialization. Data were analyzed using multilevel modelling.

Results: An increase in mindfulness was found in the MBSR group. MBSR led to accelerated wound healing in terms of a greater decrease in wound size at day 3 after blister induction in men and between day 7 and 10 in women. A greater decrease in TEWL reflecting faster wound healing was observed in men only at day 3 and 4 after wounding. In addition, MBSR decreased levels of IL-1 β , IL-8, and PIGF in the wound fluid 22 hours after wound induction.

Conclusions: These results suggest that MBSR may have a clinically relevant effect on the speed of wound healing.

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NONSPECIFIC EFFECT OF STRESS ON BRAIN GRAY MATTER VOLUME IN DRUG NAIVE FEMALE PATIENTS WITH FIRST DEPRESSIVE EPISODE

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Introduction: This study aimed to observe the differences in brain gray matter volume in drug naive female patients after the first episode of major depression with and without stressful life events (SLEs) before the onset of depression.

Methods: Forty three drug naive female patients voluntarily participated in the present study after the first major depressive episode. The life event scale was used to evaluate the severity of the impact of SLEs during 6 months before the onset of the major depressive episode. High field magnetic resonance imaging (MRI) scans were obtained, and the VBM and SPM8 software process were used to process and analyze the MRI.

Results: Compared to that in patients without SLEs, the volume of brain gray matter was lower in the bilateral temporal lobe, right occipital lobe, and right limbic lobe in the SLE group. However, the gray matter volume did not differ significantly between the two groups after the application of false discovery rate (FDR) correction.

Conclusions: Although the results of the present study suggest the absence of significant differences in brain gray matter volume between female drug-naive patients after the first episode of major depression with and without SLEs after FDR correction, the study provides useful information for exploring the definitive role of stress in the onset of depression.

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STRESS REDUCTION BY LISTENING TO INDIAN CLASSICAL MUSIC DURING GASTROSCOPY.

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Introduction: Many patients fear GI Endoscopy. Natural anxiety may be aggravated by horror stories from friends or inappropriate remarks by endoscopy staff. Music serves on familiar conjunctures, such as in waiting rooms, and air travel, helping us to relax or increase our patience. However, music is not for everyone at all times. With each individual, its significance varies according to the moment and the situation. We evaluated scientific and therapeutic possibilities.

Method: Study was conducted on 110 consecutive subjects undergoing GI endoscopy. Patients were randomly assigned to two groups regardless of age, sex and disease. Fifty five patients listened music, while 55 did not. Blood pressure, heart rate and respiration were recorded at the beginning and end of endoscopic procedure. Experimental group listened music for 10 minutes before and throughout the procedure while Control did not. No sedation or topical anesthesia was used.

Results: Using paired T-test no statistically significant difference in the four parameters i.e. BP (systolic), BP (diastolic), Heart & Respiratory rate. Data between two groups showed statistically significant difference in three parameters i.e. BP-S, BP-D, Respiratory-Rate. Procedure perception was better in experimental group.

Conclusion: Selective instrumental music is efficacious in reducing psychological distress during gastroscopic examination. Music could be applied to other medical situations as well, which tend to generate undue stress and anxiety. Music as a familiar personal and culture medium could be used to ease anxiety, to act as a distracter, to increase comfort and pain threshold. Ancient civilizations have used music since ancient times.

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STRESS INDUCED EMOTIONAL FLOW

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Introduction: Stress induced neuroplasticity plays a critical role in almost all of the mental disorders, such as anxiety, phobia, depression, PTSD. In order to probe into the process of stress induced neuroplasticity, we studied the emotional changes after stress.

Methods: Many recent reports about stress induced emotional changes were studied on the basis of "stimulus-opinion-reaction". And related them to the famous Hierarchy of Need theory proposed by Maslow, and also Lazarus's appraisal theory.

Results: It is concluded that safety need should come before physiological needs in the theory of Hierarchy of Need. Safety needs are personal security, financial security, health and wellbeing, which are more fundamental than physiological needs. "Safety first", we say these words almost everyday, but we all take it for granted for what Maslow proposed safety needs come second to physiological needs in his famous theory of Hierarchy of Need. The emotions induced by safety need is fear, so the first reactions after stress is fear. The neural basis for the first state of stress is Norepinephrine. The second emotion is anger, which depends on the hypothalamic-pituitary-adrenal (HPA) axis. Fear and anger are due to the Lazarus's primary appraisal and secondary appraisal. Then comes the hedonic needs, happiness and sadness.

Conclusions: Stress can induce a series of emotions: fear-anger-happiness-sadness-worrying. Safety need is the most important emotion

stressor, and is the major reason for mental disorders, such as anxiety, phobia, depression, PTSD.

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FARMERS' COPING DURING DROUGHT: WHICH STRATEGIES ARE ASSOCIATED WITH LOW LEVELS OF PSYCHOLOGICAL DISTRESS?

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Introduction: Farming is both a physically and psychologically hazardous occupation (Gregoire, 2002; Edwards et al., 2009; Franklin et al., 2001). Drought periods, common across Australia, expose farmers to even greater pressures. The purpose of this study was to identify the modifiable psychological variables (i.e., coping strategies) associated with low levels of psychological distress, in a sample of farmers exposed to high levels of stress, during an extended drought.

Methods: In 2008, 281 drought-affected, South Australian, grain, sheep and/or cattle farmers, ranging in age from 23–85 years (35.2% female and 64.7% male) completed printed or online questionnaires. Only those who reported experiencing a stressful event in the past month that they rated ≥ 7 on a scale ranging from 1 (not stressful at all) to 10 (extremely stressful), were included in the analyses ($n = 175$, 62.2%). Psychological distress was measured using the Kessler Psychological Distress Scale and behavioral and cognitive coping-strategies were measured using a situational version of Carver et al.'s (1989) COPE inventory.

Results: Multivariable regressions (adjusting for age, gender and remoteness) revealed that acceptance and the use of humor were associated with *lower* levels of psychological distress. Surprisingly, active coping, planning, seeking instrumental social-support, seeking emotional social-support, religion, positive reinterpretation and growth, and restraint were not associated with psychological distress. Suppression of competing activities, venting emotions, denial, mental-disengagement, behavioral-disengagement and alcohol and/or drug use were associated with *elevated* levels of distress.

Conclusions: Interventions that foster acceptance may be particularly effective at helping farmers to cope with inevitable drought-related challenges ahead.

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THE ROLE OF DANCE IN THE THERAPY OF CHRONIC STRESS

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Introduction: In recent decades, researches have shown that there is a close correlation between physical activity and health status, and morbidity respectively mortality. Slogans highlighting physical activity play a

key role in the health care programs. Women have a central role in several areas in life, their social role is indisputable. However, in the course of carrying out their tasks, they encounter and develop internal STRESS issues, which require individual management strategies. One possibility of stress-management is the active exercise such as applying dance (SALSA) gymnastics as stress relieving technique.

Methods: we used a quantitative cross-sectional survey between 41 women regularly doing exercise (2x60mins pro week), we checked their psychological and physical state (SHR: Self Rated Health), their life-situations causing psychosomatic symptoms and their ways to respond.

Results: we found the positive effects of exercise on a regular basis on an individual's vision, the positive impact on the usage of health damaging drugs, the health harming effects of the stress sustainably exposed on the body is proven. One potential way to protect oneself against the chronic stress is the dancing gymnastics, which is enjoyable and has health care effects.

Conclusions: Physical activity on prescription (PAP) has a potential to become an important method for promoting physical activity in a public health perspective, thus improving health and quality of life, and decreasing disease burden both for individuals as well as for the health care system. PAP can be suitable as conventional treatment in an ordinary primary health care setting to promote a more physically active lifestyle. However, it is advisable to create a larger-scale survey in the future, which devises short-, medium-and long-term goals regarding health care and formulates specific explanations on the different ways of stress management.

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RAISING A FOOD HYPERSENSITIVE CHILD: IMPACTS ON WHOLE FAMILY QUALITY OF LIFE

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Introduction: The overall burden of food hypersensitivities in children (including food allergy, intolerance and Coeliac Disease) is of growing concern, with steady increases apparent over the past decade. The aim of this study was to investigate the impact of having a food hypersensitive child on whole family units.

Methods: An explanatory sequential mixed methods design was used, with data from 217 participants, comprising 50 families (parents, children with food allergy, food intolerance and/or Coeliac Disease, and siblings without food hypersensitivities). Families (parent/s, child with hypersensitivity and sibling/s) completed a battery of measures, including disease specific measures of QoL, and participated in family interviews.

Results: Mothers perceived that primary school aged children experienced poorer QoL than younger children and adolescents. Similarly, school-aged children experienced greater impact on their own QoL compared to other age groups. Siblings without a food hypersensitivity consistently reported higher QoL than their food hypersensitive counterpart, however, a number reported feeling their brother/sister was given more attention, with some indicating they wished they had the same condition. Mothers felt they experienced more stress surrounding the child's condition than their partner or their family, and parents differed in stress type depending on the age of the child with the food hypersensitivity. **Conclusions:** The impact of child food hypersensitivity on Family QoL is different depending on the role played by the family member, and the age of the food hypersensitive child. Individualized, holistic monitoring is needed for all family members to promote effective condition management and positive family functioning.

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NEGLECTED INTRINSIC MOTIVATION - THE ECONOMIC RELEVANCE OF PERCEIVING PURPOSE AND ENJOYMENT OF ONE'S WORK.

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Introduction: We previously showed that a 4-item positive construct "FreuSinn" assessing a) work adding purpose to one's life, b) enjoying work and c) being full of hope about the future is a relevant predictor of subjective health and health related losses of productivity (HRLP). Using our previously validated measure of HRLP, we aimed to estimate the economic effect of between-work-group variation in "FreuSinn".

Methods: A 31-item survey containing the construct "FreuSinn" and measures of HRLP, work related resources and stressors, items to assess subjective health, private stressors and personal worries was completed by 3015 individuals at a pharmaceutical company at two waves spaced 24-months apart (3785 questionnaires 770 repeat measures). Individual measures were aggregated to work-group estimates (minimum number $n = 5$). HRLP was enumerated as days lost per employee and year.

Results: Regression analyses controlling for age, gender, type of work and private stressors / worries explained 62% of the variation in HRLP work-group averages ($F(5, 164) = 52.8$). "FreuSinn" was the most important predictor of HRLP (standardized $\beta = -0.55$, $p < 0.001$) and subjective health ($\beta = 0.52$). Work-groups in the lowest quarter of "FreuSinn" had 18.1 days of HRLP per employee compared to 10.8 days in the highest quarter (3.3 full-time-equivalents per 100 employee).

Conclusion: Unlike context factors such as legislation, structure, company strategy, seeing purpose in one's work and enjoying one's work is a psychosocial resource that can be immediately affected by work-group leadership with substantial positive effects on subjective health and relevant economic outcomes.

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IMPLICATIONS OF TAMARKOZ® ON REDUCING STRESS FOR UNIVERSITY STUDENTS

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Introduction: University students suffer from high distress that negatively influences their physical, mental and emotional health. The rate of students diagnosed with depression is increasing. Implementing interventions to manage students' stress may reduce risk of depression, and improve well-being. Tamarkoz®, a Sufi meditation, is a method to focus on a task or goal and obtain correct results. In its current form, Tamarkoz® includes Movazaneh® which is movement balancing developed by the Sufi Master, Professor Nader Angha. It is taught through the DeCal program at University of California, Berkeley.

Methods: At baseline 104 U.C. Berkeley students were recruited from the Tamarkoz® class and via flyers throughout campus. The intervention group learned Tamarkoz® techniques and were compared to a group utilizing campus stress management resources, and a control group. In a

quasi-experimental design, the perceived stress scale was assessed at baseline, end of semester (12 weeks) and 18 weeks. Participants had no prior exposure to Tamarkoz®, and there were no statistically significant differences among groups on baseline perceived stress. Generalized linear mixed models were used controlling for age, religion, grades, ethnicity, social economic status and gender.

Results: The Tamarkoz® group showed statistically significant decrease in perceived stress compared to the two other groups with a significant group by wave interaction; the reduction in stress over time in the Tamarkoz® group is greater than the change over time in the other groups.

Conclusion: There are important health promotion implications in providing Tamarkoz® on university campuses for students as an integrative technique for stress-reduction.

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PERSONAL AND NON-PERSONAL INFLUENCES ON SMOKING HABITS OF ROMANIAN ADOLESCENTS

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Introduction: Tobacco control experts must concentrate their efforts to prevent smoking and to promote cessation before adolescents become addicted to nicotine. Our aim was to determine different factors associated with tobacco use among high school students.

Methods: Data were from the baseline, cross-sectional survey of an intervention study to assess the impact of a culturally- and linguistically-adapted ASPIRE computer-based tobacco prevention program. The survey was conducted among 1,835 9th grade students from Tirgu Mures, Romania. We assessed the association of personal and non-personal factors on tobacco experimentation and past 30-day use using bivariate analyses.

Results: More than half have tried smoking cigarettes at least once in their lifetime, 24.1% have smoked cigarettes during the last 30 days. Perceived peer experimentation was the strongest factor associated with ever smoking ($OR=4.65$) and smoking in the last 30 days ($OR=7.94$). Other personal factors associated with experimentation and past 30 day use included: having a brother ($OR=3.17$, $OR=2.66$), father ($OR=2.07$, $OR=1.98$), mother ($OR=1.48$, $OR=1.68$) or another person at home ($OR=1.86$, $OR=2.37$) who smokes. Non-personal factors included: being exposed to pro-smoking messages at the cinema ($OR=2.36$, $OR=1.97$), at sport events ($OR=2.25$, $OR=2.06$), in newspapers and magazines ($OR=1.46$, $OR=1.80$). Being exposed to pro-smoking messages on the internet, radio-TV, in shopping areas, outdoor displays were not significantly associated with ever trying cigarettes and past 30 day use.

Conclusions: Given the high rates of smoking among adolescents, policies and evidence-based tobacco prevention programs targeting adolescents, such as ASPIRE should be priority for public health in Romania.

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SMOKE FREE POLICY AT MELBOURNE UNIVERSITY – SMOKER AND NON-SMOKER IMPRESSIONS

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Introduction: Smoke free policies have been implemented in Australian universities, and work places alike, with the aims of reducing smoking prevalence, reducing second hand smoke exposure and denormalizing smoking. The University of Melbourne joined all Victorian Universities in committing to implement smoke free policies, and introduced an incremental policy in 2014. The aim of this research was to investigate smoker's and non-smoker's awareness, attitudes and the impact of phasing out smoking on the university premises.

Methods: Three researchers conducted surveys over one day with 55 smokers and 38 non-smokers on the Melbourne University Parkville campus. All smokers in the five designated smoking areas were approached and asked to take part in the survey. Non-smokers walking through the smoking areas were also approached.

Results: 92 surveys were conducted with students and staff at Melbourne University. 75% of smokers who were interviewed wanted to quit, and 77% had attempted to quit at least once. 62% of smokers reported the smoke-free policy had caused them inconvenience in their smoking habits and 30% had cut down their cigarette consumption secondary to the commencement of the policy. Despite this, the policy was generally supported by smokers and non-smokers. Non-smokers reported little exposure to smoke on campus.

Conclusions: These results suggest that smoke-free policies at Australian university might be acceptable and effective.

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CAN SMOKING INITIATION CONTEXTS PREDICT HOW ADULT ABORIGINAL SMOKERS ASSESS THEIR SMOKING RISKS? A CROSS-SECTIONAL STUDY USING THE 'SMOKING RISK ASSESSMENT TARGET'

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Introduction: Smoking rates for Indigenous Australians aged 25-34 years (51.5 %) have not changed significantly in the last decade. We explored how Indigenous Australian, aged 18-45 years, self-assess their smoking risks and relationships to their recalled contexts for smoking initiation.

Methods: A community-based cross-sectional survey of Aboriginal smokers (N=121) used single-item measures. The Smoking Risk Assessment Target (SRAT) was the primary outcome measure measuring perceived smoking risks from 12 options, re-categorized into three groups. Multinomial logistic regression modelling included age, gender, strength of urges to smoke, age at initiation (regular uptake), and recalled initiation influences significant on univariate analysis.

Results: Initiation influences included friends (74%), family (57%), and alcohol (40%). Fifty-four per cent (n=65) of smokers cared about their smoking risks and intended to quit soon, (highest risk perception on SRAT). On multivariate analyses, compared to the highest level of SRAT, male gender, lower age of uptake, and strong urges to smoke were significantly associated with the lowest level of SRAT, selected by those who refuted risks or thought they could not quit. Lower age of uptake and alcohol were associated with those who

cared about smoking risks, but did not consider quitting a priority (mid-level SRAT).

Conclusions: Contexts of initiation in youth may have far-reaching associations with attitudes to smoking risks by adults of reproductive age. Becoming a regular smoker under the age of 16 years, and influences of alcohol on smoking uptake, were inversely associated with high-level of smoking risk assessment. Strategies to influence these initiation influences are warranted.

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SMOKING AND MENTAL ILLNESS: A BIBLIOMETRIC ANALYSIS OF RESEARCH OUTPUT OVER TIME

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Introduction: The prevalence of smoking among persons with a mental illness has remained largely unchanged, and is currently 2-3 times higher than the general population in high income countries. Assessment of the amount and characteristics of research output can assist in identifying research priorities to promote progress within a field. The aim of this study was to examine the volume and characteristics of publications in the field of smoking and mental illness over time.

Methods: A descriptive repeat cross sectional study was conducted of peer reviewed publications in Medline and PsycINFO for 1993, 2003 and 2013. Publications were classified as either data or non-data based, with data based publications being further categorized in terms of study type, population and setting.

Results: 176 publications were included in the review (1993: 30; 2003: 47; 2013: 99). The proportion of data based publications significantly increased, with 57% in 1993, 72% in 2003 and 81% in 2013 ($p = 0.03$). Data based publications remained predominantly descriptive across all three time points (1993: 71%; 2003: 88%; 2013: 88%), with few publications having a measures or intervention focus ($p = 0.68$). An increase was suggested in the amount of publications reporting on study populations with multiple diagnostic categories (1993: 12%; 2003: 39%; 2013: 42%), and in research focused on generalist health care or other settings (1993: 18%; 2003: 35%; 2013: 45%), relative to mental health settings. **Conclusions:** Research focusing on the effectiveness and implementation of interventions to reduce smoking among persons with mental illness is needed.

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A REVIEW OF SMOKING RESEARCH IN MALAYSIA

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Introduction: This is the first review of smoking research in Malaysia. The aim of this study is to chart the gaps in this area to enable the planning of future studies in accordance with the World Health Organization's 2045 End-Game.

Methods: Two hundred and seventy one original published materials related to tobacco use were found in a search through a database dedicated to indexing all original data relevant to Medicine and Health in Malaysia from 1996 - 2015. A total of 145 papers were reviewed on the basis of their relevance and implications for future research.

Results: Studies on smoking initiation and prevalence showed mixed findings with many small scale studies within the sub-groups. The majority of the studies were related to factors that contribute to initiation in adolescents. Nonetheless, there are limited studies on intervention strategies to curb smoking among this group. Clinical studies in this area are lacking, as are opportunities to research on ways to reduce smoking initiation age and the most effective quit smoking strategies. In addition, studies on the best treatment modalities on the use of pharmacotherapy and behavioral counselling have remained unexplored. Studies on economic and government initiatives on policies and tobacco use focus mainly on the effects of cigarette bans, increased cigarettes taxes and the influence of the tobacco industry.

Conclusion: Recommendations are given for the government to increase efforts in implementing smoke-free legislation, early and tailored interventions.

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ASSOCIATION BETWEEN A SEROTONIN TRANSPORTER 5-HTTLPR POLYMORPHISM SMOKING CESSATION: META-ANALYSIS

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Introduction: 5-HTTLPR, a serotonin transporter, is one of candidate genes influencing on addiction. Recent studies have reported that 5-HTTLPR genotype is associated with smoking behavior, but the influence is still controversial. Thus, we reviewed the smoking cessation outcomes among previously reported studies by comparing 5-HTTLPR polymorphism.

Methods: Total, eight studies including 3,206 participants for the present meta-analysis were assessed and the S/S, S/L, and L/L genotypes compared with respect to smoking cessation outcomes.

Results: The results of comparing 5-HTTLPR genotypes were below: odds ratio (OR) = 1.044 & 95% CI = 0.751–1.078 for S/S vs. S/L, OR = 0.862 & 95% CI = 0.690–1.077 for S/L vs. L/L; and OR = 0.924; & 95% CI = 0.689–1.433, and S/S vs. L/L. We found that 152 of the 658 (23.1%) participants with the S/S genotype, 360 of the 605 participants (22.4%) with the S/L genotype, and 208 of the 943 participants (22.1%) with the L/L genotype succeeded in smoking cessation.

Conclusions: We found no significant association between 5-HTTLPR and smoking cessation, but 5-HTTLPR remains an important smoking-related candidate gene.

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TIME TO SMOKING INITIATION VARIES BY SEX AND EDUCATIONAL ATTAINMENT

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Introduction: The purpose of this study was to prospectively examine smoking initiation by sex, race/ethnicity (Non-Hispanic Whites, African Americans, Asians/Pacific Islanders, and Hispanics) and educational attainment (low: ≤high school, high: >high school).

Methods: Using the National Longitudinal Study of Adolescent to Adult Health (ADD Health) data, we conducted a discrete-time survival analysis to examine predictors of time to first cigarette smoked. Only participants at time 1 who indicated not having smoked a cigarette were included in the analysis. Participants who did not initiate smoking during follow-up were censored.

Results: Out of 2,840 participants (52% female; mean age= 15.2 ± 1.8), 45% had initiated smoking during follow-up. Hazard probability was .14, .26, and .18 for time II, III, and IV respectively. Risk of smoking initiation was highest at time 3 when participants were of college age (mean age= 21.5 ± 1.9). In a multivariate model, males (OR= 1.3, 95% CI: 1.1-1.6) had an increased risk of smoking initiation, whereas African Americans (OR= 0.7, 95% CI: 0.6-0.8) had a decreased risk. Smoking initiation risk among Asians/Pacific Islanders and Hispanics were no different compared to non-Hispanic Whites. A significant interaction between sex and educational attainment (OR= 1.4, 95% CI: 1.1-1.8) indicated males with a high educational attainment had a higher risk for smoking initiation.

Conclusion: This study highlights the importance of public health campaigns to target not only adolescents, but also young adults in their efforts to prevent cigarette smoking. Anti-smoking campaigns should also focus on males and not exclude those in college.

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DO E-CIGARETTE ADS UNDERMINE FORMER SMOKERS? AN EXPERIMENTAL STUDY

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Introduction: Many e-cigarette ads could be mistaken for ads for tobacco cigarettes, directly referencing tobacco cigarettes or portraying vaping of 'cig-a-like' products as an attractive and desirable activity. This study explored the effects of exposure to these advertisements among former smokers.

Methods: In an online study, 408 US and 405 Australian former smokers from national survey panels were randomized to view one of 14 e-cigarette or 2 control ads. Analyses examined overall effects of e-cigarette ad exposure compared to control ads, effects of exposure to different ad elements (active vaping images or not; cig-a-like products or not) and interactions with smoking relapse susceptibility.

Results: Compared to control ads, e-cigarette ads were more likely to remind former smokers of smoking. Exposure to an e-cigarette ad increased urges and susceptibility to use e-cigarettes and increased desire to smoke tobacco cigarettes. The effect for desire to smoke was mediated by perceptions that the ads were reminiscent of smoking. US former smokers exposed to e-cigarette ads also showed reduced confidence to abstain from tobacco smoking in the next month. Effects were more

pronounced among those susceptible to smoking relapse and for ads including cig-a-like products or active vaping images. E-cigarette ad exposure was not associated with estimates of e-cigarette prevalence or with perceptions of quitting ease.

Conclusions: Repeated exposure to e-cigarette advertising may encourage former smokers to try or use e-cigarettes, may create increased desire to smoke and weaken confidence to abstain from tobacco, especially among those vulnerable to relapse.

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A CONTENT ANALYSIS OF ANTI-SMOKING ADVERTISEMENTS FOCUSING ON THE HEALTH EFFECTS OF SMOKING

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Introduction: Australia has a long history of hard-hitting television anti-smoking campaigns, commonly portraying a physical threat or interpersonal loss to persuade smokers to quit. Previous research has shown ads with higher levels of negative emotional response are more likely to be recalled and lead to greater quitting intentions and behaviors. This study aims to identify the characteristics of health effects ads associated with higher levels of emotion activation.

Methods: A set of 46 anti-smoking advertisements were coded by two raters. The coding scheme was comprised of items relating to: the visual content of the ad; audio content; message execution style; how health effects were depicted (e.g. graphic imagery, portrayal of death); general ad content (e.g. gender of characters, presence of smoking cues); and behavior change principles demonstrated in the ads. The ad emotion outcome data was derived from a separate ad rating study of 207 current smokers. In groups of around 12, smokers watched and rated ads on measures including fear, sadness, and determination, using scales of 1 'Not at all' to 7 'Extremely'.

Results: Following an iterative calibration testing phase, acceptable levels of inter-rater reliability were achieved (Krippendorff's $\alpha \geq 0.73$, with the majority above 0.9). Analysis is underway to derive a parsimonious set of content features that differentiate ads based on their levels and types of emotions.

Conclusions: It is anticipated that these findings will have important practical significance for public health agencies when designing anti-smoking campaigns aimed at eliciting strong emotional activation.

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SAMOAN SMOKERS TALK ABOUT SMOKING AND QUITTING

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Introduction: Samoa, like other Pacific Island countries, faces a persistent challenge to reduce tobacco use among its citizens. As a signatory to the WHO FCTC, Samoa is obligated to introduce measures to reduce tobacco use and is currently trailing a text message smoking cessation programme (mCessation) to achieve this

outcome. Tobacco remains relatively cheap and is widely available in Samoa, but little is known about how smoking is initiated or why and how people quit tobacco. This study offers an insight into tobacco use as a behavior and as cultural practice perceived by smokers and non-smokers in Samoa.

Methods: Six focus groups with smokers and non-smokers were conducted in Apia, Samoa. Groups were homogenous according to age, gender and smoking status. Focus groups were conducted in Samoan and later transcribed for analysis.

Results: Tobacco use is initiated most commonly in late teens and early twenties and most frequently in social contexts. Maintenance of tobacco use reflects a widely held perception of the tangible benefits, including aiding feelings of strength and energy, relief from indigestion and as a means to accelerate the effects of alcohol. Tobacco use was deeply connected to social life in Samoa among friends and for some, with family. Drivers to quit originate out of concern regarding health effects and (secondly) costs.

Conclusions: Tobacco use is well entrenched in Samoan society; efforts to reduce tobacco use need to be based on implicit understanding of fa'a Samoa to reverse the trajectory of tobacco use and associated non-communicable disease.

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YOUNG ADULT PERCEPTIONS OF THE BRITISH AMERICAN TOBACCO NEW ZEALAND AGREE/DISAGREE PLAIN PACKAGING COUNTER-CAMPAIGN.

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Introduction: In 2012, British American Tobacco New Zealand (BATNZ) launched a mass media campaign branded "Agree/Disagree" as a response to the New Zealand government's plans to introduce plain packaging. We examined young adult's views about the campaign to assist tobacco control policymakers in planning future interventions.

Methods: Interviews with young adults living in the Auckland area were conducted. Interviews covered existing knowledge about plain packaging of tobacco, knowledge about the tobacco industry, and perceptions of specific advertisements included in the campaign. Interview data was analyzed to determine the dominant social discourse about the campaign.

Results: Participants were mostly ambivalent about the campaign, which reflects quasi-libertarian leanings when discussing economics and trade, commercial versus personal responsibility and the value of freedom (commercial and social). These perspectives were often held simultaneously with conflicting socially responsive values and references to the hegemonic position of "big business".

Discussion: Participant perspectives reflect the dominant discourse in New Zealand on the benefits of serving economic progress and international trade.

Conclusion: This study affirms the importance of closely monitoring public opinion about tobacco control and of broadening de-normalization strategies to reflect the critical role the tobacco industry plays in prolonging the tobacco epidemic.

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ASSESSING COLLEGE STUDENTS' PERCEPTIONS ABOUT
CIGARETTE SMOKING: IMPLICATIONS FOR PREVENTION

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Introduction: Cigarette smoking persists as a health problem for college students. More information is needed to understand the psychosocial factors influencing their decisions to use cigarettes. Understanding college students' attitudes and beliefs about cigarette smoking can inform the development of policies and programs to lower its prevalence and promote prevention.

Methods: A cross-sectional study using convenience sampling was conducted at a large Texas public university. Through inner-campus bulk email, a survey invitation was distributed to enrolled undergraduate students. Perceptions about cigarette smoking were measured using the Attitudes and Beliefs about the Consequences of Smoking scale (ABC scale). A descriptive univariate analysis was conducted to examine demographic and contextual factors. Multinomial ordinal logistic regression models were used to explore the level of agreement with various statements about cigarette smoking perceptions, stratified by smoking status and other variables (age, drug use, and alcohol use.)

Results: Of the 1,333 participants, 11% reported being a current smoker, 63% were female, 69% were White, and their mean age was twenty-one years. Current smokers were non-daily users averaging 19 cigarettes per week. Self-identified smokers were more likely than non-smokers to report negative (detrimental) perceptions on questions related to the emotional benefits, health hazards, and self-confidence subscales in addition to the overall score. Smokers were more likely than non-smokers to report negative (detrimental) scores for self-confidence items.

Conclusion: College student smokers tend to have favorable views about cigarette use. Given their low-level smoking habit, they are at an opportunity time to prevent escalation to a life-time addiction.

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RADIATION STRESS AND MENTAL HEALTH AMONG NON-EVACUEE RESIDENTS IN FUKUSHIMA AT THREE YEARS AFTER THE FUKUSHIMA DAIICHI NUCLEAR PLANT ACCIDENT
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Introduction: Mental health of community residents following the Fukushima Dai'ichi nuclear plant accident is not clear. This study aimed to investigate mental health and somatic symptoms among non-evacuee community residents in Fukushima at three years after the disaster.

Methods: Random samples of 1,000 residents from the Fukushima prefecture and 1,650 residents from the Kanto area (the control area with a lower radiation level) were surveyed by using a questionnaire in January-February 2014. The questionnaire included measures of depression (PHQ-9), anxiety (GAD-7), PTSD symptoms (PCL-S), and 10-item somatic symptom scale, as well as a newly developed scale of radiation anxiety. The scale scores were compared between samples from Fukushima and Kanto. A hierarchical linear regression was used to identify a mediating effect of radiation anxiety on the area difference in the mental health and somatic symptoms. **Results:** The area difference was greater for radiation anxiety and PTSD symptoms (effect size, 0.64 and 0.31, respectively). After adjusting for

demographic and disaster-related events, PTSD symptoms were still significantly greater for Fukushima than for Kanto. Additional adjustment for radiation stress resulted in non-significant difference in PTSD symptoms between Fukushima and Kanto.

Conclusion: At three years after the disaster and nuclear plant accident, non-evacuee community resident still showed higher levels of PTSD symptoms. The increase in PTSD symptoms in Fukushima seemed attributable to greater radiation stress in this area.

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MEDIATION EFFECT STUDY OF SELF-ESTEEM BETWEEN CHILDHOOD ABUSE AND MENTAL HEALTH IN FEMALE COLLEGE STUDENTS

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Introduction: Cases of childhood abuse in females, a vulnerable group, are often seen in our society, and this would easily bring them long-term mental health problems. Self-esteem is an important variable that affects mental health, but few scholars conduct a study about self-esteem as an intermediary factor between childhood abuse and mental health level now. Therefore, through the discussion of the mechanism how childhood abuse influences female college students' mental health through self-esteem, this essay will lay a foundation for further interventions.

Methods: Take cluster sampling method, a total of 1950 female college students were assessed with Childhood Trauma Questionnaire (CTQ-SF), Self-Esteem Scale (SES), and Mental Health Test (MHT). Correlation analysis and structural equation model analysis are made with collected data.

Results: ①The scores of Self-esteem Scale, Childhood Trauma Questionnaire and Mental Health Test were significantly negatively correlated, the scores of Childhood Trauma Questionnaire and Mental Health Test were significantly positively correlated. It shows that mental health problems may be less serious with less childhood abuse and higher self-esteem. ②The direct effect of childhood abuse on mental health problems was 0.31, the indirect effect through self-esteem was 0.26, and the mediation effect of self-esteem in total effect was 45.79%.

Conclusions: Self-esteem plays a partial intermediary role between childhood abuse and mental health in female college students. It suggests that we can carry out intervention activities to improve self-esteem for the female college students who have childhood abuse experience, and then increase their mental health level.

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HAIR CORTISOL CONCENTRATIONS IN RECENTLY FLED ASYLUM SEEKERS IN COMPARISON TO PERMANENTLY SETTLED IMMIGRANTS AND NON-IMMIGRANT GERMANS

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Introduction: Recently fled asylum seekers live under stressful conditions and, similar to other immigrants, they experience stress through acculturation. Moreover, they often suffer from posttraumatic stress disorder

(PTSD). All these factors can result in chronic maladaptive biological stress responses in terms of hyper- or hypocortisolism and, ultimately, illness. The current study investigates hair cortisol concentrations as long-term markers for the endocrine stress response in recently fled asylum seekers with and without PTSD in comparison to permanently settled immigrants and non-immigrant Germans.

Methods: Hair cortisol concentrations (HCCs) of the previous two months were compared between 24 asylum seekers without PTSD (32 years old, 58% men), 32 asylum seekers with PTSD (33 years, 44% men), 24 permanently settled healthy Turkish immigrants (24 years, all men), and 28 non-immigrant healthy Germans as the reference group (26 years, all men). The investigated asylum seekers lived in Germany for six months on average (SD=4). Statistical comparisons were controlled for age, sex, and BMI.

Results: HCCs were highest in asylum seekers with PTSD (35% increase compared to the German reference group), followed by asylum seekers without PTSD (22% increase). In contrast, the permanently settled immigrants exhibited 23% lower HCCs compared to the reference group. However, only the differences between asylum seekers with PTSD and permanently settled immigrants were significant ($p=.02$).

Conclusions: We found relative hypercortisolism in recently fled asylum seekers, in particular in those with PTSD. In contrast, permanently settled immigrants showed relative hypocortisolism. Both hyper- or hypocortisolism may set the stage for the development of stress-related illnesses.

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INVITED SYMPOSIUM: Understanding and improving treatment adherence across the lifespan

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UNDERSTANDING AND IMPROVING TREATMENT ADHERENCE ACROSS THE LIFESPAN

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The World Health Organization estimate that approximately 50% of people taking medication for long-term conditions do not adhere to treatment guidelines. The aim of this invited international symposium is to present a state-of-the-art update of recent advances in understanding and improving treatment adherence across the lifespan. Starting in utero, the possibility for all babies to be born and remain HIV negative for the first year of life is achievable in South Africa, but requires HIV positive mothers' to adhere to their antiretroviral (ARV) medication. The findings from Ramlagan's large-scale study indicate that intervention programs need to target maternal depression, education and prenatal alcohol intake. There has been a recent increase in refusals to vaccinate children in many Western Countries. We urgently need to understand and overcome the barriers to vaccination. Petrie reports on the development of a novel 12 item VAX scale which may be particularly useful for developing interventions aimed at improving adherence to vaccination schedules by tailoring information to the most relevant anti-vaccination component. Patients who suffer an acute coronary syndrome (ACS) and then develop post-traumatic stress disorder (PTSD) are at increased risk for recurrent cardiovascular events and mortality. Kronish reports the novel finding that objectively measured adherence is significantly lower in patients with ACS symptom-induced PTSD. Finally, treatment resistant hypertension presents a formidable clinical challenge. Molloy presents the results of an important systematic review and meta-analysis that finds medication non-

adherence to be a significant problem among treatment resistant patients, leaving them vulnerable to adverse cardiovascular events.

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PREVALENCE AND FACTORS ASSOCIATED WITH FIXED-DOSE COMBINATION ANTIRETROVIRAL DRUGS ADHERENCE AMONG HIV POSITIVE PREGNANT WOMEN IN MPUMALANGA PROVINCE, SOUTH AFRICA.

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The possibility for all babies to be born and remain HIV negative for the first year of life is achievable in South Africa, but begins with HIV positive mothers' adherence to their antiretroviral (ARV) medication. Adherence decreases risk of mother-to-child transmission and supports maternal health by decreasing HIV disease progression. Information is needed on adherence during pregnancy in rural communities; this study examines factors associated with adherence to fixed-dose combination (FDC) ARV drugs proposing intervention targets.

Cross-sectional data was collected over 12 months, 2014-2015, from HIV positive women ($n = 673$), less than 6 months pregnant, attending antenatal care, and on Option B treatment (ARVs continues after breast feeding if the mothers health requires it). Respondents completed a self-administered assessment at 12 community health centers in rural Mpumalanga Province, South Africa. Adherence measures included Adults AIDS Clinical Trials Group (AACTG) 4-days, adherence cut-off 86% and Visual Analog Scale (VAS) 7-days, 100% adherence cut-off. Funding was received from the National Institutes of Health with grant number R01HD0781887.

Results indicated that 78.8% of respondents were adherent over 4-days, while 68.8% adherent over 7-days. In multivariate logistic regression, older age; drinking less than three alcoholic drinks on at least on one occasion in the past 4 weeks; lack of depression and probability non-disclosure contributed to both AACTG and VAS adherence rates.

Low adherence to ARVs was identified among rural pregnant women receiving PMTCT treatment. Programs targeting maternal depression continue to be needed; consideration should be given to education on prenatal alcohol intake.

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UNDERSTANDING THE COMPONENTS OF ANTI-VACCINATION BEHAVIOUR: THE VAX SCALE

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Introduction: There has been a recent increase in refusals to vaccinate rates in many Western Countries. This trend has been even stronger in well-educated and higher SES groups. Interventions to improve

vaccination rates in these groups have been unsuccessful and often lead to worse vaccination rates. A better understanding of what comprises anti-vaccination attitudes is needed in order for interventions to be better targeted.

Methods: We reviewed the literature and antivax blogs and conducted structured interviews to develop an initial list of 87 items that encompassed antivax attitudes. We recruited a community sample of 409 individuals to complete the original scale and used confirmatory factor analysis to develop the 12 item Vaccination Attitudes Examination (VAX) scale.

Results: Analyses revealed four major components of anti-vaccination behavior: mistrust of vaccine benefit, unforeseen future effects, commercial profiteering, and a preference for natural immunity. Scores on the scale predicted whether participants received a flu vaccination this year ($p < .001$) and their intentions to get a flu vaccine next year ($P < .001$), as well as whether the participant had refused a recommended vaccine for a child ($p < .001$). The scale was also significantly positively associated with perceived sensitivity to medicine and a preference for online health information.

Conclusions: The results suggest that the VAX scale may be useful for identifying individuals with anti-vaccination views and may be helpful for developing interventions aimed at improving adherence to vaccination schedules by tailoring information to the most relevant anti-vaccination component.

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PTSD AND MEDICATION ADHERENCE IN ACUTE CORONARY SYNDROME SURVIVORS

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Introduction: Patients who develop post-traumatic stress disorder (PTSD) after an acute coronary syndrome (ACS) are at increased risk for recurrent cardiovascular events and mortality. Nonadherence to cardiovascular medications may partially explain this increased risk. Our objective was to test the association between PTSD and medication nonadherence after presentation with ACS symptoms.

Methods: We are enrolling a cohort of patients presenting to the emergency department of an urban hospital with symptoms of suspected ACS. Adherence to a cardiovascular medication (aspirin or antihypertensive) was measured during the 2 months following discharge using an electronic pillcap that records the date and time of pillbottle openings. Adherence was defined as percent of days monitored with correct number of openings; patients with $<80\%$ adherence were categorized as nonadherent. PTSD was measured 1-month after discharge using the 17-item PTSD Checklist (PCL-S) with the stressor defined as the acute chest pain symptoms that brought patients to the ED for evaluation. Linear regression was used to test the association between PTSD and adherence, adjusting for age, sex, type of medication (aspirin versus other), and etiology of presenting symptoms (confirmed ACS versus non-ACS).

Results: 90 patients have data on adherence and PTSD (mean age 62 years, 58% women; 39% confirmed ACS). 11% had elevated PTSD symptoms ($PCL > 30$). Patients with versus without PTSD symptoms had lower adherence ($52\% \pm 28\%$ versus $75\% \pm 24\%$; $p = .005$). PTSD symptoms were associated with decreased adherence in an adjusted model ($\beta = -0.22$; $p = 0.05$).

Conclusions: Patients with ACS symptom-induced PTSD were more likely to be nonadherent to cardiovascular medications.

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MEDICATION NON-ADHERENCE AND APPARENT-TREATMENT RESISTANT HYPERTENSION: A META-ANALYSIS OF PREVALENCE

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Introduction: Studies of the prevalence of medication non-adherence for apparent treatment-resistant hypertension (aTRH) vary significantly with respect to design, methods, and setting; and as a result have produced highly variable estimates of the prevalence of non-adherence. This review aimed to elucidate the prevalence and potential moderators of medication non-adherence estimates for aTRH.

Methods: A systematic literature search identified 26 studies that measured medication non-adherence for patients with uncontrolled blood pressure despite being prescribed three or more antihypertensive medications of different classes. Meta-analysis of eligible studies was conducted.

Results: Non-adherence rates ranged from 7.0 – 86.1%. The strongest moderator of the prevalence of non-adherence estimates was the method of adherence assessment used. Studies that relied on self-report measures of adherence and/or pharmacy data reported lower levels of non-adherence than studies using methods that were potentially less susceptible to bias, such as liquid chromatography–mass spectrometry in single time point bioassays of the blood and urine or continuous electronic monitoring of medication taking.

Conclusions: Findings indicate that medication non-adherence is a significant problem among aTRH patients. Identifying the most accurate and clinically feasible adherence assessment method is necessary to facilitate early intervention, reduce unnecessary prescribing of antihypertensive medications, reduce the demand for unnecessary and expensive alternative forms of treatment e.g. surgery, and to reduce the risk of adverse cardiovascular events for non-adherent aTRH patients.

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Attention and chronic pain: a state of the art

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ATTENTION AND CHRONIC PAIN: A STATE OF THE ART

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Many theoretical and clinical models of chronic pain focus upon factors that maintain or exacerbate pain problems. A key idea in these models is that attentional processes contribute to chronic pain problems. This idea has been discussed as “hypervigilance” (excessive attention) to pain or “attentional bias” to pain-related information (a selective processing of pain-related information at the cost of other information). In this symposium we will broadly introduce the theoretical and clinical rationale for the role of attentional processing, and then seek to provide answers to three key questions (1) Do patients with chronic pain display an attentional bias to pain-related information, (2) Does the modification of attentional bias affect pain related outcomes, and (3) Are attentional control strategies (such as distraction and sensory monitoring) effective in patients with chronic pain.

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ATTENTIONAL BIASES IN PAIN: A META-ANALYSIS OF DOT PROBE RESEARCH

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Introduction: Despite extensive research, studies investigating attentional biases towards pain information vary widely in both design and results. Therefore, the aim of this meta-analysis was to determine the degree to which attentional biases towards pain occur when measured with the dot-probe.

Methods: Studies were sourced from electronic searches of databases, a manual search of key journals and review articles, and by contacting senior researchers in the field. Studies were required to measure attentional bias with a dot probe task that included pain-related stimuli, include participants over 18 years old, and include at least 20 participants per arm. A detailed protocol was utilized for article screening and data extraction in order to ensure consistency. Where possible, individual data was obtained from the authors to ensure accuracy and reduce risk of bias.

Results: A total of 1783 references were screened, resulting in a final 42 studies reported across 40 manuscripts. Study samples were categorized as chronic pain, acute pain, anticipating pain in the future, having a family member in pain, or healthy. Overall biases were found for acute and chronic pain samples, but not for other groups. Stimuli type and task parameters influenced the significance and the size of the effects.

Conclusions: Attentional biases were present in those currently experiencing pain, and may therefore be due to the experience of pain. The differing effects of key stimuli and procedural characteristics can help to inform researchers about the optimal task design in order to better detect, and therefore modify, attentional biases in pain.

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ATTENTION BIAS MODIFICATION: WHAT ARE WE TRAINING AND WHAT PREDICTS OUTCOMES?

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Introduction: Attention bias modification (ABM) has shown promise in anxiety disorders and has been applied to pain. However, the mechanisms of treatment have been difficult to demonstrate. This study used eye tracking methodology to identify the attentional processes involved in two protocols: the dot-probe paradigm and person identification matching task.

Methods: In two studies, students (n=121 and 85) were randomly assigned to receive ABM and one or more control condition. We assessed three early attentional processes: (a) percent of first fixations on pain stimuli, (b) latency to first fixation and (c) mean epoch dwell time for the first 250 ms; and two later attentional processes: (a) duration of first fixation and (b) mean dwell time.

Results: ABM using the dot-probe did reliably change attention. Training away from sensory pain words resulted in a longer latency to initially fixate on either pain words ($p = 0.012$). Training away from sensory but towards affective pain words was associated with increased duration of first fixation for affective pain words, but reduced duration for sensory pain words ($p =$

0.030). The person identification matching task did not result in changes in attention on the dot-probe. At post-ABM, participants in both studies spent less time on pain words. Although neither protocol resulted in changes in pain outcomes, changes in early attentional processes at post-treatment were associated with self-reports of pain. Increased dwell time on happy faces, predicted increased pain at threshold.

Conclusions: Results suggest that protocols that target initial orientation may provide the best pain outcomes.

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THE EFFECTIVENESS OF ATTENTIONAL STRATEGIES IN PATIENTS WITH CHRONIC PAIN: A META-ANALYSIS

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Introduction: Attentional strategies, such as attentional distraction and sensory monitoring, have been proposed to reduce pain and distress in patients with chronic pain. However, most research on the effectiveness of these strategies has been conducted in healthy people with acute, experimental or procedural pain. Here, we report a meta-analysis on the effectiveness of these strategies in patients with chronic pain.

Methods: The literature (Web of Science, PsychArticles, Medline) was searched for relevant articles investigating the effectiveness of attentional distraction and sensory monitoring in chronic pain patients. Relevant articles were coded on methodological quality, and on several theoretical and methodological moderator (e.g., valence of distracting stimuli, presence of others,...).

Results: Only 8 studies fulfilled the criteria. All investigated the effectiveness of distraction. Only 2 studies investigated the effectiveness of sensory monitoring. Overall, results indicate that the effects of distraction ($k=8$; $N_{\text{distraction}}=204$; $N_{\text{control}}=207$) are no better than those of the control condition (Hedges' $g = 0.10$, ns; CI: -0.02:0.22). Similar results are found for sensory monitoring condition ($k=2$; $N_{\text{sensory monitoring}}=50$; $N_{\text{control}}=51$) (Hedges' $g = -0.21$, ns; CI = -1.16:0.73). No moderators were identified.

Conclusions: Our findings reveal no effects of distraction or sensory monitoring in patients with chronic pain. It may be that patients with chronic pain are characterized by attentional deficit, i.e. an inability to direct attention away from pain.

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Psychosocial Aspects in Diabetes – Old and new challenges

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PSYCHOSOCIAL ASPECTS IN DIABETES – OLD AND NEW CHALLENGES

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Understanding the role of psychosocial aspects in diabetes is of utmost importance because patients' self-management directly affects prognosis. While there are old challenges such as understanding the influence of

depression and identifying possible depression subtypes, there are also new challenges such as diabetes stigma, for which the implications for behavioral, psychosocial, and clinical outcomes have yet to be determined. Furthermore, psychosocial well-being is an important outcome of diabetes management, and an emerging new challenge is the influence of new technologies such as continuous glucose monitoring (CGM) on patient's well-being.

Thus, the aim of the symposium is to present new study results on these old and new challenges and to discuss their possible implications for treatment. The first presentation focusses on depressive symptoms in type 1 (T1DM) and type 2 (T2DM) diabetes patients and shows that the relationship between depressive symptoms and glycemic control differs by affective versus cognitive symptoms of depression and thus, sheds light on the complex interplay between depression and diabetes outcomes. The second presentation presents results of several studies on diabetes stigma in T1DM and T2DM and points out pathways how diabetes stigma may influence diabetes management as well as diabetes distress and depressive symptoms. The third presentation reports the results of a meta-analysis on the psychosocial impact of CGM in T1DM, with the aim to provide first insights which patients may benefit the most of CGM. The discussant will discuss the implications of these findings for medical and psychosocial treatment of diabetes patients.

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DIFFERENT ASSOCIATIONS OF DEPRESSIVE SUBTYPES WITH GLYCEMIC CONTROL IN PEOPLE WITH DIABETES

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Introduction: While depression has a negative impact on morbidity and mortality in people with diabetes, associations with glycemic control are not conclusive. These inconsistencies might be due to the complex symptomatology of depression; ranging from sleep/appetite disorders to depressed mood/having crying spells. Thus, depressive symptoms are often divided into somatic and affective symptoms. This study investigated the associations of these depressive subtypes with glycemic control in people with diabetes.

Methods: 986 patients with type 1 and type 2 diabetes completed the Center for Epidemiological Studies - Depression scale (CES-D) which offers subscales for somatic and affective symptoms. Linear regression analysis with HbA1c (marker of glycemic control) as dependent variable was conducted. Independent variables of interest were the somatic and affective scores of the CES-D controlled for demographic and medical variables.

Results: Both depressive subtypes were significantly associated with HbA1c in the multivariate analysis. A greater somatic symptomatology was associated with a higher HbA1c ($\beta=.15$; $p=.001$) whereas a greater affective symptomatology was associated with a lower HbA1c ($\beta=-.15$; $p=.001$). Separate linear regression with depressive symptoms in general (CES-D total score) as independent variable revealed no significant association ($\beta=-.01$; $p=.86$).

Conclusions: This study demonstrated that depression is a complex condition and showed the diametral associations of depressive subtypes with glycemic control. Only the differentiation of subtypes offered a more complete picture of the associations of depression in people with diabetes. A closer look which symptoms of depression are present may be helpful to better understand depression as a vulnerability factor.

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DIABETES STIGMA: OUR NEXT CHALLENGE

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Recent research has demonstrated that diabetes is a stigmatized condition and consequently, this issue is receiving increased attention. In our qualitative studies, people with type 2 diabetes report stigma in the form of feeling blamed and shamed for 'bringing the condition on themselves', being associated with negative stereotypes (e.g. 'fat', 'lazy'), and having restricted life opportunities. People with type 1 diabetes report stigma primarily through association with people with type 2 diabetes. Independent of this, they also experience and/or perceive blame (e.g. for sub-optimal self-management, developing complications), negative stereotyping (e.g. 'sickly', 'druggie'), and social exclusion/rejection. In the same qualitative studies, people with diabetes identified the media as the primary source and driver of diabetes stigma, however many also pointed to the stigmatizing attitudes and practices of health professionals and friends/family. Recently, we have developed and validated the Type 1 and Type 2 Diabetes Stigma Assessment Scales (DSAS-1, DSAS-2), which are self-report questionnaires for use in quantitative research. Cross-sectional exploration of the relationships between diabetes stigma (as assessed with the DSAS-1 or DSAS-2) and other relevant psychological and behavioral outcomes has revealed positive associations with diabetes distress and depressive symptoms, and negative associations with self-care. More research is needed to explore the prospective relationships between these constructs. It is imperative that all stakeholders in diabetes care are cognizant of the possible negative impact of diabetes stigma, and use this as an impetus for change in healthcare and broader society.

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IMPACT OF CONTINUOUS GLUCOSE MONITORING ON PSYCHOSOCIAL OUTCOMES IN TYPE 1 DIABETES – A META-ANALYSIS

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Introduction: There is evidence that continuous glucose monitoring (CGM) positively affects glycemic control and frequency of hypoglycemic episodes in type 1 diabetes (T1DM). Studies on CGM and psychosocial outcomes reveal controversial results, and a first meta-analysis found no effects on quality of life. The current study aimed at (1) determining the average effect of CGM on psychosocial outcomes in T1DM and (2) identifying possible moderating variables such as age, outcome measure, or study quality.

Methods: A systematic database research (Pubmed, Web of Science, PsycInfo) revealed 1219 studies. Studies were eligible if they reported psychosocial outcomes as assessed by standardized questionnaires after a CGM intervention in T1DM patients and were published in English language until December 31st 2014. Effects were integrated using the random effects model with robust variance estimation. Meta-regressions were conducted to evaluate possible moderating variables.

Results. Eligibility criteria were met by 21 publications with 27 studies/subsamples (Overall N = 2.502; mean age = 24.7 ± 13.7 years). Our

preliminary analysis revealed a small positive average effect size (Hedges' $g = .10$, 95% CI [0.04; 0.17], $p = .002$) with moderate heterogeneity ($I^2 = 44.9\%$). Preliminary moderator analysis revealed greater effects with higher age and in parents' report of psychosocial stress.

Conclusion. CGM has a small positive impact on psychosocial aspects in T1DM, but further moderator analysis are necessary to identify patient groups who benefit the most of CGM use with respect to psychosocial aspects and to improve the use of CGM.

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Stress processes, metastatic pathways, leukocyte gene expression and clinical outcomes in cancer

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STRESS PROCESSES, METASTATIC PATHWAYS, LEUKOCYTE GENE EXPRESSION AND CLINICAL OUTCOMES IN CANCER

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Substantial research has demonstrated that chronic stress is able to promote cancer progression via signaling from the sympathetic nervous system (SNS). Although a number of pathways implicated in tumor progression have been characterized, beta-adrenergic effects on pathways involved in tumor dissemination and in transition to an invasive phenotype have not been well-characterized. Similarly, effects of stress management interventions on gene expression pathways and survival in cancer patients have not been well-characterized. The aim of this symposium is to present translational findings examining effects of beta-adrenergic signaling on breast and ovarian tumors, and examining effects of cognitive behavioral stress management (CBSM) on leukocyte gene expression and survival in breast cancer patients. The first presentation shows how chronic stress restructures lymphatic networks within and around tumors to provide pathways for tumor cell escape. The second talk presents both pre-clinical and clinical findings demonstrating that beta-adrenergic signaling is linked with the epithelial mesenchymal transition (EMT) in ovarian carcinoma. The EMT is a process by which epithelial tumor cells undergo morphologic changes facilitating cancer metastasis. The third study tested whether CBSM inhibits the leukocyte conserved transcriptional response to adversity (CTRA) expression during breast cancer treatment and improves clinical outcomes at 11 year follow-up,

and whether these CTRA changes predict 11 year outcomes. Implications and clinical significance of these findings and recommendations for future research will be discussed.

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CHRONIC STRESS REMODELS LYMPH VASCULATURE TO PROMOTE TUMOR CELL DISSEMINATION

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Introduction: Chronic stress induces signaling from the sympathetic nervous system (SNS) and drives cancer progression, although the pathways of tumor cell dissemination are unclear.

Methods: To address this we used state-of-the-art intravital microscopy and preclinical models of cancer to show that chronic stress restructures lymphatic networks within and around tumors to provide pathways for tumor cell escape.

Results: We show that VEGFC derived from tumor cells is required for stress to induce lymphatic remodeling and that this depends on COX2 inflammatory signaling from macrophages. Pharmacological inhibition of SNS signaling blocks the effect of chronic stress on lymphatic remodeling *in vivo* and reduces lymphatic metastasis in preclinical cancer models and in patients with breast cancer.

Conclusions: These findings reveal unanticipated communication between stress-induced neural signaling and inflammation, which regulates tumor lymphatic architecture and lymphogenous tumor cell dissemination. These findings suggest that limiting the effects of SNS signaling to prevent tumor cell dissemination through lymphatic routes may provide a strategy to improve cancer outcomes.

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BETA-ADRENERGIC ACTIVATION OF EPITHELIAL-MESENCHYMAL TRANSITION IN OVARIAN CANCER

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Introduction: The Epithelial-Mesenchymal Transition (EMT) is a process by which epithelial cells lose cell polarity and cell-to-cell adhesion, and undergo morphologic changes that give them a mesenchymal phenotype and enable them to migrate and invade other tissues. This is a fundamental process involved in cancer metastasis. Our previous research has shown that beta-adrenergic signaling stimulates many activities involved in ovarian tumor progression, such as angiogenesis, invasion, and protection from anoikis. However, effects of beta-adrenergic signaling on EMT are not known.

Methods: Genome-wide transcriptome profiling of 98 advanced stage ovarian carcinomas was performed and tumors above or below a median split on tumor NE level (median 1.05 pg/mL) were compared. Patients were matched on age, BMI, grade, stage, and histology.

Results: High-NE tumors showed upregulation of 694 genes by at least 25% and 124 by at least 50%. These included multiple genes related to the EMT, as well as down regulation of a variety of anti-metastatic genes. Patients with high-NE tumors had significantly poorer survival. In ovarian cancer cell lines (SKOV3ip1 and HeyA), exposure to micromolar concentrations of NE increased transcription of *SNAI2* and *IL6*, both of which regulate EMT. In an in vivo orthotopic mouse model of ovarian cancer, 3 weeks of restraint stress decreased the epithelial marker E Cadherin, increased mesenchymal markers N Cadherin and Vimentin, and up-regulated EMT mediators *Snai1*, *Snai2*, and *Twist1*.

Conclusions: These results identify a critical pathway by which beta-adrenergic signaling can promote ovarian cancer progression by stimulating EMT gene expression programs that mediate metastasis.

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COGNITIVE BEHAVIORAL STRESS MANAGEMENT EFFECTS ON AFFECT AND LEUKOCYTE ADVERSITY-RELATED GENE EXPRESSION DURING PRIMARY TREATMENT FOR BREAST CANCER AND 11 YEAR CLINICAL DISEASE OUTCOMES

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Introduction. Psychosocial interventions reduce adversity during breast cancer (BCa) treatment and may improve clinical outcomes. Biobehavioral mechanisms to explain such effects may involve reducing the leukocyte conserved transcriptional response to adversity (CTRA) (up-regulated pro-inflammatory, down-regulated antiviral and antibody-related genes). We tested whether cognitive behavioral stress management (CBSM) reduces adversity, and leukocyte CTRA expression during BCa treatment and clinical outcomes at 11 yr follow-up, and whether these CTRA changes predict 11 yr outcomes.

Methods. Stage 0 – III BCa patients recruited < 12 weeks after surgery provided data before randomization to 10 week CBSM (N = 120) or psychoeducation control (N = 120). Survival analyses examined CBSM effects on overall survival (OS) and disease free-survival (DFS) over 8 – 15 years (11 year median). Mixed model analyses examined effects on

leukocyte expression of 53 genes reflecting CTRA in 51 women with viable blood samples (28 CBSM, 23 controls) over 6 – 12 months. Cox regression models assessed CTRA prediction of 11yr outcomes.

Results. Those in CBSM (vs controls) showed greater OS and DFS, controlling for age, stage, tumor size, Her2/neu status, and hormone therapy. CBSM improved affect over the initial 12 months (p 's < .001) vs no change in controls. Controls showed significant CTRA gene expression increases over 12 months ($p = .008$) vs no change in CBSM. Lower CTRA gene expression over the initial 12 months predicted increased 11-yr DFS in the adjusted model, $p = .023$.

Conclusions: CBSM may improve adversity-related gene programs in ways that promote better health outcomes in breast cancer patients.

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Online psychological interventions for cancer-related distress

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ONLINE PSYCHOLOGICAL INTERVENTIONS FOR CANCER-RELATED DISTRESS

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Access to traditional therapist-delivered psychological therapy can be problematic for individuals with cancer, due to a range of barriers including lack of availability, distance, illness, financial, and personal preferences for self-management. In response to these challenges, and the recognized need to increase cancer patients' access to psychosocial care, recent psycho-oncology therapeutic intervention trials have explored the feasibility, acceptability, and efficacy of delivering interventions in a web-based format. The aim of this symposium is to showcase the versatility and efficacy of three web-based programs in treating varying presentations of cancer-related distress and different cancer types. A/Prof Sherman will first present efficacy data from the 'My Changed Body' RCT, a web-based self-compassion writing intervention for breast cancer survivors experiencing body-image related distress. Findings indicated significant and sustained intervention-benefits in body image disturbance, self-compassion, body appreciation, depression and anxiety. Prof Butow will next summarize the development and pilot-findings for 'e-TC', an anxiety and depression-focused intervention for testicular-cancer survivors. Feasibility was demonstrated, and participants reported high content-satisfaction and appreciation of the focused tailoring of content. Dr Lisa Beatty will then summarize RCT data for the symposium's final intervention, 'Finding My Way', which targets cancer-related distress among patients recently diagnosed with any cancer treated with curative intent. Participants reported high content-satisfaction and confidence in being able to apply program principles to everyday life. The symposium will conclude with an integrative discussion by Prof Judith Prins on the implications arising from these intervention trials and directions for further research. This symposium is sponsored by PoCoG.

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ADDRESSING BODY IMAGE-RELATED DISTRESS IN BREAST CANCER SURVIVORS: IMPACT OF THE ‘MY CHANGED BODY’ ONLINE SELF-COMPASSION WRITING INTERVENTION

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Introduction: Ongoing body image-related concerns after treatment are frequently reported by breast cancer survivors, and are associated with increased psychological morbidity. We evaluated in a RCT “My Changed Body”, a novel, brief online self-compassion focused writing intervention targeting body image-related distress.

Methods: Female breast cancer survivors (N=306) recruited from Australian consumer organizations and outpatient clinics, completed baseline assessments and were then randomized to either the intervention or control (unstructured expressive writing) arms. On a single occasion, both conditions wrote about their experiences of body image difficulties after breast cancer for approximately 30 minutes’ duration. Outcomes including self-compassion, psychological distress, body image disturbance, body appreciation, and appearance investment were reassessed at 1-week, 1-month and 3-months post-randomization.

Results: Linear mixed model analyses testing for the effects of time, condition, and time*condition indicated significant time*condition effects for self-compassion, depression, anxiety, body image disturbance, negative affect and self-compassion (controlling for medical and demographic characteristics). From 1-week, the intervention participants demonstrated significantly greater self-compassion and body appreciation, and lower body image disturbance, depression, and anxiety, all of which were sustained over time.

Conclusions: A single administration of an online structured writing intervention has proven effective at addressing body image related concerns of breast cancer survivors. Compared with expressive writing, this self-compassion focused writing led to improvements not only in body image and self-compassion, but importantly in overall psychological distress which was sustained over time. ‘My Changed Body’ may be a useful adjunct in addressing ongoing psychological morbidity in the provision of breast cancer survivorship care.

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AN E-INTERVENTION FOR MEN AFTER TESTICULAR CANCER: FEASIBILITY AND ACCEPTABILITY TESTING

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Introduction: e-TC is an online intervention designed to address common psychosocial concerns of survivors of testicular cancer. It aims to reduce levels of anxiety, depression and fear of cancer recurrence through the provision of evidence-based information and application of psychological principles via interactive exercises. This presentation details the development and pilot testing of e-TC.

Methods: During the pilot-testing phase 25 men who had completed treatment for testicular cancer six months to five years ago, and were not experiencing a recurrence, used e-TC over a 10-week period and provided quantitative and qualitative feedback on the feasibility and acceptability of the program. Six men also completed a qualitative interview to provide detailed feedback on their experiences in using e-TC.

Results: Usage data indicated that 14 men (56%) completed at least 80% of the program. Participants reported a high level of satisfaction with the content and format of e-TC. Qualitative data indicated strong appreciation of an intervention tailored specifically for this population. e-TC was reported to overcome known barriers to support seeking. Men’s limited time was a barrier to program use and completion, and participants hypothesized that men with a more recent diagnosis and a higher level of distress may be more likely to engage with the program.

Conclusion: Findings from this study are currently being used to refine e-TC and guide the design of an efficacy study. In the new version, more tailoring to men’s specific needs will be implemented to reduce the amount each man needs to read and engage with.

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WHO USES, AND HOW DO THEY BENEFIT FROM, ONLINE PSYCHOTHERAPEUTIC INTERVENTIONS FOR CANCER-RELATED DISTRESS? AN OUTCOMES ANALYSIS OF ‘FINDING MY WAY’

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Introduction: Online self-help overcomes access barriers to conventional therapist-delivered psychosocial interventions. We examined the uptake and efficacy of a 6-module internet-delivered Cognitive Behavior Therapy-based program aiming to reduce cancer-related distress (‘Finding My Way’).

Methods: Adults undergoing curative treatment for cancer were randomly assigned to either the *Finding My Way* intervention (N=94) or an attention-control condition (N=97). Outcome measures of cancer-specific and general distress, coping, and health-related quality of life were administered at baseline, post-treatment, and 3- and 6-months follow-up. Qualitative feedback was obtained via open-ended questions at the end of each module, and at follow-up assessments. Efficacy was assessed using Linear Mixed Modelling, following completion of final (6-month) data collection in June.

Results: Of 461 screened patients, 191 (41.4%) agreed to participate. Participants had a mean age of 55.1 years (SD = 10.8); were mostly female (84%), with 31% residing rurally. The most common cancers were breast (63%), melanoma (9%) and bowel (9%). Participant adherence was moderate-to-high with 117 participants (61%) accessing at least four modules. Post-treatment feedback indicated 82% respondents found the program quite or very helpful; 91% were at least somewhat confident applying the program to their everyday life. Qualitative feedback indicated participants found the program comprehensive, flexible and supportive; the program's survivor video-testimonials were highlighted as particularly helpful in normalizing participants' cancer-related experiences. Efficacy analysis from the final follow-up will be outlined at the time of presentation.

Conclusions: *Finding My Way* resulted in high adherence, acceptability and participant satisfaction.

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New approaches to obesity prevention and treatment: findings from the obesity-related behavioral intervention trials (orbit) consortium

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NEW APPROACHES TO OBESITY PREVENTION AND TREATMENT: FINDINGS FROM THE OBESITY-RELATED BEHAVIORAL INTERVENTION TRIALS (ORBIT) CONSORTIUM
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Obesity and related behaviors (adverse diet, sedentary lifestyle) are major contributors to many chronic diseases, including cancer, cardiovascular disease, and diabetes. A major public health objective is the development new, more effective obesity-related interventions. In this symposium, Investigators from the NIH-funded Obesity Related Behavioral Intervention Trials (ORBIT) consortium will present findings from projects exploring novel approaches to developing obesity-related interventions. First, an overview of the ORBIT consortium – including a description of the background, rationale, study designs and methods utilized in the funded projects – will be presented. Then, findings from two of the ORBIT projects will be described: (1) a sequential multiple assignment randomized trial (SMART) in African American adolescents involving motivational interviewing, skills building and contingency management delivered by community health workers; and (2) a “proof of concept” test of a multi-component, multi-level lifestyle intervention designed to slow intra-abdominal adipose tissue accumulation in midlife women. Following these talks, a discussant who is expert in behavior change interventions and clinical trials methodology will discuss these findings and provide a perspective on future directions in research on obesity and other behaviorally-based risk factors for chronic diseases.

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THE OBESITY-RELATED BEHAVIORAL INTERVENTION TRIALS (ORBIT) CONSORTIUM: DEVELOPING NEW WAYS TO PREVENT AND TREAT OBESITY

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The Obesity-Related Behavioral Intervention Trials (ORBIT) Consortium is a trans-NIH research program designed to accelerate the translation of discoveries from basic behavioral and social science research into innovative strategies aimed at preventing or treating obesity. ORBIT consists of seven research sites at which interdisciplinary teams of basic and applied behavioral and social science researchers collaborate to develop, test and refine novel interventions to improve obesity and obesity-related behaviors (e.g., diet, physical activity). Investigators at each site are conducting several types of early-phase behavioral intervention development studies including formative and qualitative research as well as experimental, “proof of concept” and pilot studies. The interventions being developed include a wide range of strategies aimed at promoting weight loss and/or preventing weight gain, including creative new approaches to promote awareness of specific eating behaviors, decrease the desire for high-calorie foods, reduce stress-related eating, improve sleep patterns, increase motivation to adhere to weight loss strategies, and engage an individual's social networks to encourage physical activity. Participants in ORBIT studies are overweight/obese individuals or those at high risk for obesity, and include Latino and African-American adults, African-American adolescents, low-income populations, pregnant women, and women beginning the menopausal transition. In this talk, the speaker will provide an overview of ORBIT, discuss its background and rationale, and briefly review the framework, study designs and methods used in ORBIT projects.

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A SMART DESIGN FOR TESTING STRATEGIES TO REDUCE WEIGHT AMONG AFRICAN AMERICAN ADOLESCENTS: PRIMARY OUTCOMES AND MODERATORS

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Introduction: Over one-third of American adolescents are overweight, with Black adolescents disproportionately affected. There are few successful weight loss trials for this group.

Methods: In a sequential multiple assignment randomized trial (SMART), 181 12-16 year-olds (*Mean*=14.3 years; 67% female) with primary

obesity were first randomized to 3 months of twice-weekly home-based (HB) or office-based (OB) delivery of motivational interviewing plus skills building delivered by community health workers. After 3 months, non-responders to the first phase of treatment were re-randomized to home-based continued skills (CS) or contingency management (CM).

Results: While there was overall significant weight loss, there were no significant differences in decreases in percent overweight (%OW) based on any treatment sequence. Adolescent confidence for enacting lifestyle changes ($p=.043$), food addiction ($p=.034$), and age ($p=.024$) moderated the effects of treatment. Adolescents entering treatment with greater confidence for enacting lifestyle changes lost more weight than those with lower confidence ($Mdiff=-3.58\%OW$). Adolescents assigned to HBCM who entered treatment with lower food addiction scores ($Mchange=-9.06\%OW$) and older age ($Mchange=-7.10\%OW$) lost the most weight. Finally, there were no differences in HB versus OB in participants' use of weight loss strategies, but participants receiving CM used more strategies in phase 2 ($Mdiff=0.23$, $p=.028$).

Conclusions: These findings suggest that home-based skills training followed by contingency management resulted in increases in use of behavioral strategies and significant weight loss for particular subgroups. Future research is necessary to modify CM interventions for younger youth and to address food addiction to improve weight loss outcomes for Black adolescents.

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WOMEN IN THE SOUTHSIDE HEALTH AND FITNESS (WISHFIT) STUDY: ONE YEAR WAIST CIRCUMFERENCE FINDINGS FOR A LIFESTYLE INTERVENTION TO REDUCE ABDOMINAL ADIPOSITY IN MIDLIFE WOMEN

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Introduction: Intra-abdominal adipose tissue (IAAT) increases by approximately 3.8–4.4% per year in midlife women and is associated with higher cardiovascular and metabolic risk. The Women in the Southside Health and Fitness (WISHFIT) Study aimed to develop and provide a preliminary proof of concept test of a lifestyle approach to slowing IAAT accumulation in women beginning the menopausal transition.

Methods: A multi-component, multi-level lifestyle intervention was developed. Treatment targets included consuming ≥ 3 daily vegetable servings and moderate-to-vigorous physical activity ≥ 120 minutes/week. The one-year interim outcome was waist circumference maintenance (decreasing or maintaining waist circumference within 3cm of the baseline measure). Treatment goals and waist circumference were evaluated at baseline, 6, 9, and 12 months using logistic regression, fitted with generalized estimating equations.

Results: 71 midlife women (age = 47.6 ± 3.4 years; 52% African American; baseline waist circumference 102.1 ± 14.6 cm) participated in the intervention. 63.4%, 64.8% and 66.2% of women reached both physical activity and diet goals at 6, 9, and 12 months, respectively. By 12 months, 84.5% of women maintained their waist circumference. When adjusting for time, race, menopausal status, and baseline waist circumference, achieving both the physical activity and diet goals was associated with 2.36 (95% CI: 1.25–4.45) higher odds of maintaining waist circumference over the year.

Conclusions: A majority of women in WISHFIT were successful in achieving both physical activity and diet goals after one year and maintaining their waist circumference. Future work will determine whether achieving these goals translates to CT-assessed IAAT maintenance.

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Measuring and addressing intersecting epidemics of chronic disease and substance use among adolescents

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MEASURING AND ADDRESSING INTERSECTING EPIDEMICS OF CHRONIC DISEASE AND SUBSTANCE USE AMONG ADOLESCENTS
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Advances in medical care and earlier onset of diseases are resulting in a growing population of youth with chronic medical conditions (YCMC) – asthma, arthritis, cystic fibrosis, diabetes, and others. At least 12% of adolescents globally, nearly 25% in the US, have a chronic condition. These medically vulnerable youth participate in healthy social and educational activities as well as risk-taking behaviors—including alcohol and other substance use—that can uniquely imperil their health. For them, alcohol and other substance use can negatively affect the safety and efficacy of medications, laboratory tests and undermine adherence. Emerging evidence from large prospective clinical cohorts of YCMC and analyses of nationally representative longitudinal data from the US, are shedding light on the prevalence and patterning of these risk behaviors and their consequences for YCMC. The aim of this symposium is to present findings of these studies, describing results about patterns, predictors and consequences of these behaviors in the second and third decades of life. Further, we draw on rich epidemiologic and narrative data to define a model psychoeducational intervention tailored to the unique needs and experiences of these youth, showcasing formative research to engage YCMC in designing health promotion/risk reduction messages for self-administered psychoeducational interventions in the subspecialty care setting. The symposium defines the intersecting epidemics of chronic disease and substance use, triangulating among diverse data sources and investigations to define the evidence base and characterize a scalable intervention strategy for addressing complex problems that, if left unattended, are likely to compound over the lifecourse.

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MEASURING SUBSTANCE USE TRAJECTORIES THROUGH EARLY ADULTHOOD AMONG YOUTH WITH AND WITHOUT CHRONIC CONDITIONS

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Introduction: Adolescence and emergent adulthood are periods of peak prevalence for substance use that pose risks for short- and long-term health harm, particularly for youth with chronic medical conditions

(YCMC) who are transitioning from adolescence to adulthood. Given the dynamic nature of these behaviors over time, we sought to use semi-parametric methods to flexibly model trajectories of substance use initiation and intensification from adolescence through adulthood among medically vulnerable youth compared to healthy peers.

Methods: Longitudinal data are from 2,719 youth between the ages of 12 and 26 years interviewed from 2002 to 2011 for the Panel Study of Income Dynamics, Child Development and Transition to Adulthood Supplements, a population-based U.S. survey. Multivariate generalized linear mixed models with natural cubic splines were used to estimate patterns of alcohol, tobacco, and marijuana use during adolescence and emergent adulthood for youth with and without chronic conditions, adjusting for potential confounders.

Results: Overall, 68.8%, 44.3%, and 47.8% of youth reported ever trying alcohol, tobacco, and marijuana, respectively. Among users, 42.2%, 73.4%, and 50.3% of youth reported binge drinking, regular cigarette use, and recent marijuana use, respectively. YCMC were more likely to engage in any and heavier substance use; transition years and early adulthood were periods of peak risk for YCMC compared with their healthy peers.

Conclusions: Substance use among YCMC during adolescence and emergent adulthood is a substantial concern. Increased prevention and case detection are in order to address these behaviors and promote optimal health outcomes for medically vulnerable youth.

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UNDERSTANDING THE RISK TO MEDICATION ADHERENCE AND SAFETY OF SUBSTANCE USE BEHAVIORS FOR ADOLESCENTS WITH CHRONIC MEDICAL CONDITIONS: SKIPPING, MISSING, AND DRUG SUBSTITUTION BEHAVIORS
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Introduction: For medically-vulnerable youth, alcohol use may pose significant risk for harm related to medication nonadherence, simultaneous exposure to alcohol-interactive (AI) medications and heavy drinking, adjustment of medication dose/scheduling and even substitution of marijuana for alcohol. Little is known about these behaviors or the beliefs and assumptions influencing them, despite the relevance for outcomes research and intervention.

Methods: Using a mixed methods approach, we collected and statistically analyzed survey data to quantify prevalence and correlates of nonadherence, exposure to AI medications, and substitution of marijuana for alcohol among 406 youth ages 14-17 years in subspecialty care for a chronic disease; we collected and thematically coded narrative data from a subgroup of 25 youth.

Results: 86.5% of youth were taking AI prescription medications. Of these, 36.7% reported past year alcohol use, of which 33.8% reported binge drinking. Youth taking AI medications had 40% lower odds of past year alcohol use ($p < .0001$), suggesting a protective effect. Among all youth, non-adherence was common: 32%/8.3% reported they sometimes/often/always forgot/skipped medications in the last month; youth who reported using alcohol had nearly twice the level of nonadherence as those who did not (AOR: 1.79 and 1.61, $p < .05$). Narrative and survey data suggest youth are aware of the hazards of these behaviors but discount risks, alter treatment regimens, underestimate severity, or substitute marijuana for alcohol to alleviate cognitive dissonance.

Conclusions: Medically-vulnerable adolescents who drink alcohol face serious risks to safety and treatment efficacy that. Screening, education and intervention are needed to address these concerns.

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PERSPECTIVES ON SUBSTANCE USE SHARED BY YOUTH WITH CHRONIC MEDICAL CONDITIONS AND IMPLICATIONS FOR PREVENTIVE INTERVENTIONS AND CLINICAL GUIDANCE

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Introduction: For youth with chronic medical conditions (YCMC), substance use poses unique health risks, including adverse medication interactions and non-adherence. Despite this, high school YCMC use alcohol and marijuana at levels similar to their healthy peers, raising questions about the motivations and circumstances driving their decisions to use.

Methods: Semi-structured qualitative interviews were conducted with purposive sample of 25 YCMC ages 16-19 in subspecialty care at a large urban teaching hospital. Narrative data were audio-recorded, transcribed and thematically analyzed using an iterative inductive process.

Results: Youth reported tension between two dominant themes: Chronic disease frame (how having a chronic condition affects worldview and decisions around health behaviors) and Adolescent frame (influence of developmental status). Youth noted the experience of information deficits about the connections between substance use and aspects of each chronic condition, and articulated clear preferences for receiving substance use-related education and guidance in the context of subspecialty care. Ongoing pretesting of materials developed to address information deficits and the inherent tension between the chronic disease context and adolescent-typical impulses/pressures will be detailed.

Conclusions: Substance use psychoeducational interventions informed by the patient experience are needed for YCMC who perceive a close tie between their condition and decisions to use substances. Information deficits around disease-specific substance use harms often reflect case-specific and medically complex information, which a specialty provider is qualified to address. The value of recognizing physiological cues and the desire to be complication-free are points on which to anchor preventive messages targeting delayed or reduced substance use.

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Relationships and health across adolescence: Insights from longitudinal research

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RELATIONSHIPS AND HEALTH ACROSS ADOLESCENCE: INSIGHTS FROM LONGITUDINAL RESEARCH

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Adolescence is a period of generally good health, but also poses risk for both healthy and chronically ill youth. Health risk behaviors commonly emerge during adolescence while illness management deteriorates, and patterns of behavior that are established during adolescence often extend into adulthood. Such patterns reflect complex processes of normative development in the context of a changing landscape of social relationships. Longitudinal research provides insights into the underlying processes, which may guide prevention or early intervention efforts. This symposium presents findings from longitudinal studies examining the interface between adolescent development, social relationships and health. The first study examines how parenting practices in early adolescence predict the development of social-emotional competence and sexual risk behaviors in middle to late adolescence. Findings demonstrate that good parenting practices in early adolescence predict subsequent social emotional competence, which mediates girls' sexual risk behaviors in late adolescence. The second study examines how adolescents' high use of social technology (i.e., social networking, texting) and online peer relationships may pose risks for adolescent health. Findings demonstrate that cyber victimization predicts somatic complaints across a three-month period, and this association is partially mediated by sleep problems. The final study examines how relationships with parents and physicians are associated with type 1 diabetes management as late adolescents transition out of the parental home and pediatric care. Findings demonstrate that relationships with parents set a foundation for collaborative relations with providers which predict adherence one year later, and this association is mediated by self-efficacy.

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EARLY PARENTING PRACTICES INFLUENCE ON SUBSEQUENT ADOLESCENT SEXUAL RISK: THE MEDIATING ROLE OF SOCIAL-EMOTIONAL COMPETENCE

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Introduction: Research has established that parenting practices (i.e., monitoring, involvement, and nurturance) influence health and health behavior in children and adolescents. One proposed pathway for this influence is that social-emotional competence (SEC) may mediate the relationship between early parenting practices and subsequent health among adolescents. Yet, studies have not examined this process regarding sexual risk behaviors. Our aim was to examine the hypothesized mediating role of SEC in the link between early parenting practices and adolescent's subsequent sexual risk behaviors in a diverse sample of adolescent girls.

Method: Using the Healthy Passages longitudinal data from the U.S., a mediation structural equation model was applied to examine these associations in a large sample ($N = 2,445$) of Black (37.9%), Hispanic (37.2%), and White (24.9%) girls. Parenting practices was examined in 5th grade whereas SEC was measured at 7th and 10th grade (to determine the best stage of social-emotional development for this relationship). Sexual risk was reported at 10th grade at which time over 30% had initiated oral, vaginal, or anal sex. **Results:** The structural equation model tested had adequate fit ($RMSEA = .08$; $TLI = .86$). Moreover, the influence of parenting practices on sexual risk was significantly mediated by SEC at 7th grade only (indirect effect $\beta = .11$, $p < .001$).

Conclusions: SEC is an underlying mechanism of the long-term influence of parenting practices on adolescents' engagement in health risk behaviors. Findings may have implications for enhancing social-emotional learning among teen girls through parenting practices to reduce sexual risk behaviors.

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CYBER VICTIMIZATION: DOES IT PREDICT SOMATIC COMPLAINTS AMONG ADOLESCENTS?

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Introduction: Cyber victimization (CV), or being the target of peers' aggression via technology, is a critical problem affecting adolescents' wellbeing. CV is associated with psychological risk among adolescents, including symptoms of depression and social anxiety. Yet, little is known about the health impact of CV. This gap is surprising since adolescents are high users of technology, especially for texting and social networking. We examined the impact of CV on adolescents' somatic complaints using a short-term prospective design, and whether sleep difficulties mediated the association between CV and health complaints.

Method: Adolescents ($N=1162$, M age=15.80 years, 57% female) were assessed at 3 time points, 6 weeks apart, using standardized measures of CV, sleep problems, and somatic complaints. Hierarchical regressions examined predictive associations between CV (Time 1) and somatic complaints (Time 3); sleep difficulties (Time 2) were tested as a mediator between CV and somatic complaints.

Results: Controlling for demographics, higher CV predicted greater somatic complaints 12 weeks later ($\square=.24$, $p=.000$). Consistent with partial mediation, this association remained significant but was attenuated when sleep difficulties were considered ($\square=.14$, $p=.000$; Sobel statistic=6.75, $p=.000$). Sleep difficulties also predicted somatic complaints beyond the effects of CV ($\square=.39$, $p=.000$).

Conclusions: The stress of CV contributes to adolescents' somatic complaints, and sleep difficulties partially explain this relationship. Other consequences of CV not examined (e.g., arousal, cortisol response) may also lead to somatic problems. Health care providers who encounter youth with unexplained somatic or sleep difficulties should assess adolescents' peer relationships and the possible occurrence of CV.

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RELATIONSHIPS WITH PARENTS AND PROVIDERS FACILITATE TYPE 1 DIABETES ADHERENCE FROM LATE ADOLESCENCE TO EMERGING ADULTHOOD

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Introduction: Transitioning from late adolescence to emerging adulthood is critical for individuals with type 1 diabetes (T1D), with emerging adults showing lower adherence than earlier or later ages. Relationships with parents and pediatric providers may bolster late adolescents' self-efficacy, facilitating independent diabetes management as they move into adult care. We examined whether self-efficacy mediated the association between social relationships and adherence as participants transitioned to adult care. **Methods:** Late adolescents with T1D completed surveys during their final year of secondary education (100% in pediatric care) and again one year later (53% in adult care; $N=219$; 60% female; 77% nonHispanic White, 12% Hispanic). Structural equation modeling first tested whether late adolescents' relationships with parents and providers predicted adherence

one year later, mediated through self-efficacy (mediation model). We then tested a moderated mediation model, examining whether results were stronger among those who had transitioned into adult care.

Results: The hypothesized mediation model revealed good fit (RMSEA =.040; CFI =.899), indicating associations of parent and provider relationships with subsequent adherence were mediated by self-efficacy (indirect effect $\beta=.015$, $p=.033$). In contrast to our hypothesized moderated mediation model, transitioning out of pediatric care did not significantly predict adherence ($p>.05$) or moderate self-efficacy associations with adherence (RMSEA =.46; CFI =0).

Conclusions: Relationships with parents and providers may facilitate self-efficacy and diabetes management as late adolescents with T1D transition to emerging adulthood, and may be more important than the health care setting in which treatment occurs.

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Measuring what people value: Discrete choice survey results on organ donations, antibiotic use, and options for childbirth

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MEASURING WHAT PEOPLE VALUE: DISCRETE CHOICE SURVEY RESULTS ON ORGAN DONATIONS, ANTIBIOTIC USE, AND OPTIONS FOR CHILDBIRTH

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Developing successful behavior change interventions requires understanding what people value and the important factors that influence their choices. Discrete choice experiments (DCEs) provide a method of quantifying the relative importance of the factors influencing healthcare decisions. In addition, DCEs allow for the inclusion of factors that might be important to decision makers but difficult to identify or measure, and can be used to identify the likely success of interventions that are either not currently available or being considered by policy makers. The purpose of this symposium is to present three examples of how DCEs have been used to identify what people value, the strength of those valuations, and how successful new policies might be in changing behavior. The three examples – decisions to donate organs of a deceased relative, whether to use un-prescribed antibiotics to treat an illness, and whether to take actions to reduce pain during childbirth – are all complex decisions in which decision makers must consider a number of factors. The presentations will provide an introduction to how to develop and conduct a DCE, the method of analysis that is used, and the implications of the results for developing policy and behavior change interventions. The session will be of interest to researchers with specific interests in one or more of the topics (organ donations, antibiotic resistance, or childbirth) and to researchers interested in understanding how to use a DCE to identify preferences in their area.

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PREFERENCES AMONG STUDENTS ABOUT SELF-MEDICATING WITH ANTIBIOTICS: A DISCRETE CHOICE EXPERIMENT

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Introduction: Antibiotic resistance can arise when patients misuse antibiotics. Although antibiotic should only be used when prescribed, many

people, especially in developing countries, misuse antibiotics because they are readily available. Previous attempts to reduce the misuse of antibiotics have not been successful, in part because they often ignore the factors that lead people to knowingly misuse antibiotics. The purpose of this study is to identify the factors that individuals consider when deciding whether to inappropriately use antibiotics.

Methods: 109 participants completed a Discrete Choice Experiment (DCE) survey consisting of 16 choices about antibiotic use. Options varied with the cost, source, where the advice came from, level of pain or discomfort, time until getting the antibiotics, efficacy and the risk of resistance. A mixed effects logistic regression model was used.

Results: 54.6% declared having taken antibiotics without medical prescription at least once in the past. Mixed logit model resulted suggest that participants are more likely to use antibiotics if prescribed by a doctor, but other factors, such as time to getting the antibiotic, pain and discomfort, and the likely effectiveness, were also important factors which could lead to inappropriate antibiotic use. Risk of the antibiotic resistance where not important.

Conclusions: Campaigns to reduce inappropriate antibiotic use should not focus on the risk of antibiotic resistance, and suggest that in regions where access to physicians is difficult or costly, new approaches may be needed to reduce inappropriate antibiotic use.

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PREFERENCES REGARDING ORGAN DONATIONS: EVIDENCE FROM A DISCRETE CHOICE SURVEY

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Introduction: Over 120,000 individuals are on the waiting list for an organ transplants. In order to close this gap, Organ Procurement Organizations (OPOs) need new ways to attract donors, especially from ethnically and culturally diverse groups. This study provides evidence on individuals' preferences regarding decisions to donate a deceased relative's organ and whether offering monetary incentives would lead to more donations.

Study Design: 86 participants completed a discrete choice survey asking whether or not to donate organs from a deceased relative. Options varied included characteristics of the recipient (e.g., age, lifespan of the kidney, impact if not transplanted), characteristics of the donor (e.g., relationship to participant, wishes on the donor), and monetary incentives (e.g., amount, who pays, who receives).

Principal Findings: The results suggest significant support for organ donations, with important factors being the reason why the recipient needs the organ (e.g., infection vs. alcoholism), the age of the recipient, and the wishes of the deceased donor. Monetary incentives were not significant factors. Latent class analysis identified 2 classes of individuals that differed according to whether to respect wishes of the donor.

Conclusions: The results show organ donations are likely to be impacted by the information provided to relatives of deceased donors about both the characteristics of the recipient and the wishes of the deceased. Monetary incentives are not likely to be effective in increasing donation rates. Future studies should examine the preferences of other groups where rates of donations are relatively low (e.g., Latino and African American populations).

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UNDERSTANDING WOMEN'S CHOICES DURING CHILDBIRTH: ALLAIS PARADOX AND PREFERENCES USING DCE SURVEYS

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Introduction: Women have a number of options for managing pain during childbirth. Each option involves some risk to both them and their babies, with the option that is best for women depending on their preferences and values. The purpose of this study is to examine the preferences of women with selecting treatments for pain during childbirth.

Methods: 100 women ages 16–75 (mean age = 27.5) were recruited in Bogotá, Colombia. Women received information regarding managing pain during labor, and they completed a 16 task DCE in order to analyze preferences for five attributes: options for managing pain (options varied the probabilities of regular, moderate, or severe pain), cost (from \$0 to \$3 million pesos), places to give birth, adverse events for mother (ranging from none to severe), and adverse events for newborns. Mixed logit analysis was used to calculate Individual-level weights for the five attributes' levels.

Results: Results suggest that women showed strong preferences for managing pain, but preferences declined as the risk to babies increased. The potential for adverse effects on the newborns were the most important factor. Latent class analysis identified two groups of women with distinct preferences. The results contrast the preferences of these groups.

Conclusions: The results provide information on the preferences of women when determining whether to use pain relief during childbirth. Analysis of the choices that women made also provides information on whether the Allais Paradox is exhibited in this decision context.

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Colorectal cancer screening: how to engage invitees and keep them coming back for more

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COLORECTAL CANCER SCREENING: HOW TO ENGAGE INVITEES AND KEEP THEM COMING BACK FOR MORE

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Colorectal Cancer (CRC, bowel) remains the second most common cause of cancer death in developed countries. Prevention and early detection are essential for the reduction in mortality rates, and screening tests offered to the healthy population are valuable tools for this aim. However, despite availability of CRC cancer screening opportunities, uptake rates remain persistently low, particularly among certain social groups e.g. low socio-economic status, and ethnic minorities, leading to widening health disparities. In this symposium we join international forces with leading experts from three different continents, to address a common goal: how can we increase initial and repeat participation in CRC screening overall, and specifically, within hard to reach groups? Dr Lesley McGregor (London, UK) will begin this symposium by describing a study designed to evaluate an intervention to promote self-referral within the new bowel scope

(flexible sigmoidoscopy) screening programme in England. The results will be placed within the context of other intervention work in the area. The second presentation, delivered by Prof. Carlene Wilson (Adelaide, AUSTRALIA) will focus on rescreening for CRC, the predictors of this behavior, and how psychological theory is integral to future interventions. Prof. Ronald E. Myers (Philadelphia, USA), will conclude the talks by presenting an initiative designed to facilitate the translation of evidence-based interventions that have been shown to increase opportunistic CRC screening among minority populations into operating health systems. Our discussant, Prof. Bill Klein (Bethesda, USA), will summarize key themes emerging from the presentations and facilitate a discussion around current findings and future research plans.

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USING A SELF-REFERRAL REMINDER TO INCREASE BOWEL SCOPE (FLEXIBLE SIGMOIDOSCOPY) SCREENING UPTAKE IN ENGLAND: A 'SCOPING' EXERCISE

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Introduction: Bowel Scope Screening (BSS) can reduce colorectal cancer (CRC) morbidity and mortality by removing pre-cancerous polyps. Uptake of the BSS Programme in England is low at 43% and socioeconomically graded (33%-53%). A 12-month self-referral reminder letter with a social marketing leaflet addressing known barriers to BSS was previously found to be a feasible intervention with potential to increase BSS uptake. A randomized controlled trial of this intervention was then conducted within a single center to extend the evaluation.

Methods: BSS non-participants (n = 1383) were randomized equally into three groups: 1) no reminder, 2) reminder with the standard information booklet, and 3) reminder with the social marketing leaflet. The reminder letter allowed the participant to indicate their preference for the gender of the endoscopist, and the day/time of their appointment. If no response was received within 4 weeks, a follow-up reminder was sent. The primary outcome was BSS attendance within 12 weeks of the original reminder being sent.

Results: Both reminder intervention groups had a significantly higher attendance rate than the 'no-reminder group': group 1 (0.2%) vs. group 2 (10.4%), $\chi^2=47.61$, $p<0.01$, and group 1 (0.2%) vs. group 3 (15.2%), $\chi^2=72.65$, $p<0.01$. Participants receiving the social marketing leaflet with their reminder (group 3) were more likely to attend BSS than those who were sent the standard leaflet (group 2; $\chi^2=4.7$; $p=0.04$).

Conclusions: A 12-month self-referral reminder can successfully increase BSS uptake with an additional boost obtained when using a social marketing leaflet designed to address barriers to uptake.

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RESCREENING FOR COLORECTAL CANCER: THE PREDICTORS OF THIS BEHAVIOUR AND THE PLACE OF PSYCHOLOGICAL THEORY

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Introduction: Success of CRC screening programs depends on initial and ongoing participation at the recommended interval. Research suggests that demographic and social cognitive variables discriminate those who participate in the initial offer from those that do not. We explored the extent to which these same variables predict rescreening with Fecal Occult Blood Tests (FOBT) over multiple rounds.

Methods: This longitudinal survey describes predictors of adherence to 3 (n=1,540) and 4 (n=1,928) annual rounds of screening. Data from a second study that examines the contribution of individuals differences in autonomous motivation (Deci & Ryan, 2000) as a predictor of second round screening participation are also presented (n=1,629).

Results: Over three rounds, comparison of consistent participants with all others (dropouts, intermittent participants, delayed entrants and consistent refusers) indicated that non-adherence was linked to poorer self-efficacy, greater perceived barriers, and lower levels of response efficacy. Demographic predictors of non-adherence were male sex, younger age, less frequent GP visits and lower levels of private health insurance. At 4 rounds, comparison of consistent participants with intermittent participants and dropouts highlighted that the former were likely to be older, married and no longer working fulltime and to have been satisfied with the screening experience. A subsequent study analyzing the contribution of autonomous motivation to request for a follow-up with a second FOBT indicated a small but significant influence.

Conclusions: Hard to reach groups are not necessarily captured by rescreening offers and special programs may be required to achieve a fully equitable screening program.

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THE REDUCING DISPARITIES BY ENGAGING STAKEHOLDERS (RCADES) INITIATIVE

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Introduction: There are persistent disparities in colorectal cancer (CRC) and lung cancer (LCA) screening rates in the United States, when whites are compared to African Americans, Hispanics, and Asian Americans. These disparities translate into higher mortality and lower survival in minority populations. Evidence-based strategies that reduce cancer screening disparities have not been implemented in most health systems in the country. A Patient-Centered Outcomes Research Institute

(PCORI)-funded project, known as the *Reducing Cancer Disparities by Engaging Stakeholders (RCADES) Initiative*, addresses these issues.

Methods: Following a collective impact learning community (CILC) model, the Center for Health Decisions of Thomas Jefferson University has engaged a Steering Committee (i.e., representatives of patients, providers, health systems, insurers, employers, and advocacy organizations), Patient and Stakeholder Advisory Committees (i.e., patients, physicians, administrators) from two large health care systems located in southeastern Pennsylvania, and communications industry partner organizations in the learning community. Members collaborate to adapt evidence-based interventions for use in the health systems to reduce CRC and LCA screening disparities among populations experiencing disparities.

Results: Learning community members have: 1) determined health system structural factors likely to affect intervention adaptation and implementation; 2) assessed health system capacity and commitment, and primary care provider/population connectivity/receptivity to intervention strategies; 3) identified evidence-based intervention strategies with high impact and fit with the health systems/minority populations; 4) selected and adapted an intervention for implementation; and 5) convened a conference to share progress and plan next steps.

Conclusions: The RCADES Initiative has catalyzed the process of adapting evidence-based interventions that reduce cancer screening disparities for implementation in health systems.

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Something from nothing: How to improve health outcomes via the placebo effect

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SOMETHING FROM NOTHING: HOW TO IMPROVE HEALTH OUTCOMES VIA THE PLACEBO EFFECT

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The placebo effect is a fascinating psychobiological phenomenon in which the treatment context elicits improvement in and of itself. Despite considerable evidence for placebo effects across various health conditions (e.g. pain, sleep, nausea, depression, Parkinson's disease, arthritis), exactly how these effects are formed and whether they can be used in the clinic remains unclear. The aim of this symposium is to present recent advances in our understanding of how placebo effects are formed and, importantly, how they can be used to improve health outcomes in clinical settings. To achieve this, the symposium adopts a multidisciplinary approach by considering the neurobiological, pharmacological, and psychological factors that drive the placebo effect. In the first presentation, Colagiuri will present novel evidence on the role that learning mechanisms play in producing placebo effects, particularly the role of partial reinforcement and how it can be used to extend beneficial placebo effects. In the second presentation, Colloca outlines how social learning can produce placebo effects for pain, before describing new evidence for the involvement of the vasopressin system in placebo analgesia. In the third presentation, Geers presents new studies that indicate that cognitive elaboration can be used to enhance placebo effects by strengthening positive expectancies. Together these findings indicate that by understanding the neurobiological, pharmacological, and psychological factors that drive the placebo effect clinicians may be able to capitalize on the placebo

mechanism to improve health outcomes. Discussion will focus on ways of effectively and ethically translating these findings to the clinic.

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LEARNING MECHANISMS THAT FACILITATE THE PLACEBO EFFECT

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Introduction: Virtually all theories of the placebo effect invoke classical conditioning as a key mechanism for generating the expectancies that trigger improvement. Despite this, the types of conditioning manipulations that have been implemented in placebo research to date have been fairly limited – typically only involving continuous reinforcement with multiple training trials. **Methods:** Across three experiments using experimentally-induced pain and nausea, we tested the extent to which different learning schedules influence the magnitude and durability of the placebo effect. This involved comparing placebo effects established via a) continuous reinforcement – when the placebo is always paired with an ‘active’ treatment during training, b) partial reinforcement – when the placebo is only paired with an ‘active’ treatment on some trials during training, and c) single trial conditioning – when the placebo is only paired with an ‘active’ treatment once.

Results: Conditioning produced reliable placebo effects for both pain and nausea relative to no treatment control groups. Most interestingly, continuous reinforcement led to initially stronger placebo effects than partial reinforcement, but the placebo effects established under partial reinforcement lasted longer, suggesting that they were more resistant to extinction. Further, a single conditioning trial was sufficient to elicit a substantial placebo effect, indicating novel evidence of one-trial learning of a placebo effect.

Conclusions: These findings indicate that by adjusting the way in which an active treatment is delivered, we may be able to use learning principles to facilitate the placebo effect in patients.

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SOCIAL BEHAVIOURS AND SYSTEMS THAT ENHANCE PLACEBO ANALGESIA

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Introduction: Placebo analgesia produces pain relief in individuals by virtue of learning mechanisms. While most research has focused on how direct or ‘first-person’ conditioning produces placebo effects, individuals may also learn from others. We, therefore, conducted a series of studies to test the role of social learning and the neurobiological systems that underlie social behaviors, namely the vasopressin system in facilitating placebo analgesia.

Methods: In the first experiment, participants were exposed to a placebo treatment for pain either after having seen a demonstrator report success from the treatment or with no demonstrator. In the second experiment, we replicated live observation results and extended them to a video-clip to

explore the role of inter-personal versus video observation. In the third experiment, we investigated the effects of intranasal vasopressin in enhancing such effects. Participants were given placebo treatment for pain after receiving vasopressin, oxytocin, saline, or no-treatment.

Results: Social learning effectively induced placebo analgesia that was significantly stronger when compared with no observation. The video-based observation induced substantial placebo analgesic responses that were of similar magnitude to live observation. Further, vasopressin significantly enhanced placebo analgesia in women relative to oxytocin, saline, and no-treatment, but had no effect in men, consistent with its general dimorphism. **Conclusion:** These findings highlight the importance of neurobiological systems that underlie social behaviors in promoting placebo analgesia. In particular, Avp1a and Avp1b vasopressin receptors that are largely expressed within the central nervous system can boost placebo analgesia in a sex-specific manner.

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WHEN DO PLACEBO EFFECTS ENDURE OVER TIME? TESTING THE ROLE OF COGNITIVE ELABORATION

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Introduction: Placebo effects can be generated by providing individuals with conscious expectancies for treatment efficacy. Although such expectancy manipulations produce placebo effects in the short-term, little is known regarding when treatment expectancies produce more enduring effects, which is critical if researchers wish to use the placebo effect in clinical practice. Building from the cognitive belief literature, we tested whether cognitive elaboration could be used to prolong the placebo effect. **Methods:** In Experiment 1, participants performed a placebo sleep therapy before bed for two weeks. One group was led to expect sleep improvement as per standard placebo studies. A second group was also led to expect sleep improvement but was also asked to cognitively elaborate on the expectancy. A third control group was given no treatment expectancy. In Experiment 2, participants were led to expect that engaging in light exercise immediately improves mood states or were presented with a control (irrelevant) expectancy. Orthogonal to this, participants either cognitively elaborated on the expectancy provided or did not.

Results: Participants who elaborated on the treatment expectancy displayed better sleep outcomes than those who did not ($p < .05$; Experiment 1) and positive mood states after exercising were extended in participants who cognitively elaborated on the expectancy for improvement, but not the control expectancy ($p < .05$).

Conclusions: These findings indicate that asking individuals to cognitively elaborate on treatment expectancies can increase the duration of placebo effects, which may be an effective way of enhancing placebo effects in the clinic.

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SEVERE FATIGUE AFTER TREATMENT OF DUCTAL CARCINOMA IN SITU: A COMPARISON WITH BREAST CANCER SURVIVORS AND AGE-MATCHED HEALTHY CONTROLS

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Introduction: It is unclear if severe fatigue is a problem after treatment of ductal carcinoma in situ (DCIS), a preliminary stage of breast cancer. The current study examined (i) the prevalence of severe fatigue; (ii) the influence of severe fatigue on quality of life, and (iii) which psychosocial factors are related to fatigue in DCIS patients.

Methods: In the current cohort study, 89 patients treated for DCIS, 67 age-matched breast cancer survivors (BCS), and 178 age-matched healthy controls (ratio 1:2) were included. The main outcome was severe fatigue, measured with the Fatigue Severity subscale of the Checklist Individual Strength.

Results: 21.3% of DCIS patients, 25.4% of BCS, and 6.2% of healthy controls were severely fatigued ($p < .001$). Severely fatigued DCIS patients had a lower quality of life and were more impaired in physical, role, emotional, cognitive and social functioning. Sleep problems, avoidance of activities, all-or-nothing behavior, perceived lack of social support, coping problems, fear of future cancer occurrence, and dysfunctional cognitions were correlated to fatigue.

Conclusions: The prevalence of severe fatigue in DCIS patients did not differ significantly from BCS, but was significantly higher than in healthy controls. Severely fatigued DCIS patients had a lower quality of life and were more impaired in daily functioning. The psychosocial factors related to fatigue in DCIS patients are known to be perpetuating factors of fatigue in BCS. These factors are targeted in cognitive behavioral therapy for cancer-related fatigue. Our findings suggest that the same treatment elements might be applicable to severely fatigued DCIS patients.

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BREAST CANCER AND CHEMOTHERAPY INDUCE NEUROINFLAMMATION, MEMORY DEFICITS AND AFFECTIVE SYMPTOMS IN MICE

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Introduction: Up to 90% of cancer patients suffer from chronic cognitive decline or mood disorders, which have been attributed to cancer treatment. Surprisingly, few of the mechanistic studies to understand the underlying causes have investigated this on a background of cancer. Here, we use clinically-relevant mouse models of breast cancer to show that both cancer and chemotherapy induce peripheral and central inflammation, impair memory and induce anxiety-like and depression-like behavior.

Methods: BALB/c mice were injected orthotopically with syngenic 4T1.2 mammary adenocarcinoma cells. Mice undertook a battery of behavioral and cognitive tests. At the end of testing mice were euthanized. Peripheral tissues and brains were harvested. Pro-inflammatory and anti-inflammatory cytokines were assessed using qRT-PCR. In a separate experiment, mice were injected intraperitoneally with either paclitaxel

or vehicle, and the effect on behavior and inflammatory mediators was assessed.

Results: Tumor-bearing and chemotherapy-treated mice exhibited poorer performance in hippocampal-dependent memory tasks compared to respective control mice. These effects were independent of sickness. Chemotherapy also induced anxiety- and depression-related behaviors. Pro-inflammatory cytokines (*Il1b* and *Tnfa*) were increased in the spleen and hippocampus of tumor-bearing mice and in the liver of chemotherapy-treated mice. Reductions in anti-inflammatory *Il10* was also observed in tumor-bearing mice.

Conclusions: Breast cancer and chemotherapy induce memory deficits and affective symptoms independent of sickness. We are currently investigating potential mechanisms underlying these behavioral changes including characterization of tumor-derived soluble mediators and the role of tumor-associated macrophages. Additionally the cumulative effects of breast cancer and chemotherapy on cognition and behavior are being examined.

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O407

A RANDOMISED CONTROLLED TRIAL (RCT) EVALUATING A WEB BASED COGNITIVE REHABILITATION PROGRAMME (CRP) IN CANCER SURVIVORS REPORTING COGNITIVE SYMPTOMS FOLLOWING CHEMOTHERAPY

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Introduction: Cognitive impairment is frequently reported by cancer survivors. There are no proven treatments. We evaluated a cognitive rehabilitation programme (CRP) compared to standard care in cancer survivors self-reporting cognitive symptoms.

Methods: We recruited adult cancer survivors with a primary malignancy who had completed ≥ 3 cycles of adjuvant chemotherapy in the previous 6-60 months and reported persistent cognitive symptoms. All participants received a 30-minute telephone consultation, then were randomized to the 15-week, home-based intervention or standard care. Primary outcome was self-reported cognitive function (Functional Assessment of Cancer Therapy-Cognitive Function, Perceived Cognitive Impairment [FACT-COG PCI] subscale): difference between groups post intervention (T2) and six months later (T3).

Results: 242 participants were randomized: median age 53 years; 95% female. The primary outcome of difference in FACT-COG PCI was significant with less perceived cognitive impairment in the intervention group at T2 ($p < 0.0001$). This difference was sustained at T3 ($p < 0.001$). At T2, there was a significant difference in all FACT-COG subscales favoring the intervention. Neuropsychological results were not significantly different between the groups at T2 or T3. There were significantly lower levels of anxiety/depression and fatigue in the CRP group at T2,

with a trend at T3. There were significant improvements in stress in the CRP group at both time points and significant improvements in quality of life in the CRP group at T3.

Conclusion: The intervention led to improvements in cognitive symptoms compared to standard care. This is the first large RCT showing an improvement in self-reported cognitive function and is a feasible treatment.

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O408

UNDERSTANDING BARRIERS TO TAMOXIFEN ADHERENCE IN WOMEN WITH BREAST CANCER: A QUALITATIVE STUDY

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Introduction: Up to half of patients do not take tamoxifen as prescribed, which is associated with increased odds of recurrence and mortality in breast cancer survivors. However, little research has investigated factors that contribute to/reasons for non-adherence from the patient perspective. This study aimed to understand women's experiences of tamoxifen and to identify factors which may be associated with non-adherence.

Methods: Semi-structured interviews were conducted with thirty-two breast cancer survivors who had been prescribed tamoxifen. Interviews were conducted face to face or over the telephone. They were transcribed verbatim, and analyzed using inductive thematic analysis with elements of grounded theory. Results: A key theme identified in the data was *weighing up beliefs about treatment*, which resulted in women being categorized into three groups; *tamoxifen is keeping me alive*, *tamoxifen is not worth the reduced risk of recurrence*, or *conflicting beliefs*. Additional themes were *risk of recurrence and information & support*.

Conclusions: Women who believed that the necessity of tamoxifen outweighed its costs reported better adherence, whereas those who thought that the benefits did not outweigh the side-effects were more likely to have discontinued. A third more ambivalent group believed strongly in the importance of treatment, but were struggling with side-effects and were often non-adherent, reporting skipping and adjusting doses. Women described a lack of comprehensive information and support. To reduce non-adherence and discontinuation, future research needs to explore ways to increase beliefs around tamoxifen necessity and help women cope with side-effects, particularly in those with ambivalent feelings towards tamoxifen.

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O409

AFFECTIVE FORECASTING AMONG MEXICAN BREAST CANCER PATIENTS

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Introduction: Affective forecasting refers to the predictions that individuals make on their feelings and emotions to future life events. Currently, little is known on affective forecasting of cancer patients, while it has relevant implications in the making decision process and the emotional adjustment to the disease. In this ongoing study we aimed to evaluate

whether Mexican breast cancer patients anticipate accurately the emotions that they would experience after the first medical treatment block.

Methods: The study has a longitudinal design. Data from 96 patients were analyzed. Patients were recruited in a public hospital in Mexico City. Patients were newly diagnosed with breast cancer. The Positive and Negative Affect Schedule (PANAS) 20-items version was used to measure current and anticipated emotions. After receiving the breast cancer diagnosis patients were asked about their current emotions and how they would feel after the first medical treatment. Paired t-test were conducted to identify differences in the patient's emotional predictions.

Results: Fifty seven patients underwent surgery and 39 followed neo-adjuvant treatment after the cancer diagnosis. Most of the patients of both groups did not predict accurately the positive and negative emotions that they would experience after the first medical treatment. The t-test results showed that only the patients who had a surgery as first medical treatment overestimated significantly the negative emotions that they would experience after the surgery.

Conclusions: The overestimation of negative emotions among Mexican breast cancer patients could negatively bias the making decisions process about the medical treatment that they will follow.

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O411

HEALTH COGNITIVE STYLE: A NEW MEASURE PREDICTS VARIANCE IN HEALTH BEHAVIOUR

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Introduction: Cognitive style is the preference for using intuitive thinking (Faith in Intuition, FI) or analytical thinking (Need for Cognition, NFC). Dual-process theory suggests that cognitive style is stable and trait-like, but research suggests that people deviate adaptively from their general cognitive style in certain situations. To determine whether people use different types of thinking when it comes to health matters, we adapted an existing cognitive style measure, the Rational-Experiential Multimodal Inventory (REIm) to produce a measure of health cognitive style, the REIh. Its subscales measure analytical thinking in health matters (NFCh) and intuitive thinking in health matters (FIh).

Methods: A community sample of 992 Australian adults (54.1% female; mean age 46.5years) completed an online survey containing the REIh, the REIm short form, and self-report measures of demographics, personality, health attitudes, and health behaviors. Retest data were provided by 519 of the original sample who completed a follow-up survey 3-6 months later.

Results: In univariate analyses NFCh predicted variance in diet quality (6.6%), exercise (0.7%), smoking pack-years (controlling for age; 0.5%, negative association), fecal occult blood test (FOBT) participation (3.0%), and Pap smear participation (5.2%). After controlling for NFC, NFCh predicted unique variance in diet (5.9%), FOBT (2.9%), Pap smear (4.8%) and exercise (0.8%). FIh predicted variance in digital rectal examination participation (3.1%; *ns* after controlling for FI) (all *p* > .05).

Conclusions: Health cognitive style is better able to predict some health behaviors than general cognitive style, suggesting people may adapt their thinking style for certain health decisions.

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O412

CHRONIC DISEASE RISK BEHAVIOUR CARE FOR PEOPLE WITH A MENTAL ILLNESS: FAMILY CARER EXPECTATIONS OF HEALTH AND COMMUNITY SERVICES

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Introduction: People with a mental illness experience an increased morbidity and mortality compared to the general population; a disparity largely due to increased chronic disease burden. Family carers are implicated as key stakeholders in mental health services, and policies outline the need to involve carers at every level of service planning and delivery; however, carer attitudes towards care provision for chronic disease risks within health and community services has not previously been explored. **Methods:** Family carers of people with a mental illness, residing in New South Wales, Australia, completed a self-administered questionnaire regarding their expectations of the provision of chronic disease risk behavior care (for nutrition, physical activity, alcohol, and smoking cessation) by four health and community services: mental health hospitals; community mental health services; general practice; and non-government organizations.

Results: Of participating carers (N=144), the majority expected each of the four services to provide care for: nutrition (56.3% - 81.1%); physical activity (65.4% - 85.9%); harmful alcohol consumption (63.0% - 83.1%); and smoking cessation (56.6% - 82.7%). Further, carers also perceived that having adequate nutrition (84.6%), engaging in adequate physical activity (91.6%), decreasing alcohol consumption (74.1%), and quitting smoking (61.9%) would positively impact mental health.

Conclusions: Participating carers perceived that improving chronic disease risk behaviors would positively impact mental health; and the majority expected the four health and community services to provide care for chronic disease risk behaviors; reinforcing the appropriateness and need for services to provide such care to all clients with a mental illness.

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O413

EMBODIED EFFECTS OF DEMOGRAPHICS ON PERCEIVED STEEPNESS, AN ENVIRONMENTAL CUE THAT DECREASES LIFESTYLE PHYSICAL ACTIVITY.

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Introduction: Increased stair climbing during daily living, a current public health goal, is avoided more by women, the old and the overweight than their comparators. Perception of potential climbs is 'embodied' in that physiological resources for climbing influence perception; individuals with reduced resources report potential climbs as steeper. Four studies tested perceived steepness as the environmental cue that promotes avoidance.

Methods: Participants judged the steepness of stairs in a train station (n=269; n=171), a shopping center (n=249) and a public square (n=734). Sex, age, height and weight were recorded. In the shopping center and square, samples of pedestrians were recruited from those who chose the stairs and those who avoided them, stratified by sex, age and weight status.

Results: In the station, stairs appeared steeper for women, older participants and, particularly overweight travelers. Pedestrians who avoided stair climbing reported the stairs as steeper both after they had chosen the escalator (shopping center) and before the choice was made (square), even when demographic differences were controlled for by stratified sampling and subsequent statistical analyses.

Discussion: Perceived steepness is a contextual, environmental cue that pedestrians use to avoid resource depletion by stair climbing. A perceptual signal that deters energy expenditure runs counter to public health efforts to encourage it, consistently so in overweight pedestrians.

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O414

MOTIVATIONAL INTERVIEWING AND MULTIMORBIDITY: WHAT IS THE POTENTIAL FOR MOTIVATIONAL INTERVIEWING AS AN INTERVENTION ACROSS A RANGE OF CONDITIONS AND LIFESTYLE FACTORS, AND DELIVERED BY A RANGE OF CLINICIANS?

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Introduction: Internationally, the demand on health services from people living with multimorbidity is increasing. Expert guidelines identify patient-centered care and promoting health behavior change as important in multimorbidity care. Motivational interviewing (MI) is a patient-centered, collaborative practice that aims to strengthen a patient's own motivation for change. Can MI offer a foundation for multimorbidity intervention? If so, given the range of clinicians involved in the healthcare of multimorbid patients, can MI be effectively employed by a range of clinicians?

Methods: This presentation builds on the findings of a systematic review conducted by McKenzie, Pierce and Gunn (2015) to assess the effectiveness of MI in healthcare settings. Effect size data were extracted across a range of conditions and lifestyle factors, and when delivered by a range of clinicians.

Results: Twelve meta-analyses were identified. As an intervention, MI was found to have a small-to-medium statistically significant effect across a variety of single diseases and behavioral outcomes. Results for the effect of clinician type were mixed; five included meta-analyses did not report effect of clinician type, although all included meta-analyses reported mixed provider types.

Conclusions: The available evidence highlights the need for specific research into the application of MI to determine if the benefits of MI seen with single diseases are also present in the context of multimorbidity. Recommendations for further research include the incorporation of treatment integrity, evaluation of current routine care, and especially for multimorbidity; the effectiveness of MI when delivered by a range of clinicians.

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O415

PREDICTING PHYSICAL ACTIVITY AMONG INDONESIAN PATIENTS WITH CORONARY HEART DISEASE WITH THE HEALTH ACTION PROCESS APPROACH

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Introduction: Studies that examined physical activity of CHD patients with the Health Action Process Approach (HAPA) model were either in the context of cardiac rehabilitation or in-patient settings. The current study distinctively focuses on the general population of CHD patients. Furthermore, the study provides additional knowledge about socio-cognitive constructs of patients in low-middle income countries like Indonesia, where cardiovascular diseases rates have doubled in the past decades.

Methods: The participants in this cross-sectional study were 678 patients with CHD, recruited from cardiovascular centers and hospitals in Indonesia. Patients completed a survey assessing HAPA constructs and the International Physical Activity Questionnaire. Regression analyses were performed to determine which factors predict physical activity.

Results: The current study revealed that the patients were not as active as is recommended by WHO. Among patients who reported some level of activity, bike commuting and leisure walking were the most common physical activities. Concepts of the HAPA model were not related to physical activity.

Conclusions: The result provided suggested that patients need to be more educated and counselled about frequency and type of physical activity. Moreover, further qualitative research needs to explore the proper operationalization of concepts of the HAPA constructs in Indonesia.

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O416

CAN WE MEASURE IMPLEMENTATION PROGRESS USING NORMALIZATION PROCESS THEORY? DEVELOPMENT AND VALIDATION OF THE NOMAD SURVEY TOOL

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Introduction: Successful implementation and embedding of new health care practices relies on coordinated, collective behavior of individuals working within the constraints of health care settings. Normalization Process Theory (NPT) provides a theory of implementation that emphasizes collective action in explaining, and shaping, the embedding of new

practices. To extend the practical utility of NPT for improving implementation success, a survey tool (NoMAD) was developed and validated.

Methods: An iterative process of item development was undertaken using the following methods: theoretical elaboration and item reduction (team workshops); item appraisal (QAS-99); cognitive testing with complex intervention implementers (n=30, in 3 rounds); and theory re-validation with NPT experts (n=23). A 46 item survey tool was tested in 6 sites implementing health related interventions, using paper and online completion. Participants were staff directly involved in working with the interventions. Descriptive analysis and consensus methods were used to remove redundancy, reducing the final tool to 23 items.

Results: We obtained 831 completed surveys, an overall response rate of 39% (range: 22% - 77%). Completion of core items was 50% (n=413). Construct validity of the four theoretical constructs of NPT was supported, and internal consistency (Cronbach's alpha) were as follows: Coherence (4 items, 0.71); Collective Action (7 items, 0.78); Cognitive Participation (4 items, 0.81); Reflexive Monitoring (5 items, 0.65).

Conclusions: The NoMAD survey tool has good face validity, construct validity and internal consistency, for surveying staff perceptions of factors relevant to embedding interventions that change their work practices. Uses in evaluating and guiding implementation are proposed.

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O418

TESTING A MULTI-PHASE, MULTI-THEORY MODEL OF HEALTH BEHAVIOUR: EXPLORING FRUIT AND VEGETABLE CONSUMPTION IN LONG-HAUL DRIVERS

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Introduction: Fruit and vegetable consumption is a key modifiable behavior that can help in the prevention of a range of non-communicable diseases. Long-haul drivers are particularly at risk of unhealthy eating yet this population has received limited attention in the literature. We aimed to explore the mechanisms of long-haul drivers' fruit and vegetable consumption using an innovative three-phase model of health behavior. The current investigation is one of the first to test a multi-phase, multi-theory model combining motivational, volitional, and automatic processes to better understand health behavior decision making.

Methods: Participants comprised Australian men aged 19 years and older who drove a heavy vehicle for at least 200 km in a daily work period. Drivers were recruited using a variety of means (e.g., face-to-face, workplaces, social-media) and completed either a paper-based or online version of the survey. A prospective design with two waves of data collection spaced one week apart was adopted.

Results: Structural equation modelling revealed key constructs from each of the motivational, volitional, and automatic processes significant in predicting fruit and vegetable consumption among long-haul drivers as well as determined the mechanisms by which these processes operate.

Conclusions: The current study used an integrated theoretical approach to develop and test a model based on a multi-phase, multi-theory framework that explained a key healthy eating behavior in a high-risk group of men. Adopting such an approach is innovative and rides on the cusp of very recent research that advocates using multiple theories to develop comprehensive models of behavior change.

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O427

TRANSLATING DENTAL FLOSSING INTENTIONS INTO BEHAVIOUR: A LONGITUDINAL INVESTIGATION OF THE MEDIATING EFFECT OF PLANNING AND SELF-EFFICACY

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Introduction: Worldwide, nearly 100% of the adult population have dental caries (i.e. tooth decay), and 15% to 20% of adults aged 35–44 years have severe periodontal (gum) disease. Interdental cleaning, including the practice of regular use of dental floss, is an effective preventive measure which impacts on both dental caries and periodontal disease. Despite this fact, a large number of adults brush or floss their teeth less than the recommended time or not at all. The aim of the current study was to examine the mediating effect of two key self-regulatory processes, self-efficacy and planning, as the mechanisms that translate dental flossing intentions into behavior.

Methods: Participants ($N = 629$) comprised university students living in South East Queensland, Australia. A longitudinal design guided by sound theory was adopted to investigate the sequential mediation chain for the effect of dental flossing intentions (Time 1) on behavior (Time 3) via self-efficacy and planning (Time 2).

Results: A latent variable structural equation model with standardized parameter estimates revealed the model was a good fit to the data. Controlling for age, sex, and baseline behavior, the effect of intentions on behavior was mediated via self-efficacy and planning, accounting for 64% of the variance.

Conclusions: The current study extends previous research to further elucidate the mechanisms that help to translate oral hygiene intentions into behavior. The findings make a significant contribution to the cumulative empirical evidence about self-regulatory components in health behavior change.

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O419

IDENTIFYING THE EFFECTIVE COMPONENTS OF COMPUTER-DELIVERED INTERVENTIONS TO REDUCE ALCOHOL CONSUMPTION

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Introduction and purpose: Existing meta-analyses have demonstrated small effects of computer-delivered interventions (CDIs) in reducing alcohol consumption; however, there has been little systematic, meta-analytic investigation of the effective components of these CDIs. The aim of this study was to examine the role of behavior change techniques, theory and other characteristics in increasing the effectiveness of CDIs to reduce alcohol consumption.

Methods: Included were randomized studies with a primary aim of reducing alcohol consumption, which compared self-directed CDIs to

assessment-only control groups. CDIs were coded for the use of 42 behavior change techniques from an alcohol-specific taxonomy, the use of theory according to a theory coding scheme and general characteristics such as the length of the CDI. Effectiveness of CDIs was assessed using random-effects meta-analysis and the association between the moderators and effect size was assessed using univariate and multivariate meta-regression.

Results: Ninety-three CDIs were included in at least one analysis and produced small, significant effects on five outcomes ($d_4 = 0.07 - 0.15$). Larger effects occurred with some personal contact, provision of normative information or feedback on performance, prompting commitment or goal review, the social norms approach and in samples with more women. Smaller effects occurred when information on the consequences of alcohol consumption was provided.

Conclusions: These findings can be used to inform both intervention- and theory-development. Intervention developers should focus on including specific, effective techniques, rather than many techniques or more-elaborate approaches.

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O420

DROWNING IN DATA: 7,500 RESPONSES TO A TEXT MESSAGE INTERVENTION

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Introduction: Text message interventions are increasingly being used to modify adverse health behaviors. However there are no established techniques for writing effective text message interventions. This study aims to identify the characteristics of text messages that effectively engaged disadvantaged men in an alcohol intervention.

Methods: 825 men from disadvantaged areas were recruited to an intervention to reduce the frequency of binge drinking. The 413 men in the intervention group received 112 text messages, 21 of which prompted a response.

Results: Just over 7,500 responses were received from the intervention group. The number of responses to the intervention texts which prompted a reply ranged from 101 to 340 with an average of 222 responses. The prompts covered key steps in the behavior change model such as: self-monitoring of drinking (266 responses); problems caused by drinking (309 responses); reasons for cutting down (318 responses); goal setting (195 responses); action planning (214 responses). Often men give detailed sensitive personal information about their drinking and the harms it causes them and their families. They also describe their attempts at drinking less, the setbacks encountered and the benefits they enjoy when they are successful at cutting down.

Conclusions: Text messages elicit real-time responses which give insight into the key steps in the behavior change process. The characteristics of texts which prompt most responses identify the techniques for developing effective text message interventions.

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O421

TELLING A STORY TO CHANGE BEHAVIOUR: EVALUATION OF A NARRATIVE BASED INTERVENTION

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Introduction: Narrative transportation, a mechanism by which an individual engages with a storyline, may assist in behavior change interventions by influencing beliefs, attitudes and intentions. This study evaluates the use of a narrative in a novel text message intervention designed to reduce binge drinking among disadvantaged men.

Methods: The intervention was based on the Health Action Process Approach. A narrative featuring a fictional protagonist, Dave, described his journey from regular binge drinking to moderate drinking. It also included Dave's friends who demonstrated varying degrees of success in reducing drinking. A framework, which incorporated the causal chain to behavior change, guided the construction of the narrative. The narrative was rendered into text messages that were delivered to participants over three months.

Results: The intervention comprised 112 text messages. Characters from the narrative featured in 50 messages. Dave and his friends modelled steps to behavior change, e.g. goal setting and identifying benefits of reduced drinking. This encouraged participants to report their own experiences. They demonstrated narrative transportation by responding to the text messages. Empathy with the characters was frequently elicited: e.g. Dave's friend's misfortune prompted the response '*So sorry about the news Dougie*'. When Dave modelled one method to reduce alcohol consumption, one man replied '*Tonight I drank shandy with my meal, you're a good influence Dave! :-)*'.

Conclusions: A high level of engagement was achieved with a narrative delivered by text message. Participants may be more receptive to health messages when modelled by characters with whom they can identify and empathize.

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O422

AN INVESTIGATION OF THE INFLUENCE OF "ALTERNATE" PROTOTYPES ON INCIDENTAL SUN EXPOSURE IN A HIGH-RISK REGION

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Introduction: There is a growing body of evidence suggesting that prototype perceptions are associated with both motivation to engage in, and actual performance of various health behaviors. The current study adopts the prototype willingness (PW) model as a framework for predicting incidental exposure in an extreme ultra-violet radiation (UVR) environment. Specifically, this study aimed to investigate the influence of actor vs. alternate behavioral prototypes on incidental sun exposure.

Methods: A cohort study was conducted to examine whether community members' (N=231) perceptions of various sun-related prototypes influenced their prospective incidental sun exposure. Behavior was assessed using a comprehensive sun diary, and skin reflectance spectrophotometry was used to measure skin color at baseline and at 1-month follow-up.

Results: A path analysis was conducted to examine the relationships between perceptions of sun protector and incidental prototypes and the performance of incidental sun exposure behaviors. Findings indicated that perceptions surrounding sun protection were related to intentions and willingness to incidentally expose. Specifically, perceived dissimilarity to the typical sun protector was directly associated with greater intentions and willingness to expose, and indirectly associated with greater incidental exposure.

Conclusions: Overall, an 'alternate' behavioral prototype was found to influence incidental sun exposure behavior. Specifically, perceptions of similarity to the typical sun protector were found to impact upon sun exposure. This finding has implications for skin cancer prevention messages in high-risk regions. Future health promotion strategies in such regions should focus on increasing perceptions of similarity to the sun protector prototype in order to target incidental sun exposure.

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Personalizing behavioral medicine interventions through N-of-1 studies

S423

PERSONALIZING BEHAVIORAL MEDICINE INTERVENTIONS THROUGH N-OF-1 STUDIES

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All too often, conventional RCTs are not successful at identifying best behavioral medicine treatments as when patients are pooled together for analysis in RCTs, they fail to account for the potentially idiographic and dynamic processes that may influence the harms and benefits of treatments among individuals. Thus, we must look elsewhere for study designs that can better identify best treatments for individual patients. With recent advances in mobile health technology, N-of-1 (single patient) studies in which the individual patient serves as the unit of analysis represent promising, innovative approaches to solving this problem. This Symposium brings together individuals with expertise in N-of-1 methodologies who will share their experiences applying N-of-1 methods to answer questions in behavioral medicine. The first presentation uses data from recently conducted studies in the area of weight loss and physical activity to review key statistical approaches pertinent to N-of-1 observational and N-of-1 randomized trials. The second presentation presents data from an observational study aimed at determining the directionality of the association between stress and physical activity. Results indicate that unique insights can be obtained using N-of-1 methods, and these insights can be used to personalize behavioral health recommendations. The third presentation describes the methods and results from an ongoing, multicenter smartphone app-enabled N-of-1 trial for chronic musculoskeletal pain. Results indicate that the N-of-1 trial approach is feasible and helpful to patients. The Symposium ends with a discussion of the opportunities and challenges of incorporating N-of-1 studies into the practice of behavioral medicine.

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S424

DYNAMIC MODELLING OF SINGLE-CASE (N-OF-1) DATA: CHALLENGES AND NOVEL APPLICATIONS

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Introduction: Single-case studies are increasingly recognized as a valid and efficient mechanism for making individualized evidence-based treatment decisions. Statistical analyses of N-of-1 data require accurate modelling of the outcome variable while accounting for its distribution, time-related trend and error structures (e.g. autocorrelation) as well as reporting readily usable effect sizes for clinical decision making. A substantial number of statistical approaches have been documented but no consensus exists on which method is most appropriate for which kind of design and data.

Methods: We discuss, from a statistical perspective, the limitations and advantages of N-of-1 studies. We describe several regression methods for the analysis of N-of-1 data, borrowing ideas from longitudinal and event history methodologies which explicitly incorporate the role of time and the dependence of future on past. The aims include identifying predictors of response, describing adaptive changes over time, or predicting future behavior given prior history.

Results: The methods are applied to data from two N-of-1 observational studies of physical activity (PA) during retirement transition and weight loss maintenance and one N-of-1 randomized clinical trial related to PA and Type 2 diabetes. The studies span several outcome types: dichotomous (PA or no PA), continuous (weight) and count (number of PA bouts). Our approach is shown to be adaptable to different types of outcomes, flexible, powerful and capable with dealing with the different challenges inherent to N-of-1 modelling.

Conclusions: Dynamic modelling has the potential to expand access of N-of-1 researchers to robust and user-friendly statistical methods.

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S425

OBSERVATIONAL N-OF-1 STUDIES OF HEALTH BEHAVIORS: CAN THIS ADVANCE THE SCIENCE OF BEHAVIOR CHANGE?

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Introduction: Our ability to assess complex, potentially bi-directional relationships involving health behaviors can be improved using N-of-1 (i.e., within-subject) observational designs.

Methods: We conducted a cohort study with 79 intermittently exercising, otherwise healthy adults, collecting observational data for 365 days. Ecological momentary assessments of beginning-of-day anticipated stress and end-of-day stress summary were collected using smartphone diaries. Actigraphy was used to determine if daily bouts

of 30 minutes of moderate/vigorous physical activity (MVPA) occurred. We tested if anticipated stress predicted 30 minutes of MVPA, and/or if 30 minutes of MVPA predicted the nightly report of stress.

Results: Participants had a mean age of 31.9 years (SD: \pm 9.5); 43% were male, 14% Black, 28% Hispanic. The mean number of valid observation days (\geq 10 hours of \geq 10 steps) was 228 (SD: \pm 89). Using between-subject random regression coefficient models, 30 minutes of MVPA significantly predicted lower nightly stress ($p = 0.024$), but morning anticipated stress did not significantly predict 30-minute MVPA occurrence ($p = 0.19$). There was, however, significant inter-individual variability in both effects. When within-subject regressions were estimated, there were 8 individuals for whom the first association was significant, 4 for whom the second was significant, 9 for whom both were significant, and 58 for whom neither was significant. Interestingly, even the direction of the associations differed for some participants.

Conclusions: Conducting observational studies at the N-of-1 level will allow behavioral medicine to engage in inductive theory building and discovery-based science, and will enable the personalization of health behavior interventions.

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S426

N-OF-1 TRIALS USING MOBILE DEVICES TO SUPPORT PATIENT ENGAGEMENT AND DECISION-MAKING IN CHRONIC PAIN

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Introduction: Chronic musculoskeletal pain (CMP) affects 100 million Americans, is difficult to treat, and degrades functioning and well-being. The PREEMPT Study evaluates a new smartphone app (“Trialist”) designed to facilitate individually-tailored crossover studies (n-of-1 trials) in CMP.

Methods: In this RCT, CMP patients are assigned to an n-of-1 trial versus usual care. Eligible patients are 18-75, own a mobile device, and have pain potentially amenable to treatment with acetaminophen, NSAIDs, tramadol, low-dose opioids or complementary/alternative therapies. Trialist-assigned patients work with their clinicians to select analgesic regimens for comparison, then use the app to record symptoms and medication side effects. The app manages logistics and sends reminders. Summary graphs are electronically generated to support shared decision-making. Controls receive care as usual. Both groups complete

PROMIS pain interference and global physical/mental health questionnaires at 3, 6, and 12 months.

Results: To date, 176 patients have been randomized; most are male (56%), married (63%) and white (75%). At baseline, PROMIS global physical and mental health scores were 1.3 and 1.0 SDs below the general US population, respectively. Among 81 n-of-1 trials initiated, the modal design incorporated NSAIDs and ran for 8 weeks. Most patients found the app helpful in tracking pain (84%); identifying pain triggers (53%); achieving treatment goals (56%); and having more confidence in pain management (59%).

Conclusions: Trialist uses an interactive design to help patients collect and understand their own data. The tool is practical and acceptable to patients. Outcomes analysis is expected by late 2016.

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Population level implementation of interventions to enhance cancer outcomes: challenges and successes

S427

POPULATION LEVEL IMPLEMENTATION OF INTERVENTIONS TO ENHANCE CANCER OUTCOMES: CHALLENGES AND SUCCESSES

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Exemplar interventions to address cancer related outcomes exist, but are primarily focused on individual behavioral change with little regard to structural context and long-term, sustainable population-level change which is essential to meaningfully impact cancer outcomes. The emerging field of Implementation Science addresses this gap by implementing and rigorously evaluating interventions that are embedded in existing systems and conducted under real world conditions. This symposium will present findings from three implementation trials addressing cancer related disparities and highlight the challenges, successes and essential elements for rapid T4 translation, i.e., moving research findings to population-wide adoption. The first study focused on increasing public recognition of the contextual drivers of inequalities and support for policy solutions by building strategic communication capacity among community-based organizations' (CBOs). Results indicated that training CBO staff led to greater sensitivity to social determinants of health, confidence in engaging with the media and various strategic communication techniques and actual usage of various communication techniques taught in the workshops. The second study implemented a Patient Navigation intervention for Latinas diagnosed with an abnormal mammogram, and tested it in the Six Cities Study. Positive outcomes were demonstrated on time from an abnormal mammogram to confirmatory breast cancer diagnosis and to initiation of treatment. The third study demonstrated the importance of system-level factors in driving HPV vaccine rates among ethnic minority adolescents compared to individual parent-level barriers. Findings from an implementation trial of a multi-level, system-focused HPV intervention embedded in a community clinic system serving ethnic minority adolescents will be presented.

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S428

BEYOND BEHAVIORAL INTERVENTIONS: PROMOTING PUBLIC AGENDA TO ADDRESS HEALTH DISPARITIES

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Introduction: Exemplar interventions to address disparities primarily focus on individual behavioral change with little regard to structural context and sustainable community change. Such community-level change requires public recognition of the contextual drivers of inequalities and support for policy solutions. Project IMPACT focused on building strategic communication capacity among community-based organizations' (CBOs) staff to draw attention to social determinants of health (SDHs), and their influence on disparities.

Methods: Three sources of data from our formative research informed our intervention: (a) A survey of almost 1200 people to assess public opinion about health disparities; (b) A content analysis of four local newspapers to assess media discourse on health disparities; (c) A Community leadership survey using community reconnaissance method to assess leaders' perception about inequalities. Drawing on these data, we trained 61 members of CBOs in strategic communications and framing of SDHs and evaluated the impact of training on their communication skills and behaviors.

Results: Our public opinion data show that while a majority of our sample has heard about health inequalities, most of the causal attributions were to "lifestyle" than SDHs. Similarly, less than 3% of the stories on health in newspapers discussed health disparities, and primarily in individual behavioral terms. The leaders, in contrast, expressed that health inequalities are an important issue but greater need for collective action to address them.

Conclusions: Such a systematic approach allowed us to develop a communication intervention to build capacity among CBOs to address SDHs in their health promotion activities.

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S429

A GPS FOR CANCER CARE: HOW PATIENT NAVIGATION ENGAGES LATINOS IN PREVENTING AND REDUCING HEALTH DISPARITIES

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Introduction: U.S. Latinos are diagnosed with cancer at more advanced, less treatable stages than non-Latinos. Patient navigation

(PN)—a means for providing access to recommended cancer screening services, follow-up, diagnosis, and treatment in medically underserved populations—is an emerging way to tackle these grave disparities.

Methods: Redes En Acción formed a community advisory group, conducted a needs assessment, developed a PN program for minorities, and tested it in the Six Cities Study to evaluate the impact of patient navigation on Latinas' time from an abnormal mammogram to confirmatory breast cancer diagnosis and to initiation of treatment (within 30 and 60 days). The study recruited 425 women (208 navigated, 217 non-navigated controls).

Results: Navigated women achieved timely diagnosis significantly faster than non-navigated women. Navigated women were nearly 1.5x more likely to initiate treatment than non-navigated women (and faster, 22-25 days compared to 33-46 days). PN activities most associated with treatment initiation were: accompaniment, transportation, telephone support, language, and system intervention.

Conclusions: We suspect, based on evidence from other large studies on breast cancer growth and spread, that our PN intervention saved lives. We have since applied PN to additional areas: one hypothesizing that Latino breast, prostate, and colorectal cancer survivors who get an innovative navigation intervention (vs. usual care) will show greater compliance in following prescribed treatments and improved quality of life; one to increase the anti-inflammatory food intake of breast cancer survivors to reduce recurrence; and to create the *Developing and Implementing a Patient Navigator Program* manual.

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S429

ORGANIZATION-LEVEL INTERVENTION TO INCREASE HPV VACCINE UPTAKE AMONG ETHNIC MINORITY ADOLESCENTS IN A COMMUNITY CLINIC SYSTEM

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Introduction: Research on the HPV vaccine to date has focused heavily on individual-level factors, particularly vaccine-related knowledge, beliefs and barriers among parents of adolescents. Fewer studies have focused on system-level factors that may inhibit vaccination. UCLA is partnering with one of the largest Federally Qualified Health Centers (FQHC) in the U.S. to increase HPV vaccination rates among the low income, ethnic minority adolescents they serve.

Methods: Data sources included a survey of parents who had vaccine-eligible adolescents receiving care through the county's safety net system (n = 490); key informant interviews with FQHC providers/staff (n = 15); and electronic medical record (EMR) data from 11 clinics serving 38,277 adolescents (over 2 years) to assess HPV vaccine rates.

Results: Few parents expressed any specific concerns about the HPV vaccine. Instead, lack of a provider recommendation, and not knowing where to go to obtain the vaccine (74%) were the major barriers. Providers treated the HPV vaccine differently than other adolescent vaccines; clinics lacked mechanisms for consistently and routinely offering

the vaccine and lacked systems/routines for recalling patients for the subsequent doses. Despite the relatively homogenous population served across the 11 clinics, vaccine rates varied widely from 32% to 64%.

Conclusions: Our findings support a clear role of organization-level factors (clinic processes, provider/staff factors) as major drivers of the low uptake of the HPV vaccine in this community clinic system. We have implemented, and will share findings from, a multi-level intervention trial to address system, provider and patient barriers to HPV vaccine uptake.

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O431

RAISING ADOLESCENT CANCER AWARENESS AND CANCER COMMUNICATION IN FAMILIES

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Introduction: People who have greater awareness of signs and symptoms that might be suggestive of cancer are more likely to seek medical help quickly. If the cancer is detected early then a person has a much better chance of living a long and healthy life. Little is known about improving teenage cancer awareness.

Methods: At baseline 2,173 12/13 year olds from 20 schools were randomly assigned into two groups: an intervention schools group which received a 50 minute psycho-educational presentation to raise cancer awareness and a control schools group. Multiple linear regression models were used to examine differences in the number of cancer warning signs recognized by teenagers and cancer communication in intervention schools compared to control schools.

Results: There was a statistically significant difference in the number of cancer warning signs recognized by teenagers in intervention schools compared to teenagers in control schools at 2-week follow-up (β 0.689, $p < 0.001$, CI 0.351 - 1.028) and 6-month follow-up (β 0.471, $p = 0.012$, CI 0.103 - 0.838). Teenagers in intervention schools were two and a half times more likely to discuss cancer at 2-week follow-up compared to teenagers in control schools (β 0.992 $p = 0.014$, CI 0.260-1.725, OR 2.698, 1.297-5.613).

Conclusions: School-based interventions are easy to deliver, require little resource and improve teenage cancer awareness and cancer communication. We need more research to find out if the intervention is able to shift health behaviors such as self-examination and cancer screening among parents/grandparents.

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O432

SYNERGISTIC BENEFITS OF INTRA-ORAL CAMERA USE AND SMS FOR DENTAL HYGIENE BEHAVIORS AND GINGIVAL HEALTH AMONG ADULT PATIENTS WITH GINGIVITIS: A RANDOMIZED CONTROLLED TRIAL

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Introduction & Purposes: Despite the paramount importance of controlling dental biofilm in gingivitis prevention, patients have difficulty adhering to this practice. Images and text messages are promising tools which are scarcely outlined by evidence and theory-based frameworks in dental hygiene. This study investigates the effects of using an intra-oral camera (IOC) during supportive periodontal therapy (SPT), oral hygiene text messages (SMS) between appointments, or both on the clinical, behavioral and psychological parameters of patients with gingivitis.

Methods: Adult patients ($N=201$) receiving SPT were randomly assigned into four groups: IOC, SMS, IOC+SMS, control. Bleeding on Marginal Probing (BOMP), self-reported brushing and flossing behaviors, and psychological determinants of behavior change (outcome expectancies, self-efficacy and planning) were evaluated one week before, during the consultation and four months later, in a single-center, examiner-blind controlled study. Groups were compared across time with ANOVA repeated measures.

Results: Patients brushed their teeth daily (97%), while 81% either never or hardly ever used dental floss at baseline. The IOC+SMS groups revealed improvements over all other conditions at follow-up in BOMP, outcome expectancies, and action self-efficacy, namely higher than the control and SMS groups in flossing and coping planning, and control and IOC in intention to brush and floss daily and recovery self-efficacy.

Conclusions: The synergistic benefit of IOC use in consultation and exposure to SMS between appointments is conveyed by an improvement of clinical, behavioral and psychological parameters of periodontal health 4-months after treatment. Psychological insights are provided for the efficacy of the images and SMS in oral hygiene changes.

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O433

YOUR HEALTH, YOUR LIFE: A WORKPLACE HEALTH PROMOTION PROGRAM FOR MEN AT MIDLIFE

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Introduction: Australian men at midlife (40-65 years) report high rates of modifiable risk factors for chronic illness, including obesity, alcohol consumption, tobacco smoking, and physical inactivity, but are difficult to engage in preventative health strategies due to poor accessibility and lack of gender-specific program content. We evaluated the effectiveness of a workplace program, Your Health Your Life. This program utilized motivational interviewing to engage men at midlife to set individualized goals and positive health behaviors.

Methods: Three conditions (57 men in the face-to-face intervention; 23 men in the intervention via teleconference, and 19 men in the waitlist control group) were recruited through organizations. Measures on diet, physical activity, self-efficacy and mental health were taken at baseline, post-program, and at a 3 month follow-up. Weight and body fat measures were taken at baseline and three-month follow-up.

Results: The intervention group demonstrated significantly higher increases in levels of physical activity as well as self-efficacy at post-intervention compared to controls. The teleconference group weighed significantly less than controls at follow-up. Men participating in the intervention reported the program was relevant and engaging, and accessible due to the workplace setting.

Conclusion: This study provides support for the workplace as an ideal setting for health promotion programs for men, as it ensures maximum accessibility, and participation. In addition, the success of the teleconference group demonstrated the feasibility of program delivery among populations of men in rural and remote locations.

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O434

DEVELOPMENT OF A RANDOMIZED CONTROLLED INTERVENTION DIMINISHING SOCIOECONOMIC INEQUALITIES IN ENERGY BALANCE-RELATED BEHAVIORS AT A PRESCHOOL SETTING

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Main purpose and research question: Sedentary behaviors, physical activity and dietary behaviors, jointly the energy balance-related behaviors (EBRBs), are established in childhood. Socioeconomic (SES) inequalities in EBRBs have been found already at preschool-age. Preschool as a setting can be useful in an intervention with a universal proportionate approach; delivered similar to the whole target population, intensity adjusted according to the needs of children from low SES backgrounds. The ongoing DAGIS project aims to develop a multi-component setting-based intervention, which will diminish SES inequalities in pre-school children's EBRBs.

Methods: Before implementation of a six-month intervention (years 2017-2018), a comprehensive needs assessment is conducted including following stages: a) focus groups for parents and preschool personnel in 2014 to recognize the influential factors of EBRBs, b) several pilot tests in years 2014-2015, c) a comprehensive cross-sectional study in years 2015-2016 ($N=872$ children, 70 preschools), recognizing the SES differences and correlates of EBRBs, d) co-operation with a health promotion organization in developing methods, e) workshops for target groups, years 2016-2017, discussing implementation ideas and feasibility of the intervention.

Results: The first two phases of the needs assessment have shown that the combination of multiple levels of analysis and diverse methodologies (e.g. surveys, observations) is necessary in the cross-sectional study. The extensive survey enables to identify factors that promote healthy EBRB's in children, which will lead to an evidence-based intervention.

Conclusions: The several phases of the needs assessment will give the best basis for planning an effective intervention diminishing SES inequalities in EBRBs.

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O435

SHOULD BRIEF MOTIVATIONAL INTERVIEWING TRAINING BE INCLUDED IN MEDICAL CURRICULA?

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Introduction: There is some evidence for including behavior change counselling in medical curricula. However, support for brief motivational interviewing training has not been rigorously tested. Some studies have omitted appropriate comparison conditions, and other work has not allowed for direct observation of skill transfer.

Methods: We examined the efficacy of teaching brief motivational interviewing using 46 pre-clinical medical student volunteers. We

included a 2 h training workshop, 3 x 2 h practical skills sessions using simulated patients and we improved the pre-post design with the inclusion of a waitlist comparison group. Confidence and knowledge were measured at baseline, post-teaching, and at 3-month follow-up, while brief motivational interviewing skills were assessed at 3 time-points during the simulated-patient practice sessions. Repeated measures t-tests and ANOVA were conducted.

Results: We found confidence in health behavior change conversations and knowledge of brief motivational interviewing significantly improved from baseline to post-teaching (both $p < .050$) and remained significantly improved at 3-month follow-up (both $p < .050$). Behavior change counselling skills assessed during the practical sessions indicated a significant improvement across the three practical skills blocks ($p < .001$).

Conclusions: Our findings suggest that pre-clinical medical students can learn brief motivational interviewing skills and knowledge within a relatively short period of time. Future research is needed to investigate whether these skills transfer to the clinical years of medical training, and importantly remain effective with real patients in general practice settings. We are currently conducting this work in collaboration with Primary Health Network, Gold Coast.

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O436

HOW DOES USING GLASSES MARKED WITH UK ALCOHOL UNITS AFFECT ADHERENCE TO GOVERNMENT GUIDELINES?

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Introduction: If people are to adhere to government alcohol intake guidelines, they must have accurate knowledge, and appropriate attitudes and skills. However, most people have poor knowledge of guidelines and do not use them to monitor their drinking. Our aim was to determine whether using glasses marked with UK units and intake guidelines: enhances knowledge of and attitudes of guidelines; increases frequency of counting units; and lowers alcohol intake.

Methods: A mixed-method design was used. A quasi-randomized controlled study of 450 adult drinkers was conducted with a 1-month follow-up. The intervention group received three glasses indicating the unit content of drinks of different strengths and volumes, and stating intake guidelines. Control group members received a unit-marked cup on completion of the follow-up. We also interviewed 14 intervention group participants about their experiences of using the glasses and recommendations for their use.

Results: The intervention led to significant improvements in: knowledge of unit-based guidelines; ability to estimate the unit content of different drinks; attitudes toward unit-based guidelines; and frequency of counting unit intake. There were no significant changes in alcohol consumption. Interviewees reported that the glasses contained useful information that encouraged them to reconsider their drinking and discuss alcohol with other people. However, their initial impact did not always persist, and their design was not appealing to all

Conclusions: The two data sources suggested that the glasses could have an impact at the individual level (on knowledge and attitudes) and at a broader level (by prompting discussion of alcohol use).

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O437

ACHIEVING TYPE 2 DIABETES ACTION AND COLLABORATIVE CHANGE IN ABORIGINAL COMMUNITY CONTROLLED HEALTH SERVICES: OUTCOMES OF THE ADACC CLUSTER RANDOMISED TRIAL

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Introduction: Type 2 diabetes is one of the key health problems in the Australian Indigenous population. Aboriginal Community Controlled Health Services (ACCHSs) are primary care service delivery settings where there is opportunity to develop partnerships to reduce the current evidence-practice gap in type 2 diabetes testing, monitoring and control. This study aimed to examine the effectiveness of a tailored collaborative model in achieving adherence to best practice guidelines for type 2 diabetes care.

Methods: A cluster randomized wait-control design was used in 18 ACCHOs (9 intervention and 9 wait control). Electronic data for diabetes testing and care for adult Indigenous patients at the 18 services was collected from July 2010 to October 2015. The study outcome measures are guideline-appropriate diagnostic testing for type 2 diabetes; guideline-appropriate monitoring for glycaemic control and blood lipids; guideline-appropriate glycaemic control and blood-lipid control. The intervention (May 2014–April 2015) included strategies to 1) Achieve organization and provider commitment to reduce the evidence practice gap; 2) Explore the evidence-practice gap and potential solutions; 3) Collaborate to achieve change through local and combined intervention service workshops and other methods of communication; and 4) Ongoing communication, feedback of local performance data and collaborative problem solving.

Results: The trial outcomes and implementation data will be presented for each of diabetes testing, management and control.

Conclusions: The trial has provided a rigorous test of the process and effectiveness of a collaborative approach for achieving practice change in this challenging setting.

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O438

A COMMUNITY-BASED, THEORY-BASED, SETTING-BASED SCREENING AND CLUSTERED RANDOMIZED CONTROLLED TRIAL TO PROMOTE PHYSICAL ACTIVITY AMONG PHYSICALLY INACTIVE PEOPLE WITH IMPAIRED GLUCOSE TOLERANCE AND IMPAIRED FASTING GLUCOSE

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Introduction: Pre-diabetes (impaired glucose tolerance [IGT]/impaired fasting glucose [IFG]) are prevalent; 70% of them would develop diabetes. Increase in moderate/ vigorous physical activity (MVPA) reduced diabetes incidence by 40% among IGT cases. We evaluated an intervention's efficacy in increasing MVPA time (last week) among Chinese adults aged 40–69 years, having IGT/IFG and < 150 minutes of MVPA (last week)

Methods: Eligible participants were identified via a risk-assessment questionnaire, followed by free OGTT. Four public housing estates were cluster-randomized into the intervention group (I) which received a 6-month theory-based intervention involving gatherings, support groups and exercise prescription (n=39), and the control group (C) that received health promotion materials. Evaluations were conducted seven/ten months afterwards (m7/M10). The primary outcome, time for MVPA (last week), was assessed by the International Physical Activity Questionnaire (IPAQ).

Results: At M7, Groups I and C had 71.1% and 42.4% meeting the 150-minute/week MVPA recommendation (RR=1.67, 95% CI=1.07, 2.62) and mean MVPA time (last week) of 365.4 and 132.7 minutes (Cohen's $d=0.9$, $p<0.001$). At M10, Group I showed better but non-significant primary outcome than Group C ($p=0.08$ for continuous data). Using GEE model, Group I performed better than Group C both for binary ($p=0.023$) and continuous ($p=0.001$) primary outcome. Group I was better than Group C in secondary outcomes, such as perceived self-efficacy, which partially mediated the between-group difference at M7.

Conclusions: The integrated package efficaciously promoted pre-diabetes' MVPA. Awareness of IFG/IGT status and simple health promotion increased MVPA substantially. Sustainability was increased by involvement of stakeholders.

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O439

THE COMMUNITY-BASED PREVENTION OF DIABETES (COMPOD) TRIAL OF THE VOLUNTARY SECTOR-LED LIVING WELL, TAKING CONTROL (LWTC) DIABETES PREVENTION PROGRAMME

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Introduction: Type 2 diabetes is a growing public health challenge. Guidance recommends prevention in people at high risk via intensive lifestyle interventions promoting weight loss through diet and physical activity. However, there are few robustly evaluated 'real-world' diabetes prevention programmes. This study therefore aimed to assess whether an existing community-based programme delivered by voluntary sector providers was effective in modifying diabetes risk factors in adults with "pre-diabetes".

Methods: ComPoD (www.isrctn.com/ISRCTN70221670) was a randomized, waiting list controlled trial conducted across two differing UK sites. Adults with pre-diabetes recruited via GPs were randomized to receive the LWTC programme immediately (intervention) or after 6 months (control). As per guidance, LWTC comprised 4-6 weekly group sessions followed by regular support contacts and additional classes up to 12 months. Changes from baseline to 6 months in objectively-measured weight, physical activity, blood glucose, and self-reported diet, health and well-being were assessed.

Results: Of 314 trial participants recruited, 43% were male, with mean (SD) age 61 (9.9) years, weight 87.3kg (15.1kg) and BMI 31.8kg/m² (4.5 kg/m²). Data from 237 initial LWTC participants providing 6-month follow up data as part of a wider before-after evaluation of the programme indicate significant weight loss (1.8kg), blood glucose reduction (1.5mmol), and improvements in physical activity, healthy eating and depression (all $p<0.05$). Analyses of trial data are underway.

Conclusions: Initial findings on this innovative, replicable, real-world, voluntary-sector led programme are promising. However, trial results will provide more robust evidence to inform the roll out of the National Diabetes Prevention programme in England.

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O440

HOW DO DIABETES PREVENTION GROUPS GENERATE INDIVIDUAL CHANGE?

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Introduction: Many diabetes prevention interventions are delivered in groups but it is unclear exactly *how* groups promote behavior change, and *for whom* they are most helpful. This qualitative study explored participants' experiences of attending diabetes prevention groups and their perceptions of how group participation benefited them.

Methods: Twenty semi-structured telephone interviews were conducted with participants from nine groups in the Norfolk Diabetes Prevention Study. Interviews were transcribed and analyzed using thematic analysis. **Results:** Five overarching themes were identified: (1) participants' motivations to participate, (2) group participation, including individual and group change processes, (3) group context, (4) optimal facilitation, and (5) impact of group participation. Participants were motivated to improve health and prevent diabetes, and a majority found the programme helpful in achieving their goals. Additional to specific individual change processes (e.g. information provision, structuring health goals, feedback), participants benefited from interpersonal processes, such as establishing common purpose, sharing experiences, making social comparisons and social support. Individual and group change processes were influenced by establishing a supportive group context (including group cohesion, positive group atmosphere and homogeneous composition) and optimal facilitation, which involved specific facilitators' skills and effective delivery strategies.

Conclusions: The study highlights the importance of group processes, context and facilitation in promoting participants' engagement with the programme and behavior change. Groups can benefit participants in different ways, and activating them is important for effective intervention implementation. Practical recommendations for designers and providers of group-based diabetes interventions will be discussed.

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O441

MOVEMENT AS MEDICINE FOR TYPE 2 DIABETES: A CLUSTERED PILOT RANDOMISED CONTROLLED TRIAL OF A THEORY-INFORMED MULTIFACETED BEHAVIOURAL INTERVENTION TO INCREASE PHYSICAL ACTIVITY OF ADULTS WITH TYPE 2 DIABETES IN THE PRIMARY CARE SETTING

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Introduction: Physical Activity (PA) is a cornerstone of type 2 diabetes management. Several reviews report that PA independently produces clinically significant improvements in glycemic control and behavioral interventions are effective for increasing physical activity behavior. Despite the evidence, there remains a lack of PA behavioral interventions suitable for delivery in primary care. This study aimed to assess whether a theory-informed, multifaceted behavioral intervention was both acceptable and feasible to healthcare professionals and adults with type 2 diabetes when delivered in primary care.

Methods: A clustered pilot randomized controlled trial was conducted within 11 primary care practices in north-east England, UK. Practices were stratified according to list size and randomly allocated to the intervention or usual care in accordance to a 1 : 1 allocation ratio. Primary outcomes were acceptability and feasibility including fidelity of delivery. Secondary outcomes were objectively assessed physical activity, HbA1c, blood pressure and weight.

Results: N=247 adults with type 2 diabetes (58% male) were recruited from 1305 considered eligible from across 11 practices and followed up over 12 months. Fidelity of intervention delivery by healthcare professionals was moderate to good. Qualitative feedback from healthcare professionals and patients confirmed acceptability and feasibility of the intervention and trial procedures. 27% of patients recruited were lost to follow-up. Patients in the intervention group increased their physical activity levels across all time points when compared to the control group.

Conclusions: Movement as Medicine addresses an important evidence-practice gap that is the need for behavioral interventions targeting PA in routine primary care.

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O442

DEVELOPMENT OF AN ONLINE INTERVENTION FOR THE PREVENTION OF SEVERE HYPOGLYCAEMIA IN TYPE 1 DIABETES

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Introduction: Severe hypoglycemia (very low blood glucose level requiring assistance for recovery) is a life-threatening side effect of exogenous insulin delivery, causing collapse, injury, fits, cardiac arrhythmia and, in rare cases, sudden death. These consequences can lead to fear of hypoglycemia and/or avoidance behaviors, which compromise self-management and increase risk of long-term complications (e.g. blindness/amputation). Approximately one in five experience at least one severe hypoglycemic event over a six-month period, increasing to 50 % after 25 years of diabetes. Severe hypoglycemia is preventable with education, attention to symptoms, and prompt action.

Methods: We are developing the first fully online intervention, grounded in the biopsychobehavioral model of severe hypoglycemia and the information-motivation-behavioral skills model of behavioral change. Effectiveness will be studied in a two-arm RCT comparing the

intervention group with an ‘active’ usual care group, over 12 months. Participants (N=188) will be recruited from four diabetes centers.

Results: The online intervention consists of web-based modules providing information, real life stories from peers, interactive ‘experiments’ to facilitate behavioral change, and an ‘awareness app’ to improve symptom awareness. We expect the intervention to: 1) reduce rate of severe hypoglycemia (primary endpoint), 2) improve glucose levels, fear of hypoglycemia, symptoms awareness (secondary endpoint), 3) improve knowledge, motivation, skills (process evaluation) and 4) be cost effective.

Conclusions: If effectiveness is demonstrated, the intervention will be made available to adults with type 1 diabetes in Australia. It has the potential to reach those in rural/regional areas and to be adapted for insulin-treated type 2 diabetes.

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O443

CHANGE IN SMOKING BEHAVIOR FOLLOWING CHANGES IN RESIDENTIAL PROXIMITY TO TOBACCO RETAIL OUTLETS – THE “SMOKING GUN”?

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Introduction: Although living in residential proximity of tobacco outlets has been cross-sectionally linked to higher likelihood of smoking, the effect of a *change* in access to tobacco on changes in smoking behaviors is not known.

Methods: The data from two prospective cohort studies included walking distance from home to the nearest tobacco outlet, based on geocoded addresses, linked with smoking surveys. All participants who changed their smoking status between the two surveys (2008 and 2012, the Finnish Public Sector study; 2003 and 2012, the Health and Social Support study), a total of 3641 men and women were included. Conditional logistic regression was used to examine within-individual associations of change in proximity of tobacco retail outlets with quitting or initiation of smoking. Study-specific estimates were pooled using fixed-effect meta-analysis.

Results: The odds of smoking were higher (OR=1.48, 95% CI 1.05–2.09) when living in close proximity of a tobacco outlet compared to living further away. This was due to reduced likelihood of quitting when living in proximity of a tobacco outlet (OR=0.41, 0.28–0.60) whereas initiation of smoking was not related to proximity of a store. The associations were stronger in men (OR of being a smoker=2.43, 1.26–4.67) than in women (OR=1.23, 0.82–1.84) and among those with low (OR=2.07, 1.11–3.85) compared to high educational attainment (OR=1.34, 0.86–2.07).

Conclusions: Changes in residential proximity of tobacco retail outlets are associated with changes in smoking behaviors. Living near a tobacco outlet reduces the odds of quitting smoking.

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O444

AUSTRALIAN GP'S AND OBSTETRICIAN MANAGEMENT OF SMOKING IN PREGNANT WOMEN - WHERE DO WE NEED TO INTERVENE?

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Introduction: Several approaches to the management of smoking in pregnancy exist, including the 5As (Ask, Advice, Assess, Assist, Arrange); and the AAR (Ask, Advice, Refer). There is lack of data on current practices of Australian physicians, which would help guide the development of interventions for improving smoking cessation care (SCC) in pregnancy.

Methods: A national cross-sectional survey including questions about the provision of SCC; Nicotine Replacement Therapy (NRT) prescription; and a self-assessment of barriers using the Theoretical Domains Framework (TDF). We included two sampling methods: 1). A paper survey sent to 5571 Australian General Practitioners (GP's) and Obstetricians from the Royal Australian and New Zealand College of Obstetricians and Gynecologists database, and 2). An online survey sent to a random sample of 500 Members of the Royal Australian College of GP's National Faculty of Aboriginal and Torres Strait Islander Health.

Results: A total of 378 responded. Performing all the 5A's often and always was reported by 19.9%; and 49.1% for AAR'. Obstetricians performed the 5A's less reliably compared to GP's ($p < 0.001$). Always prescribing NRT was reported by 11%. The lowest mean TDF scores were for lack of resources (time) and optimism.

Conclusions: Performance of SCC is low. Training clinicians should focus on improving the provision of specific lacking components, such as NRT prescription, and incorporate strategies to change attitudes such as lack of optimism. The AAR approach may be easier to implement, and therefore it should be a priority to ensure easy, effective and acceptable referral mechanisms are in place.

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O445

THE EFFECT OF A BRIEF LOW-COST, TEXT MESSAGING INTERVENTION TO PROMOTE TOBACCO CESSATION IN CLINICAL PRACTICE AMONG PHYSICIANS IN NIGERIA.

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Introduction: Brief tobacco intervention is an effective way of encouraging smokers to quit. Majority of physicians in Nigeria have mobile phones. Little is known about the effect of sending simple text messages (TM) to promote tobacco cessation among physicians in low resource settings. This study set out to determine the effect of a brief low-cost, TM on tobacco cessation practices.

Methods: This quasi-experimental study was conducted among consenting physicians in three geographically distinct teaching hospitals in Nigeria. Using the Ask, Approach, and Refer (AAR) approach as a guide, we developed brief TM (<160 characters) designed to promote tobacco cessation in clinical practice. We sent two text messages weekly over a 13-week period. Data on tobacco cessation practices and their opinions of the intervention was obtained at baseline and six months after the intervention Survey Monkey®. TM cost \$0.38 per physician for the entire intervention.

Results: Majority (86.7%) found the messages useful in their clinical practice and 72.7% said the messages increased their knowledge of tobacco control. Awareness of the AAR approach increased from 19% to 68% post intervention ($p < 0.001$). Physicians who asked or advised at least half of their patients about their tobacco use increased from 44% to 60% ($p < 0.01$). While those who referred patients for specialized care increased from 3% to 31% ($p < 0.001$).

Conclusions: Text messages may offer a simple, low-cost and effective means of improving tobacco cessation practices among physicians. Operations research to determine how best to expand the scope of this intervention should be considered.

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O446

PRIMARY CARE MANAGEMENT OF SMOKING IN PEOPLE TREATED FOR LUNG, BLADDER OR UPPER AERODIGESTIVE TRACT CANCER: A COHORT STUDY

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Introduction: Continued smoking after cancer treatment may worsen outcomes but clinicians may not support cessation as vigorously as in other smoking-related conditions and the impact of clinician incentive payments on smoking is unclear. The aim was to compare the management of smoking in lung, bladder and upper aerodigestive tract cancer with patients with heart disease and whether differences were associated with introducing incentive payments for doctors.

Method: In this retrospective cohort study recruited from primary care records we matched patients with lung, bladder and upper aerodigestive tract cancer patients to patients with CHD. We assessed the proportion of patients with updated smoking status, advised to quit, prescribed smoking cessation medications, or that stopped smoking within the first year after diagnosis using logistic regression, with an interaction term to assess the impact of introducing incentives for CHD.

Results: 12,393 cancer cases and matched CHD pairs were included in the main analysis. Cancer patients were less likely than CHD patients to have their smoking status updated (OR 0.18 95%CI (0.17-0.19)), be advised to quit (OR 0.38 (0.36-0.40)), prescribed treatment (OR 0.67 (0.63-0.73)), or to stop smoking (OR 0.76 (0.69-0.84)). After introducing incentives, the increase in smoking cessation activity was similar for patients with cancer and CHD.

Conclusion: Physicians are less likely to manage smoking in patients with smoking-related cancer than heart disease and cancer patients are less likely to stop smoking. This difference is probably not because physicians are incentivized to help patients with heart disease stop but not patients with cancer.

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O447

RETENTION OF HOMELESS SMOKERS IN A SMOKING CESSATION CLINICAL TRIAL

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Introduction: Concerns about retention are a major barrier to conducting studies enrolling homeless individuals. Since smoking is a major problem in homeless communities and research on effective methods of promoting smoking cessation is needed, we describe strategies used to increase retention and participant characteristics associated with retention in smoking cessation study enrolling homeless adults.

Methods: The parent study was a 2-group randomized controlled trial with 26-week follow-up enrolling 430 homeless smokers from emergency shelters and transitional housing units in Minneapolis/Saint Paul, MN, USA. Multiple strategies were used to increase retention, including conducting visits at convenient locations for participants, collecting several forms of contact information from participants, using a schedule that was flexible and included frequent low-intensity visits, and providing incentives. Participant demographics as well as characteristics related to tobacco and drug use and health status were analyzed for associations with retention using univariate and multivariate analysis.

Results: Overall retention was 75% at 26weeks. Factors associated with increased retention included greater age; having healthcare coverage; history of multiple homeless episodes, lower stress level; and higher PHQ-9 (Patient Health Questionnaire-9) score. A history of excessive drinking and drug use were associated with decreased retention.

Conclusions: It is possible to successfully retain homeless individuals in a smoking cessation study if the study is designed with participants' needs in mind.

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O448

IMPACTS OF PICTORIAL HEALTH WARNING LABELS OVER TIME, WITH DIFFERENT THEMED IMAGERY CONTENTS (SUFFERING, SYMBOLIC AND GRAPHIC) IN AUSTRALIA, CANADA AND MEXICO

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Introduction: The impact of different imagery types for pictorial warning labels (PWLs) on cigarette packs has not been studied under natural exposure conditions. This study examined relative differences and temporal changes in smokers' responses to PWLs with different imagery types (graphic depictions of bodily harm; personal suffering from smoking-related disease; symbolic representations of smoking harm).

Methods: Adult smokers recruited from online panels in Australia (AU; n=4,006), Canada (CA; n=4,002) and Mexico (MX; n=4,006) were surveyed quarterly over one year after new PWLs were implemented in each country.

Participants were shown specific PWLs on packs in their country and asked about: negative emotions (i.e., fear; disgust; worry); attention to PWLs; interpersonal communication about the PWLs; and motivation to quit because of PWLs. For each country, Generalized Estimating Equation models assessed the associations of these outcomes with PWL imagery type and time.

Results: Symbolic PWLs had the lowest ratings for all outcomes in CA (the only country presented with symbolic PWLs). Graphic PWLs were rated higher than suffering PWLs on negative emotions (all countries), extent of interpersonal communication (CA), and quit motivation (AU), but were rated lower for attention (CA & MX), interpersonal communication (AU & MX), and quit motivation (MX). Significant interactions over the study period indicated that the patterns of change on some outcomes differed by PWL imagery type and by country.

Conclusions: PWLs with graphic and suffering imagery appear more effective than symbolic PWLs, with both types having different and potentially complementary advantages, some differing by country.

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O449

SOCIOCULTURAL INFLUENCES ON STRATEGIES TO LOSE WEIGHT, GAIN WEIGHT, AND INCREASE MUSCLES AMONG TEN CULTURAL GROUPS

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Introduction and Purpose: This study determined how sociocultural messages to change one's body are perceived by adolescents from different cultural groups. **Method:** In total, 4904 adolescents, including Australian, Chilean, Chinese, Indo- Fijian, Indigenous Fijian, Greek, Malaysian, Chinese Malaysian, Tongans in New Zealand, and Tongans in Tonga, were surveyed about messages from family, peers, and the media to lose weight, gain weight, and increase muscles. Groups were best differentiated by family pressure to gain weight. **Results:** Girls were more likely to receive the messages from multiple sociocultural sources whereas boys were more likely to receive the messages from the family. Some participants in a cultural group indicated higher, and others lower, levels of these sociocultural messages. **Conclusion:** These findings highlight the differences in socio- cultural messages across cultural groups, but also that adolescents receive contrasting messages within a cultural group. These results demonstrate the difficulty in representing a particular message as being characteristic of each cultural group.

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O450

EARLY CHILDHOOD DETERMINANTS OF SCREEN TIME DURING MIDDLE CHILDHOOD

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Introduction: Little is known about early childhood determinants of screen time during middle childhood. This study investigated early childhood (3-5 years) determinants of children's screen time during middle childhood (6-8 years) using an ecological framework.

Methods: At baseline 1002 children took part in HAPPY; 548 participated three years later. Parents reported children's screen time (TV, e-games, etc.) at both time points and potential predictors at baseline. Regression analysis was used to identify determinants of children's screen time controlling for center of recruitment, screen time, child sex and age and maternal education at baseline.

Results: Children participated in significantly more screen time at 6-8 years (2.1h/d 95%CI 2.0, 2.2) than 3-5 years (1.8h/d, 95%CI 1.7, 1.9). Each additional limit parents imposed on their child's screen time at baseline was associated with a decrease in screen time at follow-up (coef=-0.14, 95%CI -0.23, -0.05). Child family status (single/dual parents), child preference for sedentary activities, parental TV viewing, parental confidence to limit or concerns about screen time, the number of pieces of electronic equipment and functioning TVs in the home, and TV in child's bedroom at baseline were not associated with screen time at follow-up.

Conclusions: Few parenting practices and characteristics of the home environment during preschool predict later screen-time. Practices and environments may change following children's transition to school. Parental restrictions/limits to screen time may be a determinant that carries over time. Future studies should investigate change in determinants over time. Children's friendship networks and the changing technological landscape may also be important.

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O451

DO EARLY EDUCATION ENVIRONMENTS SUPPORT, CHALLENGE OR UNDERMINE NUTRITION-RELATED BEHAVIOURS IN THE HOME?

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Introduction: New Zealand has one of the highest Early Childhood Education (ECE) participation rates in the OECD with over 95% of 3 and 4-year-olds attending 6 hours a day, 3 or 4 days a week. This research aimed to investigate nutrition-related practices in both ECE services and the homes of New Zealand preschoolers, comparing and contrasting these two environments.

Methods: Quantitative data about nutrition-related policy and practices were collected in an electronic survey of 257 ECE services located in the same location as the *Growing Up in New Zealand* longitudinal cohort (n=6211), allowing for linkage between datasets. Factor analysis of survey variables was used to create a Healthy ECE Environment Index. Descriptive and multivariate analyses were performed to test for associations between Healthy ECE Environment score and home nutrition-related behaviors and demographics.

Results: A subset of 1116 children were successfully matched to 215 ECE environments. Preliminary results show most ECE services struggle to promote healthy eating, many staff not following best practice and menus that do not meet nutrition guidelines. Services in neighborhoods with low and high socio-economic status scored better on the Health Environment Index compared to medium. [Additional analyses described above will be undertaken before the conference and added to the abstract before publication].

Conclusions: With growing evidence that dietary habits and preferences are set early in childhood, an exploration of the role that both the home and ECE play in supporting healthy development is critical. This study quantifies the current 'mismatch' between home and ECE nutrition-related behaviors.

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O451

SPORTS FOR SOCIALLY VULNERABLE YOUTH: WHEN DOES IT CONTRIBUTE TO POSITIVE HEALTH?

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Introduction: Sports participation is considered beneficial for the development of youth, in terms of physical health but also in terms of cognitive, social and emotional health. Yet, little is known about how youths experience their participation in sport, and how sports coaches can strengthen the personal development of these youths.

Methods: A content analysis has been conducted, based on the salutogenic framework, of 15 in-depth interviews with community sport coaches and 22 interviews with socially vulnerable youths aged between 11 and 17 years.

Results: Socially vulnerable youths describe positive and negative aspects of participating in sport. Whether their experiences are positive or negative depends on the extent to which they 1) experience visibility of skill development, 2) feel sport is a challenge they liked to take on, 3) are confident in playing their sport and being able to improve, and 4) are able to show tenacity. The sports coach was often identified as a key-player in tipping the balance towards positive sports experiences. Depending on the ability of the sports coach to create meaningful, consistent, and balanced experiences, the youths may benefit from sports participation even beyond the sports setting.

Conclusion: The sports coach is a key-player in creating positive and meaningful sports experiences for socially vulnerable youths. Building a conducive sports environment requires sports coaches to focus on increasing the visibility of life skill development, offering challenges that are manageable for the youths, making youths confident in their sport and their ability to improve, and balancing tenacity.

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O453

ADOLESCENTS WHO ARE WORRIED ABOUT THEIR DRINKING AND THE 'INVERSE CARE LAW'

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Introduction: Media representations suggest young people are highly permissive about, and tolerant of their own drinking habits. We investigated the extent to which New Zealand adolescents are concerned about their drinking and related characteristics that could inform responsive interventions.

Methods: Participants comprised the 3672 current drinkers aged 12 to 18 years in Youth2012, a nationally representative cross-sectional survey of secondary school students. We analyzed self-reported anonymous data captured using innovative multi-media computer-assisted technology. Multivariable logistic regression models investigated if adolescents

concerned about their drinking varied from their peers with regard to demographic factors, drinking patterns and access to healthcare and substance use services.

Results: One in four current drinkers (880/3672, 24%) reported being worried about and/or having tried to cut down their drinking. Multivariable analyses revealed that these adolescents were significantly more likely than their peers to identify with Māori or Pacific ethnicity (cf. NZ Europeans); reside in neighborhoods of high (cf. low) socio-economic deprivation; drink at least weekly; binge drink; report harms related to their drinking (e.g., adverse effects on school performance, got into serious trouble, received or inflicted injuries, experienced unwanted/coercive sex); and have friends or family who wanted them to cut down. Paradoxically, adolescents concerned about their drinking were also significantly more likely to report difficulties accessing healthcare and getting help for substance use problems.

Conclusions: The prevalence and characteristics of adolescents who are worried about their drinking and their difficulties accessing services demand attention to the structural determinants and inequitable health system responses to alcohol-related harm.

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O454

DISPARITIES IN EDUCATIONAL ATTAINMENT AND SUBSEQUENT ADVERSE HEALTH EFFECTS AMONG ADOLESCENTS WITH CHRONIC CONDITIONS

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Introduction: It is unknown to what extent pediatric-onset chronic conditions may interfere with achievement of normal developmental milestones, such as educational attainment, and how differing developmental trajectories for youth with and without chronic conditions in turn contribute to or mediate subsequent disparities in health.

Methods: Longitudinal data are from 3517 youth ages 12–26 interviewed from 2002–2011 for the Panel Study of Income Dynamics. Multivariable regression was used to assess disparities in educational expectations and achievement for youth with and without chronic conditions, adjusting for important potential confounders, and the mediating effects on subsequent health and well-being.

Results: While youth with chronic conditions (YCC) had similar educational aspirations as their peers, they were significantly less likely to report that they expected to complete postsecondary education and significantly fewer YCC had earned such a degree by the end of follow-up. These disparities persisted after adjustment for confounders. YCC reported significantly worse health and well-being in young adulthood; while these disparities persisted after adjustment for confounders, a small but significant part of the association between chronic disease and health was mediated by actual educational achievement.

Conclusions: Findings suggest an important risk mechanism through which YCC are more susceptible to acquiring socioeconomic disadvantage than their healthy peers as they progress through normal development, and that these lags in educational achievement may in turn increase their susceptibility to worse health and well-being in the future. Clinicians have an opportunity to intervene in order to prevent health decrements seen with lower educational attainment.

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O455

ASSOCIATION OF JOB STRESSORS WITH PANIC ATTACK AND PANIC DISORDER IN A WORKING POPULATION IN JAPAN: A CROSS SECTIONAL STUDY

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Introduction: This study aimed to investigate cross-sectional association of job strain, effort/reward imbalance, and low workplace social support with panic attack (PA) and panic disorder (PD) in a working population in Japan. Methods: A cross-sectional online questionnaire survey was conducted of 2,060 workers in Japan. Job stressors (job demands, job control, effort at work, reward at work, and workplace social support) were measured by the Job Content Questionnaire and Effort/reward Imbalance Questionnaire. Job strain (job demand/control) and effort/reward imbalance ratios were calculated and classified into tertiles. PA/PD experienced after age 23 were measured by self-report based on the Mini International Neuropsychiatric Interview. Multiple logistic regression was conducted to adjust for covariates (demographic and lifestyle variables).

Results: Data from 1,965 participants were analyzed. After adjusting for the covariates, the odds ratio of having an experience of PA and PD was significantly greater for the group with a high effort/reward imbalance score compared to the group with a low score (odds ratios, 2.75 and 2.72, respectively, both $p < 0.05$).

Conclusions: The present study found that effort/reward imbalance was associated with having an experience of PA/PD among workers in Japan. Effort/reward imbalance might be a risk factor of PA/PD in a working population.

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O456

EFFECTS OF A JOB CRAFTING INTERVENTION PROGRAM ON WORK ENGAGEMENT AMONG JAPANESE EMPLOYEES: A PRETEST-POSTTEST STUDY

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Introduction: Job crafting, an employee-initiated job design/redesign, has become important for employees' well-being. This study examined the effectiveness of a newly developed job crafting intervention program on work engagement (as primary outcome), as well as job crafting and psychological distress (as secondary outcomes), using a pretest-posttest study design among Japanese employees.

Methods: Participants were managers of a private company and a private psychiatric hospital in Japan. The job crafting intervention program consisted of two 120-minute sessions with a two-week interval between them. Outcomes were assessed at baseline (Time 1), post-intervention (Time 2), and a one-month follow-up (Time 3). The mixed growth model analyses were conducted using time (Time 1, Time 2, and Time 3) as an indicator of intervention effect. Effect sizes were calculated using Cohen's d .

Results: The program showed a significant positive effect on work engagement ($t = 2.23$, $p = 0.03$) in the mixed growth model analyses, but with only small effect sizes (Cohen's $d = 0.33$ at Time 2 and 0.26 at Time 3). The program also significantly improved job crafting ($t = 2.39$, $p = 0.02$: Cohen's $d = 0.36$ at Time 2 and 0.47 at Time 3) and reduced psychological distress ($t = -2.09$, $p = 0.04$: Cohen's $d = -0.15$ at Time 2 and -0.31 at Time 3).

Conclusions: The study indicated that the newly developed job crafting intervention program was effective in increasing work engagement, as well as in improving job crafting and decreasing psychological distress, among Japanese managers.

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O457

COMPARISONS OF EMPLOYEE ENGAGEMENT ACROSS THREE HEALTH SERVICES TARGETING HEALTHY PHYSICAL ACTIVITY AND NUTRITION

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Introduction: Technology has facilitated the development of modern workplace environments that encourage employee engagement in sedentary behaviors. This research compares employee engagement across three health services that may assist employees in achieving sufficient levels of physical activity and nutrition for health and fitness for work. **Methods:** Employees from an Australian freight transport organization were invited to trial a health service. Access to one of the three health services was pre-determined based on employees' work station. Of the 90 employees offered a consultation with a dietitian and exercise physiologist, 41% voluntarily participated. Seventy-one percent of the 126 employees offered access to 12 weeks of health support messages delivered via mobile phone text messages voluntarily participated. Of the 63 employees offered access to six months of health coaching over the telephone with a qualified health coach, 52% voluntarily participated. Upon completion of the trial, employees were invited to evaluate the health service they participated in via a confidential self-report survey. **Results:** Across 13 items measuring utility and affect, mean employee evaluations were positive for all three health promotion services. Overall, mean evaluation ratings were highest for the dietitian and exercise physiologist health service. **Conclusions:** Although voluntary engagement was lowest for face-to-face consultations with a health professional, employees who participated rated the service very highly across all 13 evaluation items. To maximize engagement in healthy behaviors, workplaces should consider offering a range of empirically validated health services and allowing employees to select the service that best meets their needs.

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O468

MANAGERS AND COWORKERS PERCEPTIONS OF ACTIVITY BASED WORK – A SUB STUDY OF THE AKTIKON PROJECT

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Introduction: As costs for corporate real estate often is the second largest for organizations, one model for cutting costs is activity based work (ABW). ABW implies that the employee does not have a stationary work place but selects work station according to the work task at hand. The aim with the study was to evaluate the employees' perceptions of the work environment in ABW.

Methods: During October to November 2016, 11 focus group interviews were performed (3 managers and 8 employees) at a Swedish municipality administration which had relocated to an ABW environment. Interview themes were among other: attitudes, expectations and problems regarding working in ABW, and if/how individual needs due to the work

environment had been met by the management. The analysis was done according thematic principles.

Results: The results indicate that the managers express more positive attitudes towards ABW than co-workers. The reason mentioned was that co-workers spend much of their working time in meetings in different environments. On the other hand, co-workers with repetitive work tasks such as invoice processing or with client telephone contacts, stated that the environment did not support their work tasks. Rather, these co-workers stated that they felt more inefficient than in ordinary cell offices. Further, the managers stated that they were not equipped for the new leadership challenges that ABW implied.

Conclusions: If and when implementing ABW, it is of great importance to do a thorough work analysis to evaluate if ABW supports or hinders the employee performing the work tasks.

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O461

CREATING HEALTHY ACTIVE LEADERS FOR KIDS (CHALK): PRINCIPALS AND TEACHERS ACCEPTABILITY OF A TEACHER'S HEALTH INITIATIVE

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Introduction: School-based wellness programs can improve teacher's dietary and physical activity behaviors and could potentially influence student's health behaviors. To date there have been limited studies investigating teacher's health in Australian schools. This study aimed to explore principals and teachers interest in participating in such programs, the health issues of interest and the most acceptable intervention modalities. **Methods:** Cross-sectional surveys were undertaken with primary school principals (n=117) and classroom teachers (n=119) within the Hunter New England Region of NSW, Australia, from December 2015 to March 2016.

Results: Eighty-three percent of principals and 60% of teachers reported that they were interested in having their school participate in a program that improved the health of their staff. Principals thought that the health topics that would be of most interest to their staff would be managing stress (86.7%), advice on nutrition/ healthy eating (79.1%), health checks such as blood pressure or BMI screening (78.1%) and advice on physical activity (73.3%). Teacher's motivations for participating in a school-based intervention included; being a healthy role model for students (68%), increased level of fitness (67%) and to lose weight (47%). Most teachers (>70%) reported that they would like to receive support in person e.g. group sessions although many reported that technology based interventions would also be acceptable e.g. Apps/ text messages (63%), on-line (55%), email (50%).

Conclusions: Given school-based health initiatives have the potential to reach a large proportion of the community and appear to be of interest and acceptable to schools further investigation is warranted.

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O460

RESHAPING ANTECEDENTS OF HEALTH BEHAVIOUR: PLANNING, IMPLEMENTING, AND EVALUATING A

THEORETICALLY-BASED HEALTH PROMOTION PROGRAM IN A REMOTELY-LOCATED, PREDOMINANTLY MALE WORKPLACE.

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Introduction: Applications of frameworks that guide theory-informed interventions are rare in the workplace health promotion literature. This mixed-methods study provides an analysis of one such application of the Precede-Proceed Model to cardiometabolic health promotion, in a remotely located, predominantly male, mining and steel-making organization.

Methods: [Precede] Intervention planning was informed through existing epidemiological research, stakeholder consultations, and survey data collection. Process evaluation was conducted at the strategy implementation level (quantifying reach and coverage), and the mechanism (process of change) level, assessed through surveys and interviews.

Results: [Precede] Prioritization of health goals and associated quality of life goals was successfully achieved on the basis of strong epidemiological research, and community and organizational stakeholder consultation. Quality of life goals were insufficiently understood or prioritized from the perspective of employees. Organizational consultation was adequate to identify key behavioral goals; however, priority ranking with employees was unsuccessful, instead reflecting the researcher perspective. Pertinent theories matching researcher and organizational theories of change, and familiar to employees, were adopted. Strategies to impact behavioral goals through the adopted theoretical mechanisms lacked sufficient input from employees. [Proceed] Implementation of strategies, and participation, was low, and concentrated to administrative units. Key barriers included communication, limited employee access, conflicting shift rosters, implementation readiness, participant burden, and economic constraints. There was strong evidence that theories of change were operating as hypothesized.

Conclusions: Successful planning was threatened by limited access to employees, thereby negating co-design, and this likely manifested as sub-optimal implementation and low participation through inappropriate intervention fit with workplace structures.

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MOTIVATIONAL REGULATIONS AND OBSERVANCE OF PHYSICAL ACTIVITY RECOMMANDATIONS AMONG ADULTS WITH TYPE 2 DIABETES

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Introduction: Regular physical activity (PA) is a cornerstone of type 2 diabetes (T2D). Using self-determination theory (Deci & Ryan, 2000), the aim of this study was to examine how the reasons why adults with T2D practice PA during their leisure time would influence their observance of PA recommendations for T2D.

Methods: This study used a cross-sectional design. Three hundred seventy-one adults with T2D (181 men and 190 women, *M* age = 60.39, *SD* = 6.44), completed a questionnaire assessing their PA motivation and behavior. PA behavior was assessed by means of the weekly practice of moderate to vigorous PA during leisure time. A symptom

checklist was also used to assess diabetes-related symptoms experienced over the past month.

Results: Results of a first MANCOVA revealed that: 1) participants accumulating at least 150 minutes/week of moderate to vigorous PA (MVPA) during their leisure time displayed higher scores on intrinsic and identified motives and 2) participants not accumulating at least 150 minutes/week of MVPA during their leisure time displayed higher scores on external motives and amotivation. Results of a second MANCOVA showed that participants accumulating at least 150 minutes/week of MVPA during their leisure time experience less fatigue and hyperglycemic symptoms.

Conclusions: These findings suggest that adults who observe PA recommendations for T2D possess higher level of autonomous motives toward PA. Results further highlight the importance of PA motives for adults with T2D in regards of the positive relationship between observing PA recommendations and experiencing less fatigue and hyperglycemic symptoms.

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THE CONCORDANCE RATE BETWEEN NUMERICAL IMPROVEMENT IN PHYSICAL FUNCTION AND ACTUAL FEELINGS IN ELDERLY PEOPLE

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Introduction: Objective numerical values related to a patient can be different from the effects felt by the patient. This study estimates the concordance rate of the amount of physical function change and actual feelings. It also elucidates the relation between physical function and adherence to home exercise.

Methods: After asking 52 people who need support or care (22 men, 30 women; average age 77.9±6.0 year) to do home exercises for a month, we compared and examined data of evaluation items before and after the experiment. Evaluation items included basic attributes, physical function evaluation (open-eyed single-leg standing, TUG, stepping-stairs time, 5 meter maximum walking pace, 5 meter normal walking pace, and SS-5), feelings of physical effects, and home exercise adherence.

Results: Estimation of the concordance rate between the amount of each physical function change and the feelings of its effects were 60.5% for TUG, 67.7% for open-eyed single-leg standing, 68.9% for stair-stepping time, 55.5% for 5 meter maximum walking pace, and 67.7% for SS-5. The ability to discriminate between feelings of physical effects and amounts of physical function change was found to be significant only in the item of open-eyed single-leg standing. Results show that home exercise adherence and feelings of each exercise effect were positively correlated.

Discussion: Results show that almost 40% of elderly people have a gap between the amount of physical function change and what they actually feel. Furthermore, results suggest that people who have objectively improved physical function and who properly realize the effects might have higher home exercise adherence thereafter.

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FACTORS INFLUENCING CHANGES IN FRAIL ELDERLY FEMALES' MOTOR FUNCTION LEVELS AFTER EXERCISE

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Introduction: Motor function has been shown to improve with exercise even in the frail elderly. However, there have been few studies examining factors influencing long-term changes in frail individuals' motor function levels after exercise-based intervention. This study examined such factors, involving frail elderly females.

Methods: Twenty-nine females (mean age: 84) who had completed an exercise program for the frail elderly were studied. Their motor function levels were assessed at the end of the program and after a certain period (mean period: 555 days) using the Basic Health Checklist as a questionnaire sheet. Furthermore, as factors (independent variables) influencing the motor function, the age, frequency of participation in exercise programs as a daily life activity, and social participation were also examined. Regarding statistical analysis, binomial logistic regression analysis was performed with a maintained/improved or reduced motor function level as a dependent variable.

Results: At the end of the exercise program, 16 and 13 participants showed maintained/improved and reduced motor functions, respectively. On analysis, a young age was extracted as a significant factor (OR: 1.35). On the other hand, the maintained/improved compared with reduced motor function group was shown to participate in exercise programs organized by groups engaged in independent activities more frequently (63 vs. 46%).

Conclusions: It was suggested that continuous participation in group exercise contributes to the maintenance of a favorable motor function level.

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IDENTIFYING PSYCHOSOCIAL PREDICTORS OF ADHERENCE TO A LIFESTYLE MODIFICATION PROGRAM AMONG CHINESE OVERWEIGHT AND OBESE ADULT PARTICIPANTS
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Introduction: Adherence to weight loss plan is critical for successful weight loss and maintenance. However, adherence level and factors predicting adherence were seldom explored. This study investigated psychosocial predictors of one-month adherence to a community-based Lifestyle Modification Program (LMP) among Chinese overweight and obese adults.

Methods: 266 Chinese overweight and obese adults newly enrolled in LMP for at least 4 weeks were recruited. 207 completed baseline and one month follow up (78.3% Female, mean age 38.90±10.42, BMI 28.32±4.17, body weight 74.46±14.10, 59.4% had attained at least tertiary education). Indicators of one-month adherence included diet adherence score (continuous), physical activity (PA) adherence score (continuous), attendance (dichotomous), and self-monitoring level (dichotomous). Multivariate analyses were used to identify which psychosocial predictors (perceived support, knowledge, self-efficacy, motivation and stage of change) at baseline and one-month were associated with one-month adherence with adjustment for baseline BMI, age, sex, education and income.

Results: No significant psychosocial factors were identified for attendance. Multiple logistic regression suggested one-month diet stage of change as an independent predictor of diet self-monitoring level. Multiple linear regression suggested one-month nutrition knowledge as an independent predictor

of diet adherence score while one-month PA self-efficacy and PA stage of change as independent predictors of PA adherence score.

Conclusions: Diet stage of change, nutrition knowledge, PA self-efficacy and PA stage of change were significant predictors of adherence to LMP at one month. The effect of psychosocial factors on adherence differs among indicators of diet adherence score, PA adherence score, attendance and self-monitoring level.

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P465

DOES DEPRESSION AND/OR ANXIETY MEDIATE BETWEEN HIV STIGMA AND MEDICATION ADHERENCE AMONG HIV-POSITIVE MEN?

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Introduction: The study examined whether the relationships between HIV stigma and HIV medication adherence would be mediated by depression and/or anxiety in men who have sex with men (MSM), living with HIV.

Methods: Men who have sex with men, who are living with HIV, completed an online survey that measured HIV Stigma and Medication Adherence (ARMS), as well as symptoms of depression (Patient Health Questionnaire-9) and anxiety (Generalized Anxiety Disorder-7).

Results: The relationship between HIV stigma with adherence (medication taking) were mediated by depression. However, anxiety did not mediate this relationship, nor did anxiety add any significance to the mediational model when added with depression.

Discussion: The results are discussed in light of novel approaches to reducing HIV stigma, and interventions for HIV-positive men who have sex with men to help reduce depression and anxiety and improve their health protective behaviors, including adherence.

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P466

INVESTIGATING PATIENTS' PERSPECTIVES TOWARDS AND ADHERENCE TO NON VITAMIN K ANTAGONIST ORAL ANTICOAGULANTS (NOACS) FOR ATRIAL FIBRILLATION: A UK BASED PROSPECTIVE MIXED METHODS STUDY.

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Introduction: Non-Vitamin K antagonist oral anticoagulants (NOACs) have been approved for use in the UK for the prevention of strokes amongst patients with non-valvular atrial fibrillation (AF). Long term anticoagulant therapy reduces stroke risk by 64%, however, adherence to the dosage regime is critical, as the effect of a NOAC diminishes rapidly 12-24 hours after ingestion. In contrast to warfarin, monitoring to assess coagulation levels is not required for NOACs, but the effect this may have on patient adherence has yet to be investigated. This study aims to investigate levels of adherence amongst patients who begin taking NOACs and to explore the determinants of non-adherence in this context.

Methods: NOAC-naïve patients with AF were recruited from anticoagulant clinics in five boroughs across London and the South West

of England, and followed up prospectively for six months after initiation. Four telephone surveys using validated survey instruments (MARS, B-IPQ, modified-BMQ) were undertaken, at baseline, one-, three- and six-month time points. A subset of patients was purposively sampled from the cohort and undertook semi-structured qualitative interviews.

Results: Kaplan-Meier survival curves will be calculated to analyze NOAC persistence over the follow up period. Regression will be used to identify any variables associated with self-reported non-adherence at each of the time points. The qualitative findings will be thematically analyzed.

Conclusions: The findings from the study will be used to inform the development of an intervention to improve patients' experience of NOAC therapy and support adherence.

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P467

A CANONICAL CORRELATION ANALYSIS ON THE RELATIONSHIPS BETWEEN FUNCTIONAL FITNESS AND QUALITY OF LIFE IN OLDER ADULTS

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Introduction: It is well evidenced that functional fitness (FF) can affect health-related quality of life (HRQOL). Most studies targeted the relations between subscales of FF and HRQOL. This study aimed to explore the overall relations between FF and HRQOL in older adults.

Methods: This cross-sectional study was conducted among independent community-dwellers (65-84 years; N = 851). The Senior Fitness Tests and the SF-36 were used to measure FF and HRQOL. The canonical correlation analysis was conducted in men and women separately by using the seven fitness variables as predictors of the eight HRQOL variables to examine the relations between FF and HRQOL.

Results: The FF was positively correlated with HRQOL in men ($R = .350$, $\Lambda = .783$, $\chi^2 = 83.4$, $p = .010$) and women ($R = .456$, $\Lambda = .697$, $\chi^2 = 136.6$, $p < .0005$). The 8-ft up and go (UG; $r = -.803$) and 2min step (Step; $r = .628$) contributed most to FF, and physical functioning (PF; $r = .823$) contributes most to HRQOL in men. While in women, the UG ($r = -.802$) and 30s chair stand (CS; $r = .764$) contributes most to FF, and PF ($r = .932$) contributes most to HRQOL.

Conclusions: The overall relations between FF and HRQOL are moderate in older adults. FF could have significant influence to HRQOL (especially in PF). The UG and Step are the main FF indicators influencing the associations between FF and HRQOL in men, while they are the UG and CS in women.

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HOW CAN WE BEST HELP OLDER PEOPLE MAINTAIN DRIVING INDEPENDENCE AND MINIMISE IMPACT OF DRIVING CESSATION?

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Introduction: By 2036, it is projected that one in four New Zealanders will

be 65 years or older and that road related fatalities and injuries among this age group will increase by 71% due to the combination of an ageing population, growth in road traffic, and growth in the number of workers over 65 years. Most older people travel by private car and continuing to drive is key to mobility, independence and quality of life. Giving up driving can have serious consequences for their health and well-being. It is also important, however, that older drivers and other road users remain as safe as possible. While older drivers have relatively few crashes, due to frailty they have a high crash fatality rate. The 'Older Driver, Family and GP Study (ODFGP)' is a multi-faceted approach to address the needs of an ageing population, balancing safety and mobility. This presentation will outline the study rationale, recruitment and participant characteristics, and policy impact.

Methods: The study uses a mixed methods design. A population based survey of current and former older drivers is underway, along with a within-family cross-sectional study, and a qualitative study with General Practitioners to better understand travel patterns, driving behaviors, and fitness-to-drive issues.

Discussion: The findings will help develop evidence-based policy and programmes to address mobility and safety, to 1) maintain independence through driving for as long as safely possible; and 2) identify assistance needed by support networks to manage driving cessation and minimize negative consequences.

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THE EFFECTS OF PHYSICIAN'S FACILITATION OF PATIENTS' INVOLVEMENT IN HEALTHCARE DECISIONS ON PATIENT SATISFACTION: AN EXPERIMENTAL STUDY

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Introduction: For many types of illnesses the most appropriate treatment is not always clear, so patients are often offered more than one therapeutic option. The current experiment has the goal (1) to inspect whether encouragement to participate in healthcare decisions turns into a higher willingness to engage and (2) greater satisfaction.

Methods: The sample consisted of Swiss adults aged 65 years or older. In an experimental computer-based patient-provider interaction, two video vignettes were developed to manipulate the facilitation of shared decision-making. In the first video vignette (experimental group), a doctor instructs the patient to follow their own preferences with regard to the distinct pros and cons of one treatment option, and in the second vignette the doctor advises that he can make the best choice for them (video 2 – control group). Eventually, participants rated their overall treatment choice satisfaction and satisfaction with the interaction. Analysis of variance will be used to compare groups.

Results: Analyses of the data will be finalized in May 2016. We hypothesize that older adults who have been encouraged to participate in the treatment decision (video 1) will be more likely to assume an active or collaborative involvement, and will report greater levels of satisfaction with the choice selected and with the doctor-patient interaction experienced.

Conclusions: This experiment can contribute to a better understanding of contextual changes in the patient-provider interaction that could foster patient empowerment. Workshops addressing healthcare providers can be held to provide information about the causes of older adults' involvement in treatment decision-making.

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SOCIAL FUNCTIONING INDICATORS AMONG BABY BOOMERS AND THE LIKELIHOOD TO SCREEN FOR HEPATITIS C IN A PRIMARY CARE SETTING

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Introduction: Most Hepatitis C (HCV) in the US consists of longstanding infections among persons born during 1945–1965, roughly 75% of all HCV patients are in this birth cohort. The US Centers for Disease Control estimate that 70% of people with chronic hepatitis are not aware that they are infected with the virus, and recommends that individuals within the birth cohort get a one-time HCV screening. But there is little information on the impact of social functioning and probability to screen for HCV among this birth cohort. Our objective is to assess social functioning among birth cohort patients receiving primary care and its association with the likelihood to screen for HCV.

Methods: A retrospective chart review was conducted on 3,894 patients with ≥ 1 clinical encounter during January 2015 – December 2015. Indicators that were examined to assess social functioning level include, substance/alcohol abuse, current or past abuse and neglect, marital status, presence of nearby family members, employment status, type of insurance, and if interpreter services are required during medical visits.

Results: The prevalence of lower social functioning was significantly higher in men versus women (0.40 % vs. 0.33%, $P < 0.001$), and marginally higher in patients with family support living nearby than patients with family support nearby. (0.41% vs. 0.31%, $P = 0.05$). Single men with no family support nearby were the least likely to receive HCV screening ($P = 0.036$).

Conclusions: This study provides insight for the development and implementation of strategies targeting birth cohort patients with lower social functioning to enhance HCV education and outreach.

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THE PSYCHOSOCIAL IMPACT OF DONATING HAEMATOPOIETIC STEM CELLS ON ADULT SIBLING DONORS

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Introduction: Investigation into the psychosocial impact of donating hematopoietic stem cells (HSCs) for adult sibling donors is limited. Clinical experience suggests a wide range of psychosocial complications. The nature and extent of these complications is largely dependent on the recipient's outcomes, the donor's psychological characteristics and influenced by the pragmatic aspects of donation. While World Marrow Donor Association Standards ensure consistency in the assessment and care of unrelated donors, no such criteria exist for sibling donors. This study aims to provide the evidence that needs to be demonstrated to inform standardized guidelines for sibling donor care.

Methods: Participants are adults undergoing HSC donation for a sibling recipient at the RBWH and Westmead Hospital, Sydney. Donors will provide 3 samples of saliva (as a biomarker of psychological stress) and complete 3 semi-structured interviews: (1) 2 weeks pre-stem cell collection; (2) 1 week post-stem cell collection and; (3) 30 days post-stem cell collection. An interview with Donor Coordinators will explore the nature of their role and the psychosocial support that they provide to donors.

Results: Based on previous research on adult kidney donors and related pediatric HSC donors, we hypothesize that: Donor ambivalence

correlates with post-donation reactions and recipient health, donor psychological factors and pragmatic aspects of donation (e.g. perceived adequacy of preparation/emotional support) correlate with post-donation reactions.

Conclusions: The results may provide prospective identification of donors at risk of greater psychosocial complications and provide the evidence that needs to be demonstrated to inform standardized guidelines for sibling donor care.

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EXPERIENCES OF HAEMATOLOGICAL CANCER SURVIVORS IN THE POST-TREATMENT PHASE

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Introduction: The incidence of hematological cancers, the fourth most common cancer in the developed world, is increasing in many countries. Survival rates are also rising due to improved treatment and early detection. However, cancer survivors who have successfully finished treatment are often left with residual physical, psychological and social sequelae. The transition from cancer patient to survivor can be a difficult time, with survivors often suffering negative psychological sequelae and frequently lacking the support services they require. We conducted an integrative review which found limited international research addressing psychological sequelae in post-treatment hematological cancer survivors. To provide appropriate assistance to survivors feeling distressed post-treatment, it is essential to know the extent and nature of this problem.

Methods: Semi-structured interviews are being conducted with survivors of hematological cancers who are in remission. Interviewing will continue until saturation of key themes is achieved; it is anticipated that this will be around 25-30 interviews. Survivors are asked questions relating to their experiences with cancer treatment and the post-treatment period, especially any psychological or social issues they may have encountered.

Results: Preliminary results indicate that psychosocial issues are infrequently addressed within the health system. Participant comments suggest that addressing these issues would have been helpful both during treatment and after. Strong family support may also lessen the need for psychosocial support services.

Conclusions: To enable good psychological health for cancer survivors, services need to be readily available to assist those who are struggling psychologically with the after effects of cancer and its treatment.

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FERTILITY AND CANCER TREATMENT-RELATED DECISIONS AMONG YOUNG WOMEN WITH BREAST OR GYNAECOLOGICAL CANCER – A QUALITATIVE STUDY

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Introduction: Given the improving rates of cancer survival, fertility becomes an increasingly important survivorship issue among young female cancer patients. This study explored how young women diagnosed with breast or gynecological cancer made their cancer treatment-related decisions and to what extent these decisions were affected by fertility issues and fear of cancer recurrence.

Methods: Twenty-four young women who had finished active cancer treatment were recruited through clinics and online outlets, and

interviewed over the phone about the importance of fertility at the time of treatment decision-making. Thematic analysis was used for data analysis and the Shared Decision Making model was applied to frame the results. Results: Six themes were identified, 3 of which focused specifically on treatment-related decision-making in the context of maintaining fertility. The findings suggest that prior to treatments women engaged in a process of balancing survival and fertility which served to clarify their priorities with respect to the treatment outcome. When making treatment decisions, women wished: a) to involve their physicians and their significant others, b) to be informed about treatments, and c) for their priorities to be taken into account as much as possible in the process. This is in line with the basic premises of the Shared Decision Making Model.

Conclusions: This study provides evidence as to how young women wish to make cancer treatment-related decisions in the context of maintaining fertility and proposes Shared Decision Making model as the optimal framework to use by physicians in the oncology or oncofertility consultation setting.

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SUPPORTIVE AWARENESS OF EMPLOYERS FOR A GOOD BALANCE BETWEEN WORK AND CANCER TREATMENT

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Introduction: In Japan, the actual support for cancer survivors in the workplace is unknown. It is important that human resource departments of companies (HR) have highly supportive awareness for returning to work.

Methods: We sent questionnaires to 300 HR belonging to the Ehime Chamber of Commerce and Industry, Ehime Prefecture, Japan. The questionnaires included items about each company's goals and present situation to support cancer survivors (15 items required for returning to work). The items were scored on a Likert scale (strongly agree=5, agree=4, neither=3, disagree=2, strongly disagree=1). Additionally, the questionnaire asked how support for cancer survivors was perceived as a benefit to the company.

Results: Eighty-nine companies had office regulations for sick leave (84.7%). The scores of each company's goals for supporting cancer survivors were more than 4 points on all the items. However, scores of 4 points or more about the present situation to support cancer survivors were reported for only 7 items. Typical items were: "have a physician as a necessary measure for maintaining the health of workers (3.65)", "establish consultation (3.73)", and "temporarily limit the amount of work (3.78)". The benefits to the companies were reported to be "ensuring human resources (49.5%)" and "building a relationship of trust (46.7%)".

Conclusions: We found that it is not easy to cooperate with physicians and workplaces in this survey. Many doctors have not received training to enable cancer survivors to return to work. A doctor-oriented guidebook needs to be created; the company's perspective should be included in the guidebook.

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PSYCHOLOGICAL WELL-BEING AND PRIVATE AND PROFESSIONAL PSYCHOSOCIAL SUPPORT AFTER PROSTATE CANCER SURGERY: A FOLLOW-UP AT 3, 12, AND 24 MONTHS AFTER SURGERY

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Introduction: Smaller studies indicate that a cancer patient's partner is important in regard to the patient's psychological well-being. This has yet to be investigated in a large prospective setting. We aimed to investigate types of psychosocial support and whether men improved their well-being at 12 and 24 months after radical prostatectomy.

Methods: In a group of 1446 men participating in the Laparoscopic Prostatectomy Robot Open (LAPPRO) trial reporting low well-being at 3 months after surgery, we investigated predictors of change in well-being at 12 and 24 months using log-binomial regression and forward regression analysis.

Results: No one reported high well-being 3 months after surgery. Of 1370 men reporting low well-being at 3 months, 479 had improved to high well-being at 12 mo. At least one supportive person increased men's chances of improved well-being at 12 months compared with 3 months after surgery (relative risk [RR]: 1.32; 95% confidence interval [CI], 1.10-1.72, as did partner support (RR: 1.91; 95% CI, 1.28-2.86). The more people available for emotional and tangible support, the more likely men were to improve their well-being at 12 and 24 months, especially between 3 and 12 months ($p < 0.0001$).

Conclusions: The private network played a critical role regarding improved well-being. Having a partner and people to confide in within one's private network bettered patient's chances of improved well-being. Helping men mobilize support within their private network early on may be important in the recovery process.

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THE RESEARCH OF THE INFLUENCE FACTORS OF DIGNITY IN PATIENTS WITH ADVANCED CANCER IN CHINA

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Introduction: The core goal of palliative care and hospice care is to make the patient comfortable and live with dignity through the last journey of life. This study aims to explore the influencing factors of dignity in patients with advanced cancer in Chinese culture and to promote the development of hospice care.

Methods: Patient Dignity Inventory (PDI), European Organization for Research of Treatment of Cancer Quality of Life Questionnaire Core-30 Chinese Version (EORTC-QLQ-c30) and Hospital Anxiety and Depression Scale (HAD) were adopted to investigate 150 advanced cancer patients. The dependent variable is dignity. Independent variables include demographic factors (gender, source of income, income, economic pressure, disease stage, cancer metastasis, radiation therapy, hospital or home care) related to dignity, anxiety, depression, and each dimension of the quality of life. Pearson correlation and multiple stepwise regression method were used to explore the influencing factors of dignity in patients with advanced cancer.

Results: The main factors that influence the dignity of patients with advanced cancer are, in turn, emotional function, role function, anxiety, cancer metastasis, quality of health, and financial difficulties.

Conclusions: The major influencing factors of dignity situation in advanced cancer patients involve psychological, medical, and economic conditions. To conserve the dignity of dying patients as persons, the Chinese medical community should: further establish deathbed psychological support systems; strive for national policy support; improve medical environment; and include hospice care services in the medical insurance system.

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THE COMPARISON OF PALLIATIVE CARE BETWEEN CHINA AND JAPAN

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Introduction: Cancer has become the most common cause of death both in China and Japan. Palliative care is an approach that improves the quality of life of patients and their families. The need for palliative care for cancer patients has been progressively acknowledged worldwide.

Methods: In China National Knowledge Infrastructure (CNKI) and Japan Medical Abstracts Society, the keywords Palliative Care/Cancer and Palliative Care/Cancer/Psychology/Intervention were searched respectively. The properties and contents [by Qualitative Synthesis Method (KJ method)] of the literatures were analyzed.

Results: 47 Chinese and 47 Japanese literatures were analyzed. By KJ method, the contents of Chinese literatures were divided into 4 main themes, 10 sub themes (1), 29 sub themes (2), and 128 codes. The current states and problems of Japanese literatures were divided into 7 main themes, 25 sub themes (1), 58 sub themes (2), and 112 codes. The countermeasures of Japanese literatures were divided into 4 main themes, 8 sub themes (1), 39 sub themes (2), and 53 codes. Both in China and Japan, holistic care to patients and grief care to families are done. However, China is facing a big problem in death education.

Conclusions: The palliative care of Japan has been in operation in a virtuous cycle, however China is facing problems. It is worthwhile for China to learn from Japan in their successful experience of palliative care.

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PHYSICAL ACTIVITY AFTER TREATMENT FOR BLOOD CANCER: ATTITUDES AND CONTEXT INTERESTS.

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Introduction: Physical activity may assist recovery, reduce the risk of relapse and enhance quality of life and wellbeing for people re-adjusting to life after treatment for blood cancer. The aim of this study was to determine the physical activity preferences and attitudes of adults after treatment for blood cancer.

Methods: A total of 97 adults (52% females) aged 18-80 years (mean 45.2 years, SD 15.2) undergoing or after treatment for a blood cancer were recruited across Australia via social media, newsletters and professional forums. Participants completed an online questionnaire, identifying their preferences, motivators and barriers for physical activity. Responses were rated using a 5-point Likert scale. Descriptive statistics were used to analyze results.

Results: Only 25.8% of respondents were as active as they wanted to be. The primary motivators for activity were to have more energy (86%), enhance recovery (77.3%), and reduce the risk of relapse (73.2%). Respondents preferred walking (85.6%); and activities that were in the morning (78.4%), self-paced (82.5%), with regular scheduled sessions (69.1%), and as part of a healthy lifestyle program (68.0%). Preferred sources of support were a hematologist/oncologist (60.8%) to recommend activity, and an exercise trainer with an understanding of blood cancer (73.2%) to facilitate/lead programs. Fatigue (54.6%) and lack of motivation (49.5%), were the most commonly reported barriers to physical activity.

Conclusions: Many adults recovering from blood cancer identify a need for and are motivated to engage in physical activity and prefer self-paced walking. Adjunct strategies to address motivation and fatigue-related barriers are needed.

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PROSPECTIVE EXAMINATION OF INTERPERSONAL ENVIRONMENT AND INCREASED EXERCISE IN THE YEAR FOLLOWING HEMATOPOIETIC STEM CELL TRANSPLANTATION

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Introduction: Randomized controlled trial evidence links aerobic exercise to improved mood, energy, and independent functioning in patients undergoing hematopoietic stem cell transplant (HSCT), a regimen of intense chemotherapy followed by infusion of cancer-free stem cells to reconstitute the immune system. Health behavior theories support the importance of the interpersonal environment in exercise promotion, but have not been tested in HSCT populations. Methods: 657 participants received HSCT, survived, and completed a survey. We hypothesized that provider advice and caregiver encouragement to exercise pre-HSCT would be associated with increased aerobic exercise post-HSCT, at 1-year follow-up; Tested via multivariate regression. The sample consisted of 79.9 % married, 60.5 % male, 78.0 % Caucasian survivors an average age of 55.25 years old, ranging from 18-78 years; Most received autologous HSCT (80.0 %).

Results: Interpersonal factors were not associated with increased exercise post-HSCT; Baseline exercise and intention to exercise more were ($p < .01$). Baseline exercise remained significant in multivariate analysis ($F=152.7$, $p < .001$, $R\text{-sq}=.22$). In multivariate analyses provider advice, caregiver encouragement, and marital status were all independently associated with self-efficacy ($F=11.23$, $p < .000$, $R\text{-sq}=.063$). Provider advice and caregiver encouragement also remained significantly associated with intent to exercise more after transplant.

Conclusions: Provider advice and caregiver encouragement to exercise were not associated with increased exercise 1 year later. They were associated cross-sectionally with higher self-efficacy and intention to exercise more. In turn, intent was associated with increased exercise 1-year later, but this effect did not remain significant once baseline exercise was included in the multivariate model.

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THE COMPARISON OF QUALITY OF LIFE OF DIFFERENT EMOTIONAL STATES OF ADVANCED CANCER PATIENTS

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Introduction: Life quality is a comprehensive measuring index system of human health under the background of medical model updating, and is the comprehensive assessment of the individual physiological, psychological, social function and material life of the state of the comprehensive index, representing the modern trend of health measurement. Anxiety, depression, and comorbid depression and anxiety are common in advanced cancer patients, and have different degrees of influence on a patient's quality of life. The aim of this study was to understand the different emotional states and their differences in each of the factors of quality of life of advanced cancer patients, laying the foundation for further intervention studies.

Methods: The Hospital Anxiety and Depression (HAD) and European Organization for Research and Treatment of Cancer Quality of Life Questionnaire-Core 30 (EORTC QLQ C30) was used to conduct a survey of 150 cases of advanced cancer patients.

Results: The incidence of anxiety in advanced cancer patients was 67.4%, the incidence of depression was 63.4%, and the comorbid depression and anxiety rate was 50.7%. The incidence of asymptomatic patients was only 20.0%. Anxiety and depression will be harmful to a patients' quality of life, and patients with comorbid depression and anxiety have serious symptoms, long duration, high suicide rate and poor prognosis than patients with either anxiety or depression.

Conclusions: In most areas of the quality of life, patients with symptoms have worse function conditions, more symptoms and lower quality of life than asymptomatic patients, so do patients with comorbid depression and anxiety than patients with either anxiety or depression.

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BELIEFS ABOUT THE ROLE OF PROTECTIVE BEHAVIOURS IN CONTROLLING PREVENTABLE DISEASE RISKS

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Introduction: Research demonstrating the importance of perceived efficacy in buffering defensive responses to risk messages, suggests that efficacy profiles of target audiences should be considered prior to communication efforts (Gore & Bracken, 2005; Peters, Ruiters, & Kok, 2012). Such profiles may be especially important to understand in the context of preventable diseases such as Bowel cancer. A recent study demonstrated significant gaps in knowledge in this area, where participants were

surprised by the preventability of some cancers (Girschik, Miller, Sun, Jardine, & Weeramanthri, 2016). The current research thus aimed to investigate the perceived controllability of Bowel cancer threats in comparison to other preventable disease risks. In addition, to understand if beliefs about engaging in protective behaviors were able to influence beliefs about controlling the occurrence of Bowel cancer.

Methods: A community sample of participants (N = 236) was asked to indicate their beliefs in their ability to control a number of health behaviors and preventable disease outcomes.

Results: Preliminary analyses demonstrated that although perceptions of control over protective health behaviors were high, control over the occurrence of Bowel cancer was perceived to be significantly low in comparison to other preventable diseases.

Conclusions: This research has implications for best practice in cancer risk communication. Future work will investigate if efficacy perceptions are related to the acquisition or avoidance of information highlighting Bowel cancer risk.

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THE EFFICACY OF PSYCHOSOCIAL INTERVENTIONS FOR FAMILIAL COLORECTAL CANCER: A META-ANALYSIS

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Introduction: Psychosocial interventions are often recommended for individuals with familial history of colorectal cancer, yet their impact on various outcomes has been less explored. Our objectives were (1) to investigate the impact of psychosocial interventions on cognitive (knowledge about cancer genetics, perception of risk), affective (distress, anxiety, depression), and behavioral (uptake of genetic testing, screening, and surveillance) outcomes in individuals with familial history of colorectal cancer; (2) to explore potential moderators and mediators of the interventions' effect.

Methods: We conducted an extensive search in electronic databases PubMed, PsycINFO and Cochrane, investigating the literature published until January 2016. We included studies which examined the efficacy of psychosocial interventions for colorectal cancer; clearly defined the psychosocial interventions; included individuals with familial history of colorectal cancer; and provided sufficient data in order to allow calculation of effect sizes.

Results: Studies included in this analysis mainly explored HNPCC, FAP, and other familial colorectal cancers without an established genetic factor. The studies that met our inclusion criteria employed interventions such as genetic counselling, educational sessions, and psychological interventions. Our results show that psychosocial interventions are efficient in terms of several cognitive, affective and behavioral outcomes. Effect size parameters and sample sizes as well as comparisons between the interventions and main outcomes are included.

Conclusions: Several psychosocial interventions are aimed at improving affective, cognitive and behavioral outcomes in individuals with familial history of colorectal cancer with vast majority of them being efficient. Implications of this study are discussed in detail.

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INDOOR TANNING FACILITIES' FRAMING OF MESSAGES ABOUT UV EXPOSURE RISKS

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Introduction & Purpose: Indoor tanning before age 18 increases lifetime melanoma risk by 85%. Since 2013, a Texas (U.S.) law prohibits use of indoor tanning facilities by minors under age 18. Guided by framing theory, we examined how facilities frame risk communication to answer questions about tanning.

Methods: In 2015, 833 licensed Texas tanning facilities (tanning businesses or salons/spas/boutiques with tanning beds) were telephoned by mystery shoppers posing as minors who had never tanned before and were interested in tanning. Callers asked whether staff would show them how to use tanning beds, the frequency they could tan during the next week, and whether the bed could burn their skin. Out of 633 completed calls, 200 randomly selected transcripts were reviewed by 4 independent coders using thematic analysis.

Results: Frames for facilities' risk communication included: 1) client-focused attributions for burn risk (attribution of burn risk to client's skin type, skin reaction, or lack of following directions), 2) operator expertise (staff portrayed as authority/expert via training, knowledge of tanning process, and recommendation of tanning times based on skin type/reaction), 3) persuasive language assuring safety of tanning (invoking "once every 24 hours" limit on tanning; describing "slow and steady" process to acclimate skin to UV exposure; assuring callers that staff will ensure they not burn); and 4) commerce discourse (increasing tanning frequency described as benefit through memberships and packages; beds described as VIP, platinum/gold/silver).

Conclusion: Facilities' risk communication framing may convey inaccurate UV risk information and a false sense of indoor tanning safety.

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WMN4HLTH: DEVELOPMENT OF A SPIRITUALLY-BASED SMS TEXT MESSAGING PILOT INTERVENTION TO INCREASE CERVICAL CANCER AWARENESS AND PAP TEST SCREENING INTENTION AMONG AFRICAN AMERICAN WOMEN

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Introduction: African American (AA) women account for a disproportionate burden of cervical cancer incidence and mortality rate when compared to non-Hispanic White women. Given that religion occupies an essential place in AA lives, framing health messages with important spiritual themes and delivering them through a popular communication delivery channel may allow for a more culturally-relevant and accessible technology-based approach to promoting cervical cancer educational content to AA women.

Methods: Through semi-structured focus group interviews (n=20), formative research was conducted to explore the range and sources of knowledge, beliefs, attitudes, barriers, facilitators, motivators, and psychosocial predictors in cervical cancer screening. The interviews were also used to identify logistical factors that should be considered when developing the "WMN4HLTH" project. After the "WMN4HLTH" pilot intervention was developed, cognitive response interviews (n=10) were used to assess the content of the culturally-appropriate and spiritually-grounded SMS text messaging library.

Results: Development of the SMS text messages involved consideration related to the content of the messages and technological specifications. Focus group participants overwhelmingly reported cellphone use and an interest in receiving spiritually-based SMS text messages on cervical cancer prevention. Findings from the cognitive response interviews

revealed that the content of the text messaging library was acceptable and understandable with the target population. Initial usability testing also showed early feasibility.

Conclusions: The development of the "WMN4HLTH" pilot intervention provides important insight into what may be considered an overlooked minority population and missed opportunity in health information technology research.

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HOW TO DESIGN EFFECTIVE TESTIMONIAL WARNING LABELS FOR TOBACCO PRODUCTS

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Introduction: Some health warning labels on tobacco products feature images and stories of real people whose health has been affected by smoking (testimonial warning labels, TWLs). We examined the design elements that contribute to TWL effectiveness. Beginning with a TWL that contained a basic warning statement (e.g., "Smoking Can Kill You") and testimonial image, we examined the impact of adding: (a) identifying statements detailing the person's name, age and health status; and (b) explanatory statements that elaborated on the basic warning using a testimonial or non-testimonial format.

Methods: In an online quantitative experiment, adult smokers in the United States were randomly assigned to one of six experimental conditions (2 [identifying statement vs. none] x 3 [testimonial explanatory statement vs. non-testimonial explanatory statement vs. none]), or a control condition (text only non-testimonial WL). In each condition, participants were exposed to multiple WLs focused on different health topics. Effectiveness was assessed immediately following exposure using measures of perceived effectiveness, emotional responses and behavioral intentions, and at five-week follow-up using self-reported quit attempts and success.

Results: Preliminary analyses suggest that TWLs are more effective than the text only non-testimonial WLs. TWLs with identifying statements are more effective than those without, and TWLs with non-testimonial explanatory statements may be more effective than those with testimonial explanatory statements.

Conclusions: For optimal effectiveness, TWLs should combine the basic warning and testimonial image with a brief statement that identifies the person and a more detailed explanatory statement that elaborates on the basic warning in a general way.

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ECOLOGICAL CORRELATES OF PRESCHOOL CHILDREN'S SCREEN TIME

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Introduction: Many preschool children spend excessive time on

screens (e.g. watching TV) despite the negative outcomes for health and wellbeing. However, little is known about correlates that could be targeted in strategies to decrease screen time. This study examined correlates of screen time across three levels of the ecological model.

Methods: Parents participating in the HAPPY Study (2008/2009) reported child (3-5y) screen time and potential individual, social and physical environment correlates. Multilevel linear regression was undertaken, stratified by sex and controlling for child age and clustering by center of recruitment. Correlates significantly associated with screen time in bivariate analyses ($p < 0.05$) were included in final models.

Results: Children ($n=937$) spent 108.5 ± 69.6 mins/day in screen time (no sex difference). Individual level correlates were child preference for screen time (+; both sexes), sleep duration (-; boys), and living with the reporting parent (-; boys). Social level correlates were maternal TV viewing (+; both sexes), maternal emotional support for physical activity (+; boys), parental efficacy to limit child screen time (-; boys), parental concerns about physical activity and screen time (+; girls), paternal TV viewing (+; girls), proximal physical activity role modelling (+; girls), and parental rules around screen time (-; girls). At the physical environment level, living on a cul-de-sac was associated with screen time (+; boys).

Conclusions: Most correlates were at the social level, suggesting that strategies to decrease screen time may be best to target parental factors such as their behaviors, support, self-efficacy and rules to effect change in their child's behaviors.

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EFFECTIVENESS OF EMOTIONAL COMPETENCE SKILLS PROGRAMME FOR ADOLESCENTS: RESULTS FROM A PILOT STUDY IN INDIA

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Introduction: Emotional difficulties pose a greater threat to the overall well-being and quality of life of adolescents. Despite the need, a gap exists between research and implementation of school based promotive interventions for the same. The present pilot study, part of another main study, was an endeavor to assess the emotional needs of adolescents and to formulate a universal intervention programme for the same in the Indian context.

Methods: To assess emotional needs, an exploratory phase which followed a descriptive design, consisting of survey ($n=272$) and focus group discussions ($n=40$; 20 students, 10 teachers and 10 parents) was conducted. The pilot study followed a prospective design. Themes generated were incorporated into formulation of, an eight session universal intervention programme. A group of school ($n=15$) and college students ($n=6$) who underwent the programme, were assessed at baseline and post intervention.

Results: At post-intervention, for both the groups, two of the primary outcomes measures of impulsivity and academic self-efficacy showed significance in the expected direction. Among college students, outcome measures of regulation of emotions and other blame showed a significant difference. Academic self-efficacy among males and perspective taking and emotional competence among females indicated a significant difference post-intervention.

Conclusions: This is a one of a kind programme in India, catering to emotional needs of adolescents. It suggests a need for more such

programmes amongst this population, where help seeking with respect to mental health related issues are observed to be low.

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A COMPARATIVE EVALUATION OF THE STRESS MANAGEMENT PROGRAM FOR HIGH SCHOOL STUDENTS

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Introduction: The present study was developed for the stress management program of high school students aimed at self-help based on cognitive behavior therapy, and examines the effectiveness of the program.

Method: The survey consisted of 77 high school students, who were assigned to either a control group or an experimental group. This program was comprised of lectures and works based on the cognitive behavior therapy. The program was conducted once and was one and half hours in duration.

Result: The intervention group consisted of twenty-five people and the control group was forty eight people. At the conclusion of the survey the answers from both groups were analyzed. No differences were found between the experimental and control groups in terms of CSR sub category scores, total score, or self-efficacy on stress management's scores in the t-test. This program suggested significant improvement in the Children Stress Response scale and self-efficacy to stress management.

Discussion: It is important for these young adults be given the opportunity to acquire stress management skills. Rather than to attend to only high school students with depressive tendencies, the Stress Management Program works toward an environment that enables the class body throughout the year. Further development is needed to provide teachers with a highly effective program that can be easily and safely implemented. In this way we can create an environment to promote the development of primary prevention functions for stress in these young adults and arm them for the future.

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STUDY OF THE DEVELOPMENT AND BEHAVIOR WITH GENDER DIFFERENCES IN A RAT VALPROATE-INDUCED AUTISM

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Aim: To investigate the gender differences of the development and behavior in VPA rats.

Method: We induce the model of autism with rats prenatally exposed to VPA. On embryonic day 7-35, we have evaluated the development and behavior of rats, and tested its weight, eye opening, the growth of vestibular organs, swimming ability, and the abilities of learning and memory. We also have detection of locomotor activity in open field test, and evaluate social behavior in three-chamber sociability test.

Results: Compared to control rats, the VPA rats expressed developmental delay, learning and memory disorders, hyperactivity and impaired social interaction ($P < 0.05$). Besides, the VPA rats expressed sex dimorphism characteristics ($P < 0.05$).

Conclusion: The VPA rats can imitate the features of autism well.

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THE ASSOCIATIONS OF TRADITIONAL BULLYING, SMART PHONE CYBERBULLYING WITH RISK BEHAVIOURS AND MENTAL HEALTH AMONG JAPANESE HIGH SCHOOL STUDENTS.

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Introduction: Bullying is widely recognized as a serious phenomenon affecting the well-being of youth. With the digital revolution characterized by a rapid expansion of internet, social network services, and smartphones, "cyberbullying" has increasingly become an important issue, along with the traditional bullying. This study aimed to examine the associations of traditional bullying and cyberbullying with risk behaviors and mental health of Japanese high school students.

Methods: This is a nationwide cross-sectional survey using quota sampling to select eleventh grade high school students in Japan.

Results: In total, 5,775 students completed the self-reported questionnaire. Overall, 25.1% of students reported ever experienced traditional bullying, of which, 5.2%, 10.9%, and 8.9% respectively experienced bullying as a bully, a victim, and a bully-victim. In parallel, 18.2% of participants ever experienced smartphone cyberbullying, either as a bully (6.1%), a victim (6.6%), or a bully-victim (5.5%).

Regardless of the type of bullying, bullies were more likely to use alcohol. Victims were more likely to experience self-harm, and to have low self-esteem, while bully-victims were more likely to use alcohol, to experience self-harm, and to engage in early sexual relationship. Particularly, the odds of mental distress were higher among victims and bully-victims, and lower among bullies.

Conclusion: A relatively significant proportion of Japanese high school students engaged in both traditional and cyber-bullying. Our study highlights the need to rapidly address this issue through for example anti-bullying education programs. Such campaigns should take into account the documented factors associated with bullying among bullies, victims, and bully-victims.

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EXPERIENCE OF SIBLING DEATH IN CHILDHOOD AND RISK OF ADULT MORTALITY: A NATIONAL COHORT STUDY FROM SWEDEN

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Introduction: Although there is some previous evidence of an association between loss of a sibling in adulthood and subsequent mortality, no previous studies have examined whether sibling death in childhood is associated with adult mortality using total population data.

Methods: A national cohort born in Sweden in 1973-1982 (N=717,723) was followed prospectively in the Cause of Death Register until 2013, i.e. from ages 18 years to 31-40 years of age. Cox proportional hazards models were used to analyze the association between sibling loss during childhood and mortality in young adulthood.

Results: After adjustment for socio-demographic confounders and parental psychosocial covariates (parental psychiatric disorder, substance

abuse, severe criminality and receipt of social welfare), HR for all-cause mortality in bereaved siblings versus non-bereaved siblings was 1.39 (95% CI: 1.14-1.69). Risks were more pronounced for the loss of a non-infant sibling (i.e. >1 years) (HR 1.53, 95% CI 1.18-1.95), and when exposed to loss of a sibling in adolescence (i.e. in the ages 12-18 years) (HR 1.71, 95% CI 1.24-2.35). Excess mortality risk was found for concordant causes of death (i.e., siblings dying from the same causes), but not for discordant causes.

Conclusions: The loss of a sibling in childhood has consequences for the health of bereaved siblings in adulthood. Health care professionals should increasingly acknowledge bereaved siblings. An important task for future research is to furnish the relative importance of underlying mechanisms linking sibling deaths and mortality in bereaved siblings.

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SCHOOL BASED, UNIVERSAL PREVENTIVE INTERVENTION FOR DEPRESSION AND SUICIDAL BEHAVIOURS IN INDIAN YOUTH

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Introduction: There is significant gap with respect to the prevalence of depression and suicidal ideation and help seeking among youth in India. The reasons range from lack of knowledge, minimizing the problems, availability of mental health help to stigma of help seeking. In this background the current study attempts to examine the effectiveness of a universal school based educational intervention in reducing depressive symptoms, suicidal behaviors and in enhancing coping among youth in schools. **Methods:** A single group pre and post assessment design was used. Youth studying in 8th to 12th standard from public and private institutions were included (8th -10th standard, n=168; 11th and 12, n=205). The tools used were: Checklist of stress, coping and suicidal behaviors, Beck depression inventory-II, Suicide probability scale and Adolescent coping orientation to problems experienced inventory. Classroom based 90 minute single session intervention was carried out in group format. A total of 15 sessions were carried out in 6 institutions. Descriptive statistics, analysis of variance and t tests were used to analyze the data.

Results: There was significant reduction in suicidal ideas and attempts, depression and suicidal probability scores and improvement in coping strategies used. Older youth showed better improvement on depression, suicidal risk and coping compared to younger youth. Youth from private institutions and females showed better improvement on most of the variables. Significant improvement was seen for youth having more severe depression.

Conclusions: The study provides preliminary evidence for efficacy of a brief universal preventive intervention for depression and suicidal risk.

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"IT FEELS LIKE WEARING A GIANT SANDBAG." ADOLESCENT AND PARENT PERCEPTIONS OF FATIGUE IN PAEDIATRIC MULTIPLE SCLEROSIS

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Introduction and purpose: Fatigue is one of the most common and disabling symptoms of multiple sclerosis (MS), associated with depressed mood, impaired school performance and lower quality of life in children and adolescents with MS (caMS). Fatigue in caMS is poorly understood, and effective treatments for fatigue are currently lacking. This is the first qualitative study to explore experiences of fatigue in pediatric MS. The aim was to gain insight into how caMS and their parents respond to and manage fatigue.

Methods: In-depth semi-structured qualitative interviews were conducted with 15 caMS and 13 parents, either face-to-face or via telephone. Inductive thematic analysis was primarily used, incorporating elements of grounded theory.

Results: Five key themes were identified. *The Lived Experience of Fatigue & Impact on Daily Activities, Uncertainty and Uncontrollability of Fatigue* and *Balancing Activities* were themes common to caMS and parents, whilst parents uniquely expressed *Concern* about their children's well-being and future, and caMS solely discussed their experiences of *Social Support and Disclosure*. An additional overarching theme addressed participants' *Emotional Responses to Fatigue & its Impact*.

Conclusions: This study provides novel insights into the experience and management of fatigue in pediatric MS from the perspective of both caMS and parents. Although some findings echoed experiences of fatigue in other populations, such as perceiving fatigue to be uncontrollable, this study also highlighted new factors in pediatric MS, such as issues about disclosure. Fatigue management interventions involving caMS, parents and teachers should be developed and implemented in clinical practice.

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RACIAL/ETHNIC DIFFERENCES IN THE RELATIONSHIP BETWEEN STRESSFUL LIFE EVENTS AND QUALITY OF LIFE IN ADOLESCENTS

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Introduction: To reduce disparities in health issues among racial/ethnic groups they must first be identified. Among important health outcomes that should be assessed is an individual's quality of life (QOL). QOL can address the well-being of large populations and inform medical and health-policy interventions that may be necessary. Racial/ethnic disparities in QOL have been documented among adolescents, which may be disproportionately affected by stressful life-change events (SLE). This study aimed to examine racial/ethnic and developmental differences in the relationship between SLE and QOL from pre- to early- to mid-adolescence.

Methods: Data were from 4,491 participants in the Healthy Passages™ project, a population-based survey of fifth, seventh, and tenth grade youth in the US who were Black, Latino, or White. QOL was measured with the PedsQL and SLE with 9 items about family-related events: (e.g., parent's death, a family member's injury/illness, residential change, new child to the household, parental separation or divorce).

Results: Based on path analysis, SLE was associated with QOL, but differences among racial/ethnic groups were significant. Latino adolescents had the greatest negative association from SLEs to psychosocial QOL.

Conclusions: Racial/ethnic differences present in the relationship between SLEs and QOL need to be considered in prevention efforts aimed at these racial/ethnic groups. For instance, Latino youth may need more coping skill training given that their psychosocial QOL is most impacted by

SLEs. Additionally, adolescents in different racial/ethnic groups may display impaired health differently than traditionally observed.

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PARENTING STYLE, PARENTING PRACTICES, AND PRESCHOOL-AGED CHILDREN'S SUGAR-ENRICHED FOOD INTAKE

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Introduction: Parenting style as well as food parenting practices have been associated with children's food intake. How parenting style, parenting practices, and children's food intake are linked to each other is less studied. The aim of this study was to examine whether parenting practices mediated the associations between parenting style and children's sugar-enriched food and drink intake.

Methods: A sample of 173 parents and guardians to 3–6-year old children participated in the study. Data was collected in autumn 2014 using a web-based pilot study for the DAGIS study (Increased health and well-being in pre-schools). Parenting style (parental warmth, behavioral control, and psychological control), parenting practices (permissive practices for sugar-enriched food and drink intakes, and using food as reward), and frequency of intake of sugar-enriched foods and drinks were assessed. In the mediation analyses the Hayes process-macro for SPSS was used.

Results: Food rewards and permissive sugar intake practices mediated the association between psychological control and children's sugar-enriched food intake. Using less food rewards mediated the association between parental warmth and low intake of sugar-enriched foods and drinks.

Conclusions: It seems that parental warmth has favorable effects on children's eating habits, whereas psychological control makes parents more inclined to use parenting practices that link to a higher sugar intake. Both parenting style and parenting practices are important factors in interventions aiming to reduce children's intake of sugar-enriched foods.

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THE RELATIONSHIP BETWEEN SLEEP QUALITY AND DISABILITY IN CHILDREN WITH CHRONIC PAIN: THE MEDIATING ROLE OF AFFECT

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Introduction: Chronic pain affects up to one third of school aged children. The association between poor sleep and increased pain sensitivity has been noted in healthy and patient populations. Based on recent theorizing, poor sleep is likely to precede pain, with high levels of negative affect mediating the relationship. The role of positive affect is unexplored. We aimed to examine positive and negative affect as mediators of the

association between poor sleep and disability within a sample of pediatric chronic pain patients (aged 8-17 years).

Methods: Quantitative data was collected from 214 children presenting to a tertiary pain clinic. Questionnaires included measures of sleep quality, functional disability, positive and negative affect, and sociodemographic information including child sex. Generalized linear modelling was performed to identify predictors of the sleep-disability relationship for boys and girls. Bootstrapping analyses were performed on significant predictors to identify mediators. All analyses controlled for children's age.

Results: For boys, high negative affect and poor sleep emerged as significant predictors of increased disability; for girls, high negative and low positive affect, and poor sleep significantly predicted higher disability. Mediation analyses revealed that low positive affect was a significant mediator of the relationship between poor sleep and disability for girls, while no mediation relationships held for boys.

Conclusions: The results suggest sex-specific processes are involved in the relationship between poor sleep and disability in children with chronic pain. In particular, positive affect in girls with chronic pain may be a protective factor when poor sleep precedes disability.

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EAR FOR RECOVERY: PARENT-CHILD COMMUNICATION AND TRAUMATIC STRESS AFTER PEDIATRIC INJURY

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Introduction: Serious pediatric injury is common and can lead to the development of traumatic stress symptoms. While parental support may be protective, it is unknown how parent-child interactions may help or hinder their child's response. Our goal was to assess parent-child interactions in the aftermath of pediatric injury.

Methods: Forty-eight injured children (age range = 8-16 years) and their parents ($n=66$) completed questionnaires regarding traumatic stress as part of a longitudinal study. During the first weekend after discharge from hospital, children wore the Electronically Activated Recorder (EAR). The EAR sampled children's daily life by recording 30 second audio snippets every 5 minutes during the two days. Conversations were transcribed and coded according to who the child was speaking with, what they were doing, and the tone and content of the conversation.

Results: Despite substantial variation between families in the number and type of parent-child interactions, preliminary analyses suggest that on average, children spoke during 41.8% of their wake time. Of these conversations, 12.1% (range = 0-78%, median = 7.8%) referred to the injury. Children mainly spoke with their mother (56.4% of injury conversations), followed by their father (24.0%), sibling(s) (19.9%) and friends (11.1%)

regarding the injury, and 18.0% of injury conversations referenced emotion. Injury conversations with highly stressed parents were associated with higher traumatic stress symptoms in their children.

Conclusions: Even shortly after a serious injury, only a minority of the parent-child conversations appear to be about the injury. Parental traumatic stress may influence the benefits of these interactions.

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THE MODERATING EFFECT OF HUMOR STYLE ON THE RELATIONSHIP BETWEEN SOCIAL NETWORK INDICATORS ON BULLIED EXPERIENCE AND MENTAL HEALTH AMONG JUNIOR HIGH SCHOOL STUDENTS IN TAIWAN

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Introduction: School bullying is a serious problem in the world. Importantly, bullying has linked to many negative outcomes, including mental illness, substance use, and suicide. Particularly, past studies have found that social network indicator appears to be one of the strongest predictors of bullying. However, humor and laughter have also been regarded as helpful mechanisms for relieving tension in the body and protecting the body and spirit. The purpose of this study was to explore which humors style can moderate social network indicator between bullied experiences and mental health.

Method: A total of 2,474 students from grade 7 to grade 9 were involved in the study. Social network indicators derived from peer nomination to classify the numbers of in-degree and out-degree. Bullied behaviors were classified into three types as physical, verbal and relation. The classification of humor expressions was based on the Taiwan Adolescent Humor Instruments (TAHI). We used UCINET, SAS, and LISREL to verify our hypotheses.

Results: The highest proportions of students with verbal bullied experience were observed. We further found that lower in-degree and higher out-degree individuals were more likely to be bullied (physical/verbal/relational). In particular, using negative humor style (Self-deprecating and other-devaluing) increases bullied experiences and had a moderating effect between social network indicator and bullied experience.

Conclusion: Social network indicators were significantly associated with bullied experience and mental health. In particular, negative humor style is an important moderating factor. Thus, teachers should consider teaching positive ways of humor performance in every school period.

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FAMILY LIVE-IN THERAPY FOR ADOLESCENTS AND YOUNG ADULTS' MENTAL DISORDERS

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Introduction: nowadays more and more adolescents and young adults

suffer from mental disorders. Side effects of psychiatric drugs affect their whole life. Family live-in therapy includes the advantage of both traditional family therapy and live-in therapy and avoids their limitations.

Methods: parents and children live in an apartment at least one month. Psychotherapists observe their communication, behaviors, and conflicts around clock. They are formed three interactive groups – parents, children, and parents-children. Group therapy for them gets excellent results. People in groups are encouraged to reflect on their life and focus their feelings and conflicts. The therapists can help them immediately when their problems exposed. Bad appetite, sleepless, and constipation are main symptoms for nearly all mental disorders. Children need to eliminate above symptoms during therapy.

Results: Beijing Mental Home makes a family live-in program and has helped more than 60 families for three years. adolescents and young adults who suffered from anxiety, major depression, bi-polar disorder, Alcohol abuse, mania, obsession, anorexia nervosa achieved full commission without drugs and became better and better in the aftermath. Tenpa youths of autism age from 18 to 26 have been reducing symptoms gradually. One of five young adults of schizophrenia achieved full commission. Another one reduces the doses of drugs. Three of them remain unchanged because they take drugs for prolonged period of time or their parents do not change themselves.

Conclusions: Family live-in therapy is very effective. However, it is expensive and could not continue unless it gets financial sponsorship.

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THE IMPACT OF PARENTAL AGE AT BIRTH ON SELF-REPORTED BEHAVIOUR PROBLEMS IN ADOLESCENTS

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Introduction: Increasing parental age at childbirth has been associated with medical risks for both mother and child. Previous studies have identified parental age as an important predictive factor for child and adolescent behavior outcomes. This study looked to examine whether maternal and paternal age influenced adolescent-reported behavior outcomes in a prospectively collected cohort population-based cohort. This study also sought to estimate the level of concordance between parent- and adolescent-reported behavior problems in the adolescent.

Methods: The Western Australian Pregnancy (Raine) Cohort is a study of 2900 pregnancies. The Youth Self Report for Ages 11-18 was used to measure self-reported total, internalizing (e.g. anxious/withdrawn) and externalizing (e.g. delinquent/aggressive) behaviors in adolescents at the 14- and 17-year cohort follow ups.

Results: Concordance between adolescent- and parent-report data was lowest for internalizing behaviors. There was a significant linear relationship between maternal age and total and externalizing behavior morbidity, but not paternal age. Older maternal age was associated with decreased risk for problem behaviors in adolescents. However, after accounting for other socioeconomic and psychosocial variables, no significant associations between either maternal or paternal age were evident.

Conclusions: This study found no evidence that paternal age impacted upon adolescent-reported behavior problems. After controlling for a number of psychosocial variables associated with both maternal age at childbirth and child behavior, no associations between maternal age and adolescent behavior outcomes were evident.

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WHY ARE FAMILY RITUALS IMPORTANT FOR THE ADAPTATION OF PARENTS OF CHILDREN WITH EPILEPSY?

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Introduction: Family rituals are special events (e.g., meals, celebrations) with a symbolic meaning shared by the whole family. Family rituals have been associated with positive health outcomes for parents and children within the context of pediatric chronic illness. This study aims to explore the associations between family ritual meaning and adaptation outcomes in parents of children with epilepsy, as well as to test the role of two dimensions of parental competence – satisfaction and efficacy – as mediators of these associations.

Methods: Portuguese parents of children with epilepsy ($N=201$), diagnosed for at least 6 months, completed self-report measures assessing main study variables. A path model was built to examine direct and indirect links between family rituals and quality of life and psychological adjustment.

Results: When parents reported stronger family ritual meaning, they also reported higher levels of parental sense of competence and efficacy, which were, in turn, linked to better quality of life, and to lower levels of anxious and depressive symptoms. This model was valid across child's age groups, epilepsy severity groups, and socioeconomic levels.

Conclusion: Empirical evidence was found for the role of family ritual meaning in fostering adaptation outcomes by improving parental sense of efficacy and satisfaction.

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P502

SLEEPING SOUND WITH ADHD: A TRANSLATIONAL RANDOMISED CONTROLLED TRIAL OF A BEHAVIOURAL SLEEP INTERVENTION

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Introduction: Up to 70% of children with Attention-Deficit/Hyperactivity Disorder (ADHD) suffer from behavioral sleep problems. We have previously shown that a brief behavioral sleep intervention, improves sleep, symptom severity, quality of life, and daily functioning in children with ADHD when administered under tightly controlled conditions. This presentation aims to discuss the feasibility and acceptability of recruiting and training pediatricians and psychologists in the community to deliver the intervention to their patients.

Methods: Children aged 5-13 years with ADHD were recruited for this translational randomized controlled trial (RCT) through pediatric practices in Victoria and Queensland. Eligible children met DSM-IV criteria for ADHD, had a parent-reported moderate/severe sleep problem, and met American Academy of Sleep Medicine criteria for a behavioral sleep disorder. Pediatricians were recruited largely through the Australian Pediatrics Research Network. Pediatricians then recommended psychologists to whom they refer patients to be invited into the trial. Pediatricians and psychologists were trained in the intervention, which comprises two consultations covering sleep hygiene and standardized behavioral strategies.

Results: This presentation will discuss the processes involved in conducting a translational RCT with pediatricians and psychologists in the community. Aspects covered will include study protocols (e.g., recruitment of clinicians and participants), training of clinicians, change in knowledge from pre to post training, and challenges encountered.

Conclusions: This trial is an important next step in determining the effectiveness of the intervention when delivered by trained practitioners in the community. To date this style of translational trial has been positively received by both pediatricians and psychologists.

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P503

CONTRIBUTION OF PARENTAL BEHAVIOURS AND INFANT CHARACTERISTICS TO PEDIATRIC SLEEP DISTURBANCE

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Introduction: Pediatric sleep disturbance (PSD) is a major public health concern yet remains highly prevalent. A burgeoning cumulative evidence of PSD and associated negative developmental sequelae and family morbidity now exists. Within Australasia, 36-45% of parents report their infants' sleep as problematic. Findings from numerous investigations underscore the need to address the important gap of identifying early protective and risk factors to assist in the planning of preventive interventions for PSD. The present study sought to identify any parental behaviors and/or infant characteristics that precede and predict PSD.

Methods: A longitudinal repeated measures design was employed. Participants were 52 typically developing infants, and their parents who prospectively completed sleep diaries for 6 days and nights each month over the first year. Accuracy of parent report was objectively validated by videosomnography. Infant's sleep patterns were assessed using Richman's Composite Sleep Scale.

Results: At age 1 month, discriminant functional analysis identified frequent infant night awakenings, parental presence at sleep onset, placing an infant asleep into a cot, and co-sleeping to predict 6-month group membership to either a self/non-self-regulated sleep group, with 90.4% of the cases correctly classified. A repeated-measures analysis demonstrated the same variables at 1 month to also predict membership to either a PSD group or not at age 12 months, with 82.7% of cases correctly classified.

Conclusions: Study findings identified parental behaviors during early infancy contributing towards the development of later PSD, thereby meeting crucial criteria relevant to planning preventive interventions for PSD.

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P504

SELF-COMPASSION: MEANING AND ITS ROLE IN THE PSYCHOLOGICAL WELL-BEING OF ADOLESCENTS IN DENPASAR, A STUDY USING PHOTOVOICE

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Introduction: Self compassion can be regarded as a negative indicator of the existence of stress. Compassion involves an individual's sensitivity to suffering, paired with a strong will of the individual to relieve the suffering (Goetz, Keltner, & Simon-Thomas in Neff & Dahm). Self-compassion can be defined as an effort made by individuals in order to love themselves (Neff). All that is done is for the good of the individuals themselves. Nowadays there is plenty of news related to juvenile delinquency in Denpasar, from adolescents riding loud motorcycles disturbing the neighborhood, suicide acts, to gang riots, which is revealed later that many adolescents were involved in. What the adolescents in Denpasar are doing is endangering themselves, and this means that the adolescents are not making an effort to love themselves.

Methods: This research involves respondents from adolescent communities in Denpasar. Random sampling techniques were utilized to select the adolescent communities involved in the research, with adolescents between the ages of early to late adolescence as subjects. This research uses qualitative methods with photovoice as the data collecting technique. Photovoice is a method to collect data which allows collaboration between researchers and the community (Kuratani & Lai, 2011). The reason for photovoice usage in this research is due to its ability to portray the community's needs through the photos taken by the participants.

Results: The result of this research will discuss the meaning and the role of self-compassion in the psychological well-being of adolescents in Denpasar.

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P505

CLUSTERING OF HEALTH RISK BEHAVIORS AND THEIR ASSOCIATION WITH ANXIETY, SUICIDE IDEATION AND PHYSICAL VIOLENCE AMONG PAKISTANI ADOLESCENTS: FINDINGS FROM THE NATIONAL SURVEY OF 4583 INDIVIDUALS

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Introduction: Unhealthy behaviors are linked with poor mental health and violence among young individuals, yet co-occurrence of health risk behaviors and their association with mental health and violence has been understudied. We examined the association between combined unhealthy behaviors (including consumption of: fast food, soft drinks, cigarette smoking, other tobacco products and physical inactivity) with anxiety, suicidal ideation and physical fight among Pakistani adolescents.

Methods: This survey was conducted in the year 2009 in Pakistan as part of an international effort of Global School Health Survey. Association of clustering of health risk behaviors with anxiety, suicidal ideation and involvement in physical fight were examined using logistic regression analysis by complex sample method, accounting for cluster sampling technique used for data collection.

Results: Of 4583 students, weighted percentage and unweighted count for one, two, three and four or more unhealthy behaviors was 39.4% (n = 1770), 22.1% (n = 963), 5.9% (n = 274) and 1.2% (n = 62) respectively. Weighted prevalence of anxiety, suicidal ideation and involvement in physical fight were 8.4%, 7.3% and 37.4%, respectively. On multivariate analysis after adjustments: students who had four or more unhealthy behaviors had higher odds of; being anxious (OR 2.45, 95%CI 1.31-4.59, p value 0.004), having suicide ideation (OR 4.56, 95%CI 2.58-8.07, p value <0.001) and being involved in physical fight (OR 3.15, 95% CI 1.63-6.08, p value <0.001) compared to those who had not adopted any unhealthy behavior.

Conclusions: This study suggests that the co-occurrence of unhealthy behaviors is positively associated with anxiety, suicidal ideation and physical fight among adolescents.

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P506

IDENTITY, SOCIAL CAPITAL AND DEPRESSION OF MIGRANT CHILDREN IN SOUTHERN CHINA

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Introduction: Migrant children have been a fast growing population in mainland China as a consequence of the large-scale rural-urban migration. However, it is understudied in the existing literature that how the subjective identity of migrant children might have an impact, especially in modifying the effects of social capital on their emotional well-being. This study aimed to investigate 1) how social capital embedded in the family, school and community influenced the children's depression; and 2) how the identity of these children played a role in moderating the effects of social capital on their depression, where identity referred to children's perception of themselves in terms of residency.

Method: Data for the study came from a survey with 849 migrant children living in Guangzhou, China. Depression was assessed by the Center for Epidemiological Study-Depression Scale (CES-D). Family social capital was assessed by parent-child interaction and parental monitoring. School social capital was assessed by student-teacher relationship and peer relationship. Community social capital was assessed by social cohesion and trust, informal social control and sense of belonging to the neighborhood. Identity was assessed by asking the children who they thought they were. Structural equation modelling was used to test the hypothesized model.

Results: Social capital in family, school and community were all negatively associated with the depression of migrant children. Moreover, children's identity acted as an important modifier on those associations.

Conclusion: Social capital in multiple contexts will contribute to lower depression of migrant children. The effects of social capital are especially strong for children who identify themselves as a citizen of Guangzhou.

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P507

DIRECT EXPERIENCE AND UNMET NEED FOR ADOLESCENTS & YOUNG ADULTS (AYA) LIVING WITH CYSTIC FIBROSIS (CF)

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Introduction: Adolescent health is an established subspecialty. However chronic healthcare, including CF treatment, is typically delivered under the auspices of either pediatric or adult care. As treatment has improved, the average age of those living with CF has risen. This has increased awareness of the unique position of young people who face the dual complexity of managing adolescent development and CF itself. Young people with CF may experience impacts of CF specific to the AYA life stage and also specifically demonstrate significant rates of non-adherence to treatment which can cause treatment failure and reduced quality of life. This research therefore sought to explore the direct experience and unmet needs of young people living with CF with the aim of identifying factors which may inform models of care to improve treatment adherence and outcomes for young people living with CF.

Methods: A total of 24 participants aged 16-29 years, diagnosed with CF were recruited from the respiratory services at the John Hunter Hospital and the John Hunter Children's Hospital. Of these, 22 participants engaged in a semi-structured interview about their experiences and needs.

Results: Interviews were transcribed and thematically analyzed. Themes emerging from this analysis related to health provision and health services, living with CF, managing care, transition between adult and pediatric services and psychosocial risk and resilience factors. It is intended that these findings will contribute to the development, implementation and evaluation of an innovative model of patient empowerment designed to improve care and support for young people living with CF.

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P508

SEROTONERGIC ANTIDEPRESSANTS ASSOCIATION WITH A LOWER RISK OF MYOCARDIAL INFARCTIONS

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Background: The literature suggests that Serotonergic Antidepressants (SADs) may be protective against myocardial infarction (MI), which has been thought to be due to effects on platelet activation and aggregation.

Methods: We performed a retrospective cohort study on 217 older adults (age \geq 65) in a psychiatric inpatient admission between 2003 and 2008 at the Jewish General Hospital, Montreal, Canada. Patients were subcategorized into groups: 1) exposed (n=106) and 2) un-exposed (n=111) to SADs. The main outcome measure was incident MI over 5-year follow-up.

Results: There is no significant difference between SAD-exposed and unexposed groups in terms of age, gender and most potential clinical risk factors (hypertension, diabetes, smoking, past history of CVA, and non-use of statins). We found no statistically significant difference between the SAD-exposed vs un-exposed groups in terms of incident MI [3.7% (n=4) vs 4.4% (n=5), Fisher's Exact Test p=0.53].

Discussion: The previous literature examining the association between SADs and MI has been conflicted. Though some research found that administration of SAD could decrease MI incidence or enhance post-MI recovery, there are more studies that failed to detect any association between commonly prescribed SADs and MI. Taking the literature together with our study, we are skeptical of the clinical applicability of using SADs in the primary prevention of MI. We infer that association between SADs and MIs, if any, is not of sufficient clinical importance to warrant changes to current SAD prescribing practices, even in vulnerable older adults.

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P509

THE ASSOCIATION BETWEEN GENERALIZED ANXIETY DISORDER AND MAJOR DEPRESSION WITH BLOOD PRESSURE VARIABILITY AND STROKE IN AN ELDERLY COHORT: THE THREE CITY STUDY

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Introduction: The prognostic relevance of blood pressure variability (BPV) is controversial. Depression and generalized anxiety disorder (GAD) have been implicated with higher BPV in the short term (e.g. days) however their effects on BPV in the longer term (i.e. years) and contemporaneous stroke risk is unknown.

Methods: In a prospective cohort study, 1076 elderly participants (age 78.5 ± 3.78 years, 59% women) underwent structured interview for major depression and GAD. Participants performed home blood pressure monitoring (HBPM) over 3 consecutive days and underwent ambulatory BP measures over 2 years. Systolic BPV was calculated using the coefficient of variation (CV) and standard deviation (SD) method. Generalized linear models assessed the association between depression and GAD with systolic BPV. Stroke risk was determined at 2-year follow-up with hazard models. **Results:** Only GAD was associated with significantly increased BPV at 2 years using the CV ($\beta = .243$, SE = .069; $p < .001$) and SD method ($p = .001$). Ancillary analysis of GAD criterion symptoms suggested that worry most days was significantly associated with CV-BPV at 2 years ($p = .043$). Ancillary analysis of major depression criterion symptoms also suggested that worthlessness/guilt significantly increased CV-BPV at 2 years ($p = .019$) and difficulty concentrating decreased BPV ($p = .018$). Stroke risk was associated with CV-BPV (HR = 1.14; 95% CI 1.03–1.26, $p = .013$) and SD-BPV (HR = 1.10; 95% CI 1.03–1.16, $p = .003$) but not GAD or depression.

Conclusions: GAD was associated with increased 2-year BPV however only BPV increased stroke risk.

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P510

TYPE D PERSONALITY SUBTYPES AND SUBJECTIVE SLEEP QUALITY IN CORONARY ARTERY DISEASE PATIENTS WITH AND WITHOUT SLEEP APNEA: MEDIATING EFFECT OF DEPRESSION

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Introduction: Perceived sleep quality may play an important role in diagnosis and therapy of obstructive sleep apnea (OSA) in coronary artery disease (CAD) patients. However, factors associated with subjective sleep quality in CAD patients with OSA are not well studied. We aimed to (i) examine associations of personality subtypes with subjective sleep quality and (ii) investigate potential mediating effect of depression symptoms.

Methods: A total 660 of CAD male patients participated in this cross-sectional study. Apnea hypopnea index was determined by an overnight polysomnography. All patients were evaluated for subjective sleep quality (Pittsburgh Sleep Quality Index, PSQI), symptoms of depression (Hospital Anxiety and Depression Scale) and Type D personality (Type D Personality Scale). Personality was categorized into a high negative affectivity (NA), high social inhibition (SI), 'Type D' (NA and SI) and 'no Type D'.

Results: Type D and NA were associated with worse subjective sleep quality in both OSA and no OSA patients. Type D, NA and SI were associated with depression symptoms in both no OSA and OSA men. The mediational analysis revealed that all personality subtypes were indirectly associated with PSQI through depression symptoms in no OSA men. Type D and NA, but not SI were indirectly associated with PSQI in OSA men.

Conclusions: Type D personality and NA, but not SI are associated with worse subjective sleep quality in men CAD patients with and without OSA. This association is mediated by depression.

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EMOTION DYSREGULATION AS A MODERATOR OF STRESS ON PHYSICAL HEALTH FUNCTIONING IN CARDIAC PATIENTS

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Introduction: Although perceived stress has been shown to impede health and recovery of cardiac patients, few studies have investigated the role of emotion dysregulation in the association between stress and health deterioration.

Method: Participants were 164 cardiac patients (mean age = 63 [SD=9] years) who participated in a community-based cardiac rehabilitation program, and 101 of them also completed a 3-month follow-up. Participants completed measures tapping perceived stress, difficulties with emotion regulation, and physical health functioning. Medical record reviews were conducted. Hierarchical multiple regressions were performed to examine whether perceived stress and emotion dysregulation contributed to lower physical health functioning at baseline and at 3 months and whether emotion dysregulation exacerbated the negative impact of stress.

Results: After adjusting for age, education, gender, and months in rehabilitation, both stress ($\beta = -.39$, $p < .01$) and emotion dysregulation ($\beta = -.30$, $p < .01$) independently predicted lower baseline physical functioning in separate models. In the combined model, while only stress, but not emotion dysregulation, was significantly associated with lower baseline physical functioning, there was a significant stress by emotion dysregulation interaction ($\beta = -.20$, $p < .01$). That is, for patients with higher emotion dysregulation, stress showed a greater detrimental impact on physical functioning. In prospective analysis, stress ($\beta = -.40$, $p < .01$) and its increase over time ($\beta = .18$, $p = .05$) predicted physical functioning decline at 3 months, and the stress by emotional dysregulation interaction was not significant.

Conclusion: Both perceived stress and emotional dysregulation may be targets of psychosocial intervention for cardiac patients, and improving emotion regulation may further ameliorate the negative impact of stress.

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P512

SUPPORTING PATIENT SELF-MANAGEMENT AND SECONDARY PREVENTION: A NOVEL ONLINE PATIENT INTERVENTION

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Introduction: While cardiac rehabilitation (CR) is recommended

for all patients after an acute cardiac event, attendance is sub-optimal with up to 70% of patients not attending a center-based program. Barriers to attendance are largely due to access issues, with patients who are younger, employed and/or living in regional and remote areas further disadvantaged in accessing center-based support. Help Yourself Online (HYO) was developed to address the gaps in CR reach. HYO is a web-based secondary prevention self-management program for patients recovering from an acute coronary event. The program has been found to be of value in supporting patient behavior change and emotional adjustment following a cardiac event. However, a limitation of the program was the lack of interactivity with peers. Cardiac Connect, a closed patient support online-community for cardiac patients and their carers, was therefore established to complement the HYO program.

Methods: Patients who are post-cardiac event will be invited to complete the HYO program. The program consists of six modules: three addressing psychological wellbeing (depression and the Cardiac Blues, anxiety, and anger); and three addressing specific health behaviors (smoking, diet, and exercise). They will also be encouraged to join the Cardiac Connect community. Participants will complete a questionnaire assessing program acceptability, value and appropriateness. Qualitative interviews will be conducted with a sub-sample of participants.

Results: Evaluation of the program is ongoing. The results of the program evaluation will be presented.

Conclusions: Innovative strategies are required to overcome barriers to accessing CR and to increase participation in secondary prevention interventions.

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P513

FINDING A NEW RHYTHM: SPECIALISED MULTIDISCIPLINARY MODELS OF CARE TO IMPROVE PSYCHOLOGICAL ADJUSTMENT IN PARENTS OF CHILDREN WITH RARE INHERITED ARRHYTHMIA CONDITIONS

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Introduction: Families of children with a rare inherited arrhythmia condition (IAC) face challenges associated with exposure to traumatic events, such as sudden cardiac arrest, as well as complex genetic testing options, activity restrictions, lifelong clinical surveillance, and an increased risk of sudden death. These challenges can bear heavily on children and families, yet parents often struggle to find appropriate psychological support. This prospective cohort study assesses the prevalence and predictors of psychological morbidity in families of children with an IAC.

Methods: Prior to attending a multidisciplinary, pediatric IAC clinic, parents complete measures assessing their child's quality of life and their own symptoms of post-traumatic stress, anxiety and depression. Family functioning, social support, health literacy and unmet needs are also

assessed. Follow-up assessments are completed 1-, 6-, and 12-months post-clinic.

Results: Fifty-eight parents from 36 families have enrolled in the study (response rate: 66%). Diagnoses include Long QT Syndrome (62%), Catecholaminergic Polymorphic Ventricular Tachycardia (29%), and Brugada Syndrome (9%). Twenty-nine percent of children have had an out-of-hospital cardiac arrest. Prior to clinic, 1 in 5 parents reported symptoms of post-traumatic stress warranting clinical intervention. Fifty-five percent of mothers and 38% of fathers perceived their child's emotional health to be at-risk. Using linear regression with generalized estimating equations to account for familial clustering, the strongest determinants of perceived child quality of life were social support, family functioning, and daily life stress.

Conclusions: Psychological support should form part of best practice recommendations for the clinical care of families of children with an IAC.

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P514

INITIATING EXTRACORPOREAL SHOCK WAVE MYOCARDIAL REPERFUSION (ESMR) IN CORONARY HEART DISEASE: PATIENTS PERSPECTIVES

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Introduction: Alternative treatments for individuals with coronary heart disease (CHD) include Enhanced External Counter Pulsation (EECP) and Extracorporeal Shockwave Myocardial Revascularization (ESMR). As a non-invasive intervention, ESMR is safe and may be efficacious in treating CHD but further studies are needed, especially about patients' perspectives about the procedure. This study investigates psychological adjustment and quality of life of CHD patients who have been treated with ESMR.

Methods: A mixed methods research was carried out by interviewing 10 CHD patients who have had ESMR to elicit their perceptions of the ESMR procedures, psychological adjustment and quality of life. The patients completed Hospital Anxiety and Depression Scale (HADS), the Seattle Angina Questionnaire, and Heart Disease Health-related Quality of Life Questionnaire. Clinical evaluations (e.g., using SPECT) before and after ESMR were also obtained.

Results: Almost all (90%) of the patients showed improvement according to SPECT results but most of them (80%) reported no improvement on angina. These patients experienced higher anxiety and depression, as well as lower quality of life compare with those who reported positive improvement. Since ESMR is a non-invasive treatment, all patients felt safe and reclined with the treatment, but 50% of them found it as discomfort procedure and could not explain the logic of the treatment.

Conclusion: This study has identified a discrepancy between clinical result and subjective evaluations of the patients who have been treated with ESMR. It provides a basis for the development of specific clinical procedures and psychological care designed to support this developing alternative treatment.

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PSYCHOLOGICAL DISTRESS AND SLEEP QUALITY IN PATIENTS WITH CORONARY HEART DISEASE: A DOMINANCE ANALYSIS

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Introduction: Mounting research has demonstrated that poor sleep quality is common in patients with coronary heart disease (CHD), and it is significantly associated with psychological distress. However, few studies have examined and compare various types of psychological distress in a single study. This study investigated the relative importance of several common types of psychological distress in relation to sleep quality among CHD patients.

Methods: 148 CHD patients who participated in community-based cardiac rehabilitation completed measures of sleep quality, perceived stress, negative mood, worry, anxiety, loneliness, and trait anger. First, dominance analysis was used to establish the relative importance of different types of psychological distress on sleep quality. Second, hierarchical regression was conducted to estimate the unique variance that each distress type contributed to poor sleep quality.

Results: Dominance analysis suggested that according to the general dominance scores of distress scales, their relative importance in descending order was: worry, anxiety, stress, loneliness, negative mood and trait anger. In block 1 of the regression analysis, covariates (age, gender, education level and history of CABG and PTCA) accounted for a non-significant 3.0% of the variance in sleep quality, $F(5,142) = .87, p = .50$. In block 2, worry accounted for an additional 23.3% of the variance, $\Delta F(1,141) = 44.82, p < .001$. In block 3, anxiety accounted for an additional 3.5% of variance, $\Delta F(1,140) = 7.01, p < .01$. In block 4, loneliness, negative mood, stress, and trait anger accounted for a non-significant 0.5% of variance in sleep quality, $\Delta F(1,136) = .25, p = .91$.

Conclusions: The findings suggest the potential implications of worry and anxiety in poor sleep quality in CHD patients.

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MYOCARDIAL INFARCTION AND GOOGLE SEARCHES ON "STRESS"

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Introduction: The human stress response is a complex phenomenon involving biological, psychological, and social factors. Previous research suggest that psychosocial stress may trigger Myocardial Infarctions (MI) in a population. Here we investigated the temporal association between daily MI rates and daily Google-searches on the word "Stress" hypothesizing that these Internet searches correspond timely to when people experience stress.

Method: Daily hospital admissions of MIs in Sweden registered during eight years (1st January 2006 to 31st December 2013) in the national quality register SWEDEHEART/RIKS-HIA were correlated with a measure of daily Google-searches in Sweden that included the word "Stress". The search-index retrieved from Google Trends is relative to other searches and standardized 0-100. Data from all years were aggregated to one grand 364-day year with synchronized weekdays (n cases = 156,066). Spearman rank correlation was used as measure of association.

Results: Results showed a positive correlation ($\rho = .58, p < .000$) over the grand year. This result pattern deviated considerably during the Christmas and New Year's Holidays (week 51, 52, 1 & 2). When these weeks were excluded the correlation increased substantially ($\rho = .66, p < .000$).

Conclusions: The daily MI rate in the Swedish population is substantially associated with Internet behavior reflecting subjective Stress awareness. These findings are in line with the biopsychosocial hypothesis of the human stress response. During the weeks surrounding Christmas and New Year's Holidays the association was weak. This may be due to changed Internet behavior or to other factors influencing the MI-rate during this period.

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TREAT-TO-TARGET OUTCOMES IN CBT FOR DEPRESSION IN HEART FAILURE

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Introduction: Adaptive treat-to-target interventions enable patients to discontinue active treatment as soon as they meet pre-specified outcome criteria (e.g., remission), instead of being asked to complete a fixed-length treatment protocol. Little is known about factors that may influence the duration of successful treatment in such interventions.

Methods: Secondary analysis of treatment data from a previously published randomized controlled trial of cognitive behavior therapy for major depression in outpatients with heart failure (Freedland et al., 2015). Participants were offered up to 6 months of individual CBT. Cox regression was used to model time from initiation to the end of active treatment.

Results: Data on 57 treatment completers (53% women, age 57+11, baseline BDI-II score 30+8) were analyzed. The median duration of treatment was 17 weeks (range, 5-27 weeks). Older patients needed more time to complete treatment (adjusted HR, 1.03; 95% CI, 1.01 – 1.06, $p=0.02$). Treatment duration did not differ by baseline severity of depression, use of antidepressant medication, or NYHA Class.

Conclusions: HF patients typically need about 4 months of CBT to reach remission of major depression, but many patients need either a shorter or a longer course of therapy. Older HF patients tend to take longer than younger patients to complete CBT for major depression. Neither severe depression nor severe HF prolongs therapy, and antidepressant medications do not appear to accelerate completion of CBT.

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M-HEALTH: THE IMPACT OF SMARTPHONE TECHNOLOGY TO IMPROVE QUALITY OF LIFE OUTCOMES AMONG PEOPLE WITH CANCER: A RANDOMISED CONTROLLED TRIAL

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Introduction: Smartphones have transformed the way people access information across the world. In the cancer control context, smart phone-based interventions offer new possibilities for health promotion and symptom management to reduce cancer patients' unmet needs and distress, and improve their participation in health care. This study aims to test whether access to a new Smartphone app: a) reduces levels of distress; b) reduces unmet needs; c) increases patient ability to participate in their own health management; d) improves quality of life; and e) is cost effective within a formal health economic evaluation.

Methods: This study is a multi-center, randomized controlled trial comprising 250 persons with cancer; 125 will each be randomly allocated (1:1) to the intervention group or usual care control group. Assessments will occur at baseline and one and 12 months after the app is downloaded onto the Smartphone or similar device. The primary and secondary outcomes are a reduction in distress levels and unmet needs, respectively.

Setting. The study will take place at Barwon and Eastern Health, Peter MacCallum Cancer Centre; Epworth Healthcare. Adults receiving treatment with curative intent at day oncology or radiotherapy centers and who have access to a Smartphone or similar tablet device are eligible to participate.

Conclusions: This technology will change how people access information and support, and has the potential to deliver cost-effective, easily accessed interventions, to improve patients' cancer experience, while reducing health care costs. If effective, the results will inform policy and practice across health services and community organizations.

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ACCEPTABILITY AND UTILITY OF A TELEPHONE OUTCALL PROGRAM FOR CARERS OF PERSONS WITH CANCER

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Introduction: We evaluated the acceptability and utility of a telephone outcall program to reduce carer burden among carers of persons newly diagnosed with cancer.

Methods: We recruited 216 carer/person with cancer dyads from four Australian health services. Carers randomized into the intervention group (n=108) received three telephone outcalls (mean call duration: 22min) from a Cancer Council 13 11 20 nurse at three time points (7-10 days after recruitment, 1 and 3 months later). Carers were screened for distress using the Distress Thermometer (range: 0-10) and given tailored information and support. Carers with a distress score of ≥ 4 were referred to their GP for follow up. Participants completed a utility survey one month post-intervention. Carers randomized into the control group (n=108), received three sham outcalls (mean call duration: 3min) at the same three time points and were provided with the Cancer Council 13 11 20 number to contact as needed. Those who chose to contact the service received usual support provided by 13 11 20 nurses (not the outcall program).

Results: Among carers receiving the outcall program, 94% stated it was worth their time and effort to participate in the program; 73% indicated the program was very relevant to them. Fifty-two (88%) reported the calls helped them think things through and think more positively about their situation (81%), reduce their worries (79%), and understand cancer better (60%).

Conclusion: This outcall program is highly acceptable and of perceived benefit for carers who are supporting others with cancer through early stages of treatment.

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P520

IMPROVING THE QUALITY AND REPORTING OF EVIDENCE FOR DIGITAL HEALTH INTERVENTIONS FOR MAXIMUM POPULATION-LEVEL IMPACT: A META-REVIEW

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Introduction: The rapid development of digital health has resulted in poor reporting and quality of the scientific evidence. Many interventions remain under-evaluated, with a dearth of evidence of their wider, population level impact.

Methods: Between 2001 and 2015, we undertook a meta-review to describe, synthesize and evaluate (i) the effectiveness of digital health interventions for the prevention or control of cardiovascular disease, type 2 diabetes and/or depression; and (ii) their population impact using 8 parameters identified in the CONSORT-eHEALTH (Consolidated Standards of Reporting Trials of Electronic and Mobile Health Applications and onLine TeleHealth) guidelines.

Results: Thirty three systematic reviews were included. Effectiveness data were most consistent for mobile health interventions. With respect to population impact: 3% reported comprehensive data on program development, 27% reported comprehensive data on participant program access, 45% provided a comprehensive description of the program being evaluated (model, theory, content, communications channels, prompts), 30% provided indication of where supplementary resources, 15% detailed data collection and storage process such as security, 6% provided a detailed flow chart /diagram of usage, dose, engagement, 48% presented comprehensive data on demographics related to digital divide, and 36% reported comprehensive process outcomes.

Conclusions: Digital health interventions reported in reviews seldom considers parameters beyond effectiveness such as cost-effectiveness, feasibility to scale, and sub-population specific delivery. Their population level impact is likely to be of limited translational value in the absence of such data or standardized protocols that enable consolidation of these data.

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P521

THE ROLE OF EXPECTATION VIOLATION IN ONLINE PATIENT-DOCTOR COMMUNICATION: EVIDENCE FROM A CHINESE ONLINE E-HEALTH WEBSITES

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Introduction: The interactions between patients and doctors now have been largely mediated by a variety of e-Health platforms. Patients can chat with a particular doctor, either via text-based or multimedia tools, describe their symptoms as well as concerns, and ask the doctor for advice. Very few studies have looked at the interpersonal process in computer-mediated conversations,

especially in relation to communication effectiveness and impacts on patients' health behaviors. Drawing on the expectancy violation theory, this study investigates how patients' expectation affects their trust with the doctor and their satisfaction with the mediated patient-doctor interaction.

Methods: The study was conducted using haodf.com, one of the largest online diagnostic websites in China. A sample of 300 adults was recruited to consult any health problem they were concerned with a doctor they picked. A pre-session survey was administered to assess the patients' expectation for the online session. They were surveyed again after the online session to assess expectation violation, trust towards the doctor, and satisfaction with the online session. The chat transcripts of the online session were also collected for analysis.

Results: The analysis revealed significant association between expectation violation and the participants' evaluation of the online session and the doctor. The violation of expectation was centered on information sufficiency, immediacy in response, emotional valence displayed by the doctors.

Conclusion: The results are discussed in lights of patient-doctor communication strategies in computer-mediated environments and in general.

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P521

FORMATIVE RESEARCH TOWARD DEVELOPMENT OF A TAILORED SMARTPHONE APP TO PROMOTE INTERVAL HIV TESTING FOR SPANISH-SPEAKING, HIV-NEGATIVE MEN WHO HAVE SEX WITH MEN

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Introduction: Few Spanish-speaking MSM in the US regularly test for HIV. Although MSM use smartphone apps to sexually connect with other MSM, smartphone apps to promote regular HIV testing remain underutilized. To assist with development and implementation of smartphone-based HIV testing interventions for this population, we must first assess which features and functions of smartphone apps that promote their downloading and sustained use over time, and their preferences for features and functions to include in a HIV testing smartphone app.

Methods: 15 HIV-negative, Spanish-speaking MSM were interviewed in 2/2016. Men's ages ranged from 20 to 68 years old ($M=32.4$ $SD=13.5$) and all identified as Hispanic (67% White, 27% Other, 7% Black). Men's prior HIV testing history varied from never having been tested (13%) to testing within prior 3 months (47%). Interviews were audio recorded, transcribed, translated, and reviewed for themes related to the primary research questions. Results: Men's decisions to download smartphone apps were based on: 1) their perceived usefulness; 2) interest; 3) peer reviews; 4) ease of use; 5) design; 6) cost. In addition to usefulness, men's decisions to continue using smartphone apps over time were influenced by push notifications, entertainment, frequency of updates, and communication abilities. Features and functions they would like to see in a HIV testing app were also explored; themes will be discussed and supported with participant quotes.

Conclusions: The themes identified suggest which features and functions to consider in smartphone app interventions to promote regular HIV testing for HIV-negative, Spanish-speaking MSM.

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P521
THE FEASIBILITY OF A SMARTPHONE APP INTERVENTION DESIGNED TO REDUCE HARM ASSOCIATED WITH RISKY DRINKING

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Introduction: Risky single occasion drinking (RSOD) is common among young adults and is associated with a range of negative outcomes including interpersonal conflict, violence, and long term alcohol dependence. Face-to-face interventions tend to be limited in terms of their reach. eHealth interventions delivered via web or smartphones have the potential to overcome this. Furthermore, as young adults frequently access their smartphones, it is possible to capture the immediate contextual factors associated with alcohol use 'in the moment' and use this information to provide tailored intervention. Over a one month period, this study assesses the feasibility of a smartphone app designed to minimize the harm associated with RSOD through the provision of behavioral prompts (e.g., switching to light beer later in the evening, interchanging each alcoholic drink with a drink of water) that are customized based on both participants' stated goals (e.g., reduce hangovers, spend less money on drinking) and the features of their immediate situation (e.g., current mood, others' drinking behavior, social setting).

Method: Participants were randomly allocated to one of three experimental conditions: (i) self-monitoring only, (ii) self-monitoring with provision of tailored behavioral prompts or (iii) self-monitoring with provision of tailored behavioral prompts and scheduled reminder notifications.

Results and Conclusion: The presentation will report on the feasibility of the intervention as evidenced by participants' adherence to the self-monitoring protocol, engagement with the harm minimization strategies and qualitative feedback on the app's overall usability.

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P524
FACILITATING WEIGHT LOSS WITH THE IMPULSEPAL APP: A FEASIBILITY STUDY

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Introduction: Despite availability of weight management services, people struggle to lose weight. This may, in part, be due to impulsive, rather than rational food choices. The use of interventions incorporating impulse management techniques may, therefore, facilitate weight loss. The ImpulsePal app' was developed to provide several impulse management strategies using smartphone technology. This study aimed to assess the practicality and feasibility of the app' and of conducting a randomized controlled trial to assess the clinical effectiveness of the app.

Methods: Ninety individuals with a BMI of 25 or more and access to an Android-based device were recruited into a 2-arm feasibility study incorporating 2 cycles of action research. Participants were randomized (2:1) to either the intervention group or the wait-list control group with measures including observed weight and self-reported food consumption taken at baseline, 1-month, and 3-month follow-up. Qualitative interviews and satisfaction questionnaires were conducted at 1-month with intervention participants only.

Results: Thematic analyses of interview transcripts suggests that participants require further reminders about available impulse management strategies as well as a visual representation of their progress. Preliminary satisfaction scores suggest that ImpulsePal is 'easy to understand', 'easy to use' and individuals using it are 'very satisfied'.

Conclusions: This feasibility study will inform the refinement of study procedures and of the ImpulsePal app.

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CAN A BRIEF, APP-BASED MINDFULNESS INTERVENTION REDUCE BODY DISSATISFACTION?

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Introduction: eHealth interventions have been viewed as a means to make treatments for psychological conditions more cost-effective and readily available to the public. In addition to reducing concerns about stigma and lack of anonymity, as well as geographic and cost limits associated with attending services, app- and web-based interventions have the capacity to provide usage data that may provide insight into reasons for (failed) efficacy of a given treatment. This presentation reports on preliminary findings from an ongoing 3-week trial of a brief, online intervention to improve body image in those reporting eating disorder symptoms. It incorporated a series of 3-minute mindfulness-based videos designed to alleviate body dissatisfaction and disordered eating symptoms. **Method:** In addition to baseline and post-intervention measures of body dissatisfaction and disordered eating symptom severity, participants completed single item measures of body (dis)satisfaction immediately prior to and following viewing videos offered in the intervention. Participants were able to access these video-based activities as often as they liked, and these data therefore allowed evaluation of frequency of use, when participants typically used these videos (as based on pre-video body satisfaction level), and how effective these videos were in alleviating body dissatisfaction in the moment and also from baseline to post-intervention. **Results and Conclusion:** This presentation will show the impact of frequency and timing of use on participant-level body image and disordered eating symptom outcomes, and will highlight some potential challenges in self-guided intervention, as well as future research directions to help overcome these issues.

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FACTORS INFLUENCING STAFF SUPPORT FOR DECENTRALISATION OF HEALTH SERVICES

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Introduction: Decentralization has been employed in resource constrained settings to improve efficiency, effectiveness, equity and quality of health services. Support of health sector staff is key to its implementation and success. Fiji has made two attempts at decentralizing its health system. Where the first lacked support from staff, the second is seen to be supported by staff. This research examines why staff support for the two decentralization efforts differed.

Methods: A qualitative study using a two-step approach was employed. First, a document analysis of literature on the two waves of decentralization was undertaken. A series of semi structured interviews with key health personnel involved in the second decentralization initiative were then conducted.

Results: The first decentralization effort was seen to be externally driven by a donor organization whilst the second adopted a home-grown

approach. In the first attempt, senior health staff who held power were fearful of devolving some of that power. Compounded by an information asymmetry in favor of the external partners, senior staff lacked confidence in the decentralization process. The second approach, which was more context-specific, adopted an incremental decentralization process and deconsolidation of power from senior to middle level managers. This gradual, home-grown approach has been supported by staff at all levels, interview data suggest that it was seen to be less threatening and staff had input into the ongoing process.

Conclusions: Fiji's experiences reveal that decentralization initiatives that are gradual, inclusive, context-specific and internally driven are more likely to encourage support from staff at all levels.

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A QUALITATIVE STUDY OF PEER SUPPORT AND ADVOCACY ACTIVITIES FOR PROBLEM GAMBLING

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Introduction: Problem gambling is recognized as a significant health issue in Australia, but people with lived experience of gambling problems have often been excluded from decisions about policy and health care. Recently, a number of peer support and advocacy organizations have been established to encourage participation by people with gambling problems. However, there has been no previous research on the experiences on the motivations and aims of individuals involved in these organizations.

Methods: The research involved in depth qualitative interviews with 18 people with lived experience of problem gambling, who are involved in peer support or advocacy organizations in Australia. Thematic analysis was used to analyze the data.

Results: Participants found that peer support and advocacy activities were a crucial part of their own recovery, as well as benefiting others. Participants thought that responses to problem gambling needed to more clearly communicate the harm gambling could cause, and focus on prevention to a greater extent.

Conclusions: People with lived experience have a key role in peer support and advocacy for problem gambling. Their perspectives should be considered in policy and research.

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THE HEALTHRISE PROGRAMME: ADDRESSING BARRIERS TO CARE FOR DIABETES AND HYPERTENSION AT INDIVIDUAL, SOCIAL AND HEALTH SYSTEM LEVELS

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Introduction: Diabetes and hypertension are rapidly becoming global epidemics, particularly in low and middle income countries. There are multiple barriers to care for these conditions, especially in low resource settings – such as poor awareness, limited health coverage, infrastructure and supply gaps in health systems and inadequate social support. HealthRise is a multi-year programme, based on patient centered Continuum of Care model, with the aim of bridging the gaps in diagnosis and treatment in order to improve health outcomes of individuals at-risk and those on treatment.

Methods: HealthRise employs and prospectively evaluates a set of innovative, evidence based and contextually relevant interventions in select districts in the USA, India, South Africa and Brazil, in partnership with local partners and in collaboration with local governments via three systemic approaches - patient empowerment, strengthening frontline healthcare workers and policy-advocacy.

Results: Between 2015 and 2018, HealthRise is expected to identify undiagnosed cases of hypertension and diabetes, to demonstrate patients' access to improved disease management and control. Through rigorous evaluation, the program can become a model in itself for governments and other partners to integrate in their respective healthcare settings.

Conclusions: HealthRise is a unique yet scalable set of interventions aimed at addressing barriers to care for chronic diseases in communities with an end goal of contributing to 25% reduction in premature mortality due to cardiovascular disease and diabetes in the selected countries.

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AS A GENERAL PEDIATRICIAN I DON'T KNOW THE SECOND, THIRD OR FOURTH THING TO DO: BEHAVIORAL HEALTH AND RESIDENCY TRAINING

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Introduction: Medical students trained in US medical schools typically receive about 1 month of exposure to mental health treatment practicum during their training. However, there is little evidence that training to identify diagnose, and treat behavioral health concerns occurs during residency. This study represents the first phase of a program intended to train pediatric residents to deliver care for behavioral health conditions.

Methods: Residents at two large medical centers participated in focus groups to describe their training prior to beginning their residency, as well as to describe attitudes, concerns, beliefs, and barriers in their training as they begin to treat children and their families.

Results: Nine key themes emerged in these first focused conversations with residents including time management, struggles with establishing rapport with patients, knowing referral sources and protocols, comfort level diagnosing but not knowing how to treat a variety of conditions, difficulties in establishing communication and relationships with adults and dysfunctional families, making mistakes that result in children dying, the relative importance of behavioral health compared to some of the more obvious 'physical' conditions, and a general lack of training in addressing a wide range of behavioral health issues.

Conclusions: Fear, frustration, and a recognition that training to date limits new physicians in their ability to confidently address behavioral health problems. Changes in medical school training and residency to improve skills in behavioral health treatment may be warranted. Residents will be followed throughout their training to determine best strategies to improve knowledge, skills, and confidence.

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EXPERIENCE OF HOPE IN MOTOR NEURON DISEASE (MND) PATIENTS AND THEIR SIGNIFICANT OTHERS: AN EXPLORATIVE STUDY

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Introduction: ALS and PMA, collectively referred to as Motor Neuron Disease (MND), are progressive, lethal diseases with a profound impact on patients and their significant others (SO). In other life threatening diseases, like cancer, the importance of hope in the adaptation process has been recognized. We aimed to study the experience of hope in MND patients and their SO. Outcomes can guide clinicians in their communication with patients around hope and inform the development of supportive care for those in need.

Methods: In-depth interviews were conducted in 24 patients with MND patients across different disease stages, and their SO (n=22) at their homes. Interviews were audiotaped, transcribed and thematically analyzed (MAXQDA).

Results: While facing medical reality, most patients and their SO experienced and valued hope as essential for continuing living with MND. Hope for a cure shifted to hope for a meaningful life, with the exception of a few who denied a sense of hope. Themes emerging from the interviews were hope concerning a) length of life, b) living well with MND and 3) end-of life and thereafter. Main source of hope for SO was the hopefulness of the patient. Retaining hope during disease progression demanded patients to take on an active role, thereby keeping emotional balance.

Conclusion: Hope is a salient concept in the context of living with MND for both patients and SO. Clinicians should discuss hope with their patients and SO and offer support aimed at fostering hope and strengthening resilience for those in need.

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HELP-SEEKING PATHWAYS FOLLOWED BY PATIENTS WITH CHRONIC DISEASES IN A RURAL COMMUNITY IN LIMPOPO PROVINCE, SOUTH AFRICA

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Introduction: In this poster, we present the results of a study that sought to investigate help-seeking pathways that are followed by patients with chronic diseases in one rural community in Limpopo Province, South Africa. Specifically, the objectives of the study were: to investigate help-seeking pathways that were followed by patients with chronic diseases before and after they were diagnosed with their condition; and, to explore the treatment modalities that were used by the patients before and after they started receiving hospital treatment for their chronic conditions.

Methods: The sample consisted of 10 participants (female = 6; male = 4) with the age ranging from 42 to 96 years. The participants were selected through snowball sampling. Data were collected using semi-structured interviews and analyzed using interpretative phenomenological analysis (IPA).

Results: Among others, the study found that the participants tend to use both traditional and Western health systems to deal with their chronic conditions. One of the reasons advanced for this movement from one system to the other is the perception of poor health outcomes in the one system when compared to the other.

Conclusions: Based on the findings of the present study, it is concluded that help-seeking pathways are mainly determined by the perceived causes of the illness, which are culturally rooted.

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BELIEFS AND PERCEPTIONS IN RELATION TO HEALTH AND WORK

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Introduction: Recent empirical and anecdotal evidence suggests that it is not only an individual's injury or diagnosis which determines whether they will be able to obtain a job or resume work after an injury, but also their beliefs and perceptions about their health and work. To investigate the extent to which beliefs and perceptions contribute, an evidence-based biopsychosocial questionnaire was developed and applied to two different cohorts.

Methods: Our questionnaire comprised a mix of existing scales from validated questionnaires and independently developed items. It was applied to n=142 individuals from two independent samples: individuals from the Disability Employment Sector (DES, n=63), and a long-term workplace injury cohort (n=79). Correlations were performed and some items were removed, reducing the overall length and improving usability of the questionnaire.

Results: Individual biopsychosocial profiles were used to determine the most suitable intervention in advance of more traditional vocational job seeking assistance. The results have also generally informed our approach to supporting individuals to achieve vocational goals. In addition, aggregate results for each sample were compared and provide an interesting narrative about differences across the populations. A novel intervention approach informed by the assessment results has recently been applied to over 100 individuals and has been evaluated with pleasing results.

Conclusions: The questionnaire is a useful tool to guide targeted intervention designed to address individual negative beliefs and perceptions about health and work, and other biopsychosocial factors. Preliminary results suggest that this is effective as a pre-cursor to job seeking efforts.

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FOOD RELATED CHRONIC ILLNESS AND FOOD CHOICE MOTIVATIONS

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Introduction: The drive to eat in general, regardless of demographics considerations and physiological requirements, is strongly influenced by psychological motivations such as emotion. However, the diagnosis of a chronic health condition often necessitates lifestyle changes, in particular dietary adjustments, in order to effectively manage the condition.

This paper explores the food choice motivations of adults diagnosed with a chronic illness where dietary adjustments are required or recommended as treatment mechanisms (e.g. diabetes, food allergy, heart disease).

Methods: An online survey was completed by 1432 participants who responded to a range of questions regarding their dietary habits and lifestyle factors, including completion of the food choice questionnaire. 32% of participants reported the diagnosis of a food related chronic health condition.

Results: Differences in food choice motivations based on age, gender and education were partialled out. Following this there were no significant differences in food choices based on the presence/absence of a chronic health condition, nor were there differences in food choices between chronic health conditions.

Conclusions: These results were unexpected, and suggest that despite being aware of their diagnosis of a chronic health condition, this factor is not having a substantial influence on the mechanisms underpinning food choices. Further understanding of this lack of relationship is required and may inform interventions to promote effective dietary change as it appears that even in the presence of a chronic health condition ingrained eating habits and motivations may be maintained.

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ASSOCIATIONS BETWEEN ASTHMA-SPECIFIC RUMINATION, EMOTION REGULATION, PSYCHOLOGICAL DISTRESS & ASTHMA-QUALITY OF LIFE

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Introduction: Asthma affects 1 in 10 Australians, placing significant burden on affected individuals and the healthcare system. Psychological distress and reduced quality of life are prevalent, yet poorly understood, sequelae of asthma. The aim of this study was to investigate the extent to which asthma-specific rumination and emotion regulation are associated with psychological distress and quality of life in affected individuals.

Methods: Adult community members and university students (N=241) affected with asthma completed the online survey. Measures included the Multidimensional Rumination in Illness scale, Emotion Regulation Questionnaire, Depression Anxiety Stress Scales, and Marks Asthma Quality of Life Questionnaire. Separate hierarchical regression analyses were carried out for each outcome variable.

Results: More than 33% of the sample experienced moderate to severe psychological distress. Regression analyses indicated that rumination and emotion regulation were significant predictors of depression, anxiety, and stress, whereas only rumination significantly predicted asthma-quality of life. Rumination and emotion regulation together accounted for 38% (depression), 35% (anxiety), 48% (stress) and 60% (quality of life) of variance in these outcome scores, respectively. In addition, there was a significant interaction between rumination and emotion regulation as predictors of depression, such that the strength of the association between rumination and depression was greatest at higher levels of expressive suppression.

Conclusions: These findings corroborate previous reports of high levels of psychological distress in asthma affected individuals. They highlight the need to consider the roles of rumination and emotional regulation strategies when targeting quality of life and psychological distress in asthma-affected populations through clinical intervention.

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MENTAL HEALTH SERVICE UTILIZATION AMONG MEN WHO HAVE SEX WITH MEN WHO ARE AT RISK OF MENTAL HEALTH PROBLEMS IN HONG KONG

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Introduction: Mental health problems are prevalent among men who have sex with men (MSM). Early help seeking could reduce suffering of the affected individuals. However, underutilization of mental health services is common among MSM. The present study explored factors associated with mental health service utilization (i.e. having sought help from mental health professionals; and intention to seek mental health services in case of having mental health problems) among two subsamples of MSM who are at risk of mental health problems (Subsample 1: those who scored above the cut-off for probable depression, probable anxiety, or having suicidal ideation; Subsample 2: those who self-perceived having mental health problems in the past 12 months) in Hong Kong.

Methods: A survey was conducted among 350 MSM, of which 175 (50%) and 143 (40.8%) were included in subsamples 1 and 2, respectively.

Results: Multivariate logistic regressions showed that factors for having sought help from mental health professionals included disclosure of MSM status to all family members and positive attitudes toward seeking professional psychological help for Subsample 1; and positive attitudes toward seeking professional psychological help, ever diagnosed for mental disorders, and enacted stigma for Subsample 2. Factors associated with intention to seek help from mental health professionals included willingness to disclose MSM status to mental health professionals for Subsample 1, and positive attitudes toward seeking professional psychological help for both subsamples.

Conclusions: Interventions to promote help seeking for mental health problems among MSM should promote positive attitudes toward seeking psychological help and reduce stigma.

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DOES CYBERCHONDRIA PREDICT HEALTH CARE UTILIZATION?

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Introduction: 'Cyberchondria' describes a pattern of researching health information online that is motivated by anxiety about one's health and that becomes excessive and in turn increases distress. The Cyberchondria Severity Scale (CSS) assesses this construct. We investigated whether cyberchondria contributes uniquely to the prediction of healthcare utilization if one controls for age, sex, general health anxiety, somatic symptoms and depression and current illness.

Methods: In an online study, n=500 participants (age 29.1±10.4 years, 73.6% women) filled in the CSS, the Center for Epidemiologic Studies Depression Scale (CES-D), the modified version of the Short Health Anxiety Inventory (mSHAI), the somatic symptom scale of the Patient Health Questionnaire (PHQ-15) and the Health Care Utilization (HCU) scale. Hierarchical linear regressions (blockwise ENTER) with the criterion

amount of health care utilization and the predictors age, sex, current illness, CSS score, mSHAI-score, CES-D score and PHQ-15 score were calculated. Results: Age, sex, current illness, PHQ-15 CES-D and mSHAI contributed to the prediction of health care utilization, whereas cyberchondria did not (adjusted $R^2 = .22$).

Discussion: In a general population sample, cyberchondria did not contribute to the explanation of health care use, once general health anxiety had been taken into account. The reverse was not true. This points to the fact that cyberchondria may be a facet of health anxious behavior and should be considered in that context rather than as a distinct and specific problem.

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GOOD DEATH IN TAIWANESE END OF LIFE CARE: A QUALITATIVE STUDY

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Introduction: Good death is so valued issue on end of life care (EOLC) of national health policy in Taiwan. Therefore, to explore the components of a Taiwanese “good death” in clinical perspective is quite influence in EOLC development. In our study, to conceptualize the ideals locally and to clarify the relative importance of each component is our major aim.

Methods: This study was designed as a preliminary study of quantitative research by convenience sampling. We set the inclusion criteria for terminal cancer patients as having incurable advanced cancer, knowing their diagnosis, having no cognitive impairment, being aged from 20 to 80. Semi-structured interviews were audio-taped and transcribed. Content analysis was performed to generate properties, categories and supra-categories.

Results: Thirty-three terminal cancer patients were recruited from one regional cancer institute and one medical center hospital in Taiwan. Patients’ primary sites of cancer were colon, breast, lung, gastric, lymphoma, prostate, cervical, liposarcoma, nasopharyngeal, and hypopharyngeal cancers. Thirty properties were extracted and divided into 5 main domains including Physical comfort and pain control, Whole and holistic person concerns, Family and social time, Facing death moment, and Terminal cancer control. The properties, Appear clean and good self-looking on color of face by Qi, and Traditional medical help to maintain hope, were most unique in Taiwan palliative quality of care.

Conclusions: To structuralize and facilitate development of good death of measures to describe EOLC of palliative patients, further survey should be practiced to improve quality of palliative care.

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“YOU’VE GOT TO LOVE YOURSELF”: PHOTVOICE STORIES FROM AFRICAN AMERICANS AND HISPANIC/LATINOS LIVING WITH DIABETES

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Introduction: Underserved Hispanic/Latinos and African Americans with diabetes are vulnerable to poor health outcomes. Given the role culture plays in shaping a person’s perspective about health and illness,

elucidating what factors impact diabetes self-management behaviors can help identify strategies to remediate this problem.

Methods: Ten African Americans and 9 Hispanic/Latino adults with diabetes were enrolled, forming 4 groups. In Week 1, disposable cameras were distributed. Two weeks later, cameras were returned and photos were developed. At Week 3 follow-up, participants shared photos and participated in a focus group.

Results: Four themes emerged from photos and focus group discussions: daily living with diabetes, negative and positive emotions, self-care supports and barriers, and needs. Results revealed that African Americans’ and Hispanic/Latinos’ with diabetes have similar and unique lived experiences. Both groups reported practicing six diabetes self-care habits: physical activity, healthy eating, blood glucose testing, medication management, doctor visits, and feet examination. Across ethnicities, participants spoke of dealing with high stress and feeling overwhelmed. Feeling empowered and hopeful were two views that demonstrated their psychological resiliency. “*You’ve got to love yourself...*” captured this belief. For self-care support, cultural beliefs tied to family and faith gave them encouragement and solace. Typical barriers included dietary choices and temptations, health problems, work/life balance, and environmental issues. More African Americans than Hispanic/Latinos expressed the need to educate youth and adults about diabetes prevention.

Conclusion: Evidence suggests that photovoice is practical for involving African Americans and Hispanic/Latinos to identify needs and be a catalyst for positive social change.

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EXPERIENCES OF PEOPLE WITH CHRONIC PAIN WITH SPINAL CORD STIMULATORS: IS THIS REALLY ME?

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Introduction: This research reports the experience of people living with chronic pain who have undergone treatment involving an implantable pain management device called a spinal cord stimulator. Treatment outcomes for chronic pain are generally considered poor. Spinal cord stimulation has been found to be effective for some people although not everyone undergoing the treatment has a successful outcome and for some the treatment is ineffective.

Method: This study employed a qualitative research design whereby four focus groups comprising a total of 17 participants were conducted. To the researcher’s knowledge this study is the first of its kind to use focus group data to analyze people’s experience of living with chronic pain following treatment with an implant.

Results: Many themes were identified in the analysis, and to exemplify the experience of individuals two participants were selected as case studies to be compared and contrasted. The results demonstrate the wide ranging implications of living with chronic pain. The experience causes sufferers to re-evaluate their self-conceptions, their capacity to fulfil their roles, and their interpersonal relationships.

Conclusions: The results support the literature about the influence of chronic pain in relation to changing roles and identity and also its influence on self-efficacy. The results of the study indicate that self-efficacy may be important in patient selection for this treatment. Measures which address the psychological and support needs of patients, pre and post treatment, through discussion groups and chronic pain self-management programs may lead to better patient outcomes.

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INFLUENCE OF ATTACHMENT ON COPING AND THERAPEUTIC ALLIANCE IN CHRONIC PAIN PATIENTS

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Introduction: The concept of attachment is relevant for the onset and development of chronic pain. Insecurely attached patients seem to be less able to sustain positive effects of multimodal treatment programs. However, it is unclear how insecurely and securely attached patients differ in their coping behavior and how this affects the therapeutic alliance and the treatment outcomes of pain therapy. To test this, we compared the short- and long-term outcomes for pain patients who will receive multidisciplinary pain treatment.

Methods: Patients were assessed pre- and post-treatment and at the 6-month follow-up. Pain intensity, disability and depression served as the primary outcome measures. Moreover, coping behavior and the therapeutic treatment process was measured.

Results: The findings suggested that patients significantly differed in pain coping. Patients with higher attachment avoidance reached higher scores in passive coping strategies. In terms of disability- all patients regardless of their attachment style reported a significant reduction in disability score post-treatment. However, the disability score further declined only for securely attached patients after the 6 months follow-up while for insecure patients the disability score went up again. The therapeutic working alliance significantly correlated with current pain intensity at T3 showing that a higher rated therapeutic relationship is associated with lower pain intensity. **Conclusions:** Attachment patterns and coping strategies of pain patients can be associated with treatment outcomes of a multimodal pain therapy, especially with regards to long-term treatment outcomes of insecurely attached patients. The therapeutic relationship seems to be an important predictor of pain intensity.

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USE OF NON-NUTRITIVE SUCKING, ORAL BREAST MILK, AND FACILITATED TUCKING IN RELIEVING PRETERM INFANT PAIN DURING HEEL-STICK PROCEDURES: A PROSPECTIVE, RANDOMISED CONTROLLED TRIAL

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Introduction: Research suggests that overuse of sucrose in preterm infants has been found to lead to complications. The study purpose was to compare the effects of using NNS+ breast milk, or NNS+ breast milk + tucking with routine care on preterm infant pain before, during, and after heel-stick procedures.

Methods: This prospective, randomized controlled trial was conducted at a Level III Neonatal unit. One hundred and nine preterm infants (gestational age 29–37 weeks) needing procedural heel sticks were recruited by convenience sampling and randomly assigned to three treatment conditions: routine care, NNS+ breast milk, and NNS+ breast milk+ tucking. Pain was measured by the Premature Infant Pain Profile (PIPP). All data were collected 10 minutes without stimuli (baseline), during heel-stick procedures, and the recovery.

Results: As compared with infants receiving routine care, infants receiving NNS+ oral breast milk could effectively reduce pain at phase 2, 3, 4, 5, 6, and 8 ($B=-2.406, -4.067, -2.847, -2.267, -1.576, -1.818$), respectively after adjusting for phase, baseline pain scores, and infants' postmenstrual age. Infants receiving NNS+breast milk+ tucking could significantly reduce pain during heel stick procedures at each phase ($B=-2.586, -3.599, -1.785, -1.853, -1.558, -1.356, -2.556$) after adjusting for the other factors. Infants receiving NNS+breast milk+tucking and NNS+breast milk had significantly lower odds ratios (0.340, and 0.313 respectively) for pain (PIPP score ≥ 6) than infants receiving routine care after adjusting for the other factors.

Conclusions: The use of NNS+breast milk, or NNS+breast milk+tucking could effectively reduce pain during heel stick procedures.

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PSYCHOLOGICAL INTERVENTION FOR CHRONIC PAIN PATIENTS

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Introduction: With increasing aging, chronic pain has an increasing morbidity. Unfortunately, medication alone treatment often has many problems. Therefore, psychological interventions have drawn people's attentions gradually. Currently, there are not so many psychological interventions for chronic pain, and the effectiveness needs further discussion. So, the current study is aimed at exploring the effects of psychological intervention in decreasing anxiety, depression and insomnia, improving quality of life and pain self-efficacy.

Methods: We recruited 62 patients with chronic pain from rheumatology in the first and the second affiliated hospital of a Medical University. They were assigned into two groups: an intervention group which received psychological intervention on the basis of medical treatment, and a control group treated only with medication. Before and after the intervention, SAS, SDS, PSEQ, SF-12, AIS were used to measure patients with chronic pain.

Results: The analysis of different values indicates that, compared with the control group, the scores of SAS ($t=-3.391, p=0.002$), SDS ($t=-3.765, p=0.001$), AIS ($t=-4.259, p<0.001$), the item scores of Sleep Induction ($t=-4.052, p<0.001$), Total Sleep Duration ($t=-2.136, p=0.041$), Sleep Quality ($t=-3.780, p=0.001$), Well-being ($t=-2.443, p=0.021$), Functioning Capacity ($t=-2.540, p=0.016$) in AIS become significantly lower and the scores of PSEQ ($t=4.371, p<0.001$), Physical Component Summary Score ($t=3.732, p=0.001$), Mental Component Summary Score ($t=2.430, p=0.021$) in SF-12 become significantly higher in intervention group, while differences among other scores are insignificant.

Conclusions: The psychological intervention has obviously positive effect for patients with chronic pain on anxiety, depression, quality of life, insomnia and pain self-efficacy.

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CHRONIC PAIN AND ATTACHMENT – IMPACT ON PSYCHOPATHOLOGY AND TREATMENT PROCESS

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Introduction: Chronic pain conditions result in a considerable burden for health-care systems. Especially the interplay between biological, psychological, and social factors poses a significant challenge to clinicians. However, integrative approaches that address these different facets simultaneously are rare. A promising model is provided by attachment theory which has matured into a truly bio-psycho-social model for understanding risk-factors and coping-behavior in medicine over the lifespan. It describes inter-individual differences in self-regulation and interpersonal stress-regulation in the face of threats, such as diseases. In addition to being a risk factor for course and outcome of chronic diseases, attachment is also a predictor for the success of medical and psychosocial interventions, and aspects of the physician-patient relationship.

Methods: The presentation will briefly introduce central constructs of attachment theory. In a second step, we will review the impact of insecure attachment strategies on the development and course of chronic diseases, with a special emphasis on pain. In a third step, we will address current evidence on pathways to disease, including models of attachment-related stress-regulation and interpersonal coping. In a fourth step, we will summarize contemporary models and findings on the impact of attachment on psychosocial interventions and the physician-patient relationship, including the influence of the physician's attachment style on treatment and outcome. Lastly, we will address limitations and future challenges of attachment research in chronic pain.

Conclusion: Attachment theory provides an evidence-based model that has the potential to significantly advance the field of pain research with additionally providing practical guidelines for the clinical work with difficult-to-treat patients.

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EFFICACY OF AN ATTACHMENT-BASED WORKING ALLIANCE IN MULTIDISCIPLINARY TREATMENT PROGRAMS

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Introduction: Insecure attachment is a widely acknowledged risk factor for adverse health behavior and outcome in a variety of health conditions. Insecure attachment has been associated with impaired stress regulation, increased symptom reporting and somatoform disorders. Hence, attachment can influence the onset and the development of pain conditions. Insecure attachment styles can negatively affect the therapeutic outcome of treatment programs as these patients seem less able to maintain long-term positive effects of the treatment programs in the same way as securely attached patients can. However, it has never been tested before if an attachment-oriented approach can improve treatment results of insecurely attached patients in a multimodal outpatient setting.

Methods: Two studies will be presented to show how attachment patterns can impact therapeutic treatments. The first one will compare the influence of attachment of two different pain patient groups. The second study will show how attachment patterns can be embedded into a multidisciplinary treatment program. Moreover, the presentation will give practical examples of how a physician can interact with the different types of insecurely attached patients in a clinical therapeutic setting. To our knowledge, such concrete guidelines are rare in applications of attachment

concepts to therapy and they have never been applied to the treatment of pain patients or to a multimodal setting.

Conclusion: Patients with preoccupied and fearful attachment styles are less able to maintain the positive results of multimodal pain treatment over a period of time. Hence, an attachment-based approach is a promising way to enhance the prospects especially for these patients.

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PHYSIOLOGICAL ASPECTS OF ATTACHMENT AND PAIN - THE ROLE OF OXYTOCIN

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Introduction: Endogenous hormones like Oxytocin have been associated with enhanced attachment, increased self-perception and reduced stress in humans. Miscellaneous studies on animals as well as humans were able to show a connection between oxytocin levels in blood and lowered pain sensitivity as well as enhanced attachment security. However, it is not clear how the hormone oxytocin interacts with the "Stress hormone" cortisol and if oxytocin levels can be associated with specific attachment patterns in chronic pain patients. Furthermore, it would be interesting to analyze the interplay between levels of endogenous Oxytocin, individual attachment styles and the Methylation of the oxytocin receptor gene (OXTR) in pain patients.

Methods: The presentation will give a brief review of the literature on the physiological aspects of attachment in chronic pain patients. Furthermore, it will explain the relationship between different gens variations of the oxytocin receptor gene (OXTR) and individual attachment behaviors as well as its connection with the endogenous level of oxytocin in a sample of Australian and German chronic pain patients. The interaction of oxytocin and cortisol level will also be presented.

Conclusion: An improved understanding of epigenetic approaches of "pain behavior" might aid translational efforts to develop individualized clinical treatment approaches. A clear understanding of the impact and role of oxytocin will help to recognize its therapeutic potential which could be beneficial for the treatment of chronic pain patients in the future.

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FEAR-AVOIDANCE AND BEYOND: A GOAL AND SELF-REGULATION ANALYSIS

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Introduction: Many models of chronic pain hold the idea that excessive pain avoidance, or, dysfunctional attempts to control pain fuel distress and disability. Research has largely focused upon the role of pain beliefs ("pain means hurt and harm") in this dysfunctional pattern. Here, we focus upon the role of disability beliefs ("the need to get rid of pain in order to live").

Methods: Using the “Personal Project Analysis”, 73 individuals with chronic pain identified a pain goal and several non-pain goals in a semi-structured interview. Goals were rated on several dimensions (difficulty, stress, success, identity) and interrelationship between the goals (i.e. “it is necessary to achieve goal [A] in order to achieve goal [B]”) was assessed. Self-report instruments were used to measure pain intensity, pain catastrophizing, and pain acceptance.

Results: The appraisals of the identified pain goal (goal to control/manage pain) were less favorable than the appraisals of the non-pain goals. Attempts to control pain were rated as more distressing, more time consuming and difficult to achieve than their non-pain goals. Of particular note, individuals who catastrophized about pain and were less accepting of their pain, endorsed the idea that successful achievement of their pain goal was a necessary condition to successfully pursue their non-pain goals.

Conclusions: It seems that fear-avoidance is also fueled by the belief that pain needs to be resolved in order to continue with life. The results call for a broadening of fear-avoidance. An avenue is to recast fear-avoidance into a goal and self-regulation perspective.

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SCREENING TEST OF THE SEMIHEALTH STATUS IN SUSCEPTIBILITY PHASE ON THE NATURAL HISTORY OF DISEASE AMONG THE COMMUNITY-DWELLING ELDERLY
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Introduction: Chronic diseases, such as metabolic syndrome and circulatory diseases, are called life-style related diseases in Japan. They are not only serious causes of death but also risk factors of broken health. They have been steadily increasing. The purpose of the present study was to examine the validity of a screening test of the semihealth status in susceptibility phase on the natural history of disease among the community-dwelling elderly in Japan. We examined the prevalence, sensitivity, specificity, positive predictive value, and negative predictive value based on the data from the screening test.

Methods: The self-reported questionnaire consisted of 54 items was administered to 4,058 the elderly in Japan between 2013 and 2014.

Results: A principal component analysis was applied to the valid data from 3,671 samples in order to extract the multidimensional indices which evaluated structural characteristics of the semihealth status. By this analysis, four principal components were extracted. Especially, the first principal component was extracted as an index which meant a quantitative aspect of the semihealth status. Every eigenvector of its component had a positive sign. Therefore, this component was used as the semihealth index. Furthermore, a distribution of the elderly with the semihealth status was determined by using this index. The prevalence, sensitivity, specificity, positive predictive value, and negative predictive value showed 20.4%, 84.4%, 75.2%, 46.8%, and 94.9%, respectively.

Conclusions: It is likely that the screening test is able to recognize a fine distinction regarding the semihealth status among the community-dwelling elderly.

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USING THE PRECAUTION ADOPTION PROCESS MODEL TO UNDERSTAND NON-PARTICIPATION IN CERVICAL SCREENING
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Introduction: Uptake of cervical screening in the England is around 75% and has been trending downwards in recent years for reasons that are not clear. This study aimed to characterize screening non-participants using the Precaution Adoption Process Model (PAPM), which describes the stages through which people move before engaging in a health protective behavior. **Methods:** Home-based computer assisted interviews were carried out with 3,109 screening eligible women in Great Britain. Measures included an algorithm to assess PAPM stage for cervical screening uptake, and a range of demographic and psychological factors.

Results: Overall, 2,270 women were up to date with screening (73%). Among the 839 who were not up to date, 233 (28%) had never heard of screening; 41 (4.9%) had never considered attending; 16 (1.9%) were undecided; 122 (15%) had decided not to attend; and 427 (51%) had decided to attend but had not yet done so, including women who had attended in the past but were currently overdue. Demographic and psychological differences between the non-participant groups were identified.

Conclusions: Our study suggests that a substantial proportion of cervical screening non-participants are unaware of screening, and another large group are inclined to attend but have not yet done so. These findings point to the need for targeted interventions to raise awareness and facilitate participation in women who would like to attend.

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PSYCHOSOCIAL FACTORS ASSOCIATED WITH HELP-SEEKING FOR CANCER SYMPTOMS IN AUSTRALIA AND THE UK: STUDY PROTOCOL

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Introduction: In comparison to Australia, 1-year cancer survival rates are lower in the UK. This may be partly explained by greater help-seeking and/or diagnostic delays in the UK. Research is required to investigate potential differences in help-seeking for cancer symptoms in Australia and the UK, and the psychosocial factors that might explain these differences. The primary purpose of this study is to investigate anticipated help-seeking for cancer symptoms, and test the predictive strength of psychosocial factors associated with help-seeking behavior.

Methods: This study uses a multi-methods approach. The design includes a cross-sectional survey, with follow-up in-depth interviews. Men and women aged 18 years and over will be recruited for the survey (N=1452) in South Australia and the West Midlands (major cities Coventry and Birmingham), UK. The survey measures anticipated help-seeking for cancer symptoms, as well as a range of psychosocial variables. Semi-structured interviews will be conducted with a subset of participants (n=30) to gain a more comprehensive

understanding of barriers to help-seeking and the influence of the healthcare system. Survey data will be analyzed using Multiple Regressions, and interview data using Thematic Analysis.

Results: It is expected that several psychosocial variables will predict anticipated help-seeking for cancer symptoms, including attitudes, masculinity, and perceived social support. Group differences are expected according to geographical location and gender. This project is currently in data collection and the presentation will describe results.

Conclusions: Resulting evidence from the research will enable the development and implementation of broadly effective early detection interventions in cancer control.

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METHODOLOGICAL CHALLENGES IN IMPLEMENTATION RESEARCH: LESSONS FROM A CLUSTER-RANDOMIZED TRIAL TO IMPROVE HEPATITIS B SCREENING AMONG KOREANS IN THE UNITED STATES

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Introduction: Liver cancer is a major cause of death worldwide with high disease burden in Asia and parts of Africa. Chronic hepatitis B infection is a causal factor in 80% of liver cancer among Asians, including Asian immigrants to the U.S. Population level screening for hepatitis B infection in such high risk groups is an efficient disease control strategy.

Methods: We randomized 52 Korean churches in Los Angeles and tested the effect of a group intervention on hepatitis B screening among Korean immigrants (n = 1,123). Implementation of the trial raised a number of methodological decision points and challenges that have important implications for interpretation of results, external validity, and cost efficiency of the intervention.

Results: Although the intervention effect was large (OR = 4.9; 19% intervention vs. 6% control), 81% of the intervention group did not receive screening, raising issues of the cost efficiency/utility of the intervention. Decisions regarding the sampling frame and type of sampling have implications for external validity which is a critical issue in implementation research. Contamination was another challenge, resulting in no intervention effect among large churches (which serve the largest proportion of Koreans), due to a non-profit having provided free hepatitis B screening at several participating large churches.

Conclusions: Caution should be exercised in interpreting a large and significant effect size as a success in implementation research. Many aspects of conducting rigorous research in real world settings have profound implications for the feasibility and adoption of the intervention at the population level.

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P551

UNDERSTANDING MEN'S MEDICAL HELP-SEEKING FOR CANCER SYMPTOMS: A SEMI-STRUCTURED INTERVIEW STUDY OF AUSTRALIAN MEN

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Introduction: Early detection of cancer can be important for successful treatment and survival. Men are more likely to delay seeking medical help for cancer symptoms than women, often resulting in later diagnosis and poor outcomes. The primary purpose of this study was to investigate the psychosocial factors associated with men's timely and delayed help-seeking for cancer symptoms, with consideration to variation between men. **Methods:** A qualitative semi-structured interview study of Australian men aged over 50 (N=27). Purposive sampling was used to stratify participants by cancer history, rurality, sexuality, and marital status. Participants were recruited through social and print media, oncology social workers, community organizations, and snowball sampling. Interview schedules predominantly addressed attitudes, perceived social norms, cancer knowledge, and identity. Interview transcripts were analyzed using Theory- and Prior-Research-Driven Thematic Analysis.

Results: Findings partially support the usefulness of the Theory of Planned Behavior (TPB) as a model for understanding men's help-seeking for cancer symptoms. Additional themes included symptom interpretation, instrumental and information support from partners, informal cancer knowledge gained from family and friends affected by cancer, as well as prioritization of health. Minor differences between men will be discussed.

Conclusions: TPB may be a useful model for understanding men's help-seeking for cancer symptoms. Future studies could test the predictive strength of TPB constructs and additional psychosocial factors in relation to help-seeking seeking for cancer symptoms to inform the design of early detection interventions.

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ENHANCING VOLITIONAL SELF EFFICACY TO COMPLETE FOBT SCREENING

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Introduction: Uptake of colorectal cancer screening by fecal occult blood test (FOBT) is low throughout the world wherever screening is offered and varies substantially by social deprivation and ethnicity. Unlike other forms of screening, the kit requires self sampling by participants and might be described as a complex behavior. Study 1 sought to identify procedural elements of effective kit completion. An intervention tested the efficacy of a leaflet designed to enhance kit completion.

Methods: Study 1: 500 men and women aged 50-70 years who had successfully completed FOBT screening were sent a postal questionnaire and accompanying letter. The questionnaire comprised open ended questions relating to procedures they had followed in order to complete the kit and was returned anonymously. Study 2: A controlled trial (N = 2173) conducted in an area of high socioeconomic deprivation in Tayside Scotland tested the effectiveness of a supplementary leaflet intervention using implementation intentions to promote volitional self-efficacy to complete an FOBT kit.

Results: Substantially higher FOBT screening was observed in the intervention arm compared to controls (59.7% leaflet versus 44.8%, p < 0.000). The strong intervention effect on uptake was maintained even after adjusting for age and gender.

Conclusions: A supplementary leaflet based on implementation intentions to enhance volitional self-efficacy achieved increases in FOBT

uptake that have both statistical and clinical importance. Screening uptake amongst people who received the leaflet in low SES areas was more than 10% higher than amongst controls and in all previous screening rounds.

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DIFFERENCES IN COLORECTAL CANCER SCREENING PREFERENCES: A LATENT CLASS ANALYSIS OF DISCRETE-CHOICE DATA

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Introduction: Colorectal cancer (CRC) is the 2nd leading cause of cancer-related death among men and women in the United States. Screening for the cancer has been shown to be effective at reducing CRC incidence and mortality. Despite its effectiveness, screening rates among eligible adults remain lower than target rates. The purpose of this study is to use a cross-disciplinary approach to study patient preferences for various screening tests, testing scenarios, and testing environments.

Methods: The methodology for this study involved recruiting 150 low-income individuals from three counties in North Carolina with relatively low screening rates and high CRC mortality rates. A paper-based discrete-choice experiment (DCE) survey was developed based on prior research, existing literature, and feedback from focus group participants. The discrete-choice data were first analyzed using a conventional binomial logit model. Next, a binomial logit model with a latent class component was used to investigate the potential for distinct sets of preferences.

Results: Results suggest that the group overall preferred tube tests, short travel times, low costs, and low follow-up costs. The group also valued screening in general over no screening. Latent class analysis revealed three distinct sets (classes) of preferences for CRC screening programs. Income and ethnicity were found to be significant predictors of class.

Conclusions: Latent class analysis is a viable tool for DCE research. Understanding the nuances of patient preferences can aid in the development of targeted screening programs. Future research is needed to investigate different predictors of class membership in a CRC screening context.

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KNOWLEDGE AND BELIEFS ABOUT GESTATIONAL WEIGHT GAIN: A COMPARISON OF PREGNANT AND NULLIGRAVIDA WOMEN

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Introduction: Excessive gestational weight gain (GWG) occurs in over 50% of pregnancies, with knowledge and beliefs thought to impact on maternal weight gain. Given 50% of pregnancies are unplanned, adequate knowledge and belief formation regarding GWG is essential both preconception and during pregnancy. This study aimed to explore and compare knowledge and beliefs about GWG for nulligravida and pregnant women.

Method: Nulligravida women ≥ 18 years ($n = 265$) and pregnant women ≥ 18 years and at 16 weeks' gestation ($n = 271$) completed questionnaires assessing knowledge and beliefs about GWG. Responses were categorized according to the 2013 Institute of Medicine (IOM) GWG recommendations. **Results:** Nulligravida women exhibited poorer GWG knowledge than pregnant women; they were more likely to under-report the amount of weight they should gain for their own and their baby's health (55.8% and 52.3%, respectively), although only half the pregnant women reported GWG

knowledge that accorded with IOM recommendations. Knowledge of GWG significantly accounted for 43-54% of the variance in GWG beliefs. After controlling for age, BMI, and knowledge, nulligravida women were more likely to report GWG beliefs below the IOM recommendations.

Conclusion: Large inaccuracies in GWG knowledge and beliefs were reported for both nulligravida and pregnant women. There is significant room for improvement with regards to dissemination of GWG advice throughout the reproductive life phase, particularly preconception. Further research should continue to explore other salient modifiable determinants of GWG knowledge and beliefs to help women, both preconception and during pregnancy, formulate GWG beliefs conducive of healthy GWG.

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P555

HEALTHCARE PROVIDERS' UNDERSTANDING OF SEXUAL HEALTH IN THE MENTAL HEALTH SETTING

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Introduction: People experiencing mental illness are more likely to have poor sexual health outcomes than the general population, and yet clients' sexual health needs continue to be under addressed in the mental health context. A major contributing factor may be that mental healthcare providers' (MHCPs) understandings of sexual health and its relationship with mental health are varied or lacking. This is because relevant curricula in tertiary training programs are unstandardized and often absent. This study aimed to develop a deeper understanding of MHCPs' perceptions of sexuality and sexual health.

Methods: Qualitative in-depth interviews were conducted with psychiatrists, psychologists and mental health nurses to explore their experiences and perceptions of sexuality and sexual health and its relevance to their clients and professional roles. Interviews were transcribed verbatim and data analyzed using Framework Analysis.

Results: Perceptions of sexuality and sexual health varied widely both between and within professions. A number of themes and subthemes were generated including Risk, Sexual dys/function, Diverse sexualities, Intimacy and relationships, and Wellbeing. Sexual expression was often discussed as being risky or deviant in the context of mental illness, and this was justified by constructing mental illness and personal autonomy as exclusive categories.

Conclusion: MHCPs have varied understandings of sexual health, including its relevance to mental health care, and this might be facilitating inconsistent delivery of sexual health care. Further research is required to explore how this problem could be addressed in order to improve practice and client care in mental health settings.

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DECISIONS ABOUT HIV TESTING WITHIN THE CONTEXT OF SEXUAL AGREEMENTS: PERSPECTIVES FROM AN URBAN SAMPLE OF HIV-NEGATIVE MALE COUPLES

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Introduction: Many HIV-negative male couples establish a sexual agreement: an explicit discussion and mutual understanding about which sexual and relational behaviors are permitted to occur within and outside the relationship. Although agreements are common, less is known about male couples' decisions about

HIV testing with respect to their agreements. To help address this knowledge gap, the present qualitative study sought to examine whether male couples discussed, as well as, their decisions about HIV testing per their agreement.

Methods: Qualitative dyadic interview data were collected from 29 HIV-negative male couples with a sexual agreement who resided in Atlanta or Detroit; the sample was stratified by sexual agreement type (closed, open) and men were interviewed separately yet simultaneously. All interviews were digitally recorded, transcribed verbatim, and de-identified. Coding via conventional content analysis was conducted to identify themes among the partnered men and within couples (i.e., between partners).

Results: 66% of couples did not discuss HIV testing per their agreement; 21% did discuss. Analyses revealed partnered men's decisions about HIV testing as: *routine, individual responsibility, reliance/assumption on partner, beginning-of-relationship-testers, risk-based, and/or trust*. Some decisions varied by agreement type and within couples. Trust and beginning-of-relationship testers were more indicative among those with closed agreements and individual responsibility was common among those with open agreements. Few couples concurred about their testing decisions per their agreement, except routine testing.

Conclusions: Prevention efforts are needed to help male couples integrate testing into their agreements and to shift their individual-level attitudes about testing to a mutually shared responsibility.

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RESEARCH TO PRACTICE TRANSLATION: TRIAL OF NASAL ANTISEPTIC GEL TO REDUCE MRSA COLONISATION IN AN INTERMEDIATE-CARE FACILITY

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Introduction: Nasal carriage of methicillin-resistant *Staphylococcus aureus* (MRSA) could be a source for nosocomial transmission of MRSA, but it is not well studied. Universal antiseptic bathing has not reduced MRSA acquisition. We assessed the prevalence of nasal MRSA colonization vis-a-vis cutaneous colonization, to guide new interventions for the reduction of MRSA colonization.

Methods: We conducted two cross-sectional studies at a 100-bed intermediate-care facility in Singapore, in June 2014 and July 2015. Nasal, axillary, and groin swabs were taken and separately cultured for MRSA using selective chromogenic agar plates. MRSA isolates were tested for resistance against antiseptics using microbroth dilution.

Results: A total of 179 patients were screened. MRSA prevalence was 33% in 2014 and 38% in 2015. Half (53%) of MRSA-colonized patients had nasal carriage; 29% had nasal but not cutaneous colonization. Based on the results, nasal decolonization of MRSA-carriers on admission to the hospital was planned. The usual regimen for nasal decolonization was mupirocin (antibiotic) ointment. However, as the local epidemiology showed that 11% of MRSA isolates were resistant to mupirocin, decolonization with antiseptics was considered. Octenidine was the only antiseptic nasal preparation available. None of the MRSA isolates was found to be resistant against octenidine. Nursing staff were then trained on nasal gel application and their acceptance for the product obtained. A 5-month trial of the gel was subsequently implemented hospital-wide.

Conclusions: Findings from the research study has translated into infection prevention strategies in clinical practice. The results provided important guidance for targeted interventions to reduce MRSA colonization.

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RESEARCH TO PRACTICE TRANSLATION: IMPROVING HAND HYGIENE COMPLIANCE AMONG HEALTHCARE STAFF

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Introduction: Hand-hygiene compliance among healthcare staff is important but remains suboptimal. We assessed for psychosocial factors associated with hand-hygiene compliance, developed a programme targeting those factors, and evaluated for programme effectiveness.

Methods: We conducted a mixed-methods study in a 1600-bed tertiary-care hospital in Singapore in 2013. Focus group discussions were conducted among purposively-sampled staff followed by hospital-wide questionnaire survey. Principal components analysis was performed to derive latent factors applied in multivariable logistic regression analyses, to assess for independent factors associated with compliance. Based on findings, a hospital-wide programme was implemented in 2014-2015. Segmented linear regression was used to assess for programme effectiveness.

Results: Healthcare staff acknowledged the importance of hand hygiene, but faced barriers to compliance during patient-care. Many perceived senior colleagues as role models and felt that peer nudges could enhance compliance. After adjusting for gender, staff category, seniority, and dermatitis history, perceived barriers (OR 0.83, 95%CI 0.72-0.95) and need for external reminders (OR 0.76, 95%CI 0.66-0.87) were negatively associated with good hand-hygiene compliance. The hospital-wide multi-pronged hand-hygiene promotion programme comprising visual and audio reminders, peer nudges and prompts, and role modelling by senior staff, resulted in a significant increase in hand-hygiene compliance rate from 50.1% in early-2011 to 67.0% in end-2015 ($P < 0.001$). Post-programme, the rate of increase in hand-hygiene compliance improved 3.7-fold to 0.93% (95%CI 0.17-1.70) in 2014-2015, compared to 0.25% (95%CI 0.01-0.50) in 2011-2013.

Conclusions: The hand-hygiene promotion programme targeting psychosocial factors identified in prior mixed-methods research has accelerated the increase in hand-hygiene compliance among healthcare staff.

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DESIGNING A PRIMARY CARE INTERVENTION WITH THE BEHAVIOUR CHANGE WHEEL: THE CASE OF MATERNAL INDIGENOUS SMOKING.

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Introduction: Clinicians seldom perform all recommended components of smoking cessation care (SCC) for pregnant Indigenous women, whose smoking rates are 47% in pregnancy. We developed an intervention to improve culturally competent SCC for pregnant Indigenous smokers, using the Behavior Change Wheel (BCW) as a parsimonious model governing capability, opportunity and motivation for behavioral interventions.

Methods: *Indigenous Counselling and Nicotine (ICAN) QUIT in Pregnancy* is a smoking cessation program based on Gould's

“Pragmatic Guide” to smoking cessation - the ABCD (Ask/Assess; Brief advice; Cessation: Discuss) approach. We identified evidence-practice gaps by conducting: two systematic literature reviews on provider attitudes and interventions for SCC in pregnancy; a national survey of Australian clinicians; and gathering stories of smoking and quitting from Aboriginal mothers. These studies facilitated the development of this targeted intervention.

Results: Areas identified for performance improvement included: capability (psychological skills), motivation (optimism), and opportunity (resources/time). According to the BCW, interventions to improve: capability by training clinicians in pharmacotherapy to assist women to quit; opportunity by structuring the consultation using a flipchart and prompts; and optimism for success by presenting recent evidence, and positive testimonials from patients and clinicians. Webinar will bring the training to the services to accommodate time and location constraints. A Stakeholder and Consumer Aboriginal Advisory Panel was consulted on developing these intervention materials.

Conclusions: Training may improve gaps in SCC, i.e. counselling skills and pharmacotherapy management. *ICAN QUIT in Pregnancy* is uniquely designed to improve the implementation of evidence based SCC for expectant mothers attending primary care services.

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AN ORGANISATIONAL CHANGE INTERVENTION FOR SMOKING CESSATION CARE IN A MEDICALLY SUPERVISED INJECTING CENTRE: AN ACCEPTABILITY STUDY

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Introduction: Among people who inject drugs (PWIDs), the rate of smoking exceeds 80% making this population particularly susceptible to tobacco-related illnesses and in need of iSmoking cessation care (SCC). The Medically Supervised Injecting Centre (MSIC) may be a potential setting to address tobacco smoking among PWIDs. This study aimed to assess the acceptability of an organizational change intervention to integrate SCC into usual care practice at a MSIC.

Methods: A cross-sectional online survey examining client and staff/manager acceptability of an organizational intervention was conducted. The organizational intervention consisted of 6 core components: engaging organizational support, identifying a SCC support champion, promoting the center's tobacco smoking policy, implementing a smoker identification system, providing education and evidence-based SCC treatments. Results: Overall 202 clients (response rate: 87%) and 24 staff (response rate: 92%) completed surveys. Acceptability of addressing client smoking status as part of usual care was high for clients (96%) and staff (92%). The majority of clients agreed that talking to staff about their tobacco smoking was helpful (80%), that it prompted them to think about quitting (71%) and that it would be acceptable to have their smoking status addressed at their next visit (94%). Staff indicated that they would continue to assess client smoking status (92%), advise clients to decrease or stop smoking (83%), suggest quit strategies (92%) and provide evidence-based

treatment such as Nicotine Replacement Therapy (92%) as part of their usual care practices.

Conclusions: The organizational intervention was well-received, with high acceptability from both clients and staff.

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ORDINARY CITIZENS' EXPECTATIONS FOR REGENERATIVE MEDICINE AND IPS CELLS RESEARCHES IN JAPAN

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Introduction: In order to examine people's expectations for regenerative medicine and iPS cells researches in Japan, we conducted an attitude survey not only among ordinary citizens but also among patients with age-related macular degeneration.

Methods: 2,656 ordinary citizens, 445 age-related macular degeneration patients, and families of 210 age-related macular degeneration patients answered 5 question items.

Results: Knowledge of iPS cell research, expectations for treatment using iPS cells, and Information acquisition of studies using iPS cells were significantly higher among patients and their families, in comparison with citizens. Regarding iPS cells researches, the ordinary citizens were favor of promoting development of therapeutic drugs for intractable diseases rather than "organ regeneration, including the liver and kidney" and "creation of sperm and ova for assisted reproductive technology."

Conclusions: Expectations for regenerative medicine, using iPS cells, were greater both among individuals involved in the disease and ordinary citizens. Especially, they count on development of therapeutic drugs for intractable diseases.

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COMPARING SELF-REGULATORY AND AUTOMATIC PROCESSES IN A COMPUTER-TAILORED PHYSICAL ACTIVITY INTERVENTION IN FRONTLINE HEALTHCARE PROFESSIONALS

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Introduction: This study aimed to develop and test the feasibility, acceptability, and efficacy of a theory-based tailored intervention to increase physical activity and quality of life, and reduce stress and absenteeism, in healthcare professionals. The study compares the additive effects of three sets of behavior-change techniques targeting motivational, self-regulatory, and automatic processes to explore the effectiveness of each set.

Methods: Participants are midwives, nurses and patients' assistants (N=364) recruited from hospitals in Western Australia. They are randomized to one of four conditions: (1) motivation only; (2) motivation + self-regulation; (3)

motivation + self-regulation + habit; (4) control. All groups receive basic online information on physical activity with intervention groups receiving online tailored behavior-change messages and supporting text messages relevant to each condition. Intervention effectiveness was tested on physical activity, quality of life, stress, anxiety, sleep, and absenteeism at 3 and 6 months. Results: We expect greater post-intervention physical activity participation for participants in all intervention groups relative to the control group after adjusting for baseline, with similar adaptive patterns on other outcomes. Participants in the combined conditions are expected to have greater physical activity participation and adaptive patterns on other outcomes relative to other two conditions. The trial is ongoing with final findings to be summarized at the symposium.

Conclusions: This is the first study to test a tailored online intervention to increase physical activity in frontline healthcare professionals. The inclusion of different techniques will provide evidence for the effectiveness of motivational, self-regulatory and habit-forming strategies in promoting physical activity.

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THE IMPACT OF DUAL PROCESSES AND COMPETING GOALS ON HEALTH PROFESSIONALS' UPTAKE OF A NEW INFORMATION PRESCRIPTION FOR DIABETES

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Introduction: Behavior approaches can inform quality improvement in healthcare. Such approaches often focus on a single healthcare professional (HCP) behavior and the underlying reflective processes (e.g. intention). However, HCPs perform multiple behaviors, some of which may be driven by both reflective and impulsive (e.g. habit) processes. This study aimed to investigate how reflective and impulsive processes and competing goals are perceived to impact on the implementation of a national quality improvement intervention: the 'Diabetes UK Information Prescription'.

Methods: We conducted theory-based semi-structured interviews with a convenience sample of 13 primary care HCPs (GPs and nurses) who recently started using the Information Prescription to provide self-management advice to people with diabetes. We used a topic guide to assess views about reflective and impulsive processes and competing goals to the use of the Information Prescription. Transcripts were double coded and analyzed using directed content analysis.

Results: Most HCPs reported strong intention to use the Information Prescription. HCPs had varying expectations about how the Information Prescription would influence their patients' behavior (e.g. through education). The formation of a plan for dealing with anticipated barriers was perceived to facilitate the use of the Information Prescription. The time spent on using the Information Prescription varied depending on perceived competing goals. Electronic behavioral prompts were perceived to support the impulsive process underlying Information Prescription usage.

Conclusions: These findings suggest that behavior approaches to implementation research need to go beyond single-behavior models and acknowledge both reflective and impulsive processes that impact on HCP behavior.

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EMBEDDING A HEALTHY LIFESTYLE CLINICIAN IN A COMMUNITY MENTAL HEALTH SERVICE

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Introduction: Persons with a mental illness experience greater morbidity and mortality from chronic diseases than the general population, with a higher prevalence of modifiable health risk behaviors contributing substantially to this disparity. Despite evidence based guidelines recommending that mental health services provide care to address these health risk behaviors, the provision of such care is consistently reported to be low. This paper reports the study protocol for the evaluation of a model of integrating physical health care into mental health services, involving the allocation of a clinician to the specific role of addressing physical health risks.

Aim: The aim of the study is to assess the effectiveness of a 'healthy lifestyle clinician' in addressing the physical health risk behaviors of community mental health consumers.

Methods: A randomized controlled trial will be conducted. Clients of one community mental health service in NSW will be randomized to receive usual care or usual care plus an appointment with a healthy lifestyle clinician. The clinician will assess clients' physical health risks, provide brief advice, and connect at-risk clients with the 'Quitline' and/or 'Get Healthy' telephone services. The primary outcome, uptake of referral to the telephone services, will be obtained from the respective services. Telephone interviews of clients will be conducted at one and six month follow-ups to assess secondary outcomes, including: client reported receipt of assessment, advice and referral, satisfaction with the receipt of such care, reasons for uptake or otherwise of the telephone services and satisfaction with the telephone services.

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Affective processing of somatic information in persons with medically unexplained symptoms

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AFFECTIVE PROCESSING OF SOMATIC INFORMATION IN PERSONS WITH MEDICALLY UNEXPLAINED SYMPTOMS

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Physical symptoms unrelated to organic disease or recognized physiological dysfunction (so-called medically unexplained symptoms, MUS) are ubiquitously present in primary care and across all branches of secondary care medicine, causing substantial distress and disability in a substantial number of patients and creating an important challenge for health care. Elevated trait negative affectivity, more prevalent comorbid psychopathology and poor emotion regulation in MUS patients suggest that affective processing of somatic episodes is critically involved. The first contribution discusses the role of expectancy. Manipulations inducing expectancy influence the number and intensity of reported symptoms, but the affective tone of the expectancy (distressing/nocebo vs reassuring/placebo) elicits a different symptom profile in response to the same auditory stimulation, prompting interesting new research questions. The second contribution focuses on how memory of induced symptom episodes (pain, dyspnea) affects symptom reporting over time. Across a set of studies, it was found that symptoms are retrospectively overreported but more so by persons with MUS. Interestingly, overreporting further increased over two weeks, but only in persons with MUS after focusing on the affective rather than sensory aspects of the somatic experience, and especially when the somatic episode was distressing (dyspnea). A third contribution presents preliminary results of a multicenter RCT, investigating the impact of enriching CBT-treatment of MUS patients with emotion regulation training. Data of a pilot trial suggest incremental treatment effects when emotion processing deficits are targeted. The role of affective processes in both etiology and treatment of MUS will be discussed.

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WHAT SYMPTOMS CHANGE IN RESPONSE TO A PLACEBO AND NOCEBO INDUCTION?

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Introduction: The power of expectations to shift symptom reporting in both positive and negative directions has been consistently demonstrated in a variety of clinical and experimental settings. However, there is a dearth of research investigating whether common physical symptoms are differentially susceptible to the influence of expectations.

Methods: In this study we exposed 60 healthy volunteers to an environmental sound during two ten minute listening sessions. Prior to exposure half the participants were given information indicating sound exposure negatively impacted physical symptoms (the negative expectation group), while the remaining participants were provided information suggesting sound exposure had therapeutic benefit (the positive expectation group). Participants also rated their experience of 24 common symptoms at baseline and during each exposure session.

Results: Overall, positive expectation participants reported a significant decrease in the number and intensity of symptoms experienced from baseline, while there was a significant increase in the number and intensity of symptoms after the negative induction. We found no overlap in the symptoms influenced by positive and negative expectations and that expectations had no influence on certain symptoms, such as stomach-ache,

joint pain, and chills ($p > .05$). Increased symptoms reported by negative expectation participants included headache ($p < .001$), feeling faint ($p = .005$), and nausea ($p = .012$). Decreased symptoms reported by positive expectation participants included stiff muscles ($p < .001$), backache ($p = .008$), and tiredness ($p = .022$).

Conclusion: The findings suggest certain symptom groups are more susceptible to expectation than others and further research in this area may be able to identify the mechanism for this differential effect.

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S567

THE ROLE OF RETROSPECTIVE MEMORY IN SYMPTOM (OVER)REPORTING

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Introduction: Most self-reported symptoms are memory based, even immediately after a symptom episode. It is not clear to what extent memory processes and biases play a role in symptom overreporting and medically unexplained symptoms.

Method: In a series of experimental studies inducing controlled dyspnea and pain episodes (within-subject) in persons with high (HSR) and low habitual symptom (LSR) reporting, we collected symptom reports concurrently, immediately after the episode, after the experimental session, and after two weeks. We also collected trait and state negative affect ratings.

Results: A set of studies showed (1) consistent retrospective overreporting of symptoms compared to concurrent ratings, starting immediately after the event; (2) more symptom overreporting in HSR compared to LSR; (3) more overreporting for dyspnea than for pain, which is mediated by the level of distress during the symptom episode (with generally more distress caused by dyspnea than by pain); (4) more overreporting after two weeks when the processing focus during the somatic episode was manipulated towards affective rather than sensory aspects of the somatic experience; (5) with the latter effect occurring only for the most distressing somatic episode (dyspnea) in HSR persons.

Conclusions: Symptom (over)reporting is importantly determined by memory processes. Persons who are more predisposed towards focusing on the affective aspects of a somatic experience are more vulnerable for overreporting especially when the episode is distressing. The findings are relevant to understand medically unexplained symptoms.

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S568

COGNITIVE BEHAVIOR THERAPY ENRICHED WITH EMOTION REGULATION TRAINING (ENCERT) FOR PATIENTS WITH MULTIPLE MEDICALLY UNEXPLAINED SYMPTOMS: PRELIMINARY RESULTS

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Introduction: Syndromes of chronic medically unexplained symptoms (MUS) are highly prevalent and associated with disability and high health care costs. Amongst psychological treatments for MUS cognitive behavior therapy (CBT) reveals best evidence of efficacy. However, effects are only moderate. Since deficits in emotional processing have been demonstrated in MUS-patients the aim of this study was to examine if enriching CBT with emotion regulation strategies can improve efficacy.

Methods: In a multicenter RCT 255 patients diagnosed with at least 3 chronic MUS were randomly assigned to 20 sessions of either conventional CBT (N = 128) or CBT enriched with emotion regulation training (ENCERT; N = 127). Somatization and secondary outcomes (health anxiety, general psychopathology, pain coping, quality of life, emotion regulation skills) were assessed at pre- and post-treatment, session 8, and 6-months follow-up.

Results: An ANCOVA of data from a non-randomized, controlled pilot trial with 20 patients in the CBT and 22 patients in the ENCERT group revealed significant effects in both conditions (p -values $\leq .01$), however tendentially higher effects for the enriched treatment regarding symptom severity (ENCERT: $d = 0.70$ [95% CI: 0.07; 1.33]; CBT: $d = 0.46$ [95% CI: -0.18; 1.10]). Data analyses in the context of the multicenter trial with a large sample size shall provide valid conclusions about possible incremental effects of the emotion regulation training.

Conclusions: These preliminary findings indicate that enriching CBT with strategies targeting on emotion processing deficits can be probably a promising approach to increase efficacy of cognitive behavioral treatments for MUS-patients.

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O569

TRANSLATING RESEARCH INTO PRACTICE: THE HEALTHY LIVING AFTER CANCER PARTNERSHIP PROJECT

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Introduction: Despite considerable evidence for lifestyle interventions in cancer survivors, they are not incorporated into routine care. Healthy Living after Cancer (HLAc) is an Australian National Health & Medical Research Council-funded Partnership Project evaluating the implementation of an evidence-based, free, six-month telephone-delivered lifestyle program by four Australian state-based Cancer Councils via their telephone support and information service.

Methods: HLAc targets cancer survivors (of any type following treatment with curative intent), providing behaviorally-based support to achieve internationally-agreed recommendations for physical activity, healthy eating and healthy weight. In this phase IV dissemination study (single-

group, pre-post design with assessments at baseline, six and 12-months), primary outcomes relate to program implementation: adoption (referral sources); reach (# of participants) and retention; fidelity of implementation; participant and staff satisfaction; fixed and recurrent costs of program delivery. Secondary outcomes are patient-reported and validated measures of: physical activity and dietary intake/behavior, weight, waist circumference, quality of life, cancer-related side-effects, distress and fear of recurrence.

Results: To date, 233 patients have enrolled: 88% female; mean age 54.8 (SD = 12.0; range 25 to 83 years); average BMI = 28.8 kg/m² (SD = 6.6); with a wide range of cancers and a retention (program completion) rate of 57%.

Conclusions: This University-Cancer Council collaboration provides an opportunity for national dissemination of an evidence-based intervention to support healthy living among cancer survivors. Rigorous evaluation of service-level and patient-reported outcomes will provide the practice-based evidence needed to inform advocacy for sustained funding.

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O570

CANCER SURVIVORS' PERSPECTIVES AND EXPERIENCES REGARDING BEHAVIOURAL DETERMINANTS OF RETURN TO WORK AND CONTINUATION OF WORK

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Introduction: Interventions aiming at disease-, treatment-, and/or work-related factors to support return to work (RTW) in cancer survivors hardly showed any effect so far. Behavioral determinants might additionally have to be considered in the development of interventions for sustained employability in cancer survivors. This study aimed to explore cancer survivors' perspectives and experiences regarding behavioral determinants of RTW and continuation of work.

Methods: In this qualitative study, semi-structured telephone interviews were held with breast, colorectal and head and neck cancer survivors (N = 28). All participants were recruited at the Antoni van Leeuwenhoek Hospital, were at working age, one to two years after diagnosis and employed at time of diagnosis. Thematic content analysis was performed using Atlas.ti 5.2.

Results: Work turned out to be a meaningful aspect of cancer survivors' life, and most participants reported a positive attitude towards their job. Social support to RTW or to continue working was mainly received from family and friends, but pressure to RTW from the occupational physician was also experienced. Changes in expectations regarding work ability from negative to positive during the treatment process were observed, but generally, being occupationally active was considered to be the social norm. Those who applied active coping mechanisms felt equipped to deal with difficulties regarding work.

Conclusions: Based on the findings of the current study, behavioral determinants should be taken into account in future research. However, the causal relationship between behavioral determinants and RTW or continuation of work in cancer survivors still has to be determined.

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O571

ANTI-INFLAMMATORY NUTRITIONAL INTERVENTIONS MAY CONTRIBUTE TO REDUCED RISK OF RECURRENCE IN BREAST CANCER SURVIVORS: A RANDOMIZED CONTROLLED TRIAL

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Introduction: Cancer recurrence risk is highest in obese breast cancer survivors (BCSs). Inflammatory (Pro-I) biomarkers, such as C-reactive protein and Interleukins 3, 6, and 8, are associated with cancer recurrence and severity. Nutritional interventions are needed to reduce inflammation (INF). This culinary pilot intervention aimed to: 1) decrease Pro-I biomarkers and increase anti-inflammatory (AI) cytokines by incorporating AI foods into BCSs' dietary routines; and 2) examine effects on potential cancer risk factors (BMI and circulating adipose stromal cells [ASCs]).

Methods: 153 BCSs with a BMI of 25+ were randomized into Intervention (IG; n=76) and Control (CG; n=77) groups. CG received monthly nutritional brochures. IG got 6 monthly workshops (AI lectures and food demonstrations) and monthly tailored newsletters and Motivational Interviewing calls. At baseline, 6- and 12-months, the team collected and assayed fasting serum for Pro-I/AI marker and ASC levels; calculated BMI; and conducted Path Analysis and Structural Equation Modeling.

Results: Participants' mean age at baseline was 56.6 (SD=9.4); mean BMI 32.4 kg/m² (SD=4.9), with no significant demographic differences between groups. All biomarkers except ASC were significantly related to both INF and obesity at baseline. Dietary habits and physical activity both significantly related to obesity via BMI.

Conclusions: Intervention yielded small changes in expected direction for Pro-I markers overall at 6 months, but no significant differences for BMI/ACSS. Ongoing analyses will determine relationship significance over the entire 12-month study. Larger studies with high INF-related morbidity/mortality risks are needed for more robust parameter estimation and fit statistics, and facilitate generalizability of results.

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O572

USE OF INTERVENTION MAPPING TO ADAPT A LIFESTYLE INTERVENTION FOR ENDOMETRIAL CANCER SURVIVORS

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Introduction: About 80% of endometrial cancer survivors (ECS) are overweight or obese and have sedentary behaviors. Lifestyle behavior interventions based on Social Cognitive Theory (SCT) seem promising, but the SCT constructs associated with their effectiveness are often inadequately reported. The aim of this study was to systematically adapt an

evidence-based weight management behavior change program to improve healthy lifestyle behaviors in ECS.

Methods: Following a comprehensive review of the literature, focus groups and interviews were conducted with ECS (n=16). An intervention mapping protocol was used for the program adaptation, which consisted of six steps: a needs assessment, formulation of matrices of change objectives, selection of theoretical methods and practical applications, programme production, adoption and implementation planning, and evaluation planning. Based on a meta-regression of effective techniques for healthy lifestyle promotion, SCT and Control Theory guided the adaptation of the intervention. **Results:** The process consisted of eight 90-minute group sessions focusing on shaping outcome expectations, knowledge, self-efficacy, and goals about healthy eating and physical activity. The adapted performance objectives included establishment of regular eating, balanced diet, and portion sizes, reduction of sedentary behaviors, increase of lifestyle and organized activities, formulation of a discrepancy-reducing feedback loop for all above behaviors, and trigger management. Information on managing fatigue and bowel issues unique to ECS were added.

Conclusions: Systematic intervention mapping provided a framework to design a cancer survivor-centered lifestyle intervention. ECS welcomed the intervention and provided essential feedback for its adaptation. The program is being evaluated through a randomized controlled trial.

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O573

RECEIVED SOCIAL SUPPORT AND SELF-EFFICACY EXPLAIN QUALITY OF LIFE AFTER LUNG CANCER SURGERY

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Introduction: This longitudinal study aimed at extending our knowledge about the reciprocal relationship between self-efficacy and received social support in the context of adaptation after lung cancer surgery. In particular, we were interested whether self-efficacy prompts support receipt or if support receipt prompts self-efficacy. Two hypotheses were investigated: (1) the cultivation hypothesis, assuming that the relationship between self-efficacy and quality of life (QoL) indices would be mediated by social support received from medical personnel, family, and friends, and (2) the enabling hypothesis, assuming that association between received social support and QoL indices would be mediated by self-efficacy.

Methods: 102 in-patients with the first onset of non-small lung cancer (NSCLC) filled in questionnaires at three time points: 3-4 days after segmentectomy or lobectomy (T1), at 1-month follow-up (T2), and at 4-month follow-up (T3). We performed mediation analyses to test the hypotheses. All analyses were controlled for effects of gender, age, marital status respective QoL index at T1 and the respective mediator measured at T1.

Results: The analyses confirmed the enabling hypothesis for 11 out of 14 indices of QoL (including emotional, physical social, cognitive, and functional dimensions and global index), whereas the cultivation hypothesis was not supported for any of the QoL indicators.

Conclusions: Received support from medical professionals, family, and friends is likely to prompt beliefs about one's ability to manage illness,

which in turn may predict better QoL. Interventions designed for people with NSCLC should assure that patients receive emotional and instrumental support within 3–4 days after surgery.

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O573

THEORY-BASED LIFESTYLE INTERVENTIONS FOR CANCER SURVIVORS: A SYSTEMATIC REVIEW

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Introduction: Individuals who receive a cancer diagnosis are often interested in optimizing their health and reducing their risk of cancer recurrence by making changes to their lifestyle behaviors. There is a need to review the application of a range of theoretical approaches to tertiary prevention to determine the most appropriate models for interventions with this population.

Methods: Evidence of the efficacy of lifestyle interventions addressing physical activity, diet, alcohol and tobacco use in cancer survivors was explored according to the theoretical approaches adopted in order to address the effectiveness and efficacy of behavioral interventions within this population. A search of PsycINFO and Medline databases identified 16 relevant studies in which the application of theory was addressed and behavioral change was observed.

Results: While theory was successfully introduced through describing the key constructs utilized, the application of theory was limited in the extent to which it was described in the process of intervention design and implementation. Findings revealed that the Transtheoretical Model and Social Cognitive Theory provided the greatest evidence for successful outcomes as highlighted by behavioral change. Furthermore, these studies when used in combination offered the greatest evidence of theories application to the intervention design and implementation.

Conclusions: This review offers evidence for positive outcomes relating to theory-based interventions, with almost all studies reporting statistically significant differences on at least one measure. Further research is required to compare the outcomes of theory-based interventions with those not based on a specific theory.

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O575

WHAT MAKES INTENSIVE PAIN PROGRAMS WORK AND FOR WHO?

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Introduction: Chronic pain is multidimensional experience which impedes psychosocial function (Matthews & Davin, 2014). Multidisciplinary Intensive Pain Programs (IPP) represent the most efficacious treatment for individuals experiencing chronic pain, evidenced by conclusions from systematic reviews, such as Middelkoop et al. (2011) and Guzman et al. (2013). However, the outcome of interest varies. In this paper, assessment data was compared to one-month follow-up data to inform hypothetical predictors of favorable outcomes in a future controlled study.

Method: Data were collected from participants (612 participants; 338 female). Data included physical and psychosocial function, health care, medication use, function and vocational capacity; at assessment, and one-

month post program. Data was analyzed using gender, depression levels, capacity, age and time since injury, as independent variables.

Results: 70% of the participants improved at the one-month follow-up on each outcome variable when taken individually. There were few consistent associations between individual assessment and outcome variable. However, a cluster of variables may predict favorable outcomes.

Conclusions: This paper presented a summary of descriptive statistics. There were relationships among the assessment data that were associated with both favorable and unfavorable outcomes. Individual assessment measures were not consistently associated with outcomes. The Author proposes a group of assessment measures and cut off scores that, based on this data, may predict outcomes. To address this, a prospective, controlled, empirical study may consider the effect of specific range of commonly measured variables on outcomes from pain programs.

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O576

"A LIGHT BULB MOMENT!" EXPERIENCES OF DELIVERING PHYSIOTHERAPY INFORMED BY ACCEPTANCE AND COMMITMENT THERAPY (PACT)

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Introduction: Chronic low back pain (CLBP) is a common cause of pain, disability and time off-work in the UK. It generates considerable suffering and costs NHS over £1 billion a year. Current physiotherapy treatments are moderately effective. Combining theory-based psychological methods with physiotherapy could improve outcomes for people with CLBP. Physiotherapy informed by Acceptance and Commitment Therapy (PACT) is a novel treatment being evaluated in the PACT trial (www.controlled-trials.com/ISRCTN95392287). This nested longitudinal qualitative study aimed to explore the feasibility and acceptability of PACT training and treatment delivery.

Methods: Individual semi-structured interviews were conducted by independent researchers. Physiotherapists were interviewed three times over 18 months: after training, six months later and at the end of treatment delivery. Interviews were audio recorded, transcribed verbatim and analyzed using the framework approach to generate key themes. Respondent validity and independent coding by another researcher were conducted to check the validity of emergent themes.

Results: Eleven physiotherapists (Band 6–8; mean age 40 years, range 26–52; 8 females) from three NHS hospital trusts in SE England were interviewed. Four themes emerged: 1) Barriers and facilitators to implementing training 2) Value of supervision and support throughout the trial 3) Challenging personal and patient responses 4) Importance of context for translation into routine care.

Conclusions: PACT was acceptable and feasible, with positive perceived outcomes regarding the development of competency and facilitation of self-management. Findings suggest PACT could successfully broaden the scope of practice of physiotherapists treating CLBP and inform future research in this area.

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O577

PHYSICAL THERAPISTS' ASSESSMENTS, ANALYSES AND USE OF BEHAVIORAL CHANGE TECHNIQUES IN INITIAL CONSULTATIONS ON MUSCULOSKELETAL PAIN: DIRECT OBSERVATIONS IN PRIMARY HEALTH CARE

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Introduction: Behavioral medicine (BM) treatment is recommended to be implemented for pain management in physical therapy. Its implementation requires physical therapists (PTs), who are skilled at performing functional behavioral analyses based on physical, psychological and behavioral assessments. The aim was to explore and describe PTs' assessments, analyses and their use of behavioral change techniques (BCTs) in initial consultations with patients who seek primary health care due to musculoskeletal pain. **Methods:** The design was descriptive and explorative using both quantitative and qualitative data. Data were collected through video recordings of 12 experienced and highly motivated primary health care PTs. The analysis was performed in three steps, following a specific observation protocol comprising the assessment of physical and psychological prognostic factors (red and yellow flags, respectively) analysis of the clinical problem, and use of BCTs. **Results:** Red and yellow flags were assessed in a majority of the cases. Analyses were mainly based on biomedical assessments. None of the PTs performed functional behavioral analyses. All of the PTs used BCTs to facilitate physical activity and exercise, mainly information about health consequences and instructions. The four most clinically relevant cases were selected to illustrate the variation in the PTs' clinical practice. **Conclusions:** Red and yellow flags were assessed by the PTs in the current study, but their interpretation and integration of the findings in analyses and treatment were incomplete. The results indicate a need of further measures to implement behavioral medicine in Swedish primary health care physical therapy.

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O578

A SYSTEMATIC REVIEW OF RANDOMISED CONTROLLED TRIALS STUDYING THE PREVENTIVE EFFECTS OF PHYSICAL EXERCISE, MANUAL AND BEHAVIOURAL TREATMENTS IN ACUTE LOW BACK PAIN AND NECK PAIN

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Introduction: It is urgent to identify effective treatments preventing acute pain to develop into a chronic condition. Although the access of pain treatments is extensive, there is a current gap of knowledge regarding which available treatments being the most effective. The purpose was to systematically review preventive effects of non-pharmacological treatments in the acute/subacute stages of low back pain and neck pain.

Methods: The project was performed by the Swedish agency for health technology assessment and assessment of social services. Relevant databases were searched for randomized controlled trials (RCT). Eligible were RCTs with moderate and high study quality targeting acute/subacute pain in all ages, and with a follow-up assessment > 3 months. Outcomes included pain, activity interference, and work ability. Articles were reviewed for scientific quality by two independent authors in accordance with pre-set criteria. The GRADE-system was used for evaluating the confidence in the described effects.

Results: Thirty-six articles studying the effects of physical exercise (n=13), manual treatments (n=10), behavioral treatments (n=11), and acupuncture (n=2) were included. There was a great heterogeneity across studies concerning interventions and control groups. The scientific basis for conclusions was graded as insufficient or limited (GRADE = very low and low).

Conclusions: It is not possible to conclude whether any of the methods studied are effective in preventing acute/subacute pain developing into a chronic condition. It is urgent that future studies are explicitly designed to study prevention, which is further illustrated and discussed during the presentation.

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O579

WHAT IS THE COMPARATIVE EFFECTIVENESS OF CURRENT STANDARD TREATMENT, AGAINST AN INDIVIDUALLY TAILORED BEHAVIOURAL PROGRAMME DELIVERED EITHER ON THE INTERNET OR FACE-TO-FACE FOR PEOPLE WITH ACUTE WHIPLASH ASSOCIATED DISORDER? A RANDOMIZED CONTROLLED TRIAL

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Introduction: Little is known about effective treatments aiming to influence biopsychosocial variables at an early stage of whiplash associated disorders. The aim of this study was to investigate the comparative effectiveness of current standard treatment, against an individually tailored behavioral programme delivered via the Internet or face-to-face for people with acute whiplash associated disorders.

Methods: A multicenter, randomized, three-group design, with concealed allocation. Fifty-five participants (37 female), age 18–65, with acute Whiplash Associated Disorder (WAD-grade I–II) were recruited at two emergency clinics in Sweden. Before randomization all participants received standard self-care instructions. The Internet and face-to-face groups followed a seven-week behavioral programme involving individual tailoring, via email (Internet group), or in sessions at a physical therapy unit

(face-to-face group). The control group only received the self-care instructions. Pain-related disability, pain intensity, self-efficacy in daily activities, catastrophizing and fear of movement/(re)injury were assessed at baseline (2–4 weeks post injury) and at three, six and 12 months post intervention. Results: Both the Internet ($n=16$) and face-to-face ($n=14$) group showed a larger decrease in pain-related disability than the control group ($n=16$) at 12-months follow-up. Significant differences between the groups in overall treatment effect were shown in all outcomes except pain intensity. All groups improved significantly over time in all outcomes, except for fear of movement/(re)injury and catastrophizing in the control group. Conclusion: An individually tailored behavioral programme improved biopsychosocial factors in patients with whiplash associated disorders up to 12 months after treatment. Internet-delivered intervention was as effective as clinic-based face-to-face therapy sessions.

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O580

TREATMENT OUTCOMES FOR AN INTERDISCIPLINARY CHRONIC PAIN PROGRAM

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Introduction: Chronic pain affects 100 million Americans, representing \$635 billion in annual cost and lost productivity (IOM, 2011). Opioids have become a default treatment despite a lack of evidence for effectiveness or safety with long-term use. Interdisciplinary programs have been established as the gold standard for non-pharmacologic pain management, especially for those with co-morbid physical and psychiatric disorders, and longer chronicity of pain and disability. This study is an outcomes evaluation of a 3-week interdisciplinary pain rehabilitation program based on cognitive behavioral principles.

Methods: 844 consecutive patients reported a mean duration of pain of 10.76 years ($SD = 10.30$). On admission, 56.4% reported current opioid treatment. Pain diagnoses were heterogeneous; most common were generalized joint/muscle/myofascial (25.8%), fibromyalgia (18.3%), and back/spine (17.8%). A survey of pain outcomes and mood was completed at admission, discharge, and 6-month follow up. An objective measure of physical functioning (5-min walking test) was completed at admission and discharge. Outcomes were tested using ANOVA.

Results: Outcomes included an elimination of opioid use; reductions in pain severity ($F(2,520) = 111.81, p < .001$), pain interference ($F(2,520) = 165.34, p < .001$), and depressive symptoms ($F(2,512) = 108.17, p < .001$); and improvement in physical functioning ($F(1,122) = 56.42, p < .001$). Outcomes were sustained at 6-month follow-up.

Conclusions: Interdisciplinary pain programs demonstrate significant improvements in the functional and psychological sequelae of chronic pain, including for patients with heterogeneous, refractory pain. More programs utilizing evidence-based approaches are needed to address this significant public health issue.

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O581

THROMBOLYSIS IMPLEMENTATION IN STROKE (TIPS): VARIATION IN 'READINESS TO CHANGE' AND ENGAGEMENT WITH TRANSLATION STRATEGIES

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Introduction: Changing practice in thrombolysis for acute stroke is challenging given the complex, time-urgent processes required for assessment and care delivery. This has led to low implementation rates internationally. As part of a trial testing the effectiveness of a multi-component multidisciplinary collaborative approach for increasing stroke thrombolysis rates, readiness to change, staff attitudes and staff engagement with implementation strategies were assessed.

Methods: The cluster-randomized controlled trial involved 20 hospitals across three Australian states. The intervention was based on behavioral theory and analysis of the roles and barriers relating to rapid assessment for thrombolysis eligibility. Baseline data collection included assessment of staff perceptions and each site's overall readiness to change. Engagement with each intervention strategy was also assessed during the intervention phase.

Results: At baseline thrombolysis rates varied across the sites from less than 5% to over 10% of all stroke patients. Common challenges identified via the staff surveys included a lack of use of established behavioral strategies (goals, feedback, contingencies) in relation to site performance. Overall assessments of readiness to change indicated that while most sites had lead team members with skills required to implement change, environments were perceived as unsupportive of change. A non-significant correlation between average staff attitude score and hospital thrombolysis rate was found at baseline. Wide variation in intervention implementation was also identified and will be discussed in relation to trial outcomes and potential refinements to the intervention strategy.

Conclusions: Practice change in thrombolysis is achievable but requires refinements which take into account specific contextual factors.

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O582

INCREASING THE IMPLEMENTATION OF A STATE-WIDE HEALTHY CANTEEN POLICY: RESULTS OF THREE RANDOMISED-CONTROLLED TRIALS

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Introduction: Despite healthy school canteen policies being mandated by many jurisdictions in Australia and internationally, uptake has been limited. Without population wide implementation, the potential benefits of school policies will not be realized. Research investigating interventions to facilitate the implementation of health innovations, however, is limited. The aim of this paper is to assess the effectiveness of three randomized trials, of varying intensity, in supporting schools implementation of a healthy canteen policy mandated by the NSW Government.

Methods: Three randomized trials, with over 200 primary schools, were undertaken within the Hunter New England Region of NSW between February 2014 and June 2015. Implementation strategies varied across the three trials including such strategies as; executive support, training, resources, audit and feedback, communication strategies and ongoing support. The primary outcomes for the three trials were the proportion

of schools with a canteen menu that did not contain foods or beverages ('red' and 'banned') restricted for sale under the policy; and the proportion of schools where healthy canteen items ('green items') represented more than 50% of listed menu items. Implementation of the policy was measured by menu audits at baseline and post-intervention (9-12 months following baseline) by dietitians, blinded to group allocation.

Results: A dose-response relationship between implementation support and policy implementation was found. Results varied across the three trials from non-significant improvements for the primary trial outcomes to absolute improvements greater than 60%.

Conclusions: Increasing schools' implementation of mandatory nutrition policies is possible however requires proactive implementation support strategies.

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O583

MAPPING PATIENT JOURNEYS: UNDERSTANDING AND IMPROVING PATIENT EXPERIENCE THROUGH RESEARCH AND CO-DESIGN

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Introduction: Patient Journeys comprehensively map the experience of patients as they move through the medical system from a biological, psychological and social perspective. They help staff to understand what matters to patients, and situate patients as active contributors to their own care. Comparative analyses of current and optimal journeys identify areas of excellent practice, or areas where patient needs are not being met. Patient journeys are designed and presented visually to reflect patient language and research themes. Two examples will be presented including methodology, outputs and solutions.

Methods: Patient Journey Mapping employs qualitative methodology, utilizing focus groups and in-depth interviews with patients, carers and their multidisciplinary healthcare team. Data is analyzed using a form of Thematic Analysis outlined by Braun and Clarke (2006). Patient Journeys are designed visually through a co-design process.

Results: Patient Journeys have highlighted consistent themes for patient experience and outcomes including: How coping styles can influence disease progression; The influence of health literacy on engagement with healthcare; The impact of poorly coordinated care on home life and job security; Cultural understandings influencing choices around self-management; The value of quality social support and healthcare professional communication; and, The importance of a key contact person and the need for support on discharge.

Conclusions: Results of patient journey mapping have been used in hospital service redesign, transformed into electronic self-management solutions, and have informed healthcare strategies at a government level. Health Psychology researchers can play a critical role in transforming patient experience into useable and tangible healthcare solutions.

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O584

ADDING ONE GOOD YEAR OF LIFE FOR EVERY CITIZEN – CONCEPTUALIZATION AND DESIGN OF A COMMUNITY WIDE BEHAVIORAL CHANGE INTERVENTION.

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Introduction: Enhancing and maintaining population well-being across the life-span by risk reduction and resource strengthening is the ultimate goal of Public Health. In reality, however, fragmented support systems work against this: in childhood, many are left behind, disparities in health develop and increase with age with a soaring prevalence of preventable chronic diseases, and productivity at work suffers due to mental health issues, particularly depression. Risk-group targeted interventions to change behavior at the individual level have largely failed. Participatory population approaches including the health sector, media, NGOs yielded promising results (Karelia project). Method: This community-based participatory project engages context, setting and citizens of Gaggenau (population 30.000). Our aim, to be realized over the course of the next decade, is to add one good year of life for every citizen over and above comparable communities. This will be achieved by multimodal, predominantly setting directed programs aiming to improve nutrition, exercise, and mental health (reduced stress, enhanced social support and love) employing age and context appropriate interventions.

Results: The current initiation (2016) reveals the need for a close interaction between scientists, citizens, media, local government and businesses using a stringent management and communication approach.

Conclusion: To our knowledge for the first time, an interdisciplinary team of scientists from public health, behavioral sciences, developmental psychology, health economics, municipal geography, social epidemiology, epigenetics, microbiology, nutritional science, occupational health, health services research, pediatrics, educational science, and gerontology join forces with the citizenship to develop a coherent array of interventions that translate into effective health promotion.

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O584

IMPACT OF FINANCIAL INCENTIVES ON THE IMPLEMENTATION OF SCREENING AND BRIEF ALCOHOL INTERVENTIONS BY PRIMARY HEALTHCARE PROFESSIONALS A O'Donnell¹, C Haighton¹, D Chappel², C Shevills³, B Hanratty¹, E Kaner¹

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Introduction: Financial incentives were introduced in England in 2008 to encourage primary care professionals to deliver screening and brief alcohol interventions. Despite some evidence to suggest these measures have increased provision, there remains a lack of robust evaluation data on their longer term effect. This study used routine primary care data and theory-based interviews with clinicians to assess the impact of financial incentives on alcohol intervention delivery in England since 2008.

Methods: (1) Comparison of alcohol intervention delivery rates by financial incentive status in 16 practices in Northern England using routine data. (2) Normalization Process Theory-informed interviews with 25 health professionals (GPs and nurses) to explore which factors influence intervention delivery/recording in routine consultations.

Results: Screening and brief alcohol intervention rates were significantly higher in incentivized compared to non-incentivized practices ($p < 0.001$ for all variables). However absolute rates of screening tests (range: 0.05%-3.92%) and alcohol interventions (range: 4.73%-9.21%) were low across all. GP interviews highlighted multiple influences on their delivery/recording of such activities including: hierarchy of different incentive schemes in England;

mixed belief in the efficacy of alcohol interventions; difficulty of codifying complex conditions; and beliefs about patient-centered practice. Nurse interviews are ongoing, with findings to be presented at this symposium.

Conclusions: Incentives have increased alcohol intervention delivery in England but rates remain low. Measuring the impact on the content and quality of interventions delivered by healthcare professionals remains challenging due to inconsistent coding practices, and the impact of various behavioral and structural factors on their delivery/recording of alcohol prevention activities.

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O584

WHICH BEHAVIOUR CHANGE TECHNIQUES ARE REPORTED IN TRIALS OF INTERVENTIONS TO IMPROVE DIABETES HEALTHCARE?

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Introduction: The components of healthcare quality improvement (QI) interventions are often described at a high level, sometimes lacking clarity on the specific content involved. Behavior change technique (BCT) taxonomies may provide a helpful way of describing the detailed content of such interventions. Methods: We used the BCT taxonomy v1 to code interventions reported in 142 trials included in an existing review of diabetes QI interventions. We separately coded techniques targeting healthcare professional or patient behavior.

Results: We identified 26/93 healthcare professional-focused BCTs; the most frequent of which were: Adding objects to the environment [66 trials], Social support (practical) [57], Instruction on how to perform the behavior [55], Restructuring the social environment [55], and Prompts and cues [35]. We identified 38/93 patient-focused BCTs; the most frequent included: Instruction on how to perform the behavior [94], Information on health consequences [84], Restructuring the social environment [84], Prompts/cues [73], and Adding objects to the environment [57].

Conclusions: The BCTv1 can be used to characterize intervention content targeting either health professional or patient behavior change and may help to promote better fidelity and replication. The reliance on a subset of BCTs in this literature suggests opportunities for new intervention design.

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O587

PSYCHOLOGICAL, SOCIAL AND ENVIRONMENTAL CORRELATES OF PHYSICAL ACTIVITY AND SEDENTARY BEHAVIOURS IN HONG KONG ADOLESCENTS

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Introduction: To enable regular engagement in physical activity (PA) and reduce the time spent on sedentary behaviors (SB) in Hong Kong (HK) adolescents, it is important to identify locally-relevant individual, social and environmental correlates of engagement in such behaviors. We examined the independent associations of individual, social and environment variables with PA and SB in HK adolescents; and interactions among environmental, socio-demographic and psychosocial variables that explain PA and SB.

Methods: 1299 HK adolescents (11-18 yrs) and their primary caregivers recruited from HK neighbourhoods stratified by socio-economic status and walkability provided survey data on PA and SB, and their individual, social and environmental correlates. A subsample of 552 adolescents wore PA monitors (accelerometers) for a week. Objective data on neighbourhood characteristics were collected via Geographic Information Systems.

Results: Psychological constructs indicative of a positive attitude towards, and/or ability to engage in, a particular behavior (e.g., self-efficacy for PA or SB) and social factors (e.g., parental modelling) were predictors of higher levels of PA and SB. Neighborhood safety, access to public transport and aspects of neighborhood walkability were generally associated with higher PA. The school environment also played a significant role in explaining adolescents SB. Some environment-behavior associations differed by sex, age and enjoyment of PA/SB.

Conclusions: Individual, social and environmental factors, and their interaction, are all potential important contributors to PA and SB in HK adolescents. Multi-level, multi-sectoral interventions are likely needed to achieve significant and sustainable effects on PA and SB in this population.

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O588

FAMILY-BASED PHYSICAL ACTIVITY IN EARLY CHILDHOOD: A QUALITATIVE INVESTIGATION OF PARENT PERCEPTIONS

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Introduction: Family-based physical activity (PA) may be important for optimizing young children's PA levels. How families perceive and engage in PA, and what influences this interaction, is not well understood. Therefore, an in-depth understanding of parents' views regarding family-based PA is crucial. The aims of this qualitative study were to examine parent perceptions, perceived benefits, and influences on family-based PA. The western Sydney region was targeted as this area has poorer pediatric health indices related to physical inactivity and sedentary behavior.

Methods: A purposive sample of sixteen parents of 2-4 years old children living in western Sydney was recruited and took part in 1:1 semi-structured interviews. A mixed inductive-deductive approach was used to identify key themes and sub-themes emerging from the interviews.

Results: Parents' perceptions about family-based PA extended beyond notions consistent with previous research (e.g. active play), and included activities such as family cooking, arts & crafts. Benefits of PA ranged from general health improvements to social and community interconnectedness. Facilitating and negating influences on family-based PA were complex and multi-dimensional, and aligned with an ecological framework extending from family unit characteristics to larger societal pressures (e.g. pervasiveness of small screen technology). Parental recommendations for improving family-based PA were relevant at multiple levels of government, community and industry (e.g. control of advertising).

Conclusions: Parent perceptions of family-based PA may be broader than previously assumed and influences are complex and multi-dimensional. Family-based PA promotion programs need to consider this complex relationship in order to optimize success in promoting PA behaviors.

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O589

INDIVIDUAL PERCEPTIONS OF PHYSICAL ACTIVITY IN A COMMUNITY-LEVEL INITIATIVE IN NORTH QUEENSLAND, AUSTRALIA

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Introduction: Community-level health initiatives advertise the benefits of physical activity, however, it is unknown how personally relevant these promoted benefits are to those who take part. The purpose of this study was to describe the personal experience of participation in the health programs, and to identify how appropriate the participants felt the programs were.

Methods: Participants were rural North Queensland residents participating in Australian federal government-funded health initiative programs offered by their local council. There were 25 participants (10 males, 15 females) whose ages ranged from 47 to 79. Twenty-one were in the 12-week Diabetes Australia *Beat It* program, and four participants were in a 10-week water aerobics program. Qualitative data was provided by participants during semi-structured interviews which asked about current exercise habits, reason for taking part in the program, and opinions about the program and facilitators. Results: Thematic Analysis was used to analyze the data. It was an inductive analysis that assessed semantic themes from a realist perspective. The themes found detail the personal definition of exercise (*Exercise to me*), the physical benefits of exercise (*Keep yourself, Future fitness, Observed changes*), and the psychological benefits of exercise (*socializing, challenging oneself, sense of achievement*).

Conclusions: The benefits that participants felt they gained from the physical fitness program, and their reasons for attending, were different to the programs' expected outcomes. Programs should aim to appeal and cater to the needs of a wide group of people who have limited access to exercise facilities and health behavior programs.

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O590

EARLY CHILDHOOD DETERMINANTS OF PHYSICAL ACTIVITY DURING MIDDLE CHILDHOOD

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Introduction: Little is known about early childhood determinants of physical activity (PA) during middle childhood. This study investigated early childhood (3-5 years) determinants of children's moderate- to vigorous-intensity physical activity (MVPA) during middle childhood (6-8 years) using an ecological framework.

Methods: At baseline 1002 children took part in HAPPY; 548 participated three years later. Children wore Actigraph GT1M accelerometers (15sec epochs; Evenson cutpoints) for one week at both time points. Parents reported potential predictors at baseline. Regression analysis was used to identify determinants of children's MVPA controlling for center of recruitment, MVPA, child's sex and age, maternal education at baseline, and accelerometer wear time at both time points.

Results: Children spent more time in MVPA at follow-up than baseline (68.9 vs. 58.6 mins/day; $p < 0.0001$). Children with higher BMI category at baseline were less active at follow-up (coef=-5.8, $p=0.02$). Children who played with their siblings at baseline were more active at follow-up (coef=6.4, $p=0.02$). Children being active on their own or with friends, preferring to play inside/do craft, parental PA, belief about the importance of being active as a family, confidence to support PA, PA interaction with children, number of TVs, having a TV in the child's bedroom and neighborhood constraints to active transport at baseline were not associated with children's MVPA at follow-up. Conclusions: Few determinants were identified. Investigating fluidity of parenting and child behaviors, and changes in children's lives following the transition to school, may be useful in identifying determinants of children's MVPA. Proximal, rather than distal, factors may be more important.

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OUTDOOR EXERCISE IS ASSOCIATED WITH BETTER CELL AGING PROFILES

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Introduction: Lifestyle factors (e.g. regular exercise) have been shown to impact the health and lifespan of an individual by affecting telomere length. There is also increasing evidence for the health benefits of nature experience, although previous studies often confound the effects of exercise and nature experience. It remains unclear, therefore, whether exercise in nature has effects superseding those of exercise alone. We investigated the effects of a lifestyle change programme involving exercise in nature-rich areas compared to exercise in a built environment and a no-exercise control group in terms of telomere changes and other health parameters. Methods: Sixty healthy, physically inactive adults (50% female, mean age 25.9 years) took part in a non-randomised 5-months lifestyle change programme involving regular endurance exercise, either in a nature-rich setting (n=20) or a fitness centre (n=20). The control group (n=20) stayed inactive. Telomere length and telomerase activity was measured before and after the intervention, in addition to bi-monthly assessments of a range of self-report, behavioural and physiological measures (e.g. cortisol).

Results: The results showed a significant increase in telomere length across groups, which was most prominent in the two exercise groups. The gym group had significantly less telomerase activity than the nature group after the intervention, whilst the nature and control groups maintained their telomerase levels. Conclusions: The environment in which exercise takes place matters to telomere maintenance. These findings have important implications for health promotion and public access to nature-rich places in an increasingly urbanized world.

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O592

INDIVIDUAL, SOCIAL AND ENVIRONMENTAL CORRELATES OF PHYSICAL ACTIVITY IN AFRICAN AMERICAN OLDER ADULTS

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Introduction: Older adults, especially ethnic minorities continue to be the least active segment of the US population. Health disparities are evident in that African Americans participate in less physical activity and are less likely to meet physical activity guidelines (41.8%) compared to non-Hispanic Caucasians (51.1%). Using the social ecological model (SEM), this study examined the influences of individual, social and physical environmental factors in determining physical activity behavior.

Methods: Participants ($N=110$, females= 96 , Mean= 64.8 ± 5.7 years) were community-dwelling African American older adults recruited via community events, list-serves and local media. All participants completed demographics and psychosocial questionnaires assessing (SEM) constructs of self-efficacy, outcome expectations, social support, and perceptions of the physical environment. A latent factor physical activity construct represented self-report (Godin leisure-time exercise questionnaire, Physical activity scale for the elderly) and objective (accelerometer worn for 7 days) physical activity.

Results: The direct and indirect effects of SEM constructs on physical activity were tested using structural equation modelling, and the overall model fit was adequate (CFI=.94, RMSEA=.04, SRMR=.05, Chi square= 67.03 , $p=.17$). Results indicated that: a) self-efficacy was the strongest direct predictor of physical activity ($\beta=.79$); b) outcome expectations both directly ($\beta=.36$) and indirectly ($\beta=.42$, through self-efficacy) predicted physical activity. Among demographic moderators, only age was inversely associated with outcome expectations ($\beta=-.28$). Surprisingly, social support or physical environment did not influence physical activity.

Conclusions: These findings underscore the importance of self-efficacy in designing interventions for minority aging populations and intervening on multiple levels, including establishing realistic outcome expectations, to impact and promote physical activity.

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Motivational interviewing and the HIV cascade: From intervention development to implementation

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MOTIVATIONAL INTERVIEWING AND THE HIV CASCADE: FROM INTERVENTION DEVELOPMENT TO IMPLEMENTATION

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A quarter century of behavioral intervention research has focused on primary and secondary HIV prevention. This large body of research has identified highly impactful facilitators and barriers to behavior change and has created efficacious interventions that decrease the rate of new HIV infections and reduce morbidity among persons with HIV. Despite the substantial declines in HIV transmission and increases in lifespan among those living with HIV achieved over the past decade, full benefits that should be possible based on the tools and interventions currently available have yet to be realized, especially for specific sub-populations such as adults with sexual compulsivity, young people, and those in resource-poor countries. Further work is needed on both ends of the translational spectrum: new and more potent behavioral interventions for high risk sub-populations and implementation of efficacious behavioral interventions in real world settings. The goal of this symposium is to present studies across this spectrum that utilize Motivational Interviewing (MI) including: a developmental study integrating MI and cognitive-behavioral treatment for sexual minority men with sexual compulsivity in New York, an effectiveness-implementation hybrid trial of a 4-session MI intervention for youth with HIV in 5 cities in the United States, and a nation-wide MI implementation project in Jamaica.

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PRELIMINARY EFFICACY OF AN MI PLUS CBT INTERVENTION FOR HIV-POSITIVE GAY AND BISEXUAL MEN WITH SEXUAL COMPULSIVITY

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Introduction: Gay and bisexual men (GBM) report higher rates of sexual compulsivity (SC) compared to the general population. SC is associated with a range of negative health outcomes, including psychological distress and HIV infection, yet no empirically based treatments for SC exist. The present study pilot tested an intervention that integrated Motivational-Interviewing (MI) with cognitive-behavioral therapy to focus on facilitating healthy emotion regulation and address maladaptive cognitions among HIV-positive GBM with high levels of SC.

Methods: Participants ($N = 11$) completed a baseline interview, up to 10 one-on-one intervention sessions with trained therapists, and a 3-month follow-up assessment.

Results: Improvements were observed in all psychological outcomes with significant decreases in SC, depression, anxiety, and obsessive-compulsive symptoms. We did not observe statistically significant changes in drug-related problems, frequency of drug use, or HIV transmission risk behaviors (i.e., number of new partners, number of condomless anal sex acts with casual partners). Effect sizes, however, demonstrated small-to-moderate decreases in both drug use problems and frequency of drug use. Importantly, though not significant, we observed medium effect sizes for reductions in number of new male sexual partners—reducing by nearly nine partners, on average—as well as number of CAS acts with casual male partners, which were reduced by nearly 14 instances.

Conclusions: The findings from this study support the broad utility of the MI as part of a treatment for GBM with SC. Future work should examine the effects of this intervention in a randomized control trial compared to other forms of treatment.

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IMPLEMENTING HEALTHY CHOICES IN ADOLESCENT HIV CLINICS IN THE UNITED STATES: A MIXED METHODS STUDY WITHIN AN EFFECTIVENESS-IMPLEMENTATION HYBRID TRIAL
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Introduction: Healthy Choices is a 4-session intervention based on Motivational Interviewing that has been shown to improve viral load, alcohol and marijuana use, and sexual risk in youth living with HIV. Under efficacy conditions, the intervention was delivered by graduate students in clinic settings and supervised by the investigator team. The next step is an effectiveness trial to test the intervention under real world conditions. To reduce the science-practice gap, researchers are tasked with addressing implementation issues (pilot testing strategies, assessing barriers and facilitators) within effectiveness trials in what are now known as “hybrid designs.”
Methods: In an effectiveness-implementation Type 1 hybrid trial, a model of MI implementation included initial workshop training by the investigator team with community health workers and their supervisors in 5 sites, and follow up coaching of supervisors and workers until acceptable fidelity achieved, ongoing quality assurance as supervisors took over coaching with remediation plans if MI competence and program adherence fell below thresholds. Monthly MI competency ratings were obtained from coding of audio recorded patient sessions and supervision sessions. Qualitative interviews were conducted with workers and supervisors.

Results: Program adherence and competency varied by site. Qualitative interviews suggested barriers and facilitators to implementation including prioritization of program adherence by individual staff and administrators, clarity of guidelines for expectations and remediation, and skill and motivation of staff pre-selected for participation.

Conclusions: Implementation of evidence-based behavior change interventions in real-world settings requires ongoing quality assurance, careful assessment of barriers and facilitators, and ongoing adaptation of implementation strategies to balance flexibility and fidelity.

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MOTIVATIONAL INTERVIEWING FOR YOUTH - CARIBBEAN HIV IMPLEMENTATION PROJECT (MY-CHIP): CHALLENGES AND OPPORTUNITIES.

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Introduction: The Caribbean has the second highest rate of HIV globally, and over 10% of the Caribbean HIV+ population are in Jamaica. Antiretroviral coverage is only 58%, and viral load suppression rates are only at 12%. Youth are at even higher risk. The implementation of an evidence-based behavior change intervention to mitigate the effects of HIV in youth is warranted.

Methods: Leveraging a CBPR research model, the Ministry of Health and a cadre of civil society youth organizations concluded the introduction of MI was the optimal intervention to reduce discriminatory behavior, making a positive impact on the HIV youth cascade, and strengthening their health care system. We pilot tested several implementation strategies to implement MI with fidelity in Jamaica’s HIV service sector.

Findings: In the first phase, we piloted a train-the-trainer model with 20 selected staff across the island. Only four completed six months of coaching. All four reached competency thresholds, but only one showed leadership skills and motivation to continue coaching and training others. Qualitative interviews and fidelity scores suggested a new model. Thus, our team continued to provide training and ongoing coaching services to trainees with the assistance of the one successful coach from the first phase. Evaluation of Phase 2 is underway.

Conclusions: Implementation of evidence-based behavior change interventions in low resource settings requires immense oversight, more than would be expected domestically, and adaptations to a Train-the-Trainer model are necessary. Organizational interventions may be necessary before successful implementation interventions to improve fidelity to behavior change interventions are successful.

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O597

DEVELOPING AND VALIDATING A THEORETICAL MEASURE OF MODIFIABLE INFLUENCES ON HORMONAL THERAPY MEDICATION TAKING BEHAVIOUR

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Introduction: Taking adjuvant hormonal therapy for five to ten years is recommended to prevent breast cancer recurrence. Despite the proven clinical efficacy of hormonal therapy many women do not take their treatment as prescribed. Little is known about what influences hormonal therapy medication taking behavior (MTB). This study reports the development and initial validation of a questionnaire measuring modifiable influences on adjuvant hormonal therapy MTB based on the Theoretical Domains Framework (TDF).

Methods: Women with Stage I-III breast cancer (N=223) completed the questionnaire based on the TDF. The TDF is an integrative framework consisting of 14 domains of behavioral change to inform intervention design. Questionnaire items were developed from previous research, in depth patient interviews and consultation with health professionals. Confirmatory factor analysis (CFA) was undertaken to generate the model of best fit.

Results: The final questionnaire consisted of 8 domains and CFA produced a reasonable fit ($\chi^2=941$, $df=172$, $p<0.001$; CMIN/DF= 1.16, CFI = 0.93 and RMSEA = 0.03) as well as internal consistency ($r=0.16$ to 0.64). There were adequate levels of discriminant validity for the majority of the TDF domains.

Conclusions: A theoretically based measure of modifiable influences on MTB was developed and is being further validated in a national population study.

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O598

THE EFFECTIVENESS OF A PERSONALISED TEXT, INTERNET, AND PHONE BASED INTERVENTION ON ADHERENCE TO MEDICATION IN DIABETES.

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Introduction: Adherence to oral hypo-glycemic medication for diabetes has been shown to be as low as 36% with significant implications for the individual and the public health system. A personalized multichannel intervention was piloted with 160 users of oral hypo-glycemic medicine aimed at addressing illness and treatment beliefs to lift adherence.

Methods: Participants were randomly assigned to one of three intervention streams. All participants received 26 weeks of text messages and website education personalized to their illness and treatment beliefs. The medium and high touch streams received additional personalized intervention via nurse phone calls. Self-report adherence was measured as an outcome with illness representation as a potential mediator.

Results: A significant change was found between baseline and post intervention reports of forgetting medication (41% vs 27%, $p < 0.01$). This change was maintained 6 months following the intervention. Illness representations also changed significantly with participants post intervention being more confident that their medication would be helpful ($p < .001$), less worried about using their medication ($p < .001$), and more likely to report a perception that diabetes was a long term condition with serious consequences if left untreated.

Conclusions: This pilot study shows preliminary evidence for the effectiveness of a text, internet and telehealth intervention in changing illness and treatment beliefs and increasing use of medications. The value of this intervention appears to extend beyond the intervention period with results maintained six months following the programme.

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O599

USING A THEORETICAL APPROACH TO IDENTIFY FACTORS INFLUENCING ADHERENCE TO AN EXERCISE PROGRAM FOR ADULTS WITH VENOUS LEG ULCERS.

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Introduction: Adults with venous leg ulcers currently do not meet physical activity guidelines for a myriad of reasons. Research suggests that exercise programmes which are based on theoretical frameworks are more likely to be successful for increasing adherence. Social Cognitive Theory (SCT) is one commonly used health theory that posits that learning occurs in a social context with a dynamic and reciprocal interaction of the person, environment, and behavior. This study therefore sought to identify the relationships between self-efficacy, outcome expectations, fear-avoidance beliefs, depression and social support and adherence to an exercise for a home-based exercise programme for adults with venous leg ulcers.

Methods: Patients were randomized to receive either a 12week exercise intervention with a telephone coaching component, or usual care plus telephone calls at the same time points. Data on health, psychosocial variables and adherence to leg exercises were obtained from self-report surveys and data on medical and ulcer history were obtained from medical records.

Results: This study included 63 patients with venous leg ulcers. Of those in the exercise intervention group, 59% adhered to the exercise protocol more than 75% of the time. As per SCT there was a significant relationship between self-efficacy and outcome expectations and both of these constructs were significantly related to adherence to the leg exercise programme. Adherence significantly correlated with wound healing indicating a possible pathway to healing.

Conclusion: In this sample, self-efficacy and outcome expectations were found to be significantly related to adherence to the prescribed leg exercises.

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O600

COMPARING TWO MODELS OF HEALTH BEHAVIOUR TO EXPLAIN TAMOXIFEN NON-ADHERENCE IN WOMEN WITH BREAST CANCER: A LONGITUDINAL STUDY

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Introduction: Up to 50% of breast cancer survivors do not take tamoxifen as prescribed, which is associated with increased risk of recurrence and reduced quality of life. However, factors contributing to tamoxifen non-adherence are poorly understood. This study investigated the predictive validity of the Common Sense Model of Illness Representations (CSM) and the Theory of Planned Behavior (TPB) in explaining intentional and unintentional tamoxifen non-adherence.

Methods: Participants ($n=817$) completed questionnaires assessing illness perceptions, treatment beliefs, adherence, quality of life, social support, distress and key TPB components. Participants ($n=357$) in their first year of treatment were followed-up at three, six and twelve months. Logistic regressions were used to identify predictors of non-adherence at baseline. Follow up data were analyzed with t-tests using Bonferroni correction. Data collection and analysis is ongoing.

Results: Patients were classified as non-adherent based on Medication Adherence Rating Scale scores. At baseline, both intentional and unintentional non-adherence were best predicted by a combination of TPB and CSM variables. The models were better able to predict intentional ($R^2=36%$) than unintentional non-adherence ($R^2=17%$). Non-adherence rates increased significantly at 3 months ($p=.032$). Beliefs about risk of recurrence ($p=.001$), symptoms attributed to tamoxifen ($p=.001$) and distress ($p=.025$) also increased. Women who became non-adherent at 3 months were younger ($p=.010$), but there were no significant differences in psychosocial variables.

Conclusions: Understanding modifiable predictors of tamoxifen non-adherence will facilitate the development of interventions to support women, with the aim of increasing adherence and improving clinical outcomes.

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O601

INCREASING PHYSICAL ACTIVITY IN PATIENTS WITH PARKINSON'S DISEASE: EXPLORING CAPABILITY OPPORTUNITY AND MOTIVATION.

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Introduction: Parkinson's disease is a common, progressive, neurological condition that is increasing in prevalence due to societal ageing. With advances in medical management, people with Parkinson's live for a relatively long lifespan, but experience difficulty with mobility and activities of daily living. While physical activity (PA) can improve physical function and delay disability progression, most people with Parkinson's have low levels of PA. Interventions to increase PA in this cohort have been unable to show maintenance impact. This study aims to inform a behavioral analysis of variables associated with continued PA to better target of variables associated with continued PA.

Methods: Four focus groups interviews were conducted with 22 people living with PD, 15 males and 7 females. Disease duration ranged from two to thirteen years. All data was recorded and transcribed in full. Responses were collated by means of a qualitative thematic analysis. The COMB (Capability Opportunity Motivation Behavior) model was used to inform the qualitative analysis

Results: Participants described the interrelationships of capability, opportunity and motivation in terms of barriers and facilitators of sustained PA. Themes arising showed participants identified psychological capability as vital to maintaining PA participation. While intrinsic motivation was another powerful theme: shame and stigma were identified as barriers to participation and disease acceptance as a facilitator.

Conclusions: The findings supply a richness of detail that is often absent in quantitative studies. This detail will be used to guide development of a behavioral intervention to support long term maintenance of PA in people with Parkinson's

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O602

INDEPENDENT PREDICTORS OF SELF-STIGMA AND ITS RELATIONSHIP WITH MEDICATION NON-ADHERENCE AMONG PATIENTS WITH SCHIZOPHRENIA

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Introduction: Medication non-adherence and self-stigma are prevalent among people with schizophrenia with enormous consequences. There is paucity of information regarding the relationship between medication adherence and self-stigma in this environment. This study investigated the prevalence and predictors of self-stigma and interrelationship between self-stigma and medication adherence among outpatients with schizophrenia.

Methods: The study included adults with schizophrenia, consecutively recruited at the outpatient clinic of the Neuropsychiatric Hospital, Lagos. Participants were interviewed using a designed questionnaire, Brief Psychiatric Rating Scale, medication recall questionnaire, Morisky Medication Adherence Questionnaire and Internalized Stigma of Mental Illness scale. Data was analyzed using SPSS-20.

Results: The mean age of the 370 subjects was 37.87 years and 181(48.9%) were males. The prevalence of high self-stigma and medication non-adherence was 16.5% and 39.2% respectively. Respondents who had high self-stigma were more likely to be medication non-adherent($p=0.001$). Independent predictors of high self-stigma included;

having no formal education (OR=4.010) or only primary education(OR=3.699), poor social support (OR=0.392), medication side effects (OR=2.407), low 24-hour medication recall(OR =0.993), high BPRS scores(OR=1.147), average monthly income less than \$25/month(OR=4.601) and between \$101.5-253.8/month(OR=3.797).

Conclusion: High self-stigma and medication non-adherence are prevalent among people with schizophrenia from this environment. They are related to sociodemographic and clinical variables which should be considered during routine care and in designing interventions for improving adherence and reduce self-stigma which will ultimately improve the outcome of patients. The demonstrated association between self-stigma and medication adherence suggests that interventions to reduce self-stigma may have a role in enhancing medication adherence.

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O603

THE ASSOCIATION BETWEEN THE NATURE OF COMMITMENTS TO A GOAL AND QUITTING SMOKING

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Introduction: Management/goal setting literature suggests those people setting more specific and difficult goals have better performances than those with easy goals or no goals, an issue surprisingly neglected in health behavior change. Quitting smoking is difficult and we wondered if the nature of the commitment to it might affect outcomes. Commitments can vary from "never smoke again" to "not smoking for a period (e.g. a day/week/month)" to "not smoking the next cigarette" to "seeing how it will go". This study aimed to examine if smokers with higher level of commitments to quitting reported at 1 month follow-up are more likely to be quit at 1 month and to achieve 6 month sustained abstinence.

Methods: 1,043 smokers in a factorial randomized controlled trial to test the effectiveness of two augmentations to the QuitCoach online smoking cessation program. Outcome measures were quit status at 1 month assessment and sustained abstinence at 6 months follow-up, both among all the sample and only those quit at 1 month.

Results: Compared to "not smoking the next cigarette", smokers committed to "never smoke again" were much more likely to have quit at 1 month (adjusted odds ratio=8.5, 95% CI 4.6-15.9, $p<0.001$), and achieved 6 month sustained abstinence (AOR= 4.0, 95% CI 1.5-10.6, $p<0.01$), but no greater maintenance between 1 and 6 months (AOR=1.3, 95% CI 0.1-4.44, $p>0.05$).

Conclusions: Reporting making a strong commitment (never to smoke again) may increase quit success. Fully prospective tests of this, including randomized control trials, are required to confirm these findings.

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O604

EXPLORING SMOKING BELIEFS AMONG CHINESE ADOLESCENTS TO INFORM A THEORY-BASED INTERVENTION

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Introduction: As the world's largest tobacco consumer and producer, China's smoking prevalence among adolescents is increasing. While significant

epidemiological research has been conducted in China, research examining adolescent smoking is rare. This study aimed to understand Chinese adolescents' smoking beliefs to inform a theory-based anti-smoking intervention. Methods: Thirty 10th graders (aged 16 to 17 years) were recruited from Kunming, China. Six focus groups were conducted with different gender distributions. The semi-structured interview guide was based broadly on the Theory of Planned Behavior (TPB)'s underlying salient beliefs. A Consensual Qualitative Research (CQR) approach was adopted for data analysis.

Results: Seven domains with 51 categories were identified by the researchers and external auditor. These domains include the TPB constructs: advantages (including smoking as a social tool), disadvantages such as addiction to tobacco, approvers and disapprovers (including friends and teachers), facilitators such as negative emotions, especially examination stress, and barriers of smoking (e.g., environmental influences), as well as non-TPB constructs such as different smoker prototypes (e.g., smokers are regarded as 'successful' men). Moreover, gender was important throughout the data in that smoking was generally regarded as a male behavior.

Conclusions: Besides typical TPB beliefs, smoker prototype was found to be an additional determinant of adolescents' smoking in China. This finding suggests that, to develop culturally-appropriate anti-smoking interventions among Chinese adolescents, TPB constructs as well as extended constructs such as smoker images, should be included. Given the positive connotations of smokers, activities deconstructing smokers' images, including in films and advertisements, may be helpful.

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O605

CHRONOLOGICAL NARRATIVES OF SMOKING AND BEING SMOKE-FREE IN PREGNANCY BY ABORIGINAL AUSTRALIAN WOMEN IN NEW SOUTH WALES: A QUALITATIVE STUDY
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Introduction: Smoking prevalence is four times higher in pregnant Indigenous Australian women than non-Indigenous counterparts (47% versus 13%). The study aimed to provide an opportunity for Aboriginal women to tell their own story about smoking and quitting, and their trajectory of smoking once becoming pregnant.

Methods: Aboriginal women (N=20) who experienced smoking or quitting in pregnancy were interviewed by a female Aboriginal researcher using Aboriginal traditions of storytelling. Audio transcripts were analyzed using NVivo, with inductive methods. Researchers (GG–non-Aboriginal; MB–Aboriginal) agreed on a coding structure. The voices of the women participants were privileged in the thematic analysis, in discussion with a senior Aboriginal academic (YC) and an Aboriginal obstetrician (MC).

Results: The journey from initiation to becoming a regular smoker, then pregnant, was described. Narrative themes were situated in the contexts of participants' lives, including their Aboriginal community connections and origins. Narratives included key characters, such as mother, father, partners and friends, health professionals, environments and events impacting on smoking and quitting, start stories (experimenting to becoming a regular smoker), stop stories (cutting down and quitting) and turning points – new responsibilities on becoming pregnant. Women spoke of their lack of follow-up from health professionals, and how they could be better supported to quit: Elders were important as role models. Conclusions: Women's narratives of smoking and quitting provided insight to strengthen the opportunities for behavior change. The findings will help us engage with Aboriginal pregnant women, support them with culturally competent smoking cessation care, and develop new approaches.

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O606

WHAT IS THE IMPACT OF E-CIGARETTE ADVERTS ON CHILDREN'S PERCEPTIONS OF TOBACCO SMOKING? A RANDOMISED CONTROLLED TRIAL

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Introduction: Exposure to e-cigarette adverts increases children's positive attitudes towards using them. Given the similarity in appearance between e-cigarettes and tobacco cigarettes, we examined whether exposure to e-cigarette adverts has a cross-product impact on perceptions and attitudes towards smoking tobacco cigarettes.

Methods: Children aged 11-16 (n=564) were interviewed in their homes and randomized to one of three groups: two groups saw different sets of 10 images of e-cigarette adverts and one group saw no adverts. Of the 20 e-cigarette adverts, 10 depicted the product as glamorous, and 10 depicted it as healthy. The children then self-completed a questionnaire assessing perceived appeal, harms, and benefits of smoking tobacco cigarettes.

Results: The analyses were conducted on 411 children who reported never having smoked tobacco cigarettes or used e-cigarettes. Exposure to the adverts had no impact on the appeal or perceived benefits of smoking tobacco cigarettes. While the perceived harm of smoking more than 10 cigarettes per day was similar across groups, those exposed to either set of adverts perceived the harms of smoking one or two tobacco cigarettes occasionally to be lower than those in the control group.

Conclusions: This study provides the first evidence that exposure to e-cigarette adverts might influence children's perceptions of smoking tobacco cigarettes, reducing their perceived harm of occasional smoking. These results suggest the potential for e-cigarette adverts to undermine tobacco control efforts by reducing a potential barrier (i.e., beliefs about harm) to occasional smoking.

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O607

SMOKING IN THE SOCIAL ENVIRONMENT AND ADOLESCENT BRAND AWARENESS: DIFFERENTIAL EFFECTS BY GENDER

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Introduction: Although tobacco control policies in the UK have limited young people's exposure to smoking and tobacco products, many young

people continue to be exposed to smoking in their social environments. Smoking by friends and family members influences smoking uptake, which may be mediated through increased brand awareness. In this study we examined how young people's social environments influence young people's awareness of tobacco brands.

Methods: Cross-sectional survey of pupils (11–18yrs) in four Scottish high schools. Using adjusted logistic regression, we examined the association between recall of tobacco brands smoked by members of young people's social circles and their relationship to the young people. Analysis was restricted to those pupils who had a mother, father, eldest brother, eldest sister, best friend, or boyfriend/girlfriend who smoked (n=1584/3808).

Results: 33% (n=522) of students with smokers in their social circles recalled at least one tobacco brand. For boys, only paternal smoking (OR 1.29, 95% CI 1.09–1.54) increased likelihood of brand recall. However, for girls, maternal (OR 2.94, 95% CI 1.99–4.33), paternal (OR 1.63 95% CI 1.11–2.40), and best friend (OR 1.57, 95% CI 1.11–2.22) smoking were all associated with greater probability of the recall of at least one brand.

Conclusions: For boys, paternal smoking is the only influence, but for girls influences are wider, with maternal smoking the strongest. This suggests that smoke-free homes should be promoted not only to reduce the adverse health effects of second-hand smoke but also as part of a wider prevention strategy to reduce the uptake of smoking.

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O607

CIGARETTE PACKAGE INSERTS CAN PROMOTE EFFICACY BELIEFS AND SUSTAINED SMOKING CESSATION: A LONGITUDINAL EVALUATION OF CANADA'S INNOVATIVE WARNING LABEL POLICY

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Introduction: In June 2012, Canada implemented new pictorial warning labels (PWLs) on cigarette packages, along with package inserts (i.e., small printed leaflets) with messages to promote response efficacy (i.e., perceived quitting benefits) and self-efficacy (i.e., confidence to quit). This study assessed smokers' attention towards warnings and inserts and its relationship with efficacy beliefs, risk perceptions and cessation at follow-up.

Methods: Data were analyzed from a prospective online consumer panel of adult Canadian smokers surveyed every four months between September 2012 and September 2014. Generalized Estimating Equation models assessed associations between reading inserts, reading PWLs and efficacy beliefs (self-efficacy, response efficacy), risk perceptions, quit attempts of any length, and sustained quit attempts (i.e., 30 days or more) at follow-up. Models adjusted for socio-demographics, smoking-related variables, and time-in-sample effects.

Results: Over the study period, reading PWLs significantly decreased (p<0.0001) while reading inserts increased (p=0.004). More frequent reading of PWLs was associated independently with stronger response efficacy (Boften/very often vs never=0.28, 95% CI: 0.11–0.46) and risk perceptions at follow-up (Boften/very often vs never=0.31, 95% CI: 0.06–0.56). More frequent reading of inserts was associated independently with stronger self-

efficacy to quit at follow-up (Btwice or more vs none=0.30, 95% CI: 0.14–0.47), quit attempts (ORTwice or more vs none= 1.68, 95% CI: 1.28–2.19), and quit attempts lasting 30 days or longer (ORTwice or more vs none=1.48, 95% CI: 1.01 – 2.17).

Conclusions: More frequent reading of inserts was associated with self-efficacy, quit attempts, and sustained quitting at follow-up, suggesting that inserts complement PWLs.

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O609

A SPORTS INTERVENTION IMPROVED ADOLESCENTS' MENTAL WELLBEING THROUGH RESILIENCE AND SLEEP QUALITY: A RANDOMISED CONTROLLED TRIAL

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Introduction & Purpose: Adolescent mental health is a global public health issue but most resources have been focused on disease treatment or tertiary prevention. In this study, we aimed to develop a theory-based sports intervention to improve healthy adolescents' mental wellbeing.

Methods: This is a randomized controlled trial targeting Form 1–2 (11–13 years) Chinese adolescents in Hong Kong. Adolescents with diagnosis of major chronic illnesses and mental disorders were excluded. Students in intervention arm received a 90-minute afterschool sports mentorship session weekly for 18 weeks. The programme was designed under the Positive Youth Development framework to equip students with sporting and life skills. Students in control arm received the access to a health education website. Primary outcome measure was mental wellbeing (SF-12v2) and secondary outcome measures included resilience, sleep quality, and physical fitness. Path analysis was conducted to understand the intervention mechanism.

Results: The study recruited 567 adolescents from 11 secondary schools. Baseline characteristics were balanced between groups. One month after the completion of intervention, intervened students showed better mental wellbeing (Cohen's d 0.32, p<0.001), resilience (d 0.17, p=0.04), sleep quality (d 0.18, p=0.03), and various physical fitness tests than their counterparts. Path analysis showed that the intervention improved mental wellbeing mainly through resilience (28.9%) and sleep quality (16.1%).

Conclusions: The intervention could improve Hong Kong adolescents' mental wellbeing through resilience and sleep quality. A wider adaptation of the programme may prevent adolescent mental health problems in Hong Kong.

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O610

INDIVIDUAL, SOCIAL AND ENVIRONMENTAL CORRELATES OF DIETARY BEHAVIOURS IN HONG KONG ADOLESCENTS

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Introduction: Social-ecological models posit that dietary behaviors (DBs) are influenced by individual, social and environmental factors and their interactions. We examined the independent associations of individual, social and environment variables with DBs (intake of fruit, vegetables, fatty foods, snacks and sugar-sweetened beverages) in Hong Kong (HK) adolescents; and interactions among environmental, socio-demographic and psychosocial correlates of DBs.

Methods: Survey data on DBs and their individual, social and environmental correlates were collected from 1299 HK adolescents (11–18 yrs) and their primary caregivers recruited from neighbourhoods stratified by socio-economic status and walkability. Accessibility of food outlets was determined using Geographic Information Systems data.

Results: Individual, social and environmental factors contributed to the explanation of all examined DBs. An unhealthy school food environment was associated with higher intake of sugar-sweetened beverages and fatty foods, while bringing lunch to school from home was associated with healthier DBs. The neighborhood environment contributed to the consumption of fruits and vegetables via the availability of these foods at home. Parental rules about eating were positively associated with fruit and vegetable intake. Self-efficacy related to consuming or not consuming certain foods was a strong predictor of consumption. Parental consumption of fruits and sugar-sweetened beverages was positively associated with adolescents' consumption of the same. Some environment-behavior associations differed by sex, age and enjoyment of DBs.

Conclusions: Individual, social and environmental factors, and their interaction, are all potential important contributors to HK adolescents' DBs. The promotion of healthy DBs necessitates multi-level, multi-sectoral interventions.

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O611

ON THE BALL: EVALUATING A GENDER-SPECIFIC BODY IMAGE PROGRAM FOR PREADOLESCENTS

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Introduction: Previous body image prevention programs for children have demonstrated limited success and no program has addressed body ideals and sociocultural pressures specific to preadolescent boys. The current study evaluated a school-based body image and health program for preadolescent boys and girls that included gender-specific content. **Method:** 652 children between the ages of 8–10 participated, with 335 students (172 males, 163 females) in the intervention group and 317 students (149 males, 168 females) in the wait-list control group. Children in the intervention participated in four 60 minute sessions, and a session recapping main program

themes at three months post-intervention. Children completed a questionnaire measuring body esteem, healthy eating, physical activity, affect, and sociocultural influences at pre-intervention, post-intervention and immediately after the recap. **Results:** Compared to children in the control group, boys and girls in the intervention demonstrated significantly higher body esteem at the re-cap session, and higher muscle esteem post-intervention and at the re-cap. Significant improvements were also found for fruit intake at the recap, and vegetable intake at post-intervention and re-cap for children in the intervention. Boys in the intervention demonstrated significantly lower levels of investment in masculine gender norms at post-intervention and at recap. Body change strategies and perceived sociocultural pressure were not found to significantly improve in the intervention compared to the control group. **Conclusion:** The current study provides support for school-based, gender-specific interventions to address healthy eating, physical activity, and positive body image in preadolescents. Implications for further improvement of body image prevention programs are discussed.

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O625

PREDICTING BODY FAT AMONG CHILDREN: EFFECTS OF PARENTAL AND CHILD'S PERCEPTIONS OF PHYSICAL ACTIVITY PROMOTING ENVIRONMENT

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Introduction: Using a dyadic approach we investigated determinants of changes in children's body fat. The predictive role of the determinants measured in both children and parents was tested. The determinants included parental moderate-to-vigorous-intensity physical activity (MVPA), child MVPA, parental body fat, parental perceptions of presence and access to built MVPA facilities for their children, and child's perceptions of presence and access to built MVPA facilities.

Methods: 468 dyads participated in the study. Longitudinal design (with a Time 2 [T2] data collected at 7–8 months after Time 1 [T1]) was applied. Children (age 6–10) and parents provided their self-report data. Child and parental body composition was measured with bioimpedance method. Hypotheses were tested with path analysis, accounting for the intra-dyadic associations among respective constructs (e.g. parental body fat was assumed to correlate with child's body fat) and the intra-individual stability over time (e.g. associations between child's MVPA at T1 and at T2 were assumed).

Results: Analyses indicated strong effects of T1 body fat on T2 body fat in parents and children. Even after controlling for intra-individual stability of MVPA and body fat and cross-sectional within-dyad associations between MVPA and body fat we found that parental perceptions of access to built MVPA environment for their children (T1) on child's body fat (T2).

Conclusions: Parental perceptions of accessible MVPA promoting physical environment help to explain changes in child's body composition. Childhood obesity prevention programs need to target parental perceptions of accessibility of built facilities where their children may engage in MVPA.

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O613

SUSTAINING INCREASES IN CHILDREN'S FRUIT AND VEGETABLE CONSUMPTION: 5-YEAR DATA FROM THE *HEALTHY HABITS* CLUSTER RANDOMISED CONTROLLED TRIAL

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Introduction: Telephone-based interventions can provide an equitable and effective means for parents to receive healthy eating support for their young children. However, in order to benefit public health nutrition, resulting dietary changes must be sustained over a long period. This study assessed the 5-year efficacy of the *Healthy Habits* intervention in increasing preschooler's fruit and vegetable (F&V) consumption.

Methods: Parents of 3-5 year-olds from 30 preschools in the Hunter region of NSW Australia were recruited to this cluster RCT (Trial registration: ANZCTR1260900080202). Parents allocated to the intervention (n=204) received 4x30min telephone calls delivered over a 4-week period, plus written resources, whereas parents allocated to the control (n=186) received a written resource. The scripted intervention calls were delivered by trained telephone interviewers. Call content drew on socioecological theory and focused on changing the home food environment (increasing F&V availability and accessibility, parental role-modelling, and supportive home food routines). 5-year follow-up data were collected via parent telephone interview, using the F&V subscale of the Children's Dietary Questionnaire (reliability: ICC=0.75, validity: spearman correlation=0.58).

Results: A 58% retention rate was achieved. Generalized estimating equations, adjusted for clustering by preschool, determined F&V consumption among intervention children was significantly higher than controls (p=0.02).

Conclusions: A brief, four-contact telephone-based intervention focused on changing children's home food environment has the potential to influence children's longer-term dietary patterns. Given its efficacy, brevity and delivery modality, this intervention is well-suited to integration into established telephone-based population health services, and has the potential to benefit health at a population level.

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O614

RELATIONSHIP BETWEEN SENSE OF COHERENCE WITH BODY MASS INDEX AND HEALTH RELATED BEHAVIOR IN ADOLESCENT

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Introduction : Adolescents are in a condition known as the period of storm and stress. This can have an impact on unhealthy behavior and obesity that determines the occurrence of degenerative diseases in later life. SOC is the global orientation to view life situations as comprehensible, manageable and meaningful. Several previous studies have tried to connect the sense of coherence (SOC), as stress coping resources measurement, with the health behavior and

nutritional status in adolescents. They gave mixed results regarding the relation SOC/BMI, but showed the real potential of SOC in the field of health promotion. The aim of this paper was to evaluate the sense of coherence (SOC) score of adolescents in Malang city Indonesia and to investigate its eventual connections with the weight status evaluated by the body mass index, and health-related behavior. **Methods:** a cross sectional study investigating by means of correlation tests links of the sense of coherence score with BMI and self-evaluated health-related behavior. The SOC score has taken using Indonesian version of SOC-13 questionnaire that had been tested for validity and reliability.

Results: The results showed that most respondents have a strong SOC (83.8%) and moderate intensity of health-related behavior (67.57%). There were 16.2% in the overweight and obese categories. SOC score was significantly associated with BMI (p= 0,019) and health-related behavior (p = 0,001).

Conclusions: The SOC score has close relations with BMI, higher score of SOC leads to smaller BMI.

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O614

DEPRESSION MODERATES THE INTERGENERATIONAL TRANSMISSION OF OBESITY: THE CARDIOVASCULAR RISK IN YOUNG FINNS STUDY

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Introduction: The association between parental BMI and offspring BMI is well established, but much less is known about which psychosocial factors influence this familial risk. Our aims were to test whether offspring depressive symptoms mediates or mitigates (moderates) the relationship between parental BMI and offspring BMI in adulthood.

Methods: Using a prospective design with a sample of 1208 participants (the offspring), we examined the association between parental BMI and offspring BMI in adulthood. Parental BMI was self-reported at baseline in 1980. Offspring depressive symptoms were measured in 2001 (when participants were 24-39 years old) and offspring BMI in 2012 (35-49 years old). Linear hierarchical regression and a bootstrapping technique were used to examine mediating and moderating effects of offspring depressive symptoms when

predicting offspring BMI. A simple slopes analysis was used to further examine the interaction.

Results: We found little evidence that depressive symptoms were mediating the relationship between parental and offspring BMI. In contrast, we did find that depressive symptoms were moderating the relationship between maternal BMI and offspring BMI. The interaction between maternal BMI and offspring depressive symptoms was a significant predictor of offspring BMI ($\beta = 0.370$, R^2 change=0.003, $p=0.05$), after adjusting for age, sex, paternal BMI, and parental occupation so that maternal BMI predicted offspring BMI more strongly at higher levels of offspring depressive symptoms.

Conclusions: Our results suggest that depression may exacerbate the transmission of BMI across generations, reinforcing the importance of targeting depression in obesity prevention efforts.

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O616

IRON STATUS IS ASSOCIATED WITH HIGH STRESS BUT NOT DEPRESSION, ANXIETY OR FATIGUE IN PREMENOPAUSAL WOMEN

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Introduction and Purpose: Past research has found evidence for a relationship between iron status, depression and fatigue. There has been little investigation into anxiety and stress domains. The purpose of this study was to investigate the relationship between depression, anxiety, stress and fatigue symptoms in premenopausal women.

Method: 224 premenopausal (mean age 32.15 years; $SD = 9.385$) women from across Victoria, Australia had their iron status assessed based on hemoglobin (Hb) and serum ferritin levels from fasting blood samples. Serum Ferritin status was used to determine participant groupings with $>15\mu\text{g}$ indicating iron sufficiency and $\leq 15\mu\text{g}$ indicating iron deficiency. Participants completed questionnaires relating to mood and fatigue.

Results: There were 224 participants (173 iron sufficient and 51 iron deficient). Unexpectedly levels of depression, anxiety and stress symptoms were in the moderate to extremely severe ranges with no participants reporting symptoms in the normal to mild ranges. Half of the sample reported high levels of fatigue. Conversely, fatigue impact ratings were low. No association was found between iron status and depression, anxiety or fatigue in this sample of premenopausal women. A significant relationship was observed between low iron status and high stress symptoms ($F(1,218) = 8.198$, $p = .005$, partial $\eta^2 = .036$), even after controlling for BMI, smoking and exercise and oral contraceptive use.

Conclusions: Findings indicate a potential relationship between low iron and stress in this population that warrants further exploration. These findings should be replicated in a large cross-sectional study with an incidence of mood and fatigue symptoms more reflective of population norms.

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O617

RESTING-STATE FUNCTIONAL MRI OF ABNORMAL BASELINE BRAIN ACTIVITY IN YOUNG DEPRESSED PATIENTS WITH AND WITHOUT SUICIDAL BEHAVIOR

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Introduction: The purpose of this study is to investigate the relationship between abnormalities in local brain function and suicidal attempts in depressed youths using resting state fMRI (RS-fMRI).

Method: Thirty-five depressed youth with suicidal attempts (SU group), 18 patients without suicidal attempts (NSU group) and 47 gender-, age- and education-matched healthy controls (HC) underwent psychological assessment and resting-state functional magnetic resonance (R-fMRI) scan. The differences in fractional amplitude of low-frequency fluctuation (ALFF) among the three groups were compared and the correlation between clinical measurements and z-score ALFF in the regions displaying significant group differences were investigated. The ROC method was used to evaluate these clusters as markers to screen patients with suicidal behavior.

Results: Compared with NSU group and HC, SU group exhibited increased zALFF in the right superior temporal gyrus (r-STG), left middle temporal gyrus (l-MTG) and left middle occipital gyrus (l-MOG). Additionally, significantly decreased zALFF values in the l-SFG and l-MFG were present in the SU group relative to NSU group, which were negatively correlated with BIS scores in the SU group. Further ROC analysis revealed that the mean zALFF values in these two regions (sensitivity = 83.3% and specificity = 71.4%) served as markers to differentiate the two patient subtypes.

Conclusion: Decreased activity in l-SFG and l-MFG contributed to suicidal behavior in depressed youth by increasing impulsivity. Abnormal neural activity in these brain regions may contribute to neurobiological diathesis or predisposition to suicidal behavior.

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O617

STRESS SIGNALING REMODELS TUMOR ARCHITECTURE TO ACCELERATE METASTASIS

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Introduction: During metastasis, tumor cells form feet-like structures called invadopodia that degrade the surrounding extracellular matrix and allow invasion. However, little is known about the conditions that favor invadopodia formation. To address this, we investigated the effect of stress-induced β -adrenoceptor signaling on the formation of invadopodia and examined the effect on tumor cell invasion.

Methods: We used functional cellular assays to quantify invadopodia formation and to evaluate cell invasion in two-dimensional and three-dimensional environments. The functional significance of β -adrenergic regulation of invadopodia was investigated in an orthotopic mouse model of spontaneous breast cancer metastasis.

Results: β -adrenergic activation increased both the frequency and number of invadopodia on tumor cells, which increased tumor cell invasion through extracellular matrix. Selective antagonism of β_2 -adrenoceptors with beta-blocker drugs blocked invadopodia formation, suggesting a pharmacological strategy to prevent tumor spread.

Conclusions: These findings provide a cellular mechanism for the effects of chronic stress on the spread of cancer, and suggest a mechanism for the protective effects of beta-blockers to limit cancer spread.

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O619

INJUSTICE AT WORK IS ASSOCIATED WITH REDUCED IN-VIVO GLUCOCORTICOID SENSITIVITY – A CROSS SECTIONAL STUDY.

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Introduction: Organizational justice refers to perceived fairness at work. Low organizational justice is regarded as a major source of distress and predicts poor health. Altered regulation of immunological and inflammatory pathways may, in part, underlie these health effects. A potential in-vivo indicator of glucocorticoid sensitivity (GCSens) is the correlation between cortisol release and neutrophil / lymphocyte ratio. To elucidate the in-vivo relevance of the GCSens pathway, we investigated the relationship between perceived organizational injustice and in-vivo GCSens. **Methods:** Organizational justice was assessed among 541 male factory workers (mean age = 46 years, SD = 9) by questionnaire. Morning cortisol release was measured prior to blood collection and summed as the area under the curve. Glucocorticoid sensitivity was operationalized as the correlation between cortisol release and hematologic parameters (neutrophils, lymphocytes, and the neutrophil / lymphocyte ratio). Associations were adjusted for demographics, work characteristics, and life-style variables.

Results: We found a dose-response relationship between organizational justice and GCSens. Cortisol and hematologic parameters showed the significant association among individuals reporting high (all betas \geq .26; all p-values \leq .001) or medium organizational justice (all betas \geq .15; all p-values \leq .050), but not among those reporting low organizational justice (all betas \leq .04; all p-values $>$.050). These regression slopes differed significantly between organizational justice groups (p-values for interaction \leq .047).

Conclusions: Low justice at work is associated with an impaired ability of endogenous cortisol to regulate leukocyte distribution in vivo. This supports a possible neuro-immunological biological pathway linking organizational justice to health.

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O620

THE HEART'S RHYTHM 'n' BLUES: CIRCADIAN VARIATION PATTERNS OF VAGAL ACTIVITY VARY BY DEPRESSIVE SYMPTOMS IN HEALTHY WORKING ADULTS

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Introduction: Vagal activity exhibits a circadian variation pattern (CVP), with a maximum during nighttime. Depressive symptoms (DS) are known to be associated with decreased vagal activity, but studies investigating the association between CVP and DS are scarce.

Methods: We analyzed RMSSD as an indicator of vagally-mediated HRV from 3,027 (mean age 42 \pm 11; 79%males) 24-h HR-recordings collected at 4 distinct study sites of the Mannheim-Industrial-Cohort-Studies (MICS) in predominantly healthy working adults. Four items indicate DS (scored 0-4; range 0-16; Cronbach's-Alpha=0.81).

Three individual-level cosine function parameters were estimated to quantify CVP: MESOR, Amplitude (A), and Acrophase (θ) and were forward to multivariate linear regression models to estimate simultaneously the impact of DS. Important covariates were controlled and an additional interaction effect of sex and DS included.

Results: DS were a significant negative predictor of M, while women had a significant higher M, A and θ . The interaction term contributed significantly to the M and A models, indicating that the association between M and A and DS is moderated by sex. Beta blocker intake had no significant effect, while being physically active predicted higher M and A. Explained variances were 31% (M), 17% (A), 2% (θ).

Conclusions: This is the first study investigating CVP by DS in a rather healthy occupational sample. DS were associated with a blunted CVP in men, but not in women. Similar gender moderation have been reported previously, e.g. in the prospective Whitehall study, where baseline HRV predicted incident DS onset in men but not women.

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O621

EXERCISE INTERVENTIONS FOR THE IMPROVEMENT OF FALLS-RELATED OUTCOMES AMONG OLDER ADULTS WITH DIABETES MELLITUS: A SYSTEMATIC REVIEW AND META-ANALYSES

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Introduction: Diabetes mellitus (DM) is a major public health concern with the number of cases rising in every country. In older adults, DM is complicated by: complexity of illness; increased risk of co-morbidities; early development of functional decline; and risk of frailty and falls. In particular falls as a complication is being recognized as having a major impact on overall health and quality of life of older adults. One of the most effective strategies for reducing falls risk in older people are exercise interventions however; no known reviews to date have focused on quantifying the effectiveness of exercise interventions on falls-related outcomes for older adults with DM. **Methods:** A systematic search for all years to September 2015 identified available literature. Eligibility criteria included: eligible exercise intervention/s; assessed falls or falls-related outcomes; older adults (\geq 60 years) with DM. Effect sizes were pooled using a random effects model. Positive effect sizes favored the intervention.

Results: Seven randomized controlled trials were eligible for the meta-analyses. Exercise interventions were more effective than control conditions for static balance (0.45, 95% CI: 0.08 to 0.82), lower-limb strength (0.27, 95% CI: 0.01 to 0.52), and gait (0.58, 95% CI 0.26 to 0.90).

Conclusions: This review showed exercise interventions can improve certain falls-related outcomes among older adults with DM. Substantial heterogeneity/limited studies warrant caution when interpreting results. Among older adults, where the burden of DM is increasing, exercise interventions may provide promising approaches to assist in the improvement of falls-related outcomes and reduce occurrence of falls.

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O622

THE HEALTHRISE MODEL: PATIENT EMPOWERMENT FOR SELF-CARE IN DIABETES

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Introduction: People with diabetes have an increased risk of serious complications including cardiovascular disease. In experiments worldwide, outcomes have remained unsatisfactory owing to multiple barriers to care, especially in underserved communities. Typically, a regimen of diabetes self-care includes monitoring blood glucose, taking medications as prescribed, attending to foot and eye care needs, visiting the physician and pro-actively getting screened for early signs of complications. However, multiple barriers exist – within the individual, the societal context and the local health system. Furthermore, co-morbidities such as mental health conditions and tuberculosis make matters worse. The HealthRise project is an attempt to improve patients' self-care practices leading to better health outcomes.

Methods: The HealthRise project conducted a local need assessment (2014–15) in USA, India, and South Africa. Findings in India showed more than 60% of people with hypertension and 23% with diabetes remain undiagnosed. In other locations fewer than 50% patients on treatment achieved clinical outcomes. In 2016, HealthRise launched a set of model interventions aimed at raising a patient's self-efficacy and social support, improving frontline provision of care and removing bottlenecks in the health systems. **Results:** HealthRise expects improved health outcomes of diabetes patients by enhancing treatment adherence via bridging gaps in social support and health systems while simultaneously influencing the individual patient's self-care practices.

Conclusions: Improving diabetes patients' health outcomes requires multiple yet integrated approaches at individual, community and health system levels. Patient empowerment is a critical element in HealthRise demonstration programs.

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O623

ADJUSTMENT AND ADHERENCE IN MULTIMORBIDITY: A MIXED METHODS STUDY OF PATIENTS WITH COEXISTING DIABETES AND END STAGE RENAL DISEASE

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Introduction: Patients with coexisting Diabetes Mellitus and End-Stage Renal Disease (DM-ESRD) represent the fastest growing and most frail segment of the ESRD population. Multimorbidity can intensify treatment demands and adversely impact behavioral and emotional outcomes. The study aimed to identify factors associated with psychological distress and adherence outcomes in DM-ESRD so as to refine a program of support (HEDSMART) for this population.

Methods: A mixed-methods study including interviews (n=61) and a cross-sectional questionnaire survey with DM-ESRD patients (n=221) in Singapore (59±9.8 years; 60.6% male; 54.8% Chinese). Administered the

Hospital Anxiety and Depression Scale, UCLA Loneliness Scale, Beck Hopelessness Inventory and measures of Health Literacy, Illness/Treatment Perceptions, Nutritional Quality-of-Life and Adherence.

Results: Interpersonal tension and challenges related to appetite and complexity of diet dominated narratives. Survey data indicated high rates of distress (57%; 53.6%; 52.9%; 62.9% for depression, anxiety, loneliness & hopelessness, respectively) and nonadherence (ranging between 19% to 62.9% across treatment components). Multivariate modeling indicated that Health Literacy dimensions (communication, support, obtaining/appraising information) negative perceptions and Nutritional QOL were associated with distress indicators (ps <.05) and non-adherence (ps <.05). A bedside motivational intervention (C-DIRECT) has been developed and piloted with 16 patients with good retention and feedback.

Conclusions: DM-ESRD patients find diet and health care communication/navigation challenging and experience psychological distress. Carefully tailored interventions are needed to support and empower patients for manage coexisting DM ESRD.

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O624

DIETARY e-INTERVENTION FOR MALAYSIANS WITH TYPE 2 DIABETES MELLITUS: DEVELOPMENT, IMPLEMENTATION AND EVALUATION

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Introduction: Type 2 Diabetes Mellitus (T2DM) in recent years, has emerged as a very important health issue in developing countries such as Malaysia. Diet, the frontline in self-management practice of diabetic patients often gets side-lined during the standard care routine due to time constraint. A dietary e-intervention programme was developed to fill this void.

Methods: A comprehensive review of literature and guidelines was conducted to prioritize dietary factors to be included in the intervention. Dietary e-education programme (*myDIDeA*) was developed based on the evidence, Transtheoretical Model's Stages of Change and user-centered design approach. A pilot module was tested among diabetic patients (n=30) and qualitative feedback was obtained on the delivery of the module. A 12-month randomized-controlled trial among patients with T2DM (n=132) evaluated the effectiveness of *myDIDeA* with the primary aim to improve Dietary Knowledge, Attitude and Behavior (DKAB). Process evaluation was conducted in the e-intervention group (n=66).

Results: The e-intervention group showed a significant improvement in overall DKAB score (p<0.001) due to the improvements in the knowledge (p<0.001) and attitude (p<0.001) sub-domains. Study participants' content satisfaction, acceptability, and usability scores were satisfactory.

Conclusions: This study is one of the first to demonstrate that an e-intervention can be a feasible method for implementing chronic disease management in developing countries. The process evaluation of *myDIDeA* demonstrates its feasibility, and future studies should identify the possibility of extending the use of Internet-based interventions to other health behaviors related to self-management of chronic conditions.

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0625

PEER SUPPORT FOR DIABETES MANAGEMENT IN THE PRIMARY CARE SETTING IN CHINA

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Introduction: There are now more people with diabetes in China than any other country in the world so there is an urgent need to develop more effective ways to help people self-manage their diabetes. We describe the development, implementation and evaluation of a program of a Peer Leader Support Program (PLSP) for diabetes in China.

Methods: We have culturally adapted a peer support program for China. In three cities in Anhui Province, two sub-communities were randomly assigned to usual care or PLSP. Peer leaders and Community Health Services Centre (CHSCs) staff co-led bi-weekly educational meetings. Peers leaders also led bi-weekly discussion meetings, promoted regular care through CHSCs and promoted lifestyle change activities related to physical activity, nutrition etc., in local neighborhoods. We evaluated program effectiveness as well as the program's acceptability, feasibility and implementation.

Results: Controlling for baseline differences the intervention communities showed significant benefits for PLSP relative to controls ($p < 0.05$) for knowledge, self-efficacy, BMI, SBP, DBP, and both fasting and 2-hour post-prandial blood glucose. Furthermore, the mixed methods evaluation demonstrated very positive responses to the program from patients, peer leaders and CHSC staff. Reported advantages included peer support as a "bridge" between CHSCs and their patients.

Conclusions: PLSP was effective and well-accepted and feasible, contingent on administrative and staff resources. We also believe that the approach is highly generalizable to other sites and health issues.

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THE '280 A DAY' DIABETES AWARENESS ADVERTISEMENT: WHAT WAS THE IMPACT?

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Introduction: We report on an evaluation of the '280 a day' diabetes awareness television advertisement, aired as part of a national campaign run by Diabetes Australia in 2015. The advertisement aimed to raise awareness about the incidence and seriousness of diabetes, and to challenge common myths / misconceptions.

Methods: Pre- and post-campaign online surveys were conducted with the general population aged ≥ 18 years. Independent samples were used at each time point ($N=1,011$; $N=1,124$) to avoid priming. Respondents who had not seen the advertisement in the 'real world' watched it within the survey.

Results: Real-world recall of the advertisement was low, with unprompted and prompted recall rates of 1.2% and 7.7% respectively. After advertisement exposure, perceived seriousness of diabetes, knowledge of incidence and diabetes complications were all higher (all $p < 0.01$). There was no evidence of advertisement impact on perceived personal risk of diabetes, or on beliefs about diabetes (e.g. preventability, misconceptions; all $p > 0.05$). A total of 70.4% of post-campaign respondents reported that the advertisement made them feel motivated to look after their health; 27.1% reported they

were now likely to seek out information about diabetes. One in 10 respondents perceived the advertisement to be stigmatizing of people with diabetes. **Conclusions:** The advertisement had poor population penetration, and its impact was moderate. It appeared to increase knowledge about diabetes, and increase the (self-reported) likelihood of information-seeking and health-related behavior. However, it did not impact on beliefs, including key misconceptions about diabetes, and may have had unintended negative consequences.

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Challenges and future directions in research on determinants of physical activity

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CHALLENGES AND FUTURE DIRECTIONS IN RESEARCH ON DETERMINANTS OF PHYSICAL ACTIVITY

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As the evidence that reflective (cognitive) and automatic processes jointly explain behavior change mounts, several conceptual, theoretical, and implementation issues have been raised by researchers in various science disciplines, practitioners, and policy makers. This symposium aims to provide insight into the key challenges and future directions in theory and research on physical activity and sedentary behaviors. First, we will discuss the issues referring to the conceptualization of physical activity and sedentary behavior with respect to the movement continuum. The conceptualization affects the content and assumptions made in the theoretical models adopted in behavioral medicine which specify the determinants, contexts, and underlying processes responsible for behavior change. Second, we will present a comprehensive framework of physical activity behavior, drawing its predictions from multiple paradigms and theoretical approaches. This comprehensive framework integrates direct, indirect, and moderating effects of motivational, volitional, explicit, and implicit components and processes. Third, in response to a growing interest in eHealth and mHealth interventions we will address a shift in theoretical models to incorporate user engagement, real-time feedback, context sensing, incentives, and gamification. The Health Technology Adoption and Maintenance (HTAM) model for eHealth and mHealth interventions will be introduced. Fourth, good practice characteristics for interventions and policies promoting physical activity and discouraging sedentary behaviors will be discussed. The results of an umbrella review of systematic reviews, position papers, and stakeholder documents will provide an insight into the content of the domains of good practice such as: evidence-based main characteristics, monitoring and evaluation, and issues of implementation.

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DETERMINANTS ACROSS THE MOVEMENT SPECTRUM: DIFFERENT STROKES FOR DIFFERENT FOLKS

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Introduction: With the acceptance of sedentary behavior (sitting time) in the ‘physical activity’ arena, it is perhaps more appropriate to conceptualize all physical movements or non-movements along a continuum. This ‘movement continuum’ comprises sedentary behavior, light physical activity, moderate-to-vigorous physical activity, and high intensity exercise.

Methods: Narrative commentary with conceptual model.

Results: A commentary will be provided with a tentative conceptual model depicting determinants, barriers, motives, facilitators, and expected outcomes. Illustrative examples will be provided of how determinants or correlates might differ not only along elements of the movement continuum but also by different contexts and alongside barriers, motives and facilitators. Discussion will focus on the necessity for a dual-mode approach using reflective (cognitive) and automatic processing as elements of behavior change.

Conclusions: To advance understanding of physical activity and sedentary behavior determinants, it is necessary to investigate determinants and associated constructs along the movement continuum and in different contexts.

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AN INTEGRATED BEHAVIOR CHANGE MODEL FOR PHYSICAL ACTIVITY

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Introduction: Theory-based research examining the psychological factors associated with health behavior, and the mechanisms by which they exert their effects, have identified three key processes: motivational, volitional, and impulsive. However, few have integrated each processes in a comprehensive model of physical activity behavior. We propose an integrated model of physical activity derived from hypotheses from multiple theories and outline proposals for empirical tests.

Methods: We construct our model based on a conceptual review of the literature on theories of motivation, social cognition, and reflective and impulsive determinants of behavior including social cognitive theory, an augmented theory of planned behavior, self-determination theory, and the reflexive-impulsive model.

Results: Key model hypotheses include direct and indirect effects of motivational factors on physical activity behavior mediated by intentions, moderation effects of volitional components such as planning on the effects of intentions on physical activity behavior, and independent effects of implicitly-measured motives and beliefs on behavior.

Conclusions: The model provides a comprehensive framework for guiding research on the factors and processes underpinning physical activity behavior. The model is not based on a single paradigm, but draws its predictions from multiple approaches. It is also proposed as a starting point to initiate research rather than a definitive approach. We expect the model to evolve through rigorous tests, revision, modification and subsequent re-tests based on empirical findings.

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PRECISION BEHAVIOR CHANGE USING DIGITAL INTERVENTIONS

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Introduction: Advances in human-computer interaction, as well as eHealth or mHealth applications, open a promising agenda for precision behavior change. Interventions using technology need to be informed by other than the usual theories. The focus shifts to constructs such as user engagement, real-time feedback, tailoring, context sensing, prompting, process motivators, incentives, and gamification. Characteristics of standard online treatments and just-in-time adaptive interventions (JITAI) will be discussed.

Methods: Narrative commentary with conceptual model.

Results: Studies will be reported that examine the role of theoretical constructs, mechanisms, and digital interventions in the initiation and adherence to physical activity. The Health Technology Adoption and Maintenance (HTAM) model serves as one possible backdrop of interventions, making distinctions between (a) preintentional motivation processes that lead to a behavioral intentions, and (b) postintentional volition processes that lead to more physical activity.

Conclusions: To advance understanding of physical activity and sedentary behavior determinants, it is necessary to examine the requirements and effects of web-based precision behavior change, with a focus on innovative theory and methodology.

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IMPLEMENTING INTERVENTIONS PROMOTING PHYSICAL ACTIVITY: GOOD PRACTICE CHARACTERISTICS

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Introduction: This umbrella review aimed at eliciting good practice characteristics of interventions and policies aiming at increasing physical activity and lowering sedentary behaviors. Applying the World Health Organization’s framework, we sought for 3 types of characteristics, reflecting: (1) main intervention/policy characteristics, referring to the design, targets, and participants, (2) monitoring and evaluation processes, and (3) implementation issues.

Methods: A systematic review of systematic reviews and stakeholder documents was conducted. Data from 7 databases and web-based resources of 7 major stakeholders (e.g., World Health Organization) were systematically searched. Overall, 73 relevant documents were included.

Results: We derived a list of 147 potential good practice characteristics, of which 52 were classified as relevant (i.e., received sufficient support) and therefore included into good practice characteristics taxonomy. There were 17 main characteristics of intervention/policy, which fell into 6 categories: the use of theory, participants, target behavior, content development/management, multidimensionality, practitioners/settings. Eighteen monitoring and evaluation characteristics we grouped into 6 categories: costs/funding, outcomes, evaluation of effects, time/effect size, reach, the evaluation of participation and generalizability, active components/underlying processes. We organized 17 implementation characteristics into 8 categories: participation

processes, training for practitioners, the use/integration of existing resources, feasibility, maintenance/ sustainability, implementation partnerships, implementation consistency/ adaptation processes, and transferability.

Conclusions: The proposed taxonomy lists evidence-based good practice characteristics which may be responsible for successful development and implementation of interventions and policies enhancing physical activity and reducing sedentary behaviors.

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Psychosocial factors related to health outcomes in a developing country

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PSYCHOSOCIAL FACTORS RELATED TO HEALTH OUTCOMES IN A DEVELOPING COUNTRY

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Chile is a developing country sharing similar health issues than developed countries. For instance, metabolic syndrome (MetS) rates are equivalent from those of the U.S., and obesity rates are comparable to countries of the OECD. Furthermore, Chile is facing an increasing migration from other Latin American countries, and systematically during the last 5 years has been exposed to several earthquakes. Manuel Ortiz will discuss how several psychosocial factors predict MetS. He will present a study investigating the relationship between psychological stressors and MetS, and the mediating role of health behaviors and inflammation. Alfonso Urzúa will present a study of discrimination and health, focusing in the mediating role of acculturative stress and gender in a sample of Colombian and Peruvian migrants. He will discuss the association of perceived discrimination and subjective health status. Paula Repetto will discuss the association between social vulnerability and posttraumatic stress disorder (PTSD) in a large sample of Chilean households exposed to an earthquake. She will discuss differences in PTSD among exposed and non-exposed communities and the moderating role social vulnerability. Eliana Guic will present results from a study testing the association of depression and metabolic glycemic control in a sample of adult Chileans. She will discuss the mediating role of sedentary behavior in leisure time, and physical activity on the relationship between depression and metabolic glycemic control.

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PSYCHOSOCIAL PREDICTORS OF METABOLIC SYNDROME IN A SAMPLE OF CHILEAN ADULTS.

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Introduction: According to the Chilean National Health Survey (2010), the prevalence of Metabolic Syndrome (MetS) in adults was 35%, however how psychosocial factors contributes to this prevalence in Chilean population has been under-studied. Therefore, the aim of this study was to determine how psychosocial factors predicts MetS in a sample of adults. Methods: A non-experimental study was designed to test the cross-sectional association between psychosocial factors and MetS, as defined by the ATP III criteria in a sample of 446 participants free of MetS.

Measures of psychological variables including psychological stress, depressive symptoms, perceived discrimination, and fatalism, as well as health behaviors were self-reported. Inflammatory markers, and MetS components were obtained with standardized procedures.

Results: Although psychological stress was not directly associated with MetS, structural equation modeling revealed an indirect effect via non-healthy diet, and fatalism that was statistically significant, such that participants scoring high in psychological stress had greater fatalism, and poorer diet, which in turn predicted MetS and its components. Conclusion: These findings suggest that psychological stress was indirectly related to MetS through health behaviors and fatalism, allowing us to identify mechanisms through which psychological stress gets under the skin.

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DISCRIMINATION AND HEALTH: THE MEDIATING ROLE OF STRESS ACCULTURATIVE IN LATIN-AMERICAN IMMIGRANTS

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Introduction: There is abundant evidence of the effect of stress on physical and mental health in different populations and contexts. Increased global migration and the consequences on the health of people migrating merit study this specific population. Most research in this area have been made in African American or Latino migrant population in English speaking countries. We have not found references to studies of South American migrants in South American countries.

Methods: Our objective was to analyze the mediating role of acculturation stress in the relationship between perceived discrimination and health in Latin American migrants. They were evaluated 412 Colombians and Peruvians 441 with a minimum of 6 months living in Chile. Specific questionnaires were used to measure stress by acculturation and perceived discrimination and SF-12 for self-reported health. The moderating role that could have gender, phenotype, nationality and legal situation is assessed.

Results: Acculturation stress factor is a mediator of the relationship between perceived discrimination and self-reported health status, where greater discrimination is related to greater stress which in turn is associated with poorer health. In women, the direct effect of perceived discrimination on health is not significant when the moderator role of gender is incorporated. Conclusions: Possibly gender roles are linked not only to the type of perceived discrimination, but also to the way health impacts, mainly women, who could mean differently acculturation stress.

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SOCIAL VULNERABILITY AND NATURAL EVENTS: THE ROLE OF MAGNITUDE OF THE EVENT ON THE CONSEQUENCES

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Introduction: Social vulnerability has been proposed as a condition that will influence how communities will cope with natural disasters (e.g., Cutter et al, 2003). Researchers, propose that the social conditions of the communities, will interact with the disasters and will put those with more vulnerability to greater consequences.

Methods: In the present study we explored the role of social vulnerability in a representative sample of households in Chile (71,460, Casen) that was exposed to an earthquake.

Results: We first developed a social vulnerability index (SoVi) and examined how it related with probable posttraumatic stress disorder (PTSD) among exposed and non-exposed communities. We found that the PTSD prevalence is higher among the earthquake affected communes (PTSD prevalence = 0.19) than the unaffected communes (PTSD prevalence = 0.04) ($t = 12.27$, p -value < 0.001). The relationships between pre-disaster SoVi and PTSD prevalence are different between earthquake affected and unaffected communes. Among unaffected communes, there is a positive correlation between the PTSD prevalence with SoVi ($r = 0.34$, p -value = 0.004); however, in the earthquake affected communes, PTSD prevalence is not associated with SoVi ($r = 0.05$, p -value = 0.530). An interaction between magnitude and PTSD was also found among those affected communities.

Discussion: Our findings suggest how social vulnerability must be considered to understand consequences of natural disasters in communities, but that also reveals the need to explore the role of the consequences of the disaster (secondary stressor) in order to better understand this relationship. Implications for preparation of communities are presented.

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SEDENTARY BEHAVIOR IN LEISURE TIME MEDIATES THE EFFECT OF DEPRESSIVE SYMPTOMS ON METABOLIC GLYCEMIC CONTROL: A POPULATION-BASED STUDY.

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Introduction: Sedentary time seems to be a risk factor for diabetes, independent from moderate to vigorous physical activity (MVPA). We evaluated the role of sedentary behavior in leisure time (LT_SB) in addition to MVPA, on the relationship between depression and metabolic glycemic control.

Methods: A secondary data analysis of Chilean National Health Survey 2010 was conducted in a sample of adult Chileans with elevated fasting capillary glycemia (≥ 100 mg/dl) or previous diagnosis of diabetes ($N=1826$).

Results: LT-SB was positively and MVPA negatively associated with HbA1c, after adjusting by age, sex, educational level, BMI, healthy diet and use of glucose-lowering drugs; LT-SB was also adjusted by MVPA and vice-versa. LT-SB, but not Total Sedentary Time (T-ST), was positively associated with depression. Structural equation models revealed that LT-SB and MVPA completely mediate the relationship between depression and HbA1c, as shown by the indirect effect ($B = .076$; $p < .001$) and the direct effect ($B = -.876$; $p < .000$) of MVPA on HbA1c and by the indirect effect ($B = .043$; $p = .011$) and a direct effect ($B = .176$; $p = .002$) of LT-SB on HbA1c. LT-SB and MVPA accounted for 38% of the association between depression and HbA1c. The mediation model was valid and showed adjusted goodness of fit.

Conclusions: LT-SB, in addition to MVPA, completely mediates the detrimental effect of depression on metabolic glycemic control. Our findings highlight the importance of increasing free time physical activity to improve glycemic control in persons with depression and diabetes.

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e-Mental health – Are we there yet?

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E-MENTAL HEALTH – ARE WE THERE YET?

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Mental health problems affect at least one in four adolescents and yet about 75% never get help. Untreated, mental health disorders persist into adulthood with recurrence rates of 60-70%. Existing services simply cannot extend to meet the growing demand. Behavioral Intervention Technologies (BITS) have been called a ‘*game changer*’ because of their potential to deliver mental health support en masse. There are a number of IT features (e.g. user-generated content, gamification, social media, wearable devices) which make for an exciting opportunity to engage young people in ways that go beyond a traditional online self-help program. However, to achieve this, we must embrace the rapid pace of technological innovation, move beyond testing programs through time-intensive trials and focus on what makes programs work in ‘real life with real people’.

We will draw on research and clinical lessons to explore potential ways forward for youth e-mental health. We will: review the ‘real-world’ uptake of, and adherence to, e-therapy self-help programs for depression and anxiety; report on a nationally implemented online depression program (SPARX) and the lessons we have learnt in the first two years; describe how we might involve consumers through co-design of interventions with an aim to create an innovative and engaging ‘app’ to support youth with problematic substance use; discuss the views of children with long-term physical conditions, their parents and clinicians on using gamified interventions to help with psychological symptoms.

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‘REAL-WORLD’ UPTAKE AND ADHERENCE TO EMPIRICALLY SUPPORTED E-THERAPY SELF-HELP PROGRAMS FOR DEPRESSION AND/OR ANXIETY

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Introduction: The efficacy of self-help e-therapy programs for depression and/or anxiety, particularly computerized cognitive behavioral therapy, has been proven in controlled trials, and higher adherence appears to be associated with greater therapeutic gains. Adherence rates in experimental settings are generally satisfactory; however, there is a concern that uptake and adherence may not be as promising in the ‘real-world’.

Methods: We conducted a review of the literature to identify implementation studies of empirically supported self-help e-therapy offerings for depression and/or anxiety, for which the ‘real-world’ uptake or adherence rates have been reported. This preliminary review is being followed up with a broader systematic review of e-therapy implementation studies, of which the results will also be presented. **Results:** Of the e-therapy self-help interventions that have been empirically tested in controlled trials, relatively few have been made publicly available. Furthermore, of the implemented interventions, only a select

few have published data on uptake and adherence, even though the recording of such data can be a relatively straight-forward and automatic process. The available data suggests generally low adherence to self-help e-therapy programs in the real-world, particularly when compared to the results of controlled trials.

Conclusions: Reporting of real-world uptake and adherence rates in e-therapy should become routine. Results thus far suggest that the generally satisfactory adherence rates in trials may not translate into real-world settings. We recommend that future research examines predictors of uptake and adherence in real-world settings, and the findings implemented to make e-therapy programs more appealing to end-users.

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ALL YOU NEED IS A COMPUTER WITH A GOOD INTERNET CONNECTION – TWO YEARS OF NATIONAL DELIVERY OF SPARX

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Introduction: SPARX is an online cognitive behavioral therapy (CBT) program for adolescents with mild to moderate depression. It presents the content in a gamified format, allowing the user to customize an avatar and explore a ‘fantasy’ land. The Guide character acts as a ‘virtual therapist’ and translates the meaning of the game into a ‘real world’ context.
Methods: On the basis of efficacy established in two trials we have launched SPARX nationally as a self-help program available in New Zealand. The IT infrastructure is provided by the National Institute of Health Innovation and an independent Clinical Advisory Group monitors ongoing function of the program.

Results: In the first twenty months, there were 6406 registered users, including 4160 who identified as a ‘young person’ and 1220 health professionals. 66% of users are female. 33% are 12-14, 38% are 15-17 and 11% are 18-19. At baseline, 36% report mild to moderate symptoms (target group) but 21% have moderately severe symptoms and a further 29% report severe depression. 60% of those who begin SPARX, complete at least one module and 14% complete four or more modules (at least half the program).

Conclusions: Our users have a higher levels of psychological distress and they use the program faster than recommended. Adherence rates are worse than in our original RCTs but are satisfactory when compared with other e-health interventions that have been implemented. IT related challenges may be behind has been challenging and m. Monitoring and interpreting outcomes requires thought.

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WHOSE HEALTH MATTERS MOST? THE DIFFERENT PERSPECTIVES OF CHILDREN AND YOUNG PEOPLE WITH LONG TERM PHYSICAL CONDITIONS, THEIR PARENTS AND CLINICIANS REGARDING KNOWLEDGE AND REQUIREMENTS FOR SUPPORT FROM E-HEALTH INTERVENTIONS

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Introduction: Children and young people with long term physical conditions and their families are at greater risk of developing psychological problems such as anxiety and depression. Limited information exists regarding the role of e-health interventions to address such needs.

Methods: We undertook a qualitative study of children and young people with long term physical conditions and compared the perspectives of family members and clinicians. We interviewed eleven children (7-12 years), 11 young people (13-18 years), 7 parents, 10 general practitioners and 11 pediatricians during seven semi-structured, digitally recorded focus groups and analyzed data using a general inductive approach.

Results: The main psychological issue identified from children, young people and parents was the experience of long term physical conditions as an anxiety provoking journey associated with limited access to information and eHealth interventions. We ascertained preferences regarding the design and format of potential e-health games or other interventions to improve this issue. We found that clinician awareness of e-health interventions was more limited than that of children, young people and families, and their concerns related more to trustworthiness and ease of access to new e-health interventions.

Conclusions: There is a potentially greater role for well-designed e-health interventions, especially games that address anxiety, in improving the psychological welfare of children and young people with long term physical conditions and their families. Plans for developing such a game will be outlined during this presentation.

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TRANSLATING A YOUTH ADDICTION GROUP INTERVENTION INTO AN APP-BASED SELF HELP INTERVENTION – WHERE TO FROM HERE?

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Introduction: mHealth addiction interventions have largely been evaluated in over 18 year olds and ‘app’-based interventions for adolescents are a developing research focus. Established ‘apps’ have been developed in a range of ways, including translating them from established individual treatment practices or via youth participation models.

Methods: This project is part of a large New Zealand project to develop a platform of modular behavioral intervention technologies (BITs) to support adolescents’ common mental health concerns. We are using co-design participatory principles to design an app. Working with young people in group treatment and clinicians facilitating the groups, we are conducting focus groups and key informant interviews to find out what young people respond to best and how these might be incorporated into a self-help ‘app’.

Results: This is an ongoing study and results will be presented along with a preliminary conceptual plan for the development of the app.

Conclusions: Co-creation is adaptive and emergent in nature and contrasts traditional methods of designing interventions based on existing knowledge. Generating ideas, collecting iterative feedback from stakeholders and refining the intervention is time and resource intensive. We will describe lessons learned from the process and discuss potential models for developing and testing the app.

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INVITED SYMPOSIUM: Biopsychosocial aspects in the prevention of cardiovascular diseases

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BIOPSYCHOSOCIAL ASPECTS IN THE PREVENTION OF CARDIOVASCULAR DISEASES

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Cardiovascular disorders (CVD) remain the leading cause for disability and early life loss of years in so called western countries. Psychosocial risk factors substantially contribute to the development and prognosis of CVD worldwide. The symposium will give a comprehensive overview on the World Heart Federation's vision for a worldwide cardiovascular disease prevention (25 by 25 initiative) (Garry Jennings), the relevance of psychosocial risk factors in the etiology and prognosis of CVD (Phillip Tully), the state of the art on behavioral interventions for CVD prevention (Gunilla Burrell), and the content of the 2016 Guidelines of the European Society of Cardiology on CVD prevention in clinical practice (Christian Albus).

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TOWARDS A REDUCTION IN CARDIOVASCULAR DISEASES WORLDWIDE BY 2025

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Non-communicable diseases (NCDs) account for 36 million deaths globally each year; almost 80 percent (29 million) NCD deaths occur in low and middle-income countries.

CVD accounts for the majority of NCD deaths (17.3 million people annually), followed by cancers (7.6 million), respiratory diseases (4.2 million), and diabetes (1.3 million). By 2030, CVD is projected to remain the single leading cause of death worldwide and will be responsible for an estimated 23.6 million deaths each year. Yet, 80 per cent of premature heart disease and stroke is preventable.

In 2011, the United Nations (UN) held a High-Level Meeting of the General Assembly on the Prevention and Control of NCDs. The aim of the meeting was to increase the political priority of NCDs and to recognize the impact of NCDs as not just a health issue, but also as a major economic burden and obstacle to sustainable development.

In 2012 the World Health Organization (WHO) adopted a global target of 25% relative reduction in overall mortality from NCDs by 2025, a primary focus would need to be put on CVD. In 2015 the World Heart Federation (WHF) committed itself to supporting action to reduce premature mortality from CVD by 25% by 2025 (25x25). Targets were identified in the reduction of alcohol, salt/sodium intake, tobacco use, control of raised blood pressure, increase in physical activity and zero growth in diabetes/obesity. We have 10 years to meet these targets and clearly all levels of society are integral in making this a success.

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PSYCHOSOCIAL RISK FACTORS IN THE AETIOLOGY AND PROGNOSIS OF CARDIOVASCULAR DISEASES

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Cardiovascular disease (CVD) and mental disorders are among the leading causes of death and disability worldwide, underscoring the importance of prevention and intervention. This presentation aims to provide an expansive and cogent review of psychosocial risk factors for cardiovascular disease (CVD), and secondly, to overview recent psychosocial interventions in CVD populations. Specifically, the presentation will summarize key empirical work regarding the etiological and prognostic risk of severe mental disorders, anxiety disorders, and post-traumatic stress disorder in relation to CVD. The presentation will also describe the cardiovascular effects of these mental disorders in isolation and their synergistic effects when mental disorder comorbidity is taken into account. Potential behavioral pathways will also be discussed paying particular attention to alcohol and illicit substance use and smoking. These findings will then be discussed in terms of the contemporary depression-CVD intervention landscape, questioning the predominant focus on unipolar depression. This presentation will therefore also attempt to answer unresolved questions in behavioral medicine including how best to design psychosocial interventions in CVD populations, and ultimately reduce subsequent cardiovascular morbidity.

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S645

BEHAVIOR AS THE KEY COMPONENT IN PSYCHOLOGICAL INTERVENTIONS FOR CHD PATIENTS

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Studies have demonstrated that psychosocial factors increase the risk of first and recurrent events in coronary heart disease (CHD). A Cochrane Review (2011) concluded that "Psychological treatments appear effective in treating psychological symptoms of CHD patients. Uncertainty remains regarding the subgroups of patients who would benefit most from treatment and the characteristics of successful interventions". It is thus important to describe more in detail exactly what are the treatment components and settings in each study in the field of "psychosocial interventions" for CHD patients. The ENRICHD and M-HART studies aimed at reducing depression and/or social isolation or anxiety, thereby achieving reductions in hard endpoints. The ENRICHD program achieved moderate improvements in depression and social isolation but none of the studies could demonstrate overall reductions in morbidity or mortality.

The 2012 European Guidelines on Cardiovascular Disease Prevention state that for high risk CHD patients "... stress management, and counselling on psychosocial risk factors, are recommended." Three studies have shown effects on morbidity and mortality, the RCPP, SWITCHD, and SUPRIM studies. These programs focused on behavioral stress management interventions and were group based long-term programs. Interestingly, the effects on hard endpoints were more obvious than changes in psychological variables.

To conclude, psychological interventions for CHD patients that have been successful in achieving significant reductions of recurrent CVD events share the characteristics of being group based, long term, and with explicit focus on stress management and behavioral skills training.

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RECOMMENDATIONS ON BEHAVIOR CHANGE AND MANAGEMENT OF PSYCHOSOCIAL RISK FACTORS IN THE 2016 GUIDELINE ON CVD PREVENTION OF THE EUROPEAN SOCIETY OF CARDIOLOGY

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The European Society of Cardiology (ESC) was one of the first to systematically include recommendations on behavior change and relevance and psychosocial aspects in their guidelines on CVD prevention. In the 2016 version, psychosocial risk factors like low socio-economic status, lack of social support, stress at work and in family life, hostility, depression, anxiety, and other mental disorders are described as to contribute both to the risk of developing CVD and a worse prognosis of CVD. Evidence is presented that treatment of psychosocial risk factors can counteract psychosocial stress, depression and anxiety, thus facilitating behavior change, quality of life, and prognosis.

Furthermore, cognitive-behavioral methods are recommended as effective in supporting persons in adopting a healthy lifestyle. Additionally, recommendations regarding the caregiver–patient interaction are given, which should follow the principles of patient-centered communication, considering age- and sex-specific aspects. In individuals at very high CVD risk, multimodal interventions, integrating education on healthy lifestyle and medical resources, physical activity, stress management and counselling on psychosocial risk factors, are recommended to promote healthy behavior. Finally, as adherence to medication in individuals at high risk and in patients with CVD is low, several types of interventions which are effective in improving medication adherence are recommended.

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Diabetes prevention in the real world: How does it work?

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DIABETES PREVENTION IN THE REAL WORLD: HOW DOES IT WORK?

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Diabetes prevention programs present numerous implementation challenges when randomized controlled trials are scaled up for service delivery. Several countries and regions within countries have implemented programs to varying levels of success. The issues faced by programs primarily relate to program design and whether sufficient consideration has been built in to ensure fidelity of delivery, suitability of delivery mode and building of behavior change skills in participants. The aim of this symposium is to present results of three studies exploring different aspects underpinning delivery of a system-level diabetes prevention program. The first study will look at determining the best theoretical fit for behavior change within two randomized diabetes prevention trials. Findings indicate that although Health Action Process Approach was the underpinning theory for both trials, self-determination theory may provide a better model. The second study explores the modelling of health behavior change components within a diabetes prevention program and subsequent testing of the model to assess fidelity of program delivery. Within an average 1hr session, under half of the behavior change strategies were delivered and facilitator variability effected this even further. The final study explores the implementation of a quality improvement project in primary care to improve diabetes prevention care in general

practice for women with previous gestational diabetes. Findings demonstrate that screening rates doubled and diabetes prevention care could be improved using a collaborative learning method. Implications of these studies for diabetes prevention programs will be discussed.

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EXPLAINING BEHAVIOR CHANGE: EXAMINING MODEL FIT FOR TWO RANDOMISED DIABETES PREVENTION TRIALS

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Introduction: Unravelling exactly how lifestyle behavior change occurs is complex, owing to the many components within the prevention programs themselves and differential interpretation of psychological theory underpinning programs. Meta-analysis suggest a large amount of heterogeneity exists in the effectiveness of similar programs when delivered in different settings, which consequently will reduce the ability of research to draw definitive conclusions on optimal design and delivery of program. We aimed to determine whether the Health Action Process Approach (HAPA) or Self-Determination Theory provides the most parsimonious explanation of change in health behavior in 2 separate diabetes prevention programs.

Method: 2 randomized diabetes prevention trials conducted in Melbourne and Adelaide collected data on HAPA constructs and Self-Determination Theory at baseline and 12 months, to determine the process and predictors of change. Results: Analysis of questionnaires indicated that the distinction between coping and action, both for self-efficacy and planning, as articulated in the HAPA model were not supported. The intervention groups showed increased intrinsic motivation in both trials, compared with the control group. There were no other consistent changes in model variables. Increased intrinsic motivation predicted greater change in self-reported diet and physical activity.

Conclusion: These trials indicated that self-determination theory may provide a better model for understanding change in diabetes prevention programs, than the HAPA model.

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DELIVERING BEHAVIOR CHANGE WITH FIDELITY: LINKING THEORY WITH PROGRAM DELIVERY

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Introduction: Health behavior interventions frequently deliver inconsistent outcomes, despite common underlying theory. Little is known about fidelity of delivery in many interventions due to a lack of reporting because fidelity is assumed to have occurred. We aimed to assess the fidelity of delivery of a theory-based health behavior change program and the impact of facilitator variation on fidelity.

Methods: A coding frame was developed through iterative, independent coding of the facilitator manual by the research team against the Health Action Process Approach (HAPA), Analysis System for Self-Efficacy Training (ASSET) and Behavior Change Technique taxonomy (BCT). 36 individual 1hr participant audio recorded sessions were coded using the coding frame, which will contrast delivered content within the standardized manual.

Results: Preliminary analysis indicates delivery of 46±13% (SD) ASSET and 35±13% BCT strategies (n=5 sessions, n=3 Facilitator A (FA), n=2 Facilitator B (FB)). FA demonstrated greater fidelity compared with FB for both ASSET (55±8% vs 34±9%) and BCT (44%±4 vs 22%±4) coded strategies. The main difference seen within ASSET categories was FA used 'enactive mastery' (most influential self-efficacy source) twice as much as FB (61% vs 32%). For BCT categories, FA used 33% of 'goals and planning' strategies while FB only used 6%, this was the most underutilized BCT category.

Conclusions: Understanding how programs are delivered in practice and which aspects of behavior change theory are effected when looking at fidelity will enable us to build more robust quality assurance measures and explore the impact that fidelity has on health outcomes.

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GOOD4MUM: FACILITATING DELIVERY OF DIABETES PREVENTION CARE TO WOMEN WITH PREVIOUS GESTATIONAL DIABETES IN PRIMARY CARE

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Introduction: Having gestational diabetes (GDM) is the single strongest population risk predictor for Type 2 Diabetes (T2DM). GDM and T2DM pose tremendous potential health and economic burdens with increasing incidence worldwide. Primary care-based systematic screening and lifestyle modification programs are needed for effective diabetes prevention. Australian Primary Care Collaboratives are effective in improving quality of care and 25% Australian GPs have been involved in a collaborative.

Methods: Five Victorian Medicare Locals (MLs) from rural and metro areas participate in GooD4Mum. Within each ML, five GP practices were recruited. GooD4Mum was a 12month collaborative to improve screening and lifestyle modification practices. Practice audits, learning workshops, Plan-Do-Study-Act cycles and collaborative support were the key project activities. Diabetes guideline implementation was assessed using a concurrent mixed method approach (quantitative audit measures and qualitative semi-structured interviews and focus groups).

Results: Creating practice GDM registers was problematic and software optimization is needed. GooD4Mum audit data showed average screening rates more than doubled from 26% to 61% and 1 in 10 women received a diabetes prevention planning consultation. Critical knowledge exchange activities were the building of local champions, design and delivery of templates, pathways and information sharing forums; and managing the effects of MLs transitioning to Primary Health Networks.
Conclusions: GooD4Mum appears to be a viable pathway for scaling-up diabetes prevention care into primary care systems.

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Roles and perspectives of behavioral medicine research in Asia – experiences in three Asian countries

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ROLES AND PERSPECTIVES OF BEHAVIORAL MEDICINE RESEARCH IN ASIA – EXPERIENCES IN THREE ASIAN COUNTRIES

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Asian countries are recently threatened by increasing burdens of non-chronic diseases (e.g. metabolic diseases) and infectious diseases (e.g. HIV) due to lifestyle changes, calling for innovative preventive/control approaches. Interdisciplinary behavioral medicine (BM) plays important roles but is relatively young in Asia. This symposium increases awareness/understandings on challenges/opportunities involved, including features (e.g. socio-cultural factors) and resource availability regarding BM research/practices in Asia. It also facilitates networking. The first presentation examines severity of the HIV epidemic among men who have sex with men (MSM) in China. BM's roles are illustrated by looking at impact of socio-cultural and policy factors on risk behaviors, preventive behaviors and interventions, as well as inter-relationships between mental health and risk behaviors and between new bio-medical interventions and behaviors. The second presentation examines a randomized evaluation of the Kerala Diabetes Prevention Program (K-DPP) in India, which was a culturally adapted, peer-led lifestyle intervention program for the prevention of type 2 diabetes. Formative research was performed. It changed behavioral/laboratory outcomes efficaciously and is being scaled up. The third presentation explores qualitatively the knowledge, attitudes and behaviors of HPV vaccination providers and mother of girls in the target age range for vaccination in Malaysia. We highlight important gaps and work on reducing the incidence of cervical cancer Malaysia where the mortality rate from cervical cancer doubles that of some European countries. The three speakers share their experiences of conducting BM research in these three countries. Our discussant will give integrative insights on the way forward and lead floor discussion.

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BEHAVIORAL MEDICINE AND THE HIV EPIDEMIC AMONG MEN WHO HAVE SEX WITH MEN IN CHINA: ROLES, CHALLENGES AND OPPORTUNITIES

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Introduction: HIV prevalence exceeded 20% and incidence was 5-10/100 person-years among men who have sex with men (MSM) in some Chinese cities. Advances of behavioral medicine to understand/control the epidemic are warranted but limited. We illustrate needs/challenges/opportunities in practicing behavioral medicine to address the problem.

Methods: Cross-sectional surveys interviewing adult MSM in mainland China.

Results: Bisexual behaviors were prevalent and often involved unprotected sex; cultural factors (e.g. family tree continuation) and the one-child policy caused MSM to conceal their MSM status by engaging in marriages/heterosexual relationships. Multiple partnerships were prevalent among MSM, and significantly associated psychosocial factors involved norms, sexual agreement and constructs of the Theory of Planned Behaviors. Psychological health (e.g. depression and post-traumatic growth, self-stigma) was closely associated with unprotected anal sex, while stigma was associated with HIV testing, mediated by service providers' empathy. Recent evidences of effective biomedical interventions have brought along WHO recommendations and implementations, such as providing ART to all HIV positive MSM and pre-exposure prophylaxis to at-risk MSM; adoptions by MSM are, however, determined by cognitive/psychosocial factors. Effectiveness of such bio-medical preventive measures depends deeply on adherence and risk compensation (the degree to which MSM used condoms less because of usage of biomedical prevention). Behavioral interventions are required.

Conclusion: Research findings demonstrate pivotal roles of behavioral medicine in explaining/controlling the HIV epidemic, through interplaying impacts of interdisciplinary cultural/psychosocial/policy factors and biomedical and behavioral measures. We will discuss about resource limitations regarding interdisciplinary expertise and opportunities in conducting research and interventions to address related issues.

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A CLUSTER RANDOMIZED CONTROLLED TRIALS OF A PEER-LED LIFESTYLE INTERVENTION PROGRAM TO PREVENT TYPE 2 DIABETES IN INDIA: KERALA DIABETES PREVENTION PROGRAM

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Introduction: We describe the development, implementation and 1-year results of a randomized evaluation of the Kerala Diabetes Prevention Program (K-DPP).

Methods: K-DPP is a culturally adapted, peer-led lifestyle intervention program for the prevention of type 2 diabetes in India. K-DPP was adapted from the Finnish GOAL program through four phases: (1) needs assessment; (2) program translation and modeling; (3) exploratory pilot; (4) RCT. The program is delivered by peer leaders through small group sessions, focused on the following key objectives: 1) increasing physical activity, 2) promoting healthy diet, 3) tobacco cessation, 4) reducing alcohol consumption, 5) weight loss in overweight individuals. Mixed effects linear regression and generalized estimating equation were used to assess 1-year intervention effects.

Results: One-year follow-up rate was 98%. In the intervention arm, 87% attended one or more small group sessions, mean number of 7.2 ± 4.7 sessions. Intervention reduced the prevalence of tobacco use by 32% compared to the control arm ($p=0.035$). Mean HDL-cholesterol decreased by 0.03 mmol/l in intervention arm and decreased by 0.08 mmol/l in control arm ($p=0.02$). Median triglycerides decreased by 0.02 mmol/l in intervention arm and increased by 0.08 mmol/l in control arm ($p<0.001$). Most impressively, many of the KDPP groups continue to meet and to conduct lifestyle-related activities in their local communities.

Conclusion: K-DPP has demonstrated favorable lifestyle and clinical outcomes at one year. Program implementation has been excellent and maintenance is being formally evaluated at 24 months. The program is currently being scaled up throughout the state of Kerala, India.

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S654

HPV VACCINATION IN MALAYSIA: PERSPECTIVES OF PROVIDERS AND MOTHERS

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Introduction: In Malaysia HPV vaccination is free through the schools health programme for girls in the target age range. The current study formed part of a 5-country study which examined the knowledge of and attitudes to HPV vaccination among (a) vaccinations providers and (b) mothers of girls in the target age range.

Methods: Providers within Klang Valley, Malaysia were interviewed. Four focus groups with mothers were also completed. The areas explored included vaccine knowledge, acceptability and factors influencing decision making.

Results: 30 providers and 25 mothers participated in the study. All three ethnic groups were represented (Malay, Indian and Chinese).

Results: Providers noted challenges in ensuring all three doses of the vaccination were administered and in older women requesting the vaccination. Cost was presented as a barrier to recommending the vaccination. From the study of mothers it emerged that women are the key decision makers in relation to vaccination. The majority allowed vaccination however many had questions and reservations related to side effects, opinion of their family GP and possible mixed messages about sexual activity. Cost was an important factor in decision making.

Conclusion: The current research provides important information about Malaysian providers and mothers in relation to HPV vaccination. Given the cost of the vaccination in private clinics in Malaysia is significant, many are dependent on the schools programme. This and other relevant findings will be discussed in the context of Malaysia (a multi ethnic society) and opportunities to build on this in depth work will be explored.

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Eating as Treatment (EAT): A health behavior change intervention to improve treatment outcomes for head and neck cancer patients undergoing radiotherapy

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EATING AS TREATMENT (EAT): A HEALTH BEHAVIOR CHANGE INTERVENTION TO IMPROVE TREATMENT OUTCOMES FOR HEAD AND NECK CANCER PATIENTS UNDERGOING RADIOTHERAPY

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Head and neck cancers (HNC) have a relatively high mortality rate, approaching 50%. Malnutrition is a significant problem in this population and is associated with an increase in complications due to side effects of treatment as well as increased morbidity. HNC patients are often noncompliant with dietary advice and have to overcome significant barriers to eat. Depression has been reported as highly prevalent in this population and linked to worse treatment side effects and poorer radiotherapy outcomes. Despite the recommendations of best practice clinical guidelines, routine screening for psychosocial distress and referral for support is sub-optimal in this population. The aim of the symposium is to highlight how a health behavior intervention can be used to change patient behavior, clinician practice and a hospital systems' provision of care for HNC patients. The first paper will present results from a successfully piloted intervention; "Heads Up" that employed behavior change strategies developed specifically for HNC patients undergoing radiotherapy and targeting behaviors around nutrition. The Heads Up intervention was refined for delivery by dietitians, known as: "Eating As Treatment" (EAT). The NHMRC then funded a multi-site stepped wedged randomized controlled trial. The second paper will discuss the impact of training in the EAT Intervention on dietitian application of and competence in behavior change counselling. The third paper will highlight the use of systems' change strategies to improve clinician provision of psychosocial care for HNC patients. The fourth paper will present results of the main outcome from this trial; nutritional status.

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'HEADS UP': A PILOT STUDY OF A BEHAVIOR CHANGE INTERVENTION FOR HEAD AND NECK CANCER PATIENTS UNDERGOING RADIOTHERAPY

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Introduction: Malnutrition in HNC patients is common and associated with poorer radiotherapy outcomes including increased mortality. A pilot trial investigated the feasibility and effectiveness of a psychological intervention to improve nutritional status, depression and mortality in HNC patients undergoing radiotherapy.

Methods: Fifty-nine intervention patients received motivational interviewing and cognitive behavioral therapy (CBT) compared to 70 historical controls who received treatment as usual. Participants were assessed for nutrition, depression and mortality.

Results: Although there were no significant differences between groups in nutritional status, depression or mortality, a sub-group analysis revealed a strong trend in favor of the intervention among patients at greater nutritional risk (Cancers of the oral cavity, pharynx, larynx). A significant difference in mortality (31% of controls vs 16% intervention $p=.03$) was found in this subset.

Conclusions: Differences in nutritional status and a significant reduction in mortality indicated the potential benefits of a psychological intervention among HNC patients at high nutritional risk. These results necessitated a larger randomized controlled trial.

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USING BEHAVIOR CHANGE COUNSELLING TO FACILITATE HEAD AND NECK CANCER PATIENTS' ENGAGEMENT WITH DIETETIC INTERVENTION ...

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Introduction: Behavior Change Counselling (BCC) is an empirically supported approach for facilitating behavior change. Assisting dietitians to integrate a BCC informed intervention ("Eating as Treatment": EAT) into standard dietetic consultations may enhance HNC patient engagement with dietetic intervention.

Methods: 16 Radiotherapy dietitians from four participating Australian radiotherapy departments underwent training in the EAT intervention. Dietetic sessions were audio recorded and a 20% sample randomly selected for rating by an independent assessor. 20% of this sample was randomly selected and re-coded for intra-rater reliability and inter-rater reliability. Adherence to BCC was assessed using the Behavior Change Counselling Index (BECCI). Adherence to study specific techniques was assessed by a checklist developed by the research team. A modified version of the Cognitive Behavior Therapy (CBT) competence item from the Cognitive Therapy Scale-Revised (CTS-R) was used to assess BCC competence. Interpersonal skill was indexed via the CTS-R 'interpersonal effectiveness' item.

Results: Relative to pre-training ($n=196$), preliminary analyses reveal that after training ($n=81$) dietitian application of study specific skills (95.2% vs. 4.8%; $X^2<.001$) and BCC [$M= 2.09, SD=.41$ vs. $M=1.9, SD=.44$; $t(158.57)=-2.09, p=.03$] was significantly greater. Improvement in BCC competence was also apparent [$M=2.65, SD=1.36$ vs. $M=2.15, SD=1.12$, $t(127.46) = -2.92, p=.004$]. Interpersonal effectiveness and session duration were unaffected. Inter-rater reliability was within the 'good' range ($ICC_{average}=.72$). Final results will be available May 2016.

Conclusions: EAT training promoted increased application of and competence in BCC. As session duration appears to be unaffected, this training is suitable for promoting increased BCC within busy clinical settings.

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IMPROVING SCREENING AND REFERRAL OF HEAD AND NECK CANCER PATIENTS FOR PSYCHOSOCIAL DISTRESS

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Introduction: Given the prevalence and adverse effects of psychological distress on treatment outcomes, particularly the influence of depression on nutritional outcomes, clinical practice guidelines recommend dietitian screening and referral of HNC patients for psychosocial distress. However, research suggests that the provision of this care is sub-optimal. Practice change strategies were implemented within the EAT intervention to improve dietitian provision of routine depression screening and referral to appropriate psychosocial support in HNC patients undergoing radiotherapy. Methods: The practice change strategies were implemented across all four Australian radiotherapy departments who participated in the EAT intervention. These components included: executive support, staff training, academic detailing, systems and prompts, performance audit and feedback and provision of tools and resources. Frequency of depression screening and referral by dietitians in HNC patients at initial session, was assessed via audiotape and medical record audits.

Results: Preliminary results indicate that 0% (n=162) of control (pre-intervention) patients were screened for distress by dietitians. The intervention components, including staff visits, feedback reports, resources and supervision have been well received and rated positively by the participating dietitians. Preliminary results indicate that the provision of routine depression screening and referral has increased. Final results will be available May 2016.

Conclusions: This study is the first to implement a multi-component clinical practice change intervention in increasing the provision of dietitian depression screening and referral in HNC patients. If effective, the intervention could serve as a model for improving the implementation of guidelines in other outpatient clinics in Australia and internationally.

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REDUCING MALNUTRITION IN HEAD AND NECK CANCER PATIENTS UNDERGOING RADIOTHERAPY

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Introduction: This NHMRC funded multi-center trial combines elements of CBT, motivational interviewing and clinical practice and builds on promising pilot data to evaluate the effectiveness of a Dietitian delivered health behavior intervention to reduce malnutrition in HNC patients undergoing radiotherapy: Eating As Treatment (EAT).

Methods: A stepped wedge cluster randomized design was used. All recruitment hospitals began in the control condition providing treatment as usual before switching to the intervention condition in a randomly generated order. Training was supplemented by ongoing supervision, coaching and two-month booster training provided by the research team. EAT was designed to improve motivation to eat despite a range of barriers, and to provide patients with practical behavior change strategies.

HNC patients (Nasopharynx, Hypopharynx, Oropharynx, Oral Cavity or Larynx), aged 18+ undergoing radiotherapy (>60Gy) with curative intent were recruited from radiotherapy departments in four Australian sites. Assessments were conducted at four time points (first and final week of radiotherapy, four and twelve weeks post radiotherapy).

Results: The primary outcome of nutritional status, as measured by the Patient Generated Subjective Global Assessment (PG-SGA) will be analyzed using generalized linear mixed models accounting for tumor site, stage, differences between hospitals and individual patients. Results will be available May 2016.

Conclusions: This trial is the first and largest multi-center trial of psychological strategies to attempt to avoid malnutrition in HNC patients. It has the potential to be inexpensively integrated into all cancers centers, become part of dietetic tertiary training and further demonstrate the importance of psychological interventions in an oncology setting.

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HIV prevention research in South Africa and Zambia

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HIV PREVENTION RESEARCH IN SOUTH AFRICA AND ZAMBIA

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HIV rates in South Africa and Zambia are among the highest in the world, and HIV prevalence in both regions is significantly higher among adolescent girls and young women of reproductive age. These high rates and vulnerable populations highlight the importance of scaling up and sustaining proven HIV prevention interventions. Yet, despite the widespread

availability of testing and treatment, challenges persist for the achievement of the UN millennial goal to halt HIV and reverse its spread by 2015. These include gaps in the uptake of prevention of mother to child transmission (PMTCT) protocols and treatment in rural South Africa, low acceptability and uptake of voluntary medical male circumcision in Zambia, and the impact of poverty, gender norms and gender based violence on risk behavior of adolescent girls. This symposium presents effective strategies for HIV prevention that utilize biopsychosocial strategies to optimize the achievement of HIV prevention goals, i.e., implementation science strategies to improve PMTCT protocol uptake, male partner involvement (MPI) to improve PMTCT treatment uptake, enhancing acceptability of voluntary medical male circumcision (VMMC) to reduce HIV acquisition, and community-based strategies to reduce HIV risk behavior and increase testing and engagement in care among female children and adolescent girls. In summary, responding to the need for biopsychosocial research addressing communicable and non-communicable disorders in the African context, the discussant will present the initiative to establish the first behavioral medicine chapter in South Africa, the Association for Biomedical Health, intended to provide a behavioral medicine research platform for investigators from Southern Africa.

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PMTCT IMPLEMENTATION IN RURAL COMMUNITY HEALTH CENTRES IN MPUMALANGA PROVINCE, SOUTH AFRICA

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Introduction: Given the gaps in the implementation and uptake of the protocol for the prevention of mother to child transmission (PMTCT) of HIV, this study explores organizational and individual characteristics affecting the capacity for service delivery and adoption of PMTCT, and assesses the implementation, acceptability, fidelity, coverage of PMTCT at 12 community health centers in rural Mpumalanga Province, South Africa.

Methods: Community health center staff members surveyed (N = 103) were 10 (deputy) operational managers/sisters in charge, 56 nurses, and 37 counsellors.

Results: There was a significant difference in attitudes and perceived organizational barriers by job title, such that management were most enthusiastic about implementation and reported the fewest organizational barriers, nurses second, and counsellors the highest barriers. The most variable indicators were provision of ART during labor, HIV re-testing at 32 weeks' pregnancy, maternal ART adherence, attendance at 4 antenatal clinic visits, delivery at the CHCs, and discussion of contraception and future pregnancies with healthcare providers. The most pervasive failures related to HIV status disclosure and related gaps. Results suggest that gaps in care are not necessarily linked to clinic staff attitudes or perceptions, and that ongoing efforts to implement district-level, data-driven quality improvement processes in rural communities are needed to improve the performance of the PMTCT programme.

Conclusions: Although PMTCT data suggest its implementation varies between clinic sites, it is unclear what characteristics of organizations and/or individuals contribute to this variation. Strategies are needed to promote fidelity and coverage of PMTCT. Funded by a grant from NIH/PEPFAR, R01HD078187-S.

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A QUALITATIVE EXPLORATION OF THE MEANING AND UNDERSTANDING OF MALE PARTNER INVOLVEMENT IN ANTE-NATAL CARE IN THE SOUTH AFRICAN CONTEXT: IMPLICATIONS FOR PREVENTION OF MOTHER TO CHILD TRANSMISSION PROGRAMMES

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Introduction: Male partner involvement (MPI) in the implementation of prevention of mother to child transmission (PMTCT) programmes has been highlighted as a strategy that can lead to improved health outcomes for HIV positive women and their babies. Earlier PMTCT protocols tended to focus solely on pregnant women and almost completely ignored male partners as being integral to the success of PMTCT. However, MPI can improve coverage as well as adherence to the complex cascade of protocols that need to be followed in order to prevent vertical transmission of HIV. This study presents a qualitative exploration of the meaning and understanding of MPI and its integration in PMTCT programs in South African antenatal clinics (ANC).

Methods: Focus groups discussions (FGDs) were conducted with 48 men in four different communities representing both urban and rural settings. FGDs were held in ANCs and responses were recorded, transcribed and coded into themes.

Results: The meaning and understanding of MPI differed by community. Material support was viewed by men as more essential than attending ANC appointments. Lack of patience among men was a barrier to attendance as ANC visits entailed waiting for long periods at the clinic. Hostility from clinic staff who were not very receptive to having men accompanying partners was reported. Cultural beliefs around pregnancy and child birth were also cited as reasons for poor MPI.

Conclusions: Increasing MPI in PMTCT programs requires an understanding of context, cultural and social factors related to pregnancy, child birth and role expectations. Funded by NIH/PEPFAR, R01HD078187-S.

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INCREASING ACCEPTABILITY OF VOLUNTARY MALE MEDICAL CIRCUMCISION (VMMC) IN ZAMBIA

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Introduction: VMMC confers high levels (50-70%) of protection against HIV infection in men and similar rates (46%) are estimated for female partners of circumcised men. VMMC acceptability surveys in high risk African countries rank Zambia as having the lowest rate of willingness to

consider VMMC for HIV prevention. The Spear and Shield 1 project (2010-2015) combined VMMC availability with a behavioral HIV prevention program at Community Health Centers (CHCs), and increased VMMC uptake by 2.5 - 8.5 times in comparison with control conditions. Spear and Shield 2 is an ongoing scale-up of the intervention in ~100 CHCs in Zambian Provinces with high HIV prevalence and low VMMC rates; 60% of the VMMC eligible population. Using implementation science strategies, this study examines constructs predicting successful program uptake in Lusaka Province, Zambia.

Method: This ongoing scale-up utilizes qualitative and quantitative methods; audio recorded interviews and quantitative assessments are conducted with clinic staff. Data are analyzed using the Consolidated Framework for Implementation Research (CFIR), quantifying variables associated with relative effectiveness of each CHC's ability to achieve project goals.

Results: Constructs associated with intervention characteristics are common across sites; constructs associated with inner setting, e.g., leadership, information access, relative priority, networks, and outer setting, e.g., policy, peer pressure, and related to the individual, e.g., knowledge, and process, e.g., planning and opinion leaders differ between clinics. Populations differ by site and relative contribution to uptake of the intervention.

Conclusion: Use of predictive CFIR constructs can facilitate uptake of health service delivery. Funded by NIH R01MH095539.

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HIV PREVENTION IN VULNERABLE RURAL AND URBAN POPULATIONS IN ZAMBIA

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Introduction: HIV prevalence in Zambia is among the highest in the world. Adolescent girls are at greatest risk of HIV infection due to inter-generational relationships, transactional sex and gender-based violence (GBV). This qualitative research explores contributors to this risk and strategies for HIV prevention in rural and urban Zambian communities. **Methods:** Adolescents (n = 60) and adults (n = 84) participated in interviews and focus group discussions in early 2016. Data was coded by predictors of sexual risk behavior, social norms and cultural practices that maintain gender inequity and increase HIV risk, and strategies to prevent HIV.

Results: Themes included 1) HIV, medication and GBV awareness, comprised of community, cultural and health system challenges and opportunities; and 2) motivation to change behavior and health promotion strategies, comprised of issues facing men, women, couples and adolescents. Recommendations included 1) repackaged educational and community sensitization campaigns with peer/parental involvement; 2) programs to empower and educate adolescent girls and women; 3) social media interventions; 4) programs to encourage use of health services; 5) religious-traditional culture collaborations; 6) recreation programs. Challenges to adult behavior change are misconceptions regarding voluntary medical male circumcision, low condom acceptability, peer pressure, poor couples' communication, and among women, sexual practices and poor self-esteem. Adolescent girls faced financial insecurity and boys faced peer pressure.

Conclusions: Results highlight the impact of culture, finance, and gender inequity on HIV prevention in Zambia and the role of local community stakeholders to inform interventions for vulnerable populations. Funded by USAID through Pact, Z-CHPP, AID-611-A-16-00001.

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Whiplash-associated injury and risk: New directions in intervention

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WHIPLASH-ASSOCIATED INJURY AND RISK: NEW DIRECTIONS IN INTERVENTION

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Whiplash-associated injury is a relatively common consequence of motor vehicle crash and problematic because our degree of understanding of the processes and mechanisms that lead to the level of disability that accompanies it. Furthermore, interventions have not been shown to have significant impact on recovery and reduced disability. In this context new research has both progressed our understanding and effectiveness of intervention. In this symposium Michele Sterling will present preliminary outcomes from a new research utilizing a combined early intervention targeting medium to high risk patients by addressing physical function and psychological stress reduction and coping delivered by physiotherapists. Mick Sullivan employs a risk-targeted intervention focusing on pain catastrophizing in patients with whiplash injury. Analyses revealed that reductions in catastrophizing were associated with a higher probability of return to work. Finally, Justin Kenardy reports the comorbidity of post-traumatic stress disorder (PTSD) in whiplash and the effectiveness of trauma-focused CBT on PTSD and whiplash related disability. This has led to a further randomized controlled trial of sequential treatment of comorbid PTSD following by physiotherapy in patients with whiplash with the aim of promoting better effectiveness. In summary these studies represent new models of care for patients with whiplash that link risk with intervention to maximize outcome. Geert Crombez will discuss the results of these studies and place them in the context of the current literature on treatment of whiplash.

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REDUCING CATASTROPHIZING THINKING TO IMPROVE RETURN-TO-WORK OUTCOMES FOLLOWING WHIPLASH INJURY

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Introduction: In recent years, pain catastrophizing has emerged as one of the most powerful and robust psychological predictors of adverse pain outcomes. Several prospective studies have revealed that initial levels of catastrophizing are predictive of long-term pain and disability following

whiplash injury. The purpose of the present study was to examine whether an intervention specifically designed to reduce catastrophizing thinking would promote better recovery and foster return to work in individuals with whiplash injuries. **Methods:** A sample of 73 individuals with whiplash injuries participated in a 10-week risk-targeted intervention designed to reduce catastrophic thinking. Intervention sessions were scheduled 1-hour per week. Techniques used in the intervention included guided disclosure, thought monitoring and emotional problem-solving, activity re-engagement, and progress feedback. The intervention was delivered by occupational therapists who had attended a two-day training workshop in risk-targeted approaches to managing work disability. **Results:** Participation in the risk-targeted intervention was associated with clinically significant reductions in catastrophizing. Individuals who returned to work showed greater reductions in catastrophizing than individuals who remained work-disabled. Pain reduction was not a significant determinant of return to work outcomes. **Conclusions:** The findings suggest that risk-targeted interventions might represent a cost-effective approach to managing psychosocial barriers to occupational re-integration following whiplash injury.

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RISK STRATIFICATION AND TARGETED TREATMENT IN EARLY WHIPLASH TO IMPROVE HEALTH OUTCOMES

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Introduction: Health outcomes after whiplash injury are poor with up to half of those injured developing chronic pain and disability. Treatments have focused on activity/exercise approaches offering only small effects. Stratifying patients on their risk of developing chronic pain and targeting those at high risk with appropriate early intervention may improve health outcomes.

Methods: A randomized clinical trial of a 6-week physiotherapist delivered integrated stress inoculation training (SIT) & exercise intervention compared to exercise alone in 100 participants with acute (<4 weeks) whiplash at medium/high risk of poor recovery (the StressModEx trial). SIT included education about stress and its effect on pain, relaxation, problem solving and application of techniques in real life situations. Exercises comprised neck specific, functional and aerobic exercise. The primary outcome was Neck Disability Index (NDI). Secondary outcomes included pain, health related quality of life, posttraumatic stress symptoms, pain catastrophizing and self-efficacy. anzctr.org, ACTRN12614001036606

Results: Here we report the short-term effects immediately post the 6 week intervention in 60 recruited patients. The SIT and exercise intervention was more effective than exercise alone in reducing pain related disability at short term follow-up. The treatment effect on the 0-100 NDI was -12 (95% CI -16 to -2) which is clinically relevant. The intervention had a high degree of credibility to both physiotherapists and patients. Auditing of audio tapes showed that the physiotherapists could successfully deliver the SIT intervention.

Conclusions: In patients with acute whiplash, physiotherapist delivered SIT and exercise is more effective than exercise alone immediately following the intervention.

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RISK STRATIFICATION AND TARGETED TREATMENT IN EARLY WHIPLASH TO IMPROVE HEALTH OUTCOMES

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Introduction: Posttraumatic Stress Disorder (PTSD) is a relatively common comorbidity in Whiplash. It is associated with poorer quality of life, and greater pain sensitivity and physiological arousal. The research questions addressed in this paper is whether PTSD be treated in the context of whiplash? **Methods:** A randomized clinical trial of 10-week trauma-focused CBT compared to a usual treatment control was tested with 26 patients who had chronic whiplash and comorbid PTSD. The primary outcome was clinical diagnosis of PTSD, secondary outcomes included the Neck Disability Index (NDI), pain sensitivity and pain intensity.

Results: PTSD diagnosis and NDI differed significantly between the two groups with the CBT group showing significant decline in PTSD and NDI which was maintained to six months, compared to no change in PTSD and NDI in the usual care group. Change in pain sensitivity approached significance for the CBT group. However, pain intensity did not change.

Conclusions: This trial demonstrated that PTSD could be treated in whiplash and that whiplash related disability also reduced. This suggests that by pre-treating PTSD in the context of whiplash the benefits of a treatment focused on improving physical disability could be magnified. A second trial will be described that extends the current findings and aims to test this hypothesis. In this trial patients with PTSD and whiplash are given either a physiotherapist delivered exercise focused treatment or a psychologist delivered TF-CBT followed by a physiotherapist delivered exercise focused treatment.

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Understanding what works in interventions designed to change health behavior: New approaches to linking theory research design, and evidence

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UNDERSTANDING WHAT WORKS IN INTERVENTIONS DESIGNED TO CHANGE HEALTH BEHAVIOUR: NEW APPROACHES TO LINKING THEORY RESEARCH DESIGN, AND EVIDENCE

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This symposium will examine how theory and research evidence can better shape the design of future health behavior change interventions. Rothman (Minnesota) will investigate the gap between theory and intervention design. He will make a series of recommendations to create a better synthesis between theory and design. Abraham (Exeter) will review frameworks that have been developed to categorize the content of interventions from published descriptions. He will offer practice guidelines to ensure the utility of such work to intervention designers. Sheeran (North Carolina) will present an experimental medicine approach to using meta-analytic data to identify optimal psychological targets in behavior change interventions and identify

unanswered research questions. Klein (National Cancer Institute, Division of Cancer Control and Population Sciences, USA) will highlight key conclusions for research and practice and lead a structured discussion of how to advance the field of behavior change intervention design.

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FORGING “HEALTHIER” CONNECTIONS BETWEEN THEORY AND INTERVENTIONS TO PROMOTE HEALTHY BEHAVIOR: UNDERSTANDING WHAT WORKS WHEN AND WHY

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Introduction: How can we optimize the design and delivery of interventions to promote healthy behavior? Social psychological principles have the potential to specify the factors that guide people’s behavior and delineate the conditions under which they operate. Thus, they can guide our understanding of how and why intervention strategies are effective and help us delineate the conditions under which intervention strategies will and will not be effective. However, numerous commentators have noted that the promise(s) afforded by theory have been surprisingly elusive.

Methods: Several programs of research will be examined to identify factors that have facilitated or inhibited our ability to forge tight connections between theory and intervention design.

Results: Research demonstrates a frequent disconnect between the guidance current theories offer and the needs of intervention designers.

Conclusions: A series of changes are needed, by theoreticians and intervention designers, to cultivate a “healthier” relation between in behavior change theory and practice.

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TOWARDS SYSTEMATIC AND COMPREHENSIVE CHARACTERISATION OF THE CONTENT OF BEHAVIOR CHANGE INTERVENTIONS

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Introduction: A variety of taxonomies, classification systems and coding frameworks have been developed to identify characteristics associated with the effectiveness of behavior change interventions. These have been applied across a range of systematic reviews and meta-analyses seeking to link content differences to differences in effectiveness.

Method: These frameworks, the categories they use and the findings they have generated are reviewed and related to a series of dimensions that can be used to characterize behavior change interventions.

Results: The findings of such reviews and meta-analyses demonstrate their potential to guide future intervention development but also highlight the complexity of required coding processes and the specificity and comprehensiveness of content categories required. A series of good practice guidelines are presented.

Conclusions: Careful category definition related to experimental evidence is prerequisite to ensuring that retrospective deconstruction of descriptions of behavior change interventions generates reliable and useful intervention design guidance.

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THEORIES AND EVIDENCE CONCERNING HEALTH BEHAVIOR CHANGE: AN EXPERIMENTAL MEDICINE PERSPECTIVE

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Introduction: Knowing what works when is critical to designing effective behavior change interventions.

Method: An experimental medicine (EM) approach is used to analyze research on health behavior change.

Results: Using this perspective, it is apparent that (1) multiple, overlapping theories and constructs are used to understand health actions, and (2) correlational data often are used to predict the likely impact of changing constructs on behavior change. To assess the nature and extent of conceptual overlap, a framework for categorizing the constructs specified in 18 health behavior theories is presented. This reveals both considerable agreement *and* considerable disagreement among theories regarding the key determinants of health behaviors. To test the accuracy of correlational data in assessing the impact of changing 7 constructs (i.e., risk perception, perceived severity, fear, attitudes, norms, self-efficacy, and intention), findings from meta-analyses of observational versus experimental studies were compared. Correlational data did not reliably indicate how big an impact manipulating respective constructs had on health behavior change.

Conclusion: The EM approach offers a useful lens through which to view progress in research on health behavior change, and also identifies research questions that need to be addressed in order to accelerate progress.

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FACTORS INFLUENCING ADOLESCENT DEPRESSION IN EASTERN TAIWAN

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Introduction: The state of adolescence is a time of both intensive and extensive transitions that affect individuals physically, psychologically and socially. During this period of transition, adolescents are more vulnerable to emotional difficulties. Adolescents seek for comfort and emotional support either from their family or peers. Thus, family and social relationships have important roles in explaining adolescent depression. This study is to explore the relationships among factors that affect the adolescent depression. Precisely, how do family hardness, life stress, deviant behavior and social support influence adolescent depression?

Methods: It was a cross sectional design. Convenient sampling was used to recruit from three senior high schools in eastern Taiwan. Deviant Behavior Scale (DBS), Family Hardness Index (FHI), Life Stress Scale (LSS), Social Support Rating Scale (SSRS) and Center for Epidemiologic Studies Depression Scale (C-CES-D) were administered. Three hundred students were approached and two hundred and sixty-five adolescents completed the questionnaires. The response rate was 88.3 %. General Linear Model and Structural Equation Modeling were used to analyze the data.

Results: Girls were more likely to suffer depression than boys ($B=1.842$, $p=0.036$). As SSRS ($B=-0.360$, $p<0.001$) increased, C-CES-D decreased. As LSS increased ($B=0.286$, $p<0.001$), C-CES-D increased. LSS was the major cause on C-CES-D (standardized total effect= 0.551 , $p<0.001$). DBS had not direct relationship with C-CES-D; however, it affected FHI (standardized total effect= -0.233 , $p<0.001$).

Conclusions: Social support improves adolescent depression and life stress is the major cause on depression among the factors. Deviant behavior does not cause depression but it relates to family hardness.

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FAMILY CARERS: A ROLE IN ADDRESSING CHRONIC DISEASE RISK BEHAVIORS FOR PEOPLE WITH A MENTAL ILLNESS?

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Introduction: People with a mental illness experience higher rates of chronic disease morbidity and mortality compared to those without such an illness. Family carers have the potential to influence the chronic disease risk behaviors of those they care for. The extent to which carers are currently attempting to positively influence such behaviors, or their perceptions of whether they could or should be doing so, has not been explored quantitatively. This study explored the extent to which the caring role involved promoting positive risk behaviors; perceptions of whether carers should or could positively influence behaviors; and whether such perceptions were associated with their current role.

Methods: A cross-sectional survey was conducted with carers of a person with a mental illness residing in New South Wales, Australia (N=144). Possible associations between the current carer role and carer perceptions of whether they should or could positively influence risk behaviors were explored through logistic regression.

Results: A majority of carers were currently trying to positively influence nutrition (63.8%), physical activity (60.3%), alcohol consumption (56.2%) and smoking (56.3%). Carers who thought it was very important to try and have a positive influence on health behaviors was the only factor related to all four behaviors, with those carers being significantly more likely to try to do so all or most of the time.

Conclusions: Findings suggest that participating carers are already actively trying to influence the risk behaviors of those they care for, but they may benefit from tailored support from mental or generalist health services.

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HEALTH RISK BEHAVIOR CLUSTERING AND MENTAL HEALTH STATUS IN U.S. COLLEGE STUDENTS

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Introduction: College is an important transition period. However, it is relatively common for students to demonstrate unhealthy lifestyle behaviors and poor mental health. Latent class analysis provides an opportunity to better understand the cumulative effects of the clustering of these

unhealthy behaviors (e.g. smoking, poor diet, low physical activity, binge drinking) and how they may relate to mental health.

Methods: In a cross-sectional design, 105,781 students from 129 institutions completed the American Health Association National College Health Assessment, which assesses various habits, behaviors, and perceptions related to college students.

Results: The latent class analysis model for the overall sample yielded three latent classes. Class 1 students presented with moderate rates of binge drinking, cigarette use, and marijuana use. Class 2 students presented with high rates of binge drinking, cigarette use and marijuana use. Class 3 students presented with low rates of binge drinking and minimal cigarette or marijuana use, but with higher rates of insufficient exercise. All classes presented with similarly high prevalence rates of insufficient fruit and vegetable intake. When examining prevalence of mental health status among each class, Class 2 had significantly higher rates of self-report mental health diagnoses and self-injurious or suicidal behaviors compared to Classes 1 and 3.

Conclusions: The tendency for unhealthy behaviors to cluster has important implications for guiding health promotion and education. Future research should consider how more targeted health promotion activities could help to address the poor health behaviors and higher rates of mental illness amongst students at higher risk.

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CHRONIC DISEASE RISK BEHAVIORS AMONG PEOPLE WITH A MENTAL ILLNESS: PREVALENCE, INTEREST IN CHANGE AND ACCEPTABILITY OF RISK REDUCTION CARE

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Background: People who have a mental illness experience a disproportionately high burden of chronic disease, contributed substantially to by an increased engagement in chronic disease health risk behaviors. Mental health clinicians report a perception of client disinterest in addressing their health behaviors as a barrier to providing risk reduction care. In relation to four such behaviors (tobacco smoking, hazardous alcohol consumption, inadequate nutrition and physical inactivity), this paper examines the health behavior characteristics of mental health consumers, and attitudes towards improving those behaviors and receiving care to do so. **Methods:** Two surveys were undertaken within one Australian local health district: one amongst 558 clients of community mental health services, and one amongst 2,075 inpatients from psychiatric units. Clients were asked to report their health risk behaviors, interest in improving behaviors for which they were at risk, and whether they thought it was acceptable to be provided care for such behaviors from their mental health service.

Results: Risk prevalence was high for all behaviors (35-95%). A substantial proportion (32-71%) were interested in improving their behaviors, and between 80% and 97% reported that it would be acceptable to receive risk reduction care during contact with their mental health service.

Discussion: Clients of community mental health and inpatient psychiatric services report a high level of interest in improving their health risk behaviors, and in receiving risk reduction care from their mental health service. These findings reinforce the need and the opportunity for mental health services to address health risk behaviors with their clients.

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A HEALTHY LIFESTYLES AND SMOKING INTERVENTION AMONG PEOPLE WITH A PSYCHOTIC DISORDER: OUTCOMES OF A RANDOMISED CONTROLLED TRIAL.

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The Healthy Lifestyles Project is the first randomized controlled trial to evaluate a cognitive-behavioral intervention addressing multiple health risk behaviors among people with severe mental illness. All participants received a single face-to-face session consisting of motivational interviewing, feedback and nicotine replacement therapy. Participants were randomly assigned to also receive either a face-to-face intervention or a telephone delivered intervention, both targeting multiple health risk behaviors. Follow-ups were conducted at 15 weeks (n=165, 70.2%), 1-year (n=139, 59%), 18 months (n=132, 56.2%), 2-years (n=133, 56.6%), 30 months (n=129, 54.9%) and 3-years (n=134, 57%). ITT analysis was used for primary outcomes and mixed models were used for both primary and secondary modelling, so all participants were included in analyses. At baseline, participants (N=235, Age M=41.6 years, 59% male) were smoking on average 28.6 (SD=15.3) cigarettes per day. At 3 years follow up, there were no significant differences between the telephone and face-to-face conditions in the primary smoking outcomes of biochemically verified abstinence rates (8% and 11%). There were also no significant differences between groups in most measures of diet, exercise and body measures. Therapeutic alliance did not predict retention or health behavior. However, participants assigned to the telephone condition preferentially benefitted from low perceived therapeutic confidence or openness at baseline. Face-to-face and telephone delivered interventions targeting multiple health behaviors are feasible among people with serious mental illness, and appear to be worthy of further investigation. Telephone delivered interventions appear to be just as effective as face-to-face and may provide a cost effective alternative.

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ADDRESSING SMOKING, DIET AND PHYSICAL ACTIVITY WITHIN RESIDENTIAL SUBSTANCE ABUSE TREATMENT: RESULTS FROM A STEPPED WEDGE RANDOMISED CONTROLLED TRIAL

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People attending substance abuse treatment demonstrate high rates of smoking. This contributes to the high rates of cardiovascular disease and cancer for this vulnerable population. In addition to addressing problematic alcohol or other substance use, there is the potential for substance abuse treatment services to also address smoking. Healthy Recovery is an 8-session group-based intervention that primarily targets smoking, but also focused on diet and physical inactivity. It was developed specifically for people attending substance abuse treatment, and primarily utilizes motivational interviewing, goal setting and CBT. The aim of the current study was to examine the effectiveness of delivering healthy recovery as part of routine substance abuse treatment in Australia. The project was conducted as part of a stepped wedge randomized controlled trial. People in the Control Condition completed treatment as usual (i.e. residential substance abuse treatment). In addition to treatment as usual, people in the Treatment Condition completed Healthy Recovery. 172 people were recruited to participate in the study from across 4-residential substance abuse treatment programs provided by The Australian Salvation Army. At baseline, on average participants smoked 17 cigarettes per day. When compared to the Control Condition, people completing Healthy Recovery demonstrated greater reductions in their smoking at 8-weeks (post-intervention) and 3-months (follow-up). People attending substance abuse treatment are willing and capable of engaging in healthy lifestyle themed interventions. Longer-term follow-up is required to examine if smoking reductions are maintained once people leave residential programs.

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A SELF-REGULATORY INTERVENTION FOR PATIENTS WITH HEAD AND NECK CANCER: PILOT RANDOMISED TRIAL

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Introduction: Research is yet to investigate whether psychological interventions delivered early after diagnosis can benefit patients with head and neck cancer (HNC) and their caregivers. The aim of this study was to investigate the effectiveness of a brief self-regulatory intervention (targeting illness perceptions and coping) at improving HNC patient and caregiver psychological outcomes.

Methods: A pilot randomized controlled trial was conducted, in which 64 patients and 17 caregivers were assigned to receive standard care plus three sessions with a health psychologist or to standard care alone (control). Participants completed questionnaires assessing quality of life, psychological distress, illness perceptions, and coping at baseline and again 3 and 6 months later.

Results: Compared to the control group, patients who received the intervention had increased treatment control perceptions at 3 months ($p = .005$), and increased social quality of life at 3 ($p = .08$) and 6 months ($p = .012$). Caregivers in the intervention group had increased perceptions of consequences at 3 ($p = .012$) and 6 months ($p = .026$), and decreased anxiety at 6 months ($p = .065$) compared to those in the control group. The intervention was especially helpful for patients who were more distressed at baseline, who showed further positive changes in illness perceptions and quality of life.

Conclusions: A brief psychological intervention following HNC diagnosis can improve patient perceptions of treatment and social quality of life over time. Such interventions could be targeted to patients who are distressed in order to confer the greatest benefit.

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A RANDOMISED CONTROLLED TRIAL (RCT) OF A PSYCHOLOGICAL INTERVENTION (CONQUER FEAR) TO REDUCE CLINICAL LEVELS OF FEAR OF CANCER RECURRENCE IN BREAST, COLORECTAL AND MELANOMA CANCER SURVIVORS

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Introduction: Up to 70% of cancer survivors report clinically significant fear of cancer recurrence (FCR), which is associated with psychological distress, impaired quality of life and increased healthcare usage. This parallel RCT evaluated the impact of a theoretically-based therapist-delivered psychological intervention (Conquer Fear), on FCR in cancer survivors with clinical FCR.

Methods: Eligible participants were disease-free early-stage breast, colorectal or melanoma cancer survivors, 2 months to 5 years' post-treatment, who scored above the clinical cut-off (≥ 13) on the FCR Inventory severity subscale. The intervention comprised 5 sessions incorporating attention training, detached mindfulness, metacognitive therapy, values clarification and psycho-education. Participants were randomized to the intervention ($n=121$) or a relaxation training control ($n=101$). Follow-up assessments occurred immediately, 3 and 6 months' post-treatment. Differences between intervention and control participants on self-reported outcomes including FCR (primary outcome) and cancer-specific distress were examined using linear mixed models. A hypothesized difference of 14.5 points in FCR was considered clinically significant.

Results: 222 participants were recruited, with baseline data available for 220. Complete immediate post-treatment data is expected in April 2016. Intervention and control participants did not differ on baseline FCR, demographic or disease characteristics. Immediate post-treatment FCR was lower for intervention participants ($M=64.8$, $SD=22.4$) compared to

controls ($M=80.1$, $SD=23.9$; range 0-176). Cancer-specific distress was also lower for intervention participants ($M=16.1$, $SD=13.7$) than controls ($M=23.0$, $SD=15.6$; range 0-88). Results of fully controlled analyses will be presented.

Conclusions: If effective, this intervention will provide a theoretically-grounded intervention to reduce FCR and its associated psychological morbidity and functional impairment.

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PSYCHOSOCIAL FACTORS ASSOCIATED WITH POSTTRAUMATIC STRESS AND GROWTH IN AUSTRALIAN WOMEN WITH OVARIAN CANCER

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Introduction: Psychological adjustment to cancer includes both negative and positive outcomes. This study examined how psychosocial factors related to symptoms of posttraumatic stress disorder (PTSD) and post-traumatic growth (PTG) in women with ovarian cancer.

Methods: PTSD, PTG, quality of life, depression, anxiety, optimism, coping and social support were assessed using survey methods in 108 women with ovarian cancer. The relationships were examined using canonical correlation.

Results: Four variates or dimensions summarized the relationship between the psychosocial factors and PTSD/PTG: (1) Higher PTSD symptoms and lower PTG scores were negatively associated with social support, meaning-centered coping, optimism and quality of life; (2) lower scores on the PTSD intrusion subscale and higher PTG scores were associated with higher anxiety, social support, and meaning-centered coping; (3) fewer PTSD intrusive symptoms and higher PTG spiritual growth were associated with higher depressive symptoms and lower social support; and (4) lower PTG in the domain of relating to others was associated with lower social support.

Conclusions: This study shows how psychological responses are multi-dimensional and are characterized by both negative and positive outcomes. Further studies are needed to more fully examine the development of PTSD and PTG among women and men living with cancer.

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O682

POST-TRAUMATIC STRESS DISORDER IN PATIENTS WITH CANCER: A 4 YEAR FOLLOW-UP STUDY

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Introduction: Cancer diagnosis and treatment is a unique and frequently long term traumatic stressor. Scant evidence exists on the long term

course of cancer-related post-traumatic stress disorder (PTSD). This is one of the few studies worldwide to prospectively evaluate PTSD in patients with cancer over time using gold standard clinical interviews.

Methods: A prospective longitudinal study was conducted on 219 patients with various cancer types ($n = 162$ female, mean age 58 years). Participants were consecutively recruited within a month post treatment at a single oncology referral center in Malaysia, with assessments using the Hospital Anxiety and Depression Scale (HADS; subscale cutoff ≥ 8) and the Structured Clinical Interview for DSM-IV-TR (SCID).

Results: At 6-month follow up, 27 (12.3%) patients met full criteria for PTSD and 16 (7.3%) had subsyndromal PTSD symptoms (did not meet full criteria for PTSD diagnosis). This gave a 19.6% PTSD incidence. At 4-year follow-up, all patients ($N = 190$) were re-interviewed, barring 29 who were deceased. Of these, 10 patients (5.3%) had full PTSD, while 7 patients (3.7%) had subsyndromal PTSD. This rate dropped to 8.9% at 4-year follow-up. PTSD was found to be associated with psychological distress. A high stable trajectory of psychological distress was found, which was distinct from PTSD.

Conclusions: The number of cancer patients with PTSD at initial diagnosis decreased with time post-treatment. There is a need to identify this subset of patients early on for risk-targeted interventions to be effective.

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FIRST RESULTS FROM THE SWORD-STUDY: BLENDED COGNITIVE BEHAVIOR THERAPY FOR FEAR OF CANCER RECURRENCE IN BREAST, PROSTATE AND COLORECTAL CANCER SURVIVORS – A RANDOMIZED CONTROLLED TRIAL. Marieke van de Wal¹, Belinda Thewes¹, Anne Speckens², Judith Prins¹

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Introduction: High levels of fear of cancer recurrence (FCR) are reported in up to 70% of all cancer survivors. This randomized controlled trial (RCT) aimed to evaluate whether blended therapy can reduce FCR severity in breast, prostate and colorectal cancer survivors with high FCR.

Methods: In this RCT eligible cancer survivors ($n=88$) with high FCR (Cancer Worry Scale (CWS) score ≥ 14) were randomly allocated to receive blended therapy (SWORD-intervention) or care as usual (CAU). Eight sessions of cognitive behavior therapy (CBT) were delivered as blended care, combining face-to-face contact with a website. Questionnaire assessment took place at baseline, 3 (post-treatment) 9 and at 15-month follow-up. Primary outcome was FCR severity (CWS), secondary outcomes were quality-of-life (EORTC-QLQ-C30) and life satisfaction (SWL-scale).

Results: Thirty-six breast (41%), 30 prostate (34%) and 22 colorectal (25%) cancer survivors were randomized to CAU ($n=43$) or the SWORD-intervention ($n=45$). No differences in demographic or clinical characteristics were found between the two conditions at baseline. Mean age of the sample was 58.9 years (SD 10.7), with a mean time since diagnosis of 2.6 years (SD 1.4). Mean FCR severity at baseline was 19.5 (SD 3.9). Results of treatment efficacy (baseline and post-treatment) will be presented at the conference.

Conclusions: Evidence-based strategies that target high, dysfunctional, FCR are needed to improve survivorship care. If the SWORD-intervention proves to be effective, it will be a first important step towards achieving this goal.

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PSYCHO-EDUCATIONAL INTERVENTION CAN REDUCE FEAR OF CANCER RECURRENCE IN PEOPLE AT HIGH-RISK OF DEVELOPING ANOTHER PRIMARY MELANOMA: RESULTS OF A RANDOMISED CONTROLLED TRIAL

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Introduction: People with a history of melanoma commonly report fears of cancer recurrence, yet psychological support is not routinely offered as part of ongoing melanoma care. The Melanoma Care Study examined the efficacy of a psycho-educational intervention to reduce fear of cancer recurrence (FCR) and improve psychological adjustment in this patient group, compared to usual care.

Methods: The intervention comprised a newly-developed psycho-educational resource and three telephone-based psychology sessions over a 1-month period, timed in relation to full dermatological appointments. Participants were randomly assigned to the intervention ($n=80$) or usual care ($n=84$). Assessments were completed at baseline, 1 and 6 months after dermatological appointments. Linear mixed models were used to examine differences between treatment and control groups for patient-reported outcomes, including FCR (assessed using the Fear of Cancer Recurrence Inventory), anxiety, stress, depression, melanoma-related knowledge, health behaviors, and satisfaction with clinical care, supportive care needs, and health-related quality of life.

Results: At 6 months, the intervention group reported lower FCR severity, trigger and distress scores. FCR severity decreased by 1.94-points in the intervention group, compared to 0.75-points in the control group (95% CI: -3.1, -0.7; $p=0.002$). This difference remained statistically significant after adjusting for baseline covariates ($p=0.04$). The intervention group also reported a 1.16-point decrease in stress compared to a 0.48-point increase in the control group ($p=0.03$), and demonstrated significantly improved melanoma-related knowledge compared to controls ($p=0.0004$).

Conclusions: This newly-developed, evidence-based, psycho-educational intervention was effective in reducing FCR and stress, and increasing melanoma-related knowledge in people at high risk of developing another melanoma.

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O685

MEDICALLY UNEXPLAINED SYMPTOMS IN THE INDIAN CONTEXT: AN OVERVIEW

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Introduction: Medically unexplained symptoms (MUS) lead to increased risks of disease burden, disability, higher medical costs, mental and physical comorbidities and a poor quality of life all over world including India. The research has established the clinical relevance of psychological consideration of MUS patients as it is often associated with better treatment outcome, quality of life, and adequate service utilization. Here it is aimed to review systematically the published Indian literature on medically unexplained symptoms.

Methods: Electronic database of PubMed and IndMed were searched for relevant publications. The search was carried out in Jan 2016 and included publications until (and including Jan 2016). For PubMed, Boolean search was carried out using a combination of “Medically Unexplained Symptoms” AND “India.” Electronic database of IndMed was searched using a simple search using keywords. English language peer-reviewed studies were included.

Results: Number of studies on MUS is sparse in Indian set up in terms of number of various psychological dimensions whereas few literatures are available regarding assessment but with its own limitations. Common psychiatric comorbidities identified were anxiety, depressive disorder and personality. MUS found to be common among females from rural background with prominent symptoms of fatigue and tiredness; aches and pains, notably headaches and generalized body pains; and abdominal discomfort.

Conclusion: Psychological assessment and interventions are an essential part of the treatment regimen and efforts should be made to expand evidence on work of psychologist with MUS population and to integrate evidence-based interventions in all medically unexplained symptoms management programs.

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LONG-TERM ECONOMIC EVALUATION OF COGNITIVE-BEHAVIORAL GROUP TREATMENT VERSUS ENHANCED USUAL CARE FOR FUNCTIONAL SOMATIC SYNDROMES

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Introduction: Patients with functional somatic syndromes (FSS) such as fibromyalgia and chronic fatigue syndrome have a poor outcome and incur high healthcare and societal costs. We aimed to compare the medium-term (16 months) cost-effectiveness and the long-term (40 months) economic outcomes of a bespoke cognitive-behavioral group treatment (STreSS) with that of enhanced usual care (EUC)

Methods: We obtained complete data on healthcare and indirect costs (i.e. labor-marked-related and health-related benefits) from public registries for 120 participants from a randomized controlled trial. Costs were calculated as per capita public expenses in 2010 €. QALYs gained were estimated from the SF-6D. We conducted a medium-term cost-effectiveness analysis and a long-term cost-minimization analysis. Moreover, we analyzed the development of indirect costs from 10 years before to 3 years after treatment.

Results: In the medium term, the probability that STreSS was cost-effective at thresholds of 25,000 to 35,000 € per QALY was 93 - 95 % from a healthcare but only 50 - 55 % from a societal perspective. In the long term, however, STreSS was associated with increasing savings in indirect costs, primarily due to higher rates of patients who were self-supporting. Together

with stable long-term reductions in healthcare expenditures, this led to total cost savings of 7,184 € (95 % CI 2,271 to 12,096, p=0.004) during the third year after treatment.

Conclusions: STreSS treatment costs of 1545 € were more than offset by subsequent savings in direct and indirect costs. Implementation could improve patient outcomes and reduce costs.

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O687

BODILY DISTRESS SYNDROME: A NEW DIAGNOSIS FOR FUNCTIONAL DISORDERS?

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Introduction: Conceptualization and classification of functional disorders appear highly inconsistent in the health-care system. Numerous terms and overlapping diagnostic criteria are prevalent; many are considered stigmatizing by health care professionals and patients. In this paper, we will discuss the conceptual underpinnings of the BDS concept.

Method: Narrative review of the literature.

Results: A growing body of evidence suggests that the numerous medical and psychiatric diagnoses for functional disorders listed in the current classifications belong to one family of closely related disorders. We name the underlying phenomenon ‘bodily distress’; it manifests as patterns of multiple and disturbing bodily sensations. Bodily distress may be initiated and maintained through a complex interplay of biomedical and psychological processes. Pathophysiological mechanisms such as altered autonomic balance, stress-axis dysfunction, altered sensory processing, and activated inflammatory response have been hypothesized to produce and maintain distressing physical symptoms, but evidence is still equivocal. Moreover, cognitive and behavioral factors such as illness worrying, symptom catastrophizing and pain avoidance behavior predict development and maintenance of distressing symptoms. Bodily distress syndrome (BDS) is a diagnostic category with specific criteria and various subtypes covering this illness phenomenon. The category has been explored through empirical studies, which in combination provide a first basis for determining a symptom profile, the diagnostic stability and the boundaries of the condition.

Conclusions: Bodily distress syndrome is a diagnostic category with notable validity according to empirical studies. Nevertheless, knowledge is scarce regarding its utility in clinical settings and its acceptability among health care professionals and patients.

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A COHORT PRESENTATION OF THE DANISH STUDY OF FUNCTIONAL DISORDERS (DANFUND)

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The DanFunD study (*Danish study on Functional Disorders*) is the first larger, coordinated epidemiological study program of functional somatic disorders (FSS) aiming to create the basis for a longitudinal population based study on FSS.

The study focus on five FSSs, i.e. fibromyalgia, irritable bowel syndrome, chronic fatigue syndrome, whiplash associated disorder and chemical intolerance as well as the unifying diagnosis bodily distress syndrome. Specific aims were to test delimitation of FSSs and assess whether FSS constitute one or several disorders. Additional aims were to estimate prevalence of FSS, identify risk factors, delimitate the pathogenic pathways and examine the consequences of FSS for individuals and society.

Data collection is now completed, including a representative sample of 9.801 adult Danish citizens. Data includes validated screening questionnaires of FSS, social factors, mental vulnerability, life style, general health, social network, chronic diseases, personality traits, coping resources, perceived stress, anxiety, depression, health anxiety and illness perception. This will be combined with central registry data on morbidity, mortality, reimbursement of medicine, healthcare use and social factors. Physical examination included measures of cardiopulmonary, morphological, muscle and metabolic fitness, neck mobility, heart rate variability and pain modulation test combined with diagnostic assessment for FSS and common mental disorders via a diagnostic interview. A biobank including serum, plasma, urine, DNA and microbiome has been established. The insight into FSS achieved by the DanFunD study is first of its kind and will form basis for implementation of more rational strategies for prevention and treatment. Preliminary data will be presented.

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EPIDEMIOLOGICAL INVESTIGATION OF FUNCTIONAL SOMATIC SYMPTOMS EARLY IN LIFE: A CHILD AND ADOLESCENT PERSPECTIVE

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Introduction: Longitudinal studies, exploring developmental phenotypes and trajectories of functional somatic symptoms (FSS), are needed to increase our understanding of the processes that underlie the development of functional somatic syndromes during lifespan.

Methods: The Copenhagen Child Cohort CCC2000, including 6090 children, constitutes one of the first larger systematic studies of FSS in childhood and preadolescence. Follow-up studies of the cohort at child age 5-7 years and 11-12 years, respectively, have included detailed assessments of FSS.

Results: At age 5-7 years FSS was found to be a significant health problem in about 4 % with associated impairment in daily life, more contacts to the health care system and increased use of painkillers and this subgroup of children continued to display increased health care use for the following 4.5 years. At child age 11-12 years, i.e. preadolescence, FSS were associated with self-reported health anxiety. The criteria for the newly proposed diagnostic construct ‘Bodily Distress Syndrome’ is now for the first time being empirically tested in a youth population as part of the ongoing 16-17 year-follow-up.

Conclusion: The novelty of these results is the indication of FSS as detectable clinical significant problems already in early childhood. Data from other sub-studies in CCC2000, e.g. on emotional disorders, social cognitive dysfunction, eating disorders (including body perception) and physical disorders provide a unique possibility for examining correlations between FSS and other health problems. The perspective of mapping modifiable early risk mechanisms could have important implications for the prevention of functional somatic syndromes later in life.

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O690

BODILY DISTRESS SYNDROME (BDS) OR FUNCTIONAL SOMATIC SYMPTOMS (FSS). A CONDITION WITH A POOR LONG-TERM OUTCOME

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Introduction: Little is known about the natural long-term outcome of FSS/BDS as most studies have been in highly selected cross-sectional patient populations. In this presentation, primary care patients are followed up for up to 10 years, and the stability of the diagnosis over time and outcome as to sick leave and work disability is studied and compared with patients with well-defined physical diseases.

Methods: Results for two studies are used. In one study, 1785 consecutive patients consulting their family physician were screened by questionnaires and diagnosed by use of a standardized diagnostic interview. Patients with BDS (n=159) were compared with patients with medical conditions (n=880). Patients completed questionnaires during the first 2 years of follow-up, and register data on health care costs and work were obtained during a 10-year follow-up period. In another study, a new questionnaire for BDS (the BDS checklist) was developed and tested among 1365 consecutive primary care patients, and the stability of the diagnosis over time was tested over a two-year follow-up period.

Results: The BDS diagnosis was stable over time, and the patients displayed poorer self-rated health, higher illness worry and higher annual health care costs throughout follow-up compared with the medical condition group. Furthermore, they had more sick leave and a substantially

higher 10-year risk of new disability pension awards compared with the reference group.

Conclusions: This long-term follow-up study of primary care patients with BDS showed that the disorder has severe long-term consequences and hence recognition, prevention and treatment are important.

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O691

MOOD DISORDERS IN PATIENTS WITH CONGENITAL HEART DISEASE: SCREENING AND PREVALENCE

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Introduction: Adult congenital heart disease (ACHD) patients encounter unique medical and social challenges that may contribute to psychological difficulties. A lot of studies recommend screening for emotional disorders in patients with heart problems. We examined the presence of mood disorders in adult ACHD patients.

Methods: 178 patients were enrolled from an outpatient ACHD department (mean age = 30 years; 45% female) and filled the Hospital Anxiety and Depression Scale (HADS).

Results: Of 178 patients, 68 (38.2%) persons had elevated anxiety and depression (HADS-Anxiety/Depression score ≥ 8). Patients with high anxiety were more likely to have undergone ≥ 2 surgical or interventional procedures and have a history of arrhythmia (50% vs. 25% $p=0.01$). Depending on the sex the signs of anxiety and/or depression were more characteristic of women (45% vs. 32%, $p=0.05$). Signs of anxiety manifested more often than those of depression (60.29% vs. 14.7%, $p=0.01$). Patients with elevated anxiety and depression reported lower ratings of quality of life.

Conclusions: The results demonstrated an increased risk of mood disorders in ACHD patients and lack of an appropriate psychiatric treatment. Elevated anxiety appears more common than depression in women and in men. The HADS method provides an opportunity to single out a patients' risk group characterized by a clinical and subclinical level of depression and anxiety. Further, it is important to explore optimal mechanisms to treat psychiatric disorders in ACHD patients.

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O692

SEDENTARY BEHAVIOR AND 13-YEAR MORTALITY IN ADULTS WITH CARDIOVASCULAR DISEASE

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Introduction: While excessive sedentary behavior is associated with increased mortality risk in the general population, relatively little is known about the impact of sedentary behavior in people with cardiovascular

disease (CVD). We examined this relationship in a sample of people with CVD from the Australian Diabetes, Obesity and Lifestyle (AusDiab) study. We aimed to investigate whether sedentary behavior predicted all-cause mortality independent of physical activity and other confounders.

Methods: In the original AusDiab study, television viewing time was used as a marker of sedentary behavior in 609 adults (≥ 45 years of age) with CVD. During 6,291 person-years of follow-up (median follow-up 13 years), there were 294 deaths (48% of sample). Using the time scale of attained age, the Cox proportional hazards model was used to predict all-cause mortality adjusting for sex, leisure-time physical activity, self-rated general health, smoking status, education, household income, body mass index, lipid levels, blood pressure, and diabetes mellitus.

Results: Compared with a TV viewing time of <2 hours per day, the fully adjusted hazard ratios for all-cause mortality were 1.18 (95% CI, 0.88 to 1.57) for ≥ 2 to <4 hours per day and 1.52 (95% CI, 1.09 to 2.13) for >4 hours per day.

Conclusions: Sedentary behavior was associated with an increased risk of all-cause mortality in people with CVD, independent of physical activity and other confounders. Future studies are needed to identify and evaluate approaches to reducing sedentary behavior in this population.

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O693

PSYCHOSOCIAL CHARACTERISTICS AND HEALTH BEHAVIORS AS PREDICTORS OF CLINICAL EVENTS IN THE WAITING FOR A NEW HEART STUDY

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Introduction: The purpose of this study was to examine the relationship of psychosocial risk (depression and social isolation) and health behaviors (heart-healthy diet; physical activity; moderate alcohol consumption; smoking status) on subsequent clinical events in patients with advanced heart failure awaiting heart transplantation (HTx).

Methods: Demographics, medical and psychosocial characteristics, and health behaviors were collected at time of listing in 318 patients (82% male, mean=53 years) enrolled in the Waiting for A New Heart Study. Competing risks methods were used to identify factors associated with time of first event [death, high-urgency transplantation (HU-HTx), or delisting due to clinical deterioration or improvement].

Results: After a median follow-up of 335 days (range 12 to 2914 days), 69 patients died, 121 received HU-HTx, and 39 were delisted due to improvement. In unadjusted competing risks analyses low psychosocial risk, good subjective health, frequent consumption of foods high in unsaturated fats, and moderate alcohol consumption increased the likelihood of delisting due to improvement; frequent intake of salty foods increased the risk of HU-HTx, whereas physical activity decreased this risk; non-smokers were less likely to die while awaiting HTx. In multivariate analyses controlling for covariates, physical activity (HR=0.88, 95% CI 0.78, 1.00, $p<.05$) remained independently associated with a decreased risk of receiving HU-HTx.

Conclusion: Physically active patients were more likely to avoid HU-HTx. Psychosocial characteristics and health behaviors are associated with clinical outcomes in this population. Interventions that target physical activity in particular may be beneficial for patients with advanced heart failure waiting for a cardiac transplant.

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O694

COMMUNICATION IN CARDIOVASCULAR DISEASE PREVENTION: HOW CAN WE MAKE THE CONCEPT OF RISK MORE MEANINGFUL?

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Introduction: Cardiovascular disease (CVD) prevention guidelines recommend medication for ‘high risk’ and not ‘low risk’ patients, based on their absolute risk of having a heart attack/stroke in the next 5–10 years. GPs report difficulties communicating absolute risk to lower risk patients when they want to: 1) motivate lifestyle change; or 2) consider ceasing medication they are unlikely to benefit from. This study investigated how patients understand absolute risk.

Methods: GPs recruited a purposive sample of 25 patients with at least one CVD/lifestyle risk factor and varying medication history. Participants were asked to ‘think aloud’ while using two calculators that display absolute risk in different but equivalent risk formats (e.g. CVD risk over 5 versus 10 years), supplemented with semi-structured interviews. Transcribed audio-recordings were coded using Framework Analysis.

Results: Participants understood absolute risk when explained verbally, but found risk category (low/moderate/high) more meaningful than percentage risk. Comparing current risk to future risk and the effect of diet/exercise increased interest in the assessment, particularly the 10-year format as both the risk and effect appeared larger. Those on medication thought the pre-medication risk assessment was too low to be credible, especially the 5-year format, and the quantified benefit of medication was not important to them.

Conclusions: GPs and patients may find absolute risk calculators more useful when shown over a longer timeframe with risk category, comparison to future risk, and lifestyle change effects. Low risk patients taking medication may view it as beneficial regardless of the small chance of preventing a CVD event.

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O695

EFFECTIVENESS OF SELF-MANAGEMENT INTERVENTIONS IN PEOPLE WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD): A META-ANALYSIS

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Introduction: Self-management interventions (SMIs) are recommended for individuals with COPD to help monitor symptoms and optimize health-related quality of life (HRQOL). SMIs have shown wide variability in effect, and it is unclear what accounts for this heterogeneity.

Methods: SMI content, behavior change techniques (BCTs), and trial data were extracted from twenty-two randomized controlled trials identified from five systematic reviews.

Results: SMIs improved HRQOL scores over usual care (SMD=0.26, 95% CI=0.14-0.38, k=24; p<0.001). SMIs also targeting mental health (Q=4.16, p=0.04) or physical activity (Q=4.73, p=0.03) alongside symptom management had a significantly greater effect on HRQOL than those that did not. Benefits remained at 12-month follow-up. SMIs were equally effective irrespective of patient symptom severity. The most commonly identified BCTs varied for the three target behaviors (Symptom management, physical activity, mental health management). BCTs identified for symptom management centered on information provision (e.g. ‘Instruction on how to perform the behavior’, ‘Information about health consequences’) whereas BCTs identified for mental health management encouraged more personal and reflective thought processes (e.g. ‘reduce negative emotions’, ‘monitoring of emotional consequences’). Patients receiving SMIs targeting mental health management or physical activity made significantly fewer emergency department visits compared to usual care (SMD=0.49, 95%CI=0.20-0.77, p=0.001; SMD=0.44, 95%CI=0.03-0.85, p=0.04, respectively). There was no difference in emergency visits in patients receiving symptom-only SMIs compared to usual care.

Conclusions: SMIs are particularly effective when focused on mental health management and physical activity behaviors alongside symptom management. This may be due to differences in BCTs utilized rather than the target behavior.

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O696

SMOKELESS TOBACCO CONSUMPTION AND RISK OF REHOSPITALIZATION AND MORTALITY AMONG ACUTE CORONARY SYNDROME PATIENTS

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Introduction: Three-quarters of global smokeless tobacco (SLT) consumption is among the South Asian population. Evidence suggests SLT use increases the risk of CVDs and mortality. However, there is no evidence whether SLT use leads to poor prognosis among CVD patients. This study aimed to examine the association of SLT use with risk of rehospitalization and mortality among patients after first episode of Acute Coronary Syndrome (ACS).

Methods: This was a hospital-based prospective cohort study of patients who presented to two tertiary care hospitals of Karachi i.e. National Institute of Cardiovascular Diseases and Civil Hospital Karachi. Baseline assessment included the information of: SLT sociodemographic characteristics, diabetes mellitus (DM), hypertension (HTN), obesity and physical activity. All patients were followed till 30 days after the first event for the assessment of outcome i.e. Rehospitalization due to a second event of ACS or death within 30 days. Cox proportional hazards models were used to assess the association between SLT use and risk of rehospitalization and mortality after adjustments for potential confounders.

Results: SLT users had significantly increased risk of rehospitalization (aHR 2.08, 95 CI 1.30-3.32, p value <0.001) and a non-significant increased risk of mortality (aHR 1.51, 95 CI 0.90-2.86, p value 0.11) within 30-days compared with non-users after adjusting for age, gender, socioeconomic status, employment status, physical activity, smoking status, DM and HTN.

Conclusion: SLT use among adults may have an association with poor prognosis of ACS patients; however, further large size studies are warranted to validate the findings of this study.

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O697

VIEWS OF POLICY MAKERS AND INTERVENTION IMPLEMENTES ON FACTORS FACILITATING THE IMPLEMENTATION AND TRANSFERABILITY OF INTERVENTIONS AND POLICIES FOR THE PROMOTION OF PHYSICAL ACTIVITY AND A HEALTHY DIET IN EUROPE

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Introduction: The transfer of effective interventions promoting physical activity (PA) and a healthy diet and the implementation of policies targeting these behaviors are processes not well understood. The aim of the project was to gain a better understanding of what health promotion professionals and policy makers think are important factors facilitating implementation and transfer of both multi-component/multi-level interventions and policies targeting diet and PA in Belgium, Germany, Ireland, Norway, and Poland.

Methods: Six intervention and six policy cases were identified based on predefined criteria. Forty interviews were conducted with stakeholders from various groups to elicit information on factors impacting implementation, transferability, and sustainability of both interventions and policies.

Results: The active involvement of relevant stakeholders from politics, health and education sectors, as well as of intervention/policy implementers and good communication between coordinating organizations and the government, private organizations, and settings were described as important factors contributing to a successful implementation of both interventions and policies. Additional facilitating factors included sufficient training of staff to ensure implementation according to existing intervention/policy protocols and tailoring of materials to match needs and (language) skills and socio-cultural context of various target groups. Sustainability of implemented interventions/policies depended on whether they were embedded in existing or newly created organizational structures of different settings and whether continued funding was secured (often depending on political support).

Conclusions: Despite considerable heterogeneity in interventions and health policies between European countries, factors facilitating implementation, transferability, and sustainability appear to be similar for interventions and policies and across Europe.

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O698

PHYSICAL ACTIVITY 4 EVERYONE' CLUSTER RCT: 24-MONTH PHYSICAL ACTIVITY OUTCOMES OF A SCHOOL-BASED PHYSICAL ACTIVITY INTERVENTION TARGETING ADOLESCENTS

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Introduction: Few interventions have been successful in reducing the physical activity decline typically observed among adolescents. The aim of *Physical Activity 4 Everyone* (PA4E1) was to reduce the decline in moderate-to-vigorous physical activity (MVPA) among secondary school students in disadvantaged areas of NSW, Australia.

Methods: A cluster randomized controlled trial was conducted in five intervention and five control schools within secondary schools located in disadvantaged communities, with follow-up measures taken at 24-months post randomization. A multi-component school-based intervention based on the Health Promoting Schools Framework was implemented consisting of seven physical activity promotion strategies and six additional strategies which supported school implementation of the physical activity intervention strategies. The primary outcome, minutes per day spent in moderate to vigorous physical activity (MVPA), was objectively measured by accelerometer, at baseline, mid-intervention (12-month) and 24-months

Results: Participants (n = 1150, 49% male) were a cohort of students in Grade 7 at baseline and Grade 9 at follow-up. At 24-month follow-up there were significant effects in favor of the intervention group for daily minutes of MVPA. The adjusted mean difference in change in daily MVPA between groups was 7.0 minutes (95% confidence interval [CI]: 2.7, 11.4, p < 0.01).

Conclusions: The PA4E1 intervention was effective in increasing adolescents' minutes of MVPA, suggesting that implementation of the intervention by disadvantaged schools has the potential to slow the decline in physical activity.

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O699

CARDIAC REHABILITATION TO INCREASE PHYSICAL ACTIVITY AMONG CANCER PATIENTS: IS IT FEASIBLE AND ACCEPTABLE?

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Introduction: There is strong evidence of exercise to aid recovery from cancer and secondary prevention. Yet, colorectal cancer survivors are currently not meeting the recommended physical activity levels associated with improving the chances of survival and quality of life. We evaluated whether referral of colorectal cancer patients to cardiac rehabilitation is a feasible and acceptable exercise intervention.

Methods: We conducted a pilot randomized controlled trial with embedded qualitative study supplemented with an economic evaluation. At baseline 41 post-surgical colorectal cancer patients, recruited from 3 hospital wards, were randomly assigned into two groups: an intervention group which received cardiac rehabilitation alongside cardiac patients and a no rehabilitation control group. Descriptive statistics were used to summarize trial parameters indicative of intervention feasibility and acceptability. 38 patients (colorectal cancer and cardiac) and 8 clinicians (colorectal cancer and cardiac) participated in interviews/focus groups and data were analyzed thematically.

Results: Barriers to exercise for post-surgical colorectal cancer patients were protracted recoveries from surgery, on-going treatments and poor mobility. No adverse events were reported, suggesting that cardiac rehabilitation provides a safe exercise environment for cancer patients. Out of pocket expenses were small (£50). Cardiac rehabilitation increased cancer patients' confidence and motivation to exercise and offered peer support. Cardiac and cancer patients found exercising together acceptable.

Conclusions: Cardiac rehabilitation for colorectal cancer patients is feasible and acceptable, thereby challenging disease-specific rehabilitation models. We need a better understanding of the effectiveness of cardiac rehabilitation for increasing physical activity to improve survival and quality of life of cancer patients.

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O700

EFFECTIVENESS OF INCENTIVIZING PHYSICAL ACTIVITY AND REDUCED SEDENTARY BEHAVIORS: OUTCOMES OF THE ACTIVE CHOICES INCENTIVE (ACHIEVE) TRIAL

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Introduction: Incentivizing healthy behaviors is a promising strategy for promoting behavior change. However, evidence on the effectiveness of incentives for promoting physical activity (PA) is limited, and there appears to be no evidence on the effectiveness of incentives for reducing sedentary behaviors. The Active Choices Incentive Study (ACHIEVE) aimed to test the feasibility and effects of providing non-financial incentives on PA and sedentary time, adiposity and blood pressure in middle-aged adults.

Methods: 83 sedentary adults (43% men, 40-65y) were provided with a FitBit and enrolled in the four-month intervention. Participants received daily points, capped at 60/day, based on FitBit data, with one point/minute allocated for engaging in at least moderate-intensity PA, and one point/minute reduction in sedentary behavior. Those who met prescribed points goals and maintained these over 2, then 4 weeks, received incentives, including Heart Foundation merchandise and supermarket gift vouchers, after 2 weeks, then monthly. This was a pre-post design study, and PA, sedentary behaviors, adiposity and blood pressure were assessed and compared pre and post-intervention.

Results: From pre to post-intervention, participants significantly increased PA (e.g. 36 mins/day leisure-time PA, SD=59.3), reduced sedentary time (mean 3.1 hours/day, SD=2.3), reduced BMI (by 1.3kg/m², SD=1.1) and improved blood pressure (systolic by 5.2, SD=10.8; diastolic by 2.3, SD=7.7; all changes p<0.01).

Conclusions: This project provides the first Australian evidence on the feasibility and effectiveness of easily implemented incentives for promoting PA, reducing sedentariness, and improving adiposity and blood pressure.

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O701

IMPACT OF THE VICHEALTH WALK TO SCHOOL CAMPAIGN ON SCHOOL ACTIVE TRAVEL

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Introduction: The promotion of walking and cycling to/from school (school active travel) is associated with health and environmental benefits. We evaluated the impact of VicHealth's 2015 Walk to School campaign, a social marketing intervention that has evolved over 10 years. It includes a month-long campaign engaging local councils, schools, parents and their children to encourage primary school students across Victoria (Australia) to engage in school active travel.

Methods: Using online surveys, carers (n=726) of Victorian primary school children reported their sociodemographic characteristics and their child's usual and past five school day travel behavior at the beginning (Sept, T1), middle (mid Oct, T2) and end of the campaign (Nov, T3). Separate generalized linear models predicted T2 and T3 school active travel (adjusting for T1 values) among participating and non-participating children.

Results: 720 (of 1786) schools provided participation data from 108,997 students. By the end of the campaign, children who participated were significantly more likely to have increased the frequency of school active travel, both in a usual week and in the past five school days. For example, by T3, there was a 0.8 trip/week increase in school active travel in participating children relative to a 0.3 trip/week increase in non-participating children (IRR=1.45, 95% CI=1.16-1.80, p=.001).

Conclusions: The Walk to School campaign appeared to positively impact school active travel, at least in the short term. When considered in the context of a large state-wide campaign, the increases in school active travel are likely to have considerable public health impact.

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O702

A SYSTEMATIC REVIEW OF THE PREVALENCE OF SEDENTARY BEHAVIOR DURING THE AFTER-SCHOOL PERIOD AMONG CHILDREN AGED 5-18 YEARS.

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Introduction: Estimates of sedentary behavior (SB) prevalence during specific discretionary periods of the day (e.g. after school) inform the need for targeted

period-specific interventions. This systematic review aimed to determine the prevalence of children's and adolescent's SB during the after-school period. Methods: A computerized search was conducted in October 2015. Inclusion criteria were: published in a peer-reviewed English journal; participants aged 5-18 years; measured total after-school sedentary time (ST) objectively and/or specific after-school SBs (e.g. TV viewing) objectively or subjectively; and provided the percentage of the after-school period spent in ST/SB or data to calculate this. Where possible, findings were analyzed by location (i.e. after-school care/'other' locations).

Results: Twenty-nine studies were included: 24 assessed children (≤ 12 years), four assessed adolescents (> 12 years) and one included both. Twenty assessed ST and nine assessed SB using a variety of measures. On average, children spent 41% and 51% of the after-school period in ST at after-school care and other locations respectively. Adolescents spent 57% of the after-school period in ST. SBs performed include: TV viewing (20% of the period), non-screen based SB (measures included homework; 20%), screen-based SB (measures included TV viewing; 18%), homework/academics (13%), motorized transport (12%), social SB (9%), screen-based SB (measures excluded TV viewing; 6%) and non-screen based SB (measures excluded homework; 4%).

Conclusion: Children spend up to half of the after-school period in ST and this is higher among adolescents. Different measures resulted in different estimates; however non-homework related screen- and non-screen based SBs are identified as key targets for interventions.

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O703

TYPE 1 DIABETES IN WORK LIFE: A MATTER OF CONTAINMENT?

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Introduction: Balancing the demands of routinized diabetes management with the demands of work life can be challenging. In this study illness behavior in work life is articulated using the theoretical concept of containment.

Methods: Data consisted of 40 in-depth interviews with people with type 1 diabetes from Denmark (17 men), mean age 49 years (23-69), mean diabetes duration 32 years (9-60). Participants represented a broad range of educational and occupational levels. An abductive analysis across and within cases was carried out to allow both cross-sectional and contextual inference.

Results: Containment denotes the strategies and practices applied to maintain appropriate involvement in work life while keeping diabetes management at the level of a side-involvement. Containment is not equivalent to the concept of disclosure since it is practiced irrespective of whether disclosure has occurred. The study shows that daily containment processes involve selective, interpretative and evaluative processes in relation to insulin dose adjustment, measuring blood glucose, minimizing strain, planning ahead, presenteeism etc. The interviews indicate that containment of type 1 diabetes calls for continuous day-to-day negotiations in the context of work life in order for people with type 1 diabetes to stretch available resources to appear as 'good workers' while sustaining themselves as 'good patients'.

Conclusions: Articulating the psychosocial and behavioral challenges specific to diabetes management in work life as a matter of containment evokes a hidden burden of disease in work life. Further research is needed to map the size and character of the burden and develop adequate supportive measures.

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O704

RISK FACTORS FOR, AND COURSE OF, GENERALIZED ANXIETY SYMPTOMS IN TYPE 2 DIABETES ASSESSED FROM 6-YEAR ANXIETY TRAJECTORIES USING LATENT CURVE GROWTH ANALYSIS

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Introduction: Generalized anxiety disorder may be an important but poorly understood disorder in type 2 diabetes. There is a paucity of research investigating the pattern and course of anxiety symptoms in this population. This study aimed to describe trajectories of anxiety symptoms across 3 time-points, over 6 years, and identify predictors of these trajectories.

Methods: A community-dwelling cohort of 1,091 individuals with type 2 diabetes was recruited to the Fremantle Diabetes Study-Phase II (FDS2) from 2008-2011, and completed a questionnaire assessing anxiety symptoms (the Generalized Anxiety Disorder Scale; GADS) every two years. Body mass index (BMI), self-management behavior, neuroticism and health-related quality of life (HRQoL) were measured at baseline. Latent curve growth analysis was used to model anxiety symptom trajectories, and logistic regression models determined predictors of trajectory-group membership.

Results: Four distinct trajectories of anxiety symptoms were identified: persistently low anxiety symptoms (No Anxiety Problem, 81.7%), gradual worsening in symptoms (Increasing Anxiety Problem, 5.2%), gradual improvement in symptoms (Improving Anxiety Problem, 8.0%), and a pattern of persistently elevated anxiety symptoms (Persistent Anxiety Problem, 5.1%). Longer disease duration, higher BMI, worse mental and physical HRQoL, and neuroticism at baseline significantly predicted persistently high or worsening anxiety symptoms.

Conclusions: Although the majority of patients remained free of anxiety, a sub-set exhibited anxiety symptoms which worsened or remained high over time. Individuals with longer diabetes duration, who are more overweight or who have low HRQoL may benefit from early and intensive anxiety management and ongoing follow-up as part of type 2 diabetes management.

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O705

LIFETIME MAJOR DEPRESSION AFFECTS SELF-EFFICACY AND ILLNESS PERCEPTIONS IN DIABETES BY INCREASING DEPRESSION AND DISTRESS

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Introduction: Depression and distress in type 2 diabetes influence patients' perceptions of illness and belief in their capacity to self-manage. However, the potentially exacerbating impact of lifetime major depressive disorder (L-MDD) on illness perceptions in this population, and mechanisms underlying this relationship, remain unclear. This study investigated the impact of L-MDD, in addition to current depression and diabetes distress, on individuals' self-efficacy and health beliefs.

Methods: Participants (N = 55; mean age = 57.59, median diabetes duration = 5.21 years; 45.9% male) were recruited from the community-dwelling Fremantle Diabetes Study-Phase II (FDS2). They completed the PHQ-9 and Brief Lifetime Depression Scale (BLDS) to assess current and past depression, and BLDS diagnosis was validated against the Structured Clinical Interview for DSM-IV-Research Version (SCID-IV-RV). Validated scales of illness perceptions, diabetes distress, and self-efficacy were administered. We employed indirect mediation models, controlling for age, to examine the direct and indirect effect of L-MDD. **Results:** LMDD was indirectly associated with a less coherent understanding of diabetes ($\beta_{ab} = -1.22$, $p < 0.001$) and poorer self-efficacy relating to diabetes management ($\beta_{ab} = -7.73$, $p < 0.001$), by increasing the severity of current depressive symptoms. Further, LMDD was associated with greater perceived emotional impact of diabetes, by increasing the severity of current diabetes distress ($\beta_{ab} = 2.18$, $p < 0.001$).

Conclusions: L-MDD adversely influences illness perceptions and self-efficacy in type 2 diabetes by elevating depression symptoms and diabetes distress. Early screening and intervention for those with L-MDD may buffer the effect of lifetime mood on later psychological wellbeing and diabetes management.

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O706

SPOUSES' INVOLVEMENT IN THEIR PARTNERS' DIABETES MANAGEMENT: THE ROLE OF ILLNESS COHERENCE AND SUPPORT.

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Introduction: Management of Type 2 diabetes depends almost entirely on behavioral self-regulation and patients must perform daily self-management tasks to control their illness. Spouses often seek to change or influence their diabetic partners' adherence behaviors, especially when they feel the patient is not adhering well. This is referred to as partner regulation. The current study examines whether and under which conditions (high vs low illness coherence, high vs low support) partner regulation has adaptive or maladaptive effects on patient well-being.

Methods: 70 patients and their partners participated in the study. Patients completed measures on illness coherence (baseline), supportive interactions with their partner (baseline) and diabetes related emotional distress (baseline, and 6 months follow-up). Partners completed a measure on partner regulation (i.e., their desire and attempts to change the patient's adherence behaviors) at baseline.

Results: Hierarchical multiple regression analyses showed that illness coherence and perceived supportive interactions significantly ($p < .05$) moderated the relationship between partner regulation and changes in diabetes related distress.

Conclusions: No adaptive effects of partner regulation were found. Patients with low illness coherence showed elevated levels of diabetes related emotional distress when their partners attempted or desired to change their adherence behaviors. Patients with high levels of support were protected from the negative effects of partner regulation (i.e., they did not show elevated levels of diabetes related emotional distress).

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O707

THE IMPACT OF DIABETES EDUCATION MODULE AND SELF-MONITORING BLOOD GLUCOSE ON PATIENTS' GLYCEMIC CONTROL AND SELF-CARE BEHAVIOR

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Introduction: Diabetes is an epidemic with a global prevalence of 8.6%. The chronicity and asymptomatic nature of diabetes poses a challenge in management. Consequently, it is crucial to embed education and behavioral strategies to achieve optimal glycemic control and minimize diabetes complications. This study attempts to explore the multipronged delivery of a diabetes module based on the Health Belief Model (HBM) and its impact on patients' glycemic control, compliance in blood sugar monitoring and self-efficacy.

Methods: A cohort of poorly controlled diabetes patients attended a diabetes module intervention and watched a 9.5 minute video on self-monitoring blood glucose (SMBG). A baseline questionnaire on a set of behavioral measurement namely self-efficacy was completed. Patients were called back at 6 months after SMBG completion to measure SMBG compliance, final HbA1C and behavioral measurements on self-efficacy.

Results: Firstly, SMBG in combination with diabetes education and behavioral strategies improved HbA1C control in patients by a reduction of HbA1C by greater than 1%. With regards to SMBG compliance approximately 60% of patients had greater than 80% compliance index and a fifth of patients had a compliance index of < 30%. Finally, the total self-efficacy scores did not show any change pre- and post-intervention.

Conclusions: A multipronged approach using HBM based diabetes education module and identifying patients' perception about their condition improved patients' glycaemic control and achieved up to 80% SMBG compliance index in more than half the patients. In addition, patients' self-perception of their self-efficacy skills were stable throughout the entire period.

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O708

SELECTION OF TREATMENT STRATEGIES AMONG PATIENTS WITH TYPE 2 DIABETES MELLITUS IN MALAYSIA

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Background: Diabetes Mellitus is a multifaceted chronic illness and its life-long treatment process requires patients to continuously engage with the healthcare system. The understanding of how patients manoeuvre through the healthcare system for treatment is crucial in assisting them to optimise their disease management. This study aims to explore the process of patients with Type 2 Diabetes Mellitus engage with the primary healthcare settings for diabetes management.

Methods: A qualitative study included in-depth interviews among twelve patients with Type 2 Diabetes Mellitus, nine family members and five healthcare providers from the primary care clinics. Three focus group discussions were conducted among thirteen healthcare providers. Both purposive and theoretical samplings were used for data collection. The interviews were audio-taped and transcribed verbatim. Constant comparison was used to identify the categories and core category.

Results: The concept of “experimentation” was observed in patient’s treatment strategies. The “experimentation” process was experiential required triggers, information seeking related to treatment characteristics from entrusted family members, friends and healthcare providers to enable decisions be made on the choice of treatment modalities. The whole process was dynamic and iterative through interaction with the healthcare system. The decision-making process in choosing the types of treatment was complex with element of trial-and-error. The anchor of this process was to fulfil patients’ expected outcome or personal goal.

Conclusions: Diabetic patients continuously used “experimentation” in their selection treatment strategies. The findings from this grounded theory approach also give insight into understanding patients’ help-seeking behavior in their diabetes management.

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O709

MY CHANGED BODY: THE EFFECTS OF A BRIEF ONLINE SELF-COMPASSION WRITING ACTIVITY FOR BREAST CANCER SURVIVORS ON NEGATIVE AFFECT AND SELF-COMPASSION

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Introduction: Body image-related concerns of breast cancer survivors following treatment are not always adequately addressed. Self-compassion has been linked to decreased psychological distress. This randomized controlled trial evaluated the impact of a brief online self-compassionate writing activity regarding adverse bodily changes upon negative affect, and self-compassion. The potential moderating effect of age was also investigated.

Methods: Female breast cancer survivors (N=206) completed baseline measures (including PANAS, Self-Compassion Scale). Participants were then randomly allocated to either writing with self-compassionate prompts (Intervention) or unstructured writing (Control) regarding their experiences of body image difficulties after cancer. Affect and self-compassion were reassessed 1-week, 1-month and 3-months later.

Results: Linear mixed model analyses indicated significant effects for negative affect and self-compassion. A significant timeXconditionXage interaction indicated that negative affect decreased from baseline over time for Intervention, but not Control, participants. Younger women demonstrated this effect from 1-week onwards, whereas for older women this was evident from 1-month. For self-compassion levels, older Intervention participants experienced a significant increase, whereas younger women experienced no change.

Conclusions: These findings demonstrate that an online structured writing intervention entailing self-compassion based prompts can provide benefit to breast cancer survivors who have experienced body image-related difficulties. The single administration of this intervention resulted in decreased negative affect, with this being sustained at 3-months. These findings support the use of this brief, inexpensive writing intervention to address negative affect related to body image in breast cancer survivors, and may be a useful adjunct in the provision of survivorship care.

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O710

PROLIFERATION OF MINDFULNESS INTERVENTIONS IN CANCER – WHAT IS THE LEVEL OF EVIDENCE FOR MBSR AND ITS VARIANTS

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Introduction: Mindfulness-based interventions such as mindfulness-based stress reduction (MBSR) demonstrate improved patient outcomes in clinical settings. There has been a proliferation of cancer-specific interventions and considerable variation in outcomes assessed. The aims of our scoping and systematic reviews were to (1) provide a comprehensive overview of interventions and (2) an examination of the quality and level of evidence for efficacy of mindfulness interventions in cancer.

Methods: Relevant studies published after 1999 were identified via Pubmed, Medline, PsycINFO, CINAHL and Embase databases. Inclusion criteria were: studies published in English with adult cancer patients, describing an intervention with a mindfulness component. Quality assessment followed PRISMA guidelines and Cochrane Risk of Bias Tools.

Results: After duplicate extraction, 272 studies were retrieved and screened for eligibility. Of the 85 studies that met our criteria, 7 studies were MBSR, 45 modified versions of MBSR, and 33 studies incorporated more than one theoretically-based therapeutic approach. Interventions differed with respect to dose, facilitator experience and essential components of mindfulness practice. Quality of evidence was relatively poor, with no MBSR RCTs. Modified MBSR studies were generally small single site studies with a range of primary outcomes. No comparator studies confirmed modifications to MBSR were theoretically sound and there have been no dose-finding studies.

Conclusions: Despite the proliferation of mindfulness interventions in cancer the validity of modifications to the original MBSR protocol have not been empirically tested. Given the sizeable variation in such interventions, the therapeutic value of mindfulness interventions for cancer patients must be examined more rigorously.

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O711

EXPRESSIVE WRITING AMONG CHINESE AMERICAN BREAST CANCER SURVIVORS: A RANDOMIZED CONTROLLED TRIAL

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Introduction: Despite the significant size of the Asian American population, few studies have been conducted to improve cancer survivorship in this underserved group. Research has demonstrated that expressive writing interventions confer physical and psychological benefits for a variety of populations, including Caucasian cancer survivors. The study aims to evaluate the health benefits of an expressive writing intervention among Chinese-speaking breast cancer survivors in the U.S. It was hypothesized that expressive writing would increase health-related quality of life (HRQOL). Methods: Ninety-six Chinese breast cancer survivors were randomly assigned to one of three writing conditions: a self-regulation group, an emotional disclosure group, or a cancer-fact group. The self-regulation group wrote about one’s deepest feelings and coping efforts in addition to finding benefits from their cancer experience. The emotional disclosure

group wrote about one's deepest thoughts and feelings. The cancer-fact group wrote about facts relevant to their cancer experience. HRQOL was assessed by FACT-B at baseline, 1, 3, and 6-month follow-ups. Effect sizes and residualized change models were used to compare group differences in HRQOL.

Results: Contrary to expectations, the cancer-fact group reported the highest level of overall quality of life at the 6-month follow-up. The self-regulation group had higher emotional well-being compared to the emotional disclosure group.

Conclusions: The study challenges the implicit assumption that psychosocial interventions validated among Caucasians could be directly generalized to other populations. It suggests that Asians may benefit more from writing instructions facilitating cognitive than emotional processes.

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O712

MINDFULNESS-BASED STRESS REDUCTION IN ADDITION TO TREATMENT AS USUAL FOR PATIENTS WITH LUNG CANCER AND THEIR PARTNERS: RESULTS OF A MULTI-CENTRE RANDOMIZED CONTROLLED TRIAL.

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Introduction: Although lung cancer patients and their partners report among the highest distress rates of all cancer patients, limited research has been conducted on how this distress can be alleviated. Present study examined the effectiveness of additional Mindfulness-Based Stress Reduction (MBSR) versus treatment as usual (TAU) on psychological distress in lung cancer patients and partners.

Methods: A multi-center, parallel group, randomized controlled trial was conducted in 63 patients and 44 partners. Outcomes were assessed before random assignment to MBSR or TAU (ratio 1:1), post-intervention and at 3-month follow-up (T2). Primary outcome was psychological distress. Secondary outcomes included quality of life, caregiver appraisal, and relationship quality. Process measures were mindfulness skills, self-compassion, rumination and post-traumatic stress symptoms. A linear mixed effects model was tested on the intention-to-treat sample. Post hoc moderation and mediation analyses were performed

Results: MBSR patients reported significantly less distress ($d = .69$) and higher quality of life ($d = .62$) than TAU-alone patients. Treatment outcome was predicted by baseline levels of psychological distress: those with more distress benefitted most from MBSR. Although MBSR patients showed more improvements in mindfulness skills, self-compassion and rumination ($d = .70 - .76$) than TAU-alone patients, these did not mediate intervention outcome. In partners, no effect of MBSR versus TAU alone was found on psychological distress or other outcomes.

Conclusions: This study demonstrated that MBSR for lung cancer patients resulted in improvements of psychological distress and quality of life. Those with higher levels of distress appeared to benefit most from MBSR.

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O713

MINDFULNESS-BASED COGNITIVE THERAPY FOR MEN WITH ADVANCED PROSTATE CANCER: A RANDOMISED CONTROLLED TRIAL

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Introduction: Advanced prostate cancer may be associated with substantial psychological distress but there is little data about effective interventions. A multi-state two-armed randomized controlled trial was conducted to determine the effectiveness of a tele-based mindfulness-based cognitive therapy (MBCT) intervention for men with advanced prostate cancer.

Methods: Participants were recruited through clinicians in the Australian and New Zealand Urogenital and Prostate Cancer Trials Group and from major treatment centers located in Queensland, New South Wales, Western Australia, Victoria, South Australia, and Tasmania. A total of 190 eligible men consented to participate in the trial and were randomly assigned to the tele-based MBCT intervention ($n=94$) or a patient education group ($n=95$). Self-administered questionnaires were sent to participants at four time points: baseline and at three, six, and nine months after recruitment and intervention commencement. Primary trial outcomes are psychological distress and cancer-specific distress. Secondary trial outcomes are health-related quality of life and benefit finding. Potential mediators of successful intervention outcomes include engagement with mindfulness and adherence to practice.

Results: At baseline, 39% of participants reported high psychological distress although only 10% were under current psychological care. Preliminary analyses of baseline data indicate that adjustment outcomes were associated with the following facets of mindfulness: non-judging of inner experience, acting with awareness, and non-reactivity to inner experience. Trial outcome data are currently being analyzed and results will be presented.

Conclusions: Trial outcomes will be discussed with regard to models of psychological care and the feasibility of MBCT interventions for men with prostate cancer.

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O714

GROUP-BASED VERSUS INTERNET-BASED MBCT VERSUS TREATMENT AS USUAL FOR DISTRESSED CANCER PATIENTS: THE BEMIND STUDY

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Introduction: Mindfulness-based interventions have shown to reduce psychological distress in cancer patients. The accessibility of mindfulness-based interventions for cancer patients could be further improved by providing mindfulness using an individual internet-based format. The aim of this study is to test the effectiveness of a Mindfulness-Based Cognitive Therapy (MBCT) group intervention for cancer patients in comparison with individual internet-based MBCT and treatment as usual (TAU).

Methods: A three-armed multicenter randomized controlled trial was designed to compare group-based MBCT to individual internet-based MBCT and TAU in cancer patients who suffer from at least mild psychological distress (Hospital Anxiety and Depression Scale (HADS) ≥ 11). Participants initially allocated to TAU were subsequently randomized to either group- or individual internet-based MBCT received a second baseline measurement after 3 months. Secondary outcomes were fear of cancer recurrence, rumination, positive mental health and cost-effectiveness.

Results: 245 patients were randomized (77 group-based, 90 internet-based, 76 TAU). Mean age was 51,67 (SD = 10,66), 14,3% was male, 15,9% was treated with palliative intent (no differences between conditions). Intervention effects (linear mixed effects model) will be calculated for the intention-to-treat and per protocol samples. Preliminary results will be presented at the ICBM.

Conclusions: Providing internet-based mindfulness could hold promise in terms of increasing accessibility: patients do not have to travel and treatment planning is more flexible in the light of individual circumstances. This trial will provide further insight into the accessibility, effectiveness and cost-effectiveness of group and internet-based MBCT in the reduction of psychological distress in patients with cancer.

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O715

DIABETES DYSREGULATION AND CO-MORBID PSYCHOLOGICAL DISTRESS: ARE THERE WAYS TO IMPROVE BOTH?

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Introduction. Diabetes and depression provide a model for understanding comorbidity of mental and physical disorders, as each influences the other, while also sharing a range of biological, psychological, socioeconomic and cultural determinants. There is evidence of common underlying mechanisms, for example, there is evidence in type 2 diabetes (PWD) that depression is associated with hyperglycemia and hypoglycemia, and that this might be mediated through adherence. Given the commonality of shared determinants and pathways for cardiometabolic disease and depression, along with their very high prevalence, it is important to consider intervention models and delivery systems that go beyond conventional individually-focused psychiatric and psychotherapeutic modalities.

Methods. We review literature and own research on comorbidity of mental and physical disorders, with focus on diabetes.

Results. There has been accumulation of evidence globally demonstrating that peer support can reduce emotional distress in PWD. For example, peer support can improve cardiovascular risk indices as well as psychological distress in PWD, and, among those with initial elevated distress a reduction in hospitalization. Given the recent improvement in the development of digital health platforms, our own research has also demonstrated that an automated conversational program to improve diabetes self-management and support, can improve psychological functioning.

Conclusions. There are effective and affordable strategies to address comorbid mental disorders in diabetes. However, there remains a range of contextual and economic factors to consider in order to achieve wider implementation of these approaches. There also needs to be more focus on prevention and identification of PWD at high risk of distress.

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O716

TREATMENT EFFICACY IN DIABETES AND CO-MORBID PSYCHOLOGICAL DISTRESS: THE NEED TO LOOK CLOSER AT SELF-REGULATORY DEMANDS

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Introduction. There is convincing evidence for a two-fold increased risk of psychological distress (depression, anxiety) in persons with diabetes relative to healthy controls. Also, depression appears more recurrent. Importantly, comorbid depression in diabetes is associated with a poorer self-reported quality of life, poorer glycemic control, and an increased risk of diabetes complications and excess mortality.

Methods. We review literature and own research on the role of self-regulation in people with diabetes and comorbid emotional distress in the context of treatment and its effects on mental and diabetes outcomes.

Results. Evidence suggests a link between poorer medical outcomes in depressed diabetes and greater difficulty performing the necessary daily self-care. This relationship is still poorly understood and not present in all patients with diabetes and depression. Pharmacological and psychological depression treatment in diabetes is generally as effective as in people without diabetes, but appears to have limited impact on glycemic control. Incorporating diabetes self-management in the treatment of depression may increase treatment effectiveness and explain positive results of collaborative care. However, evidence on how to best enhance both mood repair and diabetes self-care is lacking. Improving mood does not automatically translate into better self-management. Self-regulation theory offers a model to help identify synergistic and conflicting self-regulatory behaviors in persons with diabetes and depression in the process of treatment.

Conclusions. Self-management is key in comorbid depression in diabetes. A better understanding of the self-regulatory demands imposed on people with diabetes can help to inform the development of effective and practical 'two-for-one' treatment strategies.

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O717

EMOTIONS AND MENTAL DISORDERS IN PATIENTS WITH CANCER ON THE NEED TO DISTINGUISH BETWEEN ADAPTIVE AND MALADAPTIVE RESPONSES

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Introduction. One third of patients with cancer meet strict diagnostic criteria for mental disorders. However, it has been estimated that 10–12% of individuals with cancer are in need of mental health care. This discrepancy points to the need to distinguish emotions and mental disorders in patients with cancer. We (i) provide a conceptual analysis of psychological distress in patients with cancer, emphasizing the need to distinguish between adaptive and maladaptive responses; and we (ii) analyze the clinical implications of this distinction.

Methods. We review literature on emotions, mental disorders, and their relationship. This is a selective review of authoritative literature.

Results. (i) Emotions alert us to important changes in the environment, such as the diagnosis and treatment of cancer; they motivate and prepare us to deal with these changes. Emotional experiences are generally adaptive, even if they are unpleasant. Mental disorders, however, reflect a dysfunction in the processes underlying mental functioning. Emotions should not be equated to mental disorders, although emotions and mental disorders are strongly related. (ii) Adaptive and maladaptive responses require a different professional approach. Emotion coaching, self-management support, and social support can be offered to assist patients in dealing with adaptive emotional responses. On the other hand, psychotherapy, pharmacotherapy and inpatient treatment are indicated to treat mental disorders.

Conclusions. The understanding of psychological distress in patients with cancer may benefit significantly from the distinction between emotions and mental disorders. Developing valid indicators of the distinction between adaptive and maladaptive emotional responses is an urgent research priority.

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O718

FRACTURE IN THE ELDERLY MULTIDISCIPLINARY REHABILITATION (FEMuR): A COMMUNITY BASED REHABILITATION PACKAGE FOLLOWING HIP FRACTURE: DEVELOPMENT & FEASIBILITY

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Introduction: Community-based rehabilitation following surgical treatment for proximal femoral fracture that addresses psychosocial influences is required to optimize patient outcome.

Methods: Several phases informed the development of an enhanced rehabilitation intervention: a realist review determined the mechanisms of multidisciplinary rehabilitation and the components effective for specific

patient groups; current UK rehabilitation practice was surveyed; and focus groups were conducted with multidisciplinary teams, hip fracture patients, and carers. The resulting workbook-based intervention was delivered and evaluated in a feasibility trial.

Results: Three theories emerged from the review: improving patient engagement by tailoring interventions to individual needs; reducing fear of falling and improving self-efficacy; co-ordination of rehabilitation services. Survey findings revealed that routine rehabilitation services were variable, albeit broadly in line with guidance, however psychosocial mediators of outcome were not routinely assessed. Focus Group themes highlighted: variation in care; psychosocial impacts of hip fracture; informational needs; and facilitators and barriers to rehabilitation. The resultant intervention package consisted of a patient-held information workbook, a goal-setting diary and additional therapy sessions. Sixty-one patients were randomized (control 32; intervention 29) and 49 (79%) followed up at three month. Delivery of the intervention was feasible and well-received. Minimal differences occurred for most outcomes, however there was a medium sized improvement in Activities of Daily Living relative to the control group, (adjusted mean difference=3.0) and a trend for greater improvement in self-efficacy and mental health.

Conclusions: The feasibility of running a definitive randomized controlled trial of the rehabilitation package was demonstrated and will now be pursued.

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O719

THE IMPACT OF 3-DIMENSIONAL BONE MODELS VERSUS ANIMATIONS ON PERCEPTIONS OF OSTEOPOROSIS AND TREATMENT MOTIVATION: A MIXED METHOD ANALYSIS

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Introduction: The utility of visualizations of medical disease and treatment in healthcare is greatly under researched. Initial evidence suggests that visualization devices are able to change perceptions of illness and treatment in patients, but we are yet to understand how different methods of visualization may vary in impact. We investigated whether 3-dimensional bone models or iPad animations had a greater impact on perceptions of osteoporosis and treatment motivation in an at-risk population.

Methods: 126 females over 50 were randomly assigned to view a brief presentation about osteoporosis using either 3-D bone models or iPad animations. Illness perceptions, medication beliefs and motivations were measured at baseline and post-presentation. Mixed ANOVAs were used to identify significant changes in beliefs over time between groups. At post-presentation, an open-ended question assessed patients' thoughts about the visualizations.

Results: There were no significant interaction effects, revealing that neither method had a greater impact on beliefs. However, significant main effects revealed that from baseline to post-presentation, both methods increased participants' consequence, personal and treatment control, understanding, and medication necessity beliefs, as well as their motivation to take treatment if diagnosed, and decreased their timeline beliefs and medication concerns. Analysis of participants' comments revealed that the visualization provided clarity about osteoporosis and the sensory aspect was particularly useful.

Conclusions: Both 3-D bone models and animations of osteoporosis can change illness and treatment beliefs in a non-clinical population. These visualization devices have considerable clinical applicability for use by clinicians to improve adherence in patients or to promote prevention.

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O720

LONGITUDINAL TRAJECTORIES OF DEPRESSIVE AND ANXIOUS SYMPTOMS FOLLOWING A SELF-MANAGEMENT INTERVENTION FOR HAEMODIALYSIS PATIENTS

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Introduction. Poor adherence and higher distress are common in patients on hemodialysis. This randomized controlled trial aimed to evaluate the effectiveness of a brief self-management intervention (HEDSMART) on psychological outcomes.

Methods. A total of 235 hemodialysis patients were randomized to HEDSMART (N=101) or standard care (N=134). Changes in depression and anxiety over time, up to 12 months' follow-up, were explored as secondary outcomes. Latent Class Growth Analysis was employed to identify longitudinal trajectories of symptoms and the effect of demographic and clinical and HEDSMART. Interviews were conducted to explore experiences with HEDSMART.

Results. Analyses indicated two markedly different classes of symptom progression for depression and anxiety: a low stable class characterized by non-clinical distress (resilience), and a persistently high distress class (chronic distress). Patients who were older (OR=1.09, 95%CI=1.04–1.14), non-Chinese (OR=.36, 95%CI=.20–.67), or had fewer comorbidities (OR=.77, 95%CI=.64–.91), were more likely to be in the resilience trajectory for depression; older age (OR=1.06, 95%CI=1.02–1.09), and longer dialysis vintage (OR=1.09, 95%CI=1.02–1.16), were associated with resilience for anxiety. Significant effects were shown for HEDSMART. Regardless of class, HEDSMART significantly predicted decreases in depression (Est.= -.03, SE=.01, p=.025), with the effect for anxiety being marginally significant (Est.= -.026, SE=.013, p=.057). Reassurance, disclosure and social support were the key benefits reported.

Conclusions. A brief self-management intervention designed to support behavioral change can also lead to significant reductions in symptoms of depression. The program may be of great value for younger HD patients shown to be at greater risk for persistent distress.

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O721

KEY STAKEHOLDER PERCEPTIONS OF THE FACTORS THAT INFLUENCE AND SUSTAIN SUBSTANCE ABUSE AMONG YOUNG INDIVIDUALS IN THREE SELECTED COMMUNITIES IN SOUTH AFRICA

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Introduction: The prevalence of substance abuse among young individuals in South Africa is high. We explored key stakeholder perceptions of the factors that influence and sustain substance abuse among young individuals in three underserved communities. The findings were used to facilitate decision-making about the suitability of a sport intervention for young individuals who reported that they were abusing substances, primarily illicit drugs.

Methods: The study design was qualitative. Individual interviews were conducted among 10 community-based representatives (CBRs) who were recruited directly from the targeted communities. Data were analyzed using thematic content analysis.

Results: The findings revealed that factors influencing and sustaining substance abuse among young individuals were multi-factorial. At an individual level factors included ineffective coping strategies, low self-esteem, stressful life events, and using substances as a form of “medication” to cope with stressful life events, “experimentation”, and the desire to have the glamorous life-style of those involved in the illicit drug trade. The family environments were perceived to be characterized by family dysfunction, poor resources, and substance abusing and unemployed parents. At the community level there was peer pressure to experiment with substances, normalization of substance use, and a lack of recreational facilities to create an enabling environment. The key stakeholders suggested that prevention and harm reduction programmes need to be school, family and community based with multi-sectoral initiatives.

Conclusions: CBRs are in agreement that a sport intervention is suitable but also favor a more comprehensive approach to substance abuse prevention and harm reduction.

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O722

HOW DO GAMBLING ENVIRONMENTS STIMULATE RISKY GAMBLING BEHAVIORS? A QUALITATIVE STUDY OF AUSTRALIAN MEN

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Introduction: Harmful gambling leads to significant negative health and social outcomes for individuals, their families, and communities. There is very limited research exploring how individuals interact with gambling in different environments, and how these environments may contribute to risky gambling. This paper considers how online and land based gambling environments may contribute to risky gambling behaviors in young men.

Methods: We conducted qualitative interviews with 50 men aged between 18 and 37, who gambled on sport. We explored the context in which they gambled, their gambling behaviors, and the range of factors that stimulated gambling in both online and land based environments.

Results: Participants described the increasing accessibility of gambling products via online platforms, enabling them to gamble in places and at times when they normally wouldn't. They perceived they were able to more easily access promotions for gambling, however, the accessibility of online products made it difficult to stop gambling if they perceived they were gambling too much. In land-

based environments, three factors emerged as being significant contributors to risky gambling behaviors. The first was the social, peer aspect related to gambling. Second was the co-consumption of alcohol when gambling, which often led participants to gamble more, and on products they wouldn't normally have gambled on. Finally, were the range of products that were available in pubs.

Conclusions: Different gambling environments impact on risky gambling in different ways. Understanding the range of factors within gambling environments will contribute to the development of effective harm prevention strategies in gambling.

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O723

CAN THE PROMOTION OF CHILD-FOCUSED ACTIVITIES INFLUENCE GAMBLING PERCEPTIONS AND BEHAVIORS IN GAMBLING VENUES?

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Introduction: Gambling venues in New South Wales (NSW), Australia, promote themselves as 'family friendly' spaces within communities, that provide a range of social and leisure activities. However, the majority of gambling venue profits in Australia are attributed to one potentially harmful product, Electronic Gambling Machines (EGMs or pokies). There has been little research that explores how gambling venues promote both gambling and non-gambling activities, and the role that marketing tactics may have in shaping individuals' perceptions and behaviors whilst in the gambling environment.

Methods: This research used a mixed-methods, web-based content analysis to explore the gambling and non-gambling (including family- and child-focused) activities promoted on 65 Club websites in regional NSW. Data were analyzed based on frequency counts of coded data.

Results: This research found that marketing for both gambling activities and activities specifically for children and families (non-gambling activities) were heavily promoted on venue websites. A conceptual model is proposed that predicts a 'shaping pathway' by which gambling environments may promote gambling behaviors within the community.

Conclusions: We propose that the promotion of family and child focused activities in gambling environments is a marketing strategy that may be influential on an individual's gambling behavior, whereby the promotion of child and family activities draws consumers to the venue, however the actual long-term behavior is the use of gambling products at the venue. We hypothesize that this may be particularly harmful for children who are exposed to these gambling environments from an early age.

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O724

MARKETING TECHNIQUES THAT MAY APPEAL TO CHILDREN IN AUSTRALIAN SPORTS BETTING TELEVISION ADVERTISEMENTS

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Introduction: Sports wagering is a public health issue and may be a very appealing form of gambling for children. Research has shown that advertisements that contains factors that appeal to children increases their recall and likeability, and their desire to experiment or consume these products in the future. This study aims to create a template based on the tobacco, alcohol and gambling literature to identify creative strategies that may appeal to children in Australian sports wagering commercials.

Methods: An interpretive content analysis of 91 Australian sports wagering television commercials over 11 different companies was performed. The creative strategies were identified through a deductive approach whereby a search of the literature relating to alcohol, tobacco and gambling marketing that has previously appealed to children was performed. Results: There were on average 7.7 attention strategies that may appeal to children found in sports wagering advertisements. The most commonly used strategy found in advertisements were music (n=80, 87.9%), voiceovers (n=79, 86.8%) and catchy slogans (n=78, 85.7%). Sports wagering companies argue that their advertising does not target children, however we have found that regardless of the intent of advertisements, they do contain factors that may appeal to children and may impact on children's behavior.

Conclusions: There is an urgent need for governments to ensure that the content of sports wagering advertisements and the times in which companies are allowed to advertise sports wagering products are effectively regulated to ensure children are protected from the potential harms associated with gambling.

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O725

"THEY ARE DOING EVERYTHING POSSIBLE TO NORMALISE GAMBLING": ADOLESCENT AND PARENT PERCEPTIONS OF THE PROMOTION OF GAMBLING IN SPORT.

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Introduction: Gambling is a significant health and social issue for individuals, their families, and communities. Gambling products are rapidly diversifying towards online forms of gambling, that are significantly linked with sport. There has been particular concern about the alignment of gambling products with sport, and the impact of this alignment on young people. Very little research has explored how adolescents interpret the messages that they see about gambling within sport, and whether there is evidence that these messages are positively impacting on gambling beliefs and behaviors.

Methods: Qualitative study with 59 family groups comprising of at least one parent and one adolescent (14-18 years old) in Australia, utilizing

advertising reception techniques to prompt discussion about specific types of gambling promotions.

Results: Parents/adolescents described how sport had become a platform for the promotion of gambling. They particularly commented on the use of embedded promotions and the use of athletes in gambling promotions as influential in positively shaping young people's gambling attitudes and consumption intentions. Adolescents identified that gambling messages within sport gave the impression that gambling on sport was easy, fun and exciting, accessible and available, and a part of the sporting experience. Finally, parents described that gambling discourses had become embedded within their children's discussions about sport.

Conclusion: There is evidence that gambling promotions are positively shaping young people's gambling beliefs, and softening adolescent's perceptions of the risks associated with gambling. Effective policies are needed to develop effective regulatory frameworks to prevent the normalization of gambling for adolescents.

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O726

THE SIGNIFICANCE OF THERAPIST SUPPORT IN INTERNET BASED TREATMENT FOR PROBLEMATIC ALCOHOL USE – RESULTS FROM TWO PILOT STUDIES

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Introduction: Although there is research on the effectiveness of internet interventions for problematic alcohol use, few studies investigate the significance of therapist support when delivering these interventions. To approach this question, two separate pilot studies with different designs were conducted.

Methods: Two relapse prevention programs were tested in the studies. In pilot study I, 80 participants were randomized to a previously evaluated 10-week relapse prevention program with or without therapist support. In pilot study II, all 13 participants were offered a 12-week program with therapist support. The program in this later study was developed by the research group.

Results: In pilot study I, at the 10-week post treatment follow up, participants receiving therapist support had reduced their alcohol consumption to a significantly greater extent than participants receiving no therapist support with a differential effect size of 0.77. In pilot study II, preliminary analyses show that there were significant pre-post reductions in alcohol consumption both at the 12-week post treatment follow up and at the three-month post treatment follow up.

Conclusions: Results from both pilot studies indicate that therapist support in internet-based treatment for problematic alcohol use is feasible and might be beneficial for alcohol reductions. Larger randomized controlled trials evaluating effectiveness as well as possible moderators and mediators of effectiveness, are currently being conducted to investigate this issue further.

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O727

N-OF-1 METHODS IN HEALTH BEHAVIOR RESEARCH: A SYSTEMATIC REVIEW

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Introduction: Conclusions from between-participant studies often misrepresent variability between individuals and variability within individuals over time. N-of-1 methods involve the repeated measurement of an individual over time to make conclusions about that individual. This study synthesized evidence about using N-of-1 methods to study and change health behaviors, using examples from a systematic review of the literature, with the aim to describe the state of the art, unmet challenges and future opportunities for health behavior research.

Methods: Articles included were those which described observational or interventional N-of-1 studies assessing health behavioral outcomes in any population and reported data analysis and conclusions at the individual level. A comprehensive search strategy was used to search databases for articles published 2000-2013 meeting inclusion criteria.

Results: 3973 potentially relevant records were identified of which 31 full-text articles met inclusion criteria. The included studies used observational designs (n=2) and interventional designs including AB (n=14), ABAB (n=1), alternating treatments (n=3), N-of-1 randomized controlled trial (n=3), multiple baseline (n=7) and changing-criterion (n=1) designs. Studies assessed medication/treatment adherence (n=14), physical activity (n=11), recreational drug use (n=3), sleep (n=2), alcohol use (n=2), and smoking (n=1). Only a small proportion (n=9) of the studies used statistical techniques to analyze the data.

Conclusions: The systematic review highlighted a number of opportunities and open questions for applying N-of-1 methods in future health behavior research. There is scope for using N-of-1 methods in a wider context to answer key questions in health behavior research.

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O728

RECONSTRUCTING TIME USE TO UNDERSTAND HUMAN BEHAVIOR: COMBINING ACCELEROMETRY, WEARABLE CAMERAS, DIARIES AND INTERVIEWS

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Introduction: How people spend their time in activities such as work, travel, leisure, household tasks and sleep is of great interest to researchers from fields such as sociology and health. Historically, the measurement of daily activities has relied on self-report, with known limitations. The development of wearable devices such as accelerometers and wearable cameras has enabled objective methods of assessment. Our study combined self-report and objective measures to improve our understanding of daily time-use and the strengths and limitations of different measurement tools.

Methods: 137 volunteers completed the Harmonised European Time Use Survey diary, and wore both an Axivity wrist-worn accelerometer and an Autographer wearable camera (recording images at 15

second intervals) for the same 24-hour period. Participants also completed an interview in which the camera images were used as prompts to reconstruct a record of activities for comparison with the diary and accelerometry records.

Results: The use of images provided an objective and more accurate estimate of activity duration, compared to the time-use diary, while also offering information on the type and context of behavior. These combined methods enable more valid and reliable estimates of total physical activity and energy expenditure, as well as providing information on the setting and social context of behavior.

Conclusion: New methods, such as wearable devices and interviews, have considerable potential to improve our understanding and measurement of daily activities such as physical activity, sedentary behavior, work, sleep, travel, and domestic life. Furthermore, they can elucidate the context in which these activities occur.

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O729

RELATIVE VALIDITY OF A FIVE ITEM FOOD FREQUENCY QUESTIONNAIRE MEASURING INTAKE OF HIGH SATURATED FAT TAKEAWAY MEALS USING ESTIMATED FOOD RECORDS
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Introduction: We investigated the relative validity of a 5-item food frequency questionnaire (FFQ) to measure the intake of high saturated fatty acid (SFA) takeaway meals in young adults.

Methods: The 5-item FFQ used selected items from a 74-item FFQ commonly used in Australia. The items were chosen on the basis that they were considered to be commonly eaten as a takeaway option and would mainly be high in SFA. The five items included: Meat pies, pasties, quiche and other savory pastries; Pizza; Hamburger with a bun; Fish, fried (include take-away); and, Potatoes, roasted or fried (include hot chips). Estimated food records (two 7-day records over one month) were used as the reference method.

Results: Young adults (18–39 years) in paid employment recruited from two Australian universities and surrounds participated (n=109). Using a goal of ≤ 1 high-SFA takeaway meals per week, the five-item FFQ had a sensitivity of 43%, specificity of 85%, positive predictive value of 50%, and negative predictive value of 80%. There was good correlation ($r_s=0.55$). Using three categories of weekly intake (≤ 1.0 , >1.0 but ≤ 4.0 , and >4.0) there was fair agreement ($kw=0.34$) between the two methods.

Conclusions: The 5-item FFQ has an acceptable ability to correctly identify young adults that are eating more than one high-SFA takeaway meal per week. However, it lacks sensitivity and accuracy in identifying participants that are restricting intake to one high-SFA takeaway meal or less per week.

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O730

INTER-ITEM DISTANCE CHANGES THE PREDICTIVE POWER OF MOTIVATION ON HEALTH BEHAVIOR? A RANDOMISED CONTROLLED TRIAL

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Introduction: Survey is one of the most frequently used research methods for behavioral medicine. However, the research findings could be affected by a method effect known as consistency tendency when participants tend to give similar response(s) to nearby items. This method effect is believed to inflate the predictive power of psychological constructs. The present study preliminarily examined the effects of consistency tendency on the motivational pathways of self-determination theory (autonomy support \rightarrow autonomous motivation \rightarrow intention) of a health behavior (i.e., injury prevention). It was hypothesized that the parameter estimates in the model would be stronger with low inter-item-distance (IID; consistency tendency likely) than high IID (i.e., consistency tendency suppressed).

Methods: Following randomized controlled trial with cross-over design, participants (N = 341; sport players from local sport clubs in Sweden) were randomly divided into 2 groups, and they were asked to complete the questionnaires for study variables, that the items were arranged in either low IID (alternative order) or high IID, on two separate occasions (T1-week1, T2-week2). Bayesian multi-group structural equation modeling was employed to examine the invariance of structural model between low IID and high IID conditions.

Results: In agreement with the hypothesis, the parameter estimates of the low IID condition was higher than the high IID condition, but the differences were not statistically significant.

Conclusions: It was concluded that consistency tendency could be manipulated IID and led to inflation or suppression to the factor correlation, but its effects were small and non-significant.

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O731

A MIXED METHODS APPROACH TO EVALUATING CROSS-CULTURAL INTERVENTIONS: A PSYCHO-THERAPEUTIC SUPPORT GROUP FOR CANCER CAREGIVERS IN SINGAPORE
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Introduction: Outcome evaluations of interventions largely depend on patient-reported outcomes (PRO) and tend to be descriptive rather than theoretically-informed, providing few ways to understand uneven findings in efficacy. This is problematic in fields where diverse factors at play are still not well-understood, such as in psychotherapeutic interventions applied cross-culturally. This study reports on a mixed methods-based outcome evaluation of a controlled intervention trial for cancer family caregivers in Singapore.

Methods: Semi-structured interviews were conducted with a subset of participants (N=20) at baseline and post-intervention. Thematic analysis was used. Self-report data was collected at baseline, at follow-up immediately post-intervention, and at 4 and 8 weeks after the intervention ended. A control group completed self-reports at baseline and 4 weeks after. By utilizing a parallel mixed methods approach, data from both approaches allowed us to triangulate the effectiveness of the intervention.

Results: Quantitative analyses revealed non-significant changes in PRO data. However, caregivers reported qualitative changes in their attitudes to caregiving, and described the usefulness of the support group. This elaborated the quantitative findings and lack of significant outcomes. It suggested alternative outcomes for use in intervention studies including knowledge of

caregiving norms, degree of autonomous self-expression, and reappraisals of caregiving and one's personal caregiving.

Conclusions: The mixed-method approach highlighted the role of norms and a supportive social environment in combating social isolation, stigma, and silence typically surrounding caregiving, revealing qualitative aspects of interventions not measured by quantitative findings and suggesting new measures for future studies.

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O732

AN EPIDEMIOLOGICAL STUDY ON THE ASSOCIATION BETWEEN JOB SATISFACTION AND REDUCED PERFORMANCE/SICKNESS ABSENCE AMONG WORKERS WITH CHRONIC PAIN

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Introduction: Chronic pain is expected to reduce productivity among workers and is an important reason for sickness absence. However, some people are able to maintain a high job performance despite chronic pain. We hypothesized that job satisfaction is an important reason for workers caring less about their chronic pain and investigated whether job satisfaction was associated with reduced negative impact of chronic pain among workers.

Methods: A total of 1,199 workers in large Japanese companies responded to the pain-related questionnaire. We examined 493 (41.1%) workers who had chronic pain over 3 months. The outcome of the questionnaire indicated that pain did not reduce their job performance to any extent (373/493 workers, 75.7%). Job satisfaction was measured using the Brief Job Stress Questionnaire. Multivariable-adjusted odds ratios were calculated using a logistic regression model after adjustments for age, sex, body mass index, smoking, drinking, exercise, sleep time, education, pain intensity, workaholic, work-related social support, job demand, job control and Kessler Psychological Distress Scale (K6) score. Results: Workers with job satisfaction were more likely to consider that pain had no significant impact on their work compared with those with job dissatisfaction, with a multivariable odds ratio of 2.16 (95% confidence interval, 1.17–3.98; $p = 0.01$).

Conclusions: Workers with job satisfaction may be able to maintain high job performance despite chronic pain.

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O733

DISABILITIES ON WORK AND FEAR AVOIDANCE BELIEFS IN JAPANESE WORKERS WITH CHRONIC PAIN

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Introduction: Chronic pain has a big impact on societal costs due to absence from works and impairment of performances. On the other hand, people with chronic pain have a fear of movement and tend to avoid pain-inducing activities, that is fear-avoidance belief (FAB). However, little is known about relationship between FAB and disabilities on work. Therefore, we investigated to find out the relationship.

Methods: We performed the present survey on a large Japanese company, which has a total of 517 full-time workers. Chronic pain was defined as following criteria; (1) persisting for 3 months and more, (2) occurring 2 times a week and more, and (3) numerical rating scale (NRS) equals to and exceeds 5. We defined work disability as a history of absence or impaired performance due to pain within the last 4 weeks. FAB was measured using Japanese version of 11-item Tampa Scale for Kinesiophobia (TSK-J11). Multivariable-adjusted odds ratios (ORs) were calculated using a logistic regression model after adjustments for age, sex, body mass index, smoking, exercise, sleep time, working time, work-related social support, job demand, job control, and Kessler Psychological Distress Scale (K6) score. This study was approved by an ethical committee in Keio University.

Results: Response rate was 83.8%. Mean prevalence rate of chronic pain was 11.1% and the rate significantly increased with the TSK score (OR = 3.81, $p < 0.01$). Work disability significantly related to the TSK score as well (OR = 3.00, $p < 0.05$).

Conclusions: FABs significantly worsen chronic pain and work disability.

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O734

DO ILLNESS PERCEPTIONS MEDIATE THE EFFECT OF PREVIOUS SICK LEAVE ON THE DEVELOPMENT OF CHRONIC WHIPLASH

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Introduction: Illness perceptions (IP) in people exposed to acute whiplash trauma predict the development of whiplash associated disorders (WAD). Furthermore, pre-collision sick leave has been shown to predict WAD. We examined whether IP obtained in the acute and sub-acute period after the collision mediated the effect of accumulated transfer benefits due to sick leave, unemployment, or social assistance before the collision on neck pain one year after the collision.

Methods: Data from a randomized controlled trial on 740 patients consulting emergency rooms and general practice with neck pain after acute whiplash trauma. Patients completed questionnaires during the week after the collision, and 3 and 12 months later. Data on accumulated weeks on transfer benefits were obtained from registers for 5 years before the collision. Our hypotheses were explored through 6 longitudinal multiple mediation analyses.

Results: Negative perception of the whiplash trauma mediated the effect of transfer benefits on neck pain and neck disability in 5 of the 6 models. In particular, illness perceptions seemed to mediate the effect of previous

sickness benefits on chronic neck pain, sum of indirect effect: 0.017, confidence intervals (0.008;0.028)

Conclusions: Previous life experiences have an impact on how people make sense of a health threat which again influences coping efforts and thus outcome. Targeting IP in the acute or sub-acute period after the collision may be an essential ingredient to prevent WAD.

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O735

ACTIVITY PACING AND AVOIDANCE: A META-ANALYSIS

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Activity pacing is ubiquitous in chronic pain management programs and aims to improve physical functioning over time. A recent meta-analysis linked pacing to higher levels of pain and poorer physical functioning. One potential explanation for this finding is that there is an overlap between the construct of pacing and avoidance. The objective of this study was to systematically review the evidence regarding the relationship between measures of pacing and avoidance. A search of Medline, Embase, and PsycINFO was conducted for studies measuring both pacing and avoidance in adults with chronic pain. A meta-analysis of correlations between pacing and avoidance was conducted, including a subgroup analysis comparing results for single-item versus multiple-item measures. Twelve studies met the inclusion criteria and a small positive correlation between pacing and avoidance was found ($r = 0.151, p < 0.001$). This correlation was moderated by measure, such that a larger correlation was observed in studies using multiple item measures ($r = 0.432, p < 0.001$) rather than single items ($r = 0.103, p < 0.001$). Due to limited studies, it was not possible to conduct independent analyses of individual subscales. Current measures of pacing are associated with avoidance, particularly when measured with multiple items, casting doubt on whether available subscales are assessing the intended construct. Research examining the effects of pacing on outcomes in chronic pain needs to control for avoidance, and measures that differentiate pacing from avoidance by specifying the intent of the strategy.

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O736

PSYCHOLOGICAL PREDICTORS OF POSTPARTUM ACUTE PAIN AND PHYSICAL HEALTH SYMPTOMS

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Introduction: Women frequently experience pain and other health symptoms after birth; which interfere with breastfeeding, nurturing behaviors, and mother-baby relationship, and may lead to chronic pain. Some psychological factors (i.e., trauma exposure, anxiety sensitivity, resilience, catastrophizing, posttraumatic stress and depressive symptoms, and labor anticipatory anxiety) may predict acute postpartum pain outcomes and be associated with postpartum physical health symptoms. The objective of this study was to

explore the relationships between these psychological factors and acute postpartum pain outcomes and physical health symptoms.

Methods: 76 Chilean pregnant women (1) completed a set of questionnaires between eight and three weeks before delivery, (2) rated their pain intensity one month after giving-birth, and (3) rated their pain intensity, pain interference, and emotional distress daily during the seven days following delivery. Stepwise regression analyses were used to examine the unique variance explained by each of the predictors.

Results: labor anticipatory anxiety predicted unique variance of all of the outcomes (except for pain intensity one month after delivery). Those women presenting higher labor anticipatory anxiety reported higher pain intensity, pain interference, and emotional distress during the seven days following delivery, and more physical health symptoms one month after it. Resilience uniquely predicted pain interference and emotional distress ratings. Depressive symptoms uniquely predicted pain interference ratings, and catastrophizing uniquely predicted physical health symptoms.

Conclusions: Some psychological variables seem to predict postpartum health outcomes and may help to identify women at risk of higher acute pain and more physical health symptoms after delivery.

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O737

PREDICTING INSULIN UPTAKE AMONG ADULTS WITH TYPE 2 DIABETES IN PRIMARY CARE: STEPPING UP STUDY

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Introduction: The Stepping Up trial demonstrated the effectiveness of a new model of care supporting timely insulin initiation among adults with type 2 diabetes (T2D) in Australian primary care. Our aim was to explore individual-level predictors of insulin uptake.

Methods: Eligible participants were 266 trial participants with T2D: HbA1c $\geq 7.5\%$, and prescribed maximum oral hypoglycemic dose. Mean age was 62 ± 10 years; 39% ($n=103$) women; diabetes duration 10 ± 6 years. Data collected: insulin uptake at 12 months and baseline demographic, clinical and psychosocial characteristics (including depressive symptoms, diabetes-specific distress, insulin appraisals, and 'willingness' to initiate insulin). Variables that differed significantly by insulin uptake were entered into a stepwise multilevel mixed-effects logistic regression. Results: Those who initiated insulin ($n=126, 47\%$) were in the intervention arm (81%) and, at baseline, had significantly higher HbA1c (9.2 ± 1.4 vs $8.8 \pm 1.2\%$), displayed greater willingness to initiate insulin (very willing: 28% vs 12%), and less negative and more positive insulin appraisals. Depressive symptoms and diabetes-specific distress did not differ by insulin uptake. In the final model ($\chi^2(7)=58.4, p < .001$) receiving the intervention ($\beta=2.2, p < .001$), a higher baseline HbA1c ($\beta=0.4, p < .003$), and being, at baseline, 'very willing' to begin insulin (compared to 'not at all'; $\beta=1.6, p=.003$), were predictive of insulin uptake. The independent contribution of insulin appraisals was suppressed by the inclusion of 'willingness'.

Conclusions: This study demonstrates that, in addition to the Stepping Up model, higher HbA_{1c} and greater receptiveness to insulin at baseline both enhance the likelihood of insulin uptake in primary care among adults with T2D.

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O738

A NOVEL PERSONALISED EYE CONSULTATION TO LOWER HBA_{1c} AND RISK OF DIABETES-RELATED VISION LOSS IN ADULTS WITH TYPE 2 DIABETES AND DIABETIC RETINOPATHY: PROTOCOL

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Introduction: Optimal glycemic management minimizes the impact of diabetic retinopathy (DR), a common cause of visual impairment and blindness worldwide. We investigate the clinical, psychological, behavioral aspects and economic effectiveness of a novel personalized eye consultation (PEC) model to reduce elevated glycosylated hemoglobin (HbA_{1c}) in adults with type 2 diabetes and non-proliferative DR.

Methods: Overall, 186 participants will be recruited from Melbourne-based tertiary eye and endocrinology clinics and randomized to one of three groups: PEC alone, PEC plus telephone support (five calls over 20 weeks) or usual care. The PEC combines visual feedback of an individual's retinal images with person-centered behavior-change strategies (including personal goal setting, action planning and problem-solving) and is delivered by a trained orthoptist. Participants with type 2 diabetes, mild to moderate non-proliferative DR with no previous or imminent treatment, HbA_{1c} ≥ 64 mmol/mol (at baseline), no cognitive impairment, aged ≥ 18 years and English speaking will be recruited. The primary outcome is change in HbA_{1c} and secondary measures include diabetes self-care, self-efficacy, and beliefs and knowledge about DR. Follow-up assessments will be conducted 3-, 6- and 12-months post baseline.

Results: To date, 15 participants have been enrolled into this study of whom 7 have received the PEC intervention (numbers expected to reach >100 by Dec 2016). Increasing physical activity has been the most common goal identified in the behavior-change strategy component among participants allocated to the PEC.

Conclusions: If shown to be effective, our PEC provides a model for implementing evidence-based strategies for behavior change into routine eye care.

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O739

USING TEXT MESSAGING TO EXTEND DIABETES SELF-MANAGEMENT SUPPORT OUTSIDE THE CLINIC ENVIRONMENT

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Introduction: Effective diabetes self-management support is key to address the increase in costly and debilitating long-term complications associated with poor diabetes self-management internationally. Text messages (SMS) have the advantage of instant transmission at low cost and, given the ubiquity of mobile phones, may be the ideal platform for the delivery of tailored diabetes self-management support outside the clinic environment.

Methods: We developed a theoretically based SMS based self-management support programme (SMS4BG) for adults with poorly controlled diabetes. The individually tailored programme addresses the behaviors required for successful diabetes self-management through a core module (in different cultural versions) and the selection of additional modules for insulin, young adults, smoking cessation, lifestyle behaviors, blood glucose monitoring reminders and preventative behaviors. A pilot study was carried out in 2013 (n=42) to assess the programmes acceptability in adults with poorly controlled type 1 or 2 diabetes in Auckland, New Zealand, and a randomized controlled trial (RCT) of the effectiveness is underway.

Results: Pilot study participants interviewed all reported SMS4BG to be useful. Participants' identified a range of positive impacts on their diabetes management and health behaviors. The programme was associated with a significant improvement in glycaemic control measured by HbA_{1c}. Feedback from the pilot study informed further refinement of SMS4BG before the full trial of its effectiveness commenced.

Conclusions: A tailored text-message intervention was both acceptable and useful for adults with poorly controlled diabetes. Results from the RCT will provide valuable evidence of the effectiveness and implementation of this type of intervention.

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O740

MANAGEMENT OF TYPE 2 DIABETES IN CHINA: THE HAPPY LIFE CLUB™, A PRAGMATIC CLUSTER RANDOMISED CONTROLLED TRIAL USING HEALTH COACHES TRAINED IN MOTIVATIONAL INTERVIEWING

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Introduction: China has the largest number of type 2 diabetes mellitus (T2DM) cases and hence has a pressing need for effective management systems. This study examined the effectiveness of a coach-led motivational interviewing (MI) intervention in community settings.

Methods: This pragmatic cluster RCT was conducted in community health stations (CHSs) in Fengtai, Beijing from December 2011 - May 2013. Forty-one CHSs were cluster randomized (1:1 ratio, stratified geographically) and CHSs sequentially contacted eligible, randomly selected T2DM patients (n=711). Control participants received usual care as per the Chinese Diabetes Society guideline. Intervention participants received MI health coaching and usual care. Outcomes were assessed at baseline, 6, 12 and 18 months, and included a suite of physiological and psychosocial measures. **Results:** At 18 months, no differential treatment effect was found for the primary outcome, HbA1c (adjusted difference -0.07, 95% CI -0.53 to 0.39, $p=0.769$). Similarly, none of the secondary physiological or psychosocial outcomes displayed statistically significant between-group differences at 18 months. Interestingly, both groups displayed statistically significant within-group improvements at 18 months for numerous outcomes, specifically, HbA1c, fasting plasma glucose, total cholesterol, triglycerides, LDL cholesterol and HDL cholesterol.

Conclusions: In line with the current Chinese primary health care reform, this is the first large-scale cluster RCT to be implemented within real-world CHSs in China, specifically addressing T2DM. While differential treatment effects were not observed for outcomes at 18 months, numerous outcomes (particularly HbA1c) improved in both groups, supporting the establishment of regular, free clinical health checks for people with T2DM in China.

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O741

INFLUENZA VACCINATION RATE OF COMMUNITY-DWELLING OLDER DIABETIC PATIENTS AND THEIR HOUSEHOLD CONTACTS: A PILOT STUDY

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Introduction: Vaccination remains the primary control measure against influenza infection which is the number one community-acquired infections in older diabetes (DM) of aged 65 years or over. Little is known about the uptake rate of influenza vaccines in household contacts of DM. We aimed to investigate the vaccination rate and associated factors of older DM dwelling in community and their household contacts.

Methods: A cross sectional study was conducted at the PolyU Integrated Community Health Centre during 16–24 July 2014. A total of 23 DM aged 65 years or over were successfully face-to-face interviewed, together with their 43 household contacts who were interviewed by telephone.

Results: The response rate was 82% and 88% for patients and their household contacts, respectively. A quarter of older DM reported at least having one diabetes-related infection (skin lesions, periodontal conditions and diabetic foot). Self-reported rates of seasonal influenza vaccination in the 2013/14 were 47.8%, 19.1% and 0%, for older DM, their adult and child household members, respectively. DM and their household contacts shared the same top one reason of 'influenza vaccination is effective' and 'low chance of getting influenza' for 'planning' and 'NOT planning to get vaccination in the 2015/16 season, respectively. However, other top four reasons were different between DM and household contacts.

Conclusions: Influenza vaccination rates of older DM and their household contacts are far from optimal to achieve herd immunity and offer additional protection. It highlights a need for a tailor-made education program to change their behavior by increasing the vaccine coverage.

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O742

SYSTEMATIC DEVELOPMENT OF A THEORY-INFORMED MULTIFACETED BEHAVIORAL INTERVENTION TO INCREASE PHYSICAL ACTIVITY OF ADULTS WITH TYPE 2 DIABETES IN ROUTINE PRIMARY CARE: MOVEMENT AS MEDICINE FOR TYPE 2 DIABETES

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Introduction: Despite substantial evidence for physical activity (PA) as a management option for Type 2 diabetes, there remains a lack of robust PA behavioral interventions suitable for delivery in primary care. We aimed to systematically develop a behavioral intervention to equip primary healthcare professionals with the knowledge and capability to support their patients with Type 2 diabetes to improve their glycemic control via increased PA.

Methods: A four-stage development process was undertaken: (i) exploratory work involving interviews and focus group discussions with healthcare professionals and adults with Type 2 diabetes; (ii) a systematic review of PA interventions to identify intervention content; (iii) usability testing to refine intervention content and identify implementation strategies; and (iv) an open pilot study to optimize intervention components.

Results: Healthcare professional training needs included knowledge about type, intensity and duration of PA sufficient to improve glycemic control and skills to promote PA behavior change. Patients lacked knowledge about Type 2 diabetes and skills to make sustainable changes to their PA levels. Informed by the Theory of Planned Behavior and Social Cognitive Theory and 15 behavior change techniques identified from a systematic review, an accredited online training programme for healthcare professionals and a PA behavioral intervention for adults with Type 2 diabetes were developed. Usability testing resolved IT issues including practice browser compatibility. The open pilot study facilitated refinement of intervention content to improve fidelity of delivery and implementation.

Conclusions: Our structured development process enhances transparency of intervention content, which will facilitate replicability and scalability in primary care.

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O743

WHAT DO NON-SMALL CELL LUNG CANCER PATIENTS WANT TO KNOW ABOUT TREATMENT?

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Introduction: In Australia, lung cancer is the fifth most common cancer diagnosis and has the highest mortality rate of all cancer types. Treatment options for individuals with early-stage disease include surgical resection and stereotactic ablative body radiotherapy (SABR). Due to the recent availability of SABR, a modality that has similar survival outcomes to surgical resection, medically-operable patients now have the choice between two treatment options. The purpose of the review was to establish what is known regarding the information needs of patients with early-stage disease and their experiences of and willingness to participate in treatment decision-making.

Methods: A literature search was conducted using PsycINFO, Medline, CINAHL and INFORMIT bibliographic databases.

Results: There is limited literature specifically addressing the treatment information needs of lung cancer patients. No studies were identified that examined early-stage disease patients' experiences of and willingness to participate in treatment decision-making. In studies with samples with varying cancer sites, the majority of participants reported wanting to know about the side effects of treatment and treatment goals. Furthermore, the majority of patients preferred their clinician to make the decision regarding treatment.

Conclusions: Further research is required to gain an understanding of the specific information needs of early-stage lung cancer patients and their experiences of and willingness to participate in treatment decision-making.

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O744

LUNG CANCER SERVICE USERS' EXPERIENCES OF TREATMENT, FOLLOWUP AND SUPPORT

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Introduction: New Zealand has high lung cancer mortality rates in relation to comparable countries. As part of a project to better understand the experiences of lung cancer patients the Northern Cancer Network funded a study to explore patients' and their families' experiences with cancer services. This paper focuses on the findings relating to treatment, follow-up and support services.

Methods: A postal survey was followed up with focus groups/interviews with a sample of lung cancer patients (survey N=77, interview N=18) and family members (survey N=72, interview/focus groups N=10) of patients who had been diagnosed over the previous two years. Survey and focus group/interview topics explored service access, information quality, relationships with staff, and coordination of care.

Results: The majority of patients and family reported largely positive experiences with cancer services. A concerning minority, however, reported issues relating to a number of services areas. Participants felt there were gaps in information about preparation for surgery, recovery and wellness after surgery, adjuvant therapies, and about future care planning. Perceived lack of coordination across secondary, primary and palliative levels of care left participants uncertain and frustrated, especially for those with an untreatable cancer. High needs were identified for rehabilitative and emotional support services yet few participants remember being offered these. Ancillary issues were identified during hospital stays.

Conclusions: Significant gaps in services were identified and some of these are currently being addressed by the services involved. A number of areas for future research, and follow-up to measure progress, have been identified and will be discussed.

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O745

LATENT INHIBITION REDUCES NOCEBO NAUSEA, EVEN WITHOUT DECEPTION

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Introduction: Nocebo nausea is a pervasive and debilitating side effect that can develop due to conditioning, particularly in the chemotherapy context. Techniques that retard conditioning such as pre-exposing treatment-related stimuli may reduce nocebo nausea via latent inhibition.

Methods: Two quantitative experiments were carried out to examine this possibility using a Galvanic Vestibular Stimulation model of nausea in healthy participants. Expectations for nausea and the severity of nausea experienced were assessed using self-report Likert scales. Experiment 1 aimed to determine whether pre-exposure to vehicle stimulation could reduce conditioned nocebo nausea on test by comparing a group who had received pre-exposure before conditioning with a group who had not, as well as with a control group who had received no conditioning. Experiment 2 tested whether the deception that was used in the first Experiment, which may be unethical in clinical settings, was necessary by including an open pre-exposure group informed they were pre-exposed to vehicle stimulation. **Results:** In Experiment 1 we found clear evidence of conditioned nocebo nausea that was eradicated by latent inhibition. Experiment 2 replicated this latent inhibition effect, as well as finding that open pre-exposure was just as effective for reducing nocebo nausea. In both experiments, an interesting effect occurred whereby explicit expectations appeared to drive the development of nocebo nausea, but not its retardation through latent inhibition.

Conclusions: These findings have significant clinical implications. Applying open pre-exposure in clinical settings may effectively and ethically reduce the development of nocebo effects for nausea and other conditions via latent inhibition.

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O746

GET HEALTHY AFTER BREAST CANCER - EXAMINING THE FEASIBILITY AND ACCEPTABILITY OF REFERRING BREAST CANCER SURVIVORS TO A TELEPHONE-DELIVERED PROGRAM TARGETING PHYSICAL ACTIVITY, HEALTHY DIET AND WEIGHT LOSS

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Introduction: Healthy lifestyles are recommended for breast cancer (BC) survivorship care. This study evaluated the outcomes of breast care nurse referrals to a state health department-operated 'Get Healthy Service' (GHS) for women upon treatment completion.

Methods: Eligible and consenting women diagnosed with stage I-III BC were referred to the GHS six-month telephone-delivered lifestyle coaching service. Feasibility was assessed via GHS uptake and

completion, and acceptability by patient and nurse satisfaction ratings. Paired-sample t-tests examined changes in self-reported weight, physical activity (Active Australia), diet (fruit and vegetable serves/day) and quality of life (SF-36) from baseline to six-months.

Results: Fifty-three women (mean [SD] body mass index: 31.0 [5.5] kg/m²; age: 57.3 [2.8] years; median 13-months post diagnosis; 43.4% born outside Australia), took up the GHS (77% of those referred and eligible), with 36% GHS completion at six-months. 86% of patients had high satisfaction ratings and nurses provided positive qualitative feedback. Findings from n = 19 GHS completers showed a significant effect for weight loss (mean difference [95%CI]: -2.35kg [0.96, 3.8]; p = .002). Significant improvement was observed for physical activity (minutes/week; p = .006) but not fruit and vegetable intake. Significant improvement in the Mental Component Score (SF-36) was observed (mean difference [95%CI]: 3.46 [0.2, 6.8]; p = .041), but not the Physical Component Score.

Conclusions: GHS referral is feasible, acceptable and effective for a diverse group of women following completion of treatment for BC. Further work is needed to address completion rates and to integrate referral pathways into routine survivorship care.

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O747

PROMPT-CARE: A SYSTEMATIC APPROACH FOR ROUTINELY COLLECTED CANCER PATIENT REPORTED OUTCOMES INFORMING CARE

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Introduction: Patient reported outcomes (PROs) are increasingly important in patient-centered care, but widespread collection still does not occur.

Methods: We developed an evidence-based, efficient and user-friendly eHealth decision-support system, PROMPT-Care, to facilitate a) PRO data capture; b) data linkage and retrieval to support clinical decisions; and c) data retrieval to support ongoing evaluation and innovative research. The system is fully integrated into the existing hospital oncology information system (OIS).

Results: Phase 1 – We selected PROs, developed algorithms to inform intervention thresholds for self- and clinical-management, and clinician PRO feedback summary and longitudinal reports; collated patient self-management resources; undertook IT programming to transfer PRO data in real-time to the OIS to support clinical decision-making; and evaluated PROMPT-Care feasibility and acceptability. Patients and clinicians reported high acceptability: “I

would have an impression about a patient, that things weren't going fantastically, but it (the report) gave greater granularity and specificity about where the needs were” (oncologist). Phase 2 - We developed strategies for engaging general practitioners in survivorship care, implemented PROMPT-Care in three hospitals, and commenced routinely collecting PROs.

Conclusions: This research investigates implementation of evidence into “real world” clinical practice, providing data on feasibility and acceptability of this system-level strategy and barriers to address to facilitate its wider implementation in clinical practice. The accumulated data will inform population level needs of cancer survivors to identify potential gaps in care. The systematic approach to data collection over time will also allow the assessment of the impact of changes in service delivery over time.

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O748

CHANGING CHEMOTHERAPY EDUCATION USING AN EVIDENCE-BASED INTERVENTION: A SUCCESS STORY?

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Introduction: Comprehensive preparation for threatening medical procedures, such as chemotherapy, is essential to reduce patient anxiety and promote self-management. We conducted a randomized, controlled trial of a pre-chemotherapy education intervention (ChemoEd) to assess impact on patient distress, treatment-related concerns and side-effects. As findings were positive, an implementation trial was conducted at a comprehensive cancer center, with long-term success of implementation assessed.

Methods: In the RCT, 192 cancer patients were randomized. ChemoEd patients received a DVD, question prompt list, self-care information, an education consultation before treatment-commencement, telephone follow-up after first treatment, and a face-to-face review immediately before second treatment. Patient outcomes were measured at baseline and immediately preceding treatment cycles 1 and 3. For the implementation trial in 2009-2010, a new ChemoEd resource was produced; key champions identified, training workshops initiated with chemotherapy nurses and post-implementation interviews conducted. In 2013, long-term success was assessed via education session booking data; interviews and audio-recordings of nurse education consultations.

Results: ChemoEd did not significantly reduce patient distress, except amongst the initially distressed (p=0.035). A significant decrease in sensory/psychological (p=0.027) and procedural (p=0.03) concerns, vomiting prevalence, severity and bother (all p=0.001) were observed. The implementation was largely successful, but some clinical barriers were observed, particularly the staffing required for delivery. Follow-up evaluation revealed some departures from the original protocol, such as dropping the question prompt list.

Conclusions: ChemoEd appears to improve patient treatment-related concerns and some physical/ psychological outcomes. Lessons learnt about adoption of psycho-educational interventions into real-world cancer clinical settings will be discussed.

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O749

NEGATIVE STRESS BELIEFS AND THE DEVELOPMENT OF SOMATIC SYMPTOMS – A SELF-FULFILLING PROPHECY?

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Introduction: Medically unexplained symptoms are abundantly present in the general population. Stress may lead to increased symptom reporting because of widespread beliefs that it is dangerous for one's health. This study aimed at clarifying the role of stress beliefs in somatic symptom reporting using a quasi-experimental study design.

Methods: Stress beliefs, perceived stress, and somatic symptoms were assessed in $N = 216$ university students at the beginning of term (baseline: non-stressful period) and again during end of term exams (follow-up: stressful period) six to eight weeks later. Neuroticism, Optimism, Somatosensory Amplification and presence of physical or mental illness were assessed as covariates at baseline.

Results: Only baseline somatic symptoms ($\beta = .70, p < .001$) and negative stress beliefs predicted somatic symptoms at follow-up ($\beta = .16, p = .012$). Stress beliefs alone explained 13% of variance in somatic symptoms at follow-up. The relationship between negative stress beliefs and somatic symptoms was partially mediated via an increased stress level at follow-up.

Conclusions: Being convinced that 'stress is bad for you' was prospectively associated with increased somatic symptoms during a stressful period. Further research in patients with medically unexplained conditions is warranted to corroborate these findings.

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O750

NEUROTICISM AND MALADAPTIVE COPING IN PATIENTS WITH FUNCTIONAL SOMATIC SYNDROMES

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Introduction: The cognitive-behavioral model of functional somatic syndromes (FSS) proposes a multi-factorial etiology consisting of predisposing, precipitating, and perpetuating factors. In this study, we sought to investigate three questions that can be drawn from this model: 1) Do patients with FSS show high levels of neuroticism? 2) Does neuroticism affect physical health and social functioning, either directly or indirectly through maladaptive coping? 3) Does more adaptive coping mediate the effect of CBT on outcome?

Methods: We used yet unpublished data on neuroticism (measured with Temperament and Character Inventory, Revised) and coping (measured with Coping Strategies Questionnaire) together with already reported outcomes (physical health and social functioning measured with SF-36) from an RCT comparing group CBT with enhanced usual care in 120 patients with a range of FSS. Neuroticism was measured at referral, while coping and outcomes were measured at referral, baseline, 4 and 16 months after randomization. Our hypotheses were explored through a series of cross-sectional (linear regression and structural equation models) and longitudinal (mediation) analyses.

Results: Patients with FSS showed higher levels of neuroticism than two healthy comparison groups. At referral, symptom catastrophizing partly mediated the negative association between neuroticism and outcome. Reduction of symptom catastrophizing during group CBT partially mediated its long-term effect.

Conclusions: The results give support to a generic cognitive-behavioral model of FSS. Targeting symptom catastrophizing may be an essential component in CBT for FSS patients, regardless their specific diagnosis.

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O751

HEALTH CARE USE AND THE ROLE OF HEALTH ANXIETY AND DISABILITY IN AN OUTPATIENT SAMPLE OF PATIENTS WITH SOMATOFORM DISORDERS

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Introduction: Somatoform disorders (SFD) are associated with high levels of disability and health care costs. Little is known about the link between somatization and health care utilization. The aim of the present study was to describe the utilization of health care services in patients with SFD and to assess the role of health anxiety, depression, anxiety and disability as mediators of the relationship between somatization and health care use.

Methods: An outpatient sample of $N=254$ patients with SFD was investigated by analyzing different aspects of their health care use over the last 12 months with a novel questionnaire. Other measures were the Screening for Somatoform Symptoms, the Short Health Anxiety Inventory (modified version), the Beck Depression Inventory-II, the anxiety dimension of the Symptom Checklist-90-Revised and the Pain Disability Index.

Results: A mean number of outpatient doctor visits of 28.02 ($SD=19.32$) was reported. Patients who fulfilled the diagnosis of somatization disorder ($M=36.50, SD=24.51$) had a significantly higher number of outpatient health care use than patients with undifferentiated somatoform disorder ($M=25.90, SD=16.43$), $p=.002$. The final mediation model on the effect of all entered mediator variables on the relationship between somatization and health care use reached significance (estimate: 0.3199, 95% CI: 0.0576, 0.6435). Specific mediator effects were found for health anxiety (estimate: 0.0614, 95% CI: 0.0004, 0.1505) as well as disability (estimate: 0.1824, 95% CI: 0.0389, 0.3530).

Conclusions: Health anxiety and disability seem to important drivers of health care use in patients with SFD and should be further targeted in psychological treatments.

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O752

THE RELATIONSHIP BETWEEN CHILDHOOD ADVERSITIES, EMOTION REGULATION AND SYMPTOM BURDEN IN SOMATIC SYMPTOM DISORDER

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Introduction: Childhood adversities (CAs) are risk factors for various mental disorders. Little is known about their role for the newly defined somatic symptom disorder (SSD, DSM-5). Aims of the present study: Clarification of the association of CAs (e.g. abuse, neglect) and symptom burden in SSD, identification of the impact of emotion regulation skills (general and specific adaptive ERS) on this relationship.

Methods: Inclusion criteria for subjects were the SSD diagnosis, with \geq three medically unexplained symptoms. Participants were 250 subjects (female 63.5%, age $M=43.5/SD=12.9$) recruited for the ENCERT multicenter trial. Baseline assessment included CAs using the childhood trauma questionnaire (5 dimensions, CTQ-SF), ERS (9 skills, ERSQ), and symptom count and disability (CIDI-SOM, PDI). Categorical analyses included comparisons of groups with ‘no/minimal’ vs. ‘moderate/severe’ trauma experience. Regression analyses were utilized to assess associations between CAs and somatic symptom burden (PDI, SOM), as well as potential mediation effects by ERS.

Results: A high number of somatic symptoms and high persistence rates (mean 7.2 years) characterized the sample. The largest subgroup reported at least one moderate/severe CA ($N=110$, 44% vs. less severe CA 24%, no/minimal CA 32%). The trauma group reported significantly more symptoms than no-trauma group. CAs significantly correlated with SOM ($.19 < |r| < .28$). ERS partially mediated the relationships between CAs and symptom burden, depending on gender and type of CA.

Conclusions: Results suggest a high prevalence and impact of early childhood aversive experiences, especially of physical abuse and emotional neglect in SSD. The protective role of some ERS needs further consideration.

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O753

UNDERSTANDING SOMATIC SYMPTOMS IN LATE ADOLESCENCE: THE INTERPLAY BETWEEN CHILDHOOD INSTABILITY AND ADOLESCENT PEER CONFLICT

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Introduction: Good health begins early in life (Repetti et al., 2002). Thus, the current study aims to better understand the psychosocial predictors of somatic symptoms in late adolescence by taking a developmental perspective and determining the role of the earlier family and peer environment. We expected that parental instability (e.g., divorce, moving in/out) in middle childhood *and* poor peer relationship functioning (i.e., high conflict) in adolescence would be associated with particularly high somatic symptoms in late adolescence.

Methods: We utilized data from LONGSCAN, which interviewed at-risk children at ages 6, 8, 12, 16, and 18 along with a parent/caregiver. Parent/caregiver reports of child life events during middle childhood (ages 6–12) were used to assess parental instability and youth reports of same-sex peer conflict (NRI, Furman & Burhmester, 1985) and somatic symptoms (YSR, Achenbach, 1991) were obtained at ages 16 and 18 respectively. 436 youth had completed data.

Results: For youth reporting high same-sex peer conflict in middle adolescence, higher levels of childhood parental instability were significantly associated with a greater number of somatic symptoms in late adolescence. However, for youth reporting low peer conflict, higher levels parental instability was not significantly associated with later somatic symptoms. This effect was independent anxiety/depressive and somatic symptoms at age 6 and ethnicity and gender.

Conclusions: Somatic symptoms in late adolescence can be explained in part by the social environment at different developmental periods.

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O754

SOCIAL MODELLING OF SIDE EFFECTS: THE ROLE OF GENDER IN NOCEBO RESPONDING

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Introduction: Mass psychogenic illness episodes have a disproportionate number of female casualties. Symptoms in such episodes spread through social observation of others. Currently our understanding of how gender of the model and the observer contribute to the spread of these psychosomatic symptoms is limited. An experimental study was designed to assess the role of gender in the social spread of nocebo symptoms, and the role of symptom attribution processes.

Methods: 96 participants were recruited to take part in a study ostensibly assessing the influence of the drug modafinil (actually placebo) on cognitive performance. Participants were seated with either a gender matched or mismatched confederate, who reported either no change (control) or experiencing headache and dizziness (side effects). Symptoms and attributed side effects were assessed post-medication and again 24 hours later.

Results: During the study session, social modelling of side effects did not result in a significant difference in the total number of symptoms reported, but did result in a higher number of side effects attributed to the medication, particularly in female participants in response to a female model. At the 24-hour follow-up, viewing side effect modelling resulted in increased symptom reporting when the model was female, as well as increased side effect attribution in female participants in response to a female model.

Conclusions: Social modelling of symptoms increased both nocebo symptom reporting and side effect attribution following placebo treatment, particularly when both the observer and the model were female.

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O755

THROMBOLYSIS IMPLEMENTATION IN STROKE (TIPS): OUTCOMES OF A CLUSTER RANDOMISED TRIAL OF MULTIDISCIPLINARY COLLABORATIVE QUALITY IMPROVEMENT

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Introduction: One of the three effective interventions in the acute phase of stroke care is appropriate thrombolytic therapy with tissue plasminogen activator (tPA). This treatment has low implementation rates internationally. Collaborative quality improvement interventions are often used to change practice but rarely subjected to randomized trials. Our objective was to test the effectiveness of a multi-component multidisciplinary collaborative approach compared to usual care as a strategy for increasing thrombolysis rates for stroke patients.

Methods: A cluster randomized controlled trial was conducted in 20 hospitals across three Australian states. The intervention is based on behavioral theory and analysis of the steps, roles and barriers relating to rapid assessment for thrombolysis eligibility; it involves a comprehensive range of strategies addressing individual-level and system-

level change at each site. The primary outcome is the difference in tPA rates between the two groups post-intervention. The secondary outcome is the proportion of tPA treated patients in both groups with good functional outcomes (modified Rankin Score (mRS) <2) and the proportion with intracranial hemorrhage (mRS >2), compared to international benchmarks.

Results: The collaborative quality improvement intervention was implemented at intervention hospitals over a 12 month period with final follow-up concluding in December 2015. The results of the trial outcomes will be presented, comparing thrombolysis rates at the intervention versus control hospitals along with data on intracranial hemorrhage and functional outcomes for both groups.

Conclusions: The trial has provided a rigorous test of the effectiveness of collaborative quality improvement processes for improving thrombolysis rates for acute stroke.

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O756

CLUSTER RANDOMISED TRIAL OF A THEORY-BASED MULTIPLE BEHAVIOR CHANGE INTERVENTION AIMED AT PRIMARY HEALTHCARE PROFESSIONALS' MANAGEMENT OF TYPE 2 DIABETES [ISRCTN66498413]

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Introduction: Improving healthcare quality requires health professional behavior change. **Aim:** develop, deliver and evaluate a dual process model-informed theory-based intervention to improve six healthcare professional behaviors involving prescribing, advising and foot examination for people with type 2 diabetes.

Methods: Two-arm cluster randomized trial involving 44 general practices to evaluate a 90-minute intervention delivered to primary care clinical staff. **Primary outcomes:** proportion of patients with type 2 diabetes who had a foot inspection and were appropriately prescribed (patient records 12-months prior and 12-months post-intervention); and provided with advice (patient questionnaires, 12-months post-intervention).

Results: No benefit of the intervention was detected. All participating practices increased foot inspection (Intervention: 75% to 78%; Control: 74% to 79%; OR=0.84, 95%CI:0.75-0.94), prescription for blood pressure (Intervention: median 40% to 53%; Control: 43% to 50%; IRR=1.05; 95%CI:0.96,1.16) and insulin initiation (Intervention: 29% to 37%; Control: 31% to 35%; IRR=1.18;95%CI:0.95,1.48). Updated diabetes education was provided to 33% (n=326/993) and 40% (n=330/836) of patients in intervention and control practices, respectively; OR=0.74;95%CI:0.57,0.97. Physical activity advice was provided to 57% (n=568/998) and 62% (n=522/840) of patients in intervention and control practice, respectively; OR=0.79;95%CI:0.56,1.11. Nutrition advice was provided to 73% (n=315/661) and 72% (n=302/562) of patients in intervention and control practices, respectively; OR=0.98;95%CI:0.59,1.64.

Conclusions: While intervention groups did not show improvement over control, robust methods were used to develop and evaluate this theory-informed multiple behavior change intervention. Optimal number of target behaviors and frequency and duration of intervention remain questions for further investigation in future trials of healthcare professional behavior change interventions.

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O757

A PRACTICE CHANGE INTERVENTION TO INCREASE PREVENTIVE CARE IN MENTAL HEALTH SERVICES: EXPLORING REASONS FOR LIMITED EFFECT

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Background: Addressing the physical health needs of people with a mental illness is a recognized priority; however, mental health services provide sub-optimal levels of preventive care to address modifiable health risk behaviors. In the context of a clinical practice change intervention to increase the provision of preventive care within community mental health settings having limited effect, the current paper explores staff reported factors that may explain the limited effectiveness of the intervention.

Methods: Cross-sectional telephone interviews were administered to clinicians of 19 community mental health services prior to and following an intervention that aimed to increase the provision of preventive care for four health behaviors. Clinicians reported the availability and usefulness of intervention supports, attitudes towards the provision of preventive care, and barriers to the provision of referrals to behavior change services. **Results:** Most intervention supports were perceived to be available and useful. Supports perceived to be most useful included support people, manager support, forms and handouts, and a list of referral services. Following the intervention, there was an increase in positive responses to 3 of 10 attitudinal items. Clinicians remained negative regarding client interest in improving health risk behaviors. The most frequently reported barrier to the provision of referral was client disinterest, reported by 38% to 51% of clinicians.

Discussion: The intervention was unable to increase clinician perception of client interest in changing their health behaviors. Future attempts to increase such care should include strategies tailored to increase clinician awareness of client interest in behavior change.

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O758

A SYSTEMATIC REVIEW ASSESSING THE RELATIONSHIP BETWEEN HABIT AND HEALTHCARE PROFESSIONAL BEHAVIOR IN CLINICAL PRACTICE

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Introduction: Implementing clinical research evidence into routine practice necessitates healthcare professional behavior change. Theories used in behavioral science typically acknowledge that healthcare

professionals' behavior is driven by reflective decision-making processes. The current study aimed to systematically review the literature looking at the influence of automatic processes that influence healthcare professional behavior (i.e. habit).

Methods: A systematic search of five electronic databases identified 66 potentially relevant papers. Two reviewers independently selected nine studies for inclusion. The same reviewers extracted data using a structured extraction form to capture details of study characteristics; methodological quality; measures of clinical behavior and habit; and correlation coefficients of the habit-behavior relationships.

Results: Eight of the nine identified studies found a statistically significant correlation between habit and behavior ranging from $r=0.25-0.68$. The overall quality of studies was moderate with considerable variation across studies. Three different types of self-reported habit measures were utilized across the studies. Seven studies made explicit use of theory to predict clinical behavior. Habit was measured as a construct within Operant Learning Theory or a Dual Process Model. Potential effect modifiers included the type of clinical behavior, job title, type of habit measure and theory.

Conclusions: These results suggest that habit is an important predictor of healthcare professional behavior. Effective behavior change interventions should target both reflective and impulsive processes that drive healthcare professional behavior change. Future studies would benefit from the development of objective measures of habit as current measures are limited to self-report.

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O759

INCREASING THE ROUTINE PROVISION OF PREVENTIVE CARE BY COMMUNITY MENTAL HEALTH CLINICIANS: A WHOLE SERVICE APPROACH

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Background: Addressing the physical health needs of people with a mental illness is an increasingly recognized priority; however, mental health services provide sub-optimal levels of preventive care to address modifiable health risk behaviors. A study was undertaken to evaluate the effectiveness of a clinical practice change intervention to increase the provision of preventive care within community mental health settings.

Methods: A 12-month multi-strategic intervention was implemented sequentially across two groups of community mental health services to increase clinician provision of assessment, advice, and referral/follow-up for smoking, inadequate nutrition, harmful alcohol consumption and physical inactivity. Intervention strategies were based on those demonstrated to be effective at changing practice in general health care settings. Weekly cross-sectional telephone interviews with clients receiving care from community mental health services measured the receipt of preventive care from 6 months prior to intervention implementation in the first group of services until 6 months' post intervention in the second group of services (36 months total).

Results: There was an increase in the assessment for all risks combined (18% to 29%; OR 3.55, $p=.002$) following the intervention. No

significant changes in assessment, advice or referral for each behavioral risk independently were found.

Conclusions: The intervention was not successful at increasing the provision of preventive care within community mental health services. A greater tailoring of intervention strategies to the context of mental health services is likely required, as well as the exploration of other models of care.

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O760

EFFECTIVENESS OF A BALANCE-IMPROVED EXERCISE PROGRAM FOR ENHANCING FUNCTIONAL FITNESS OF OLDER ADULTS: A RANDOMIZED, CONTROLLED TRIAL

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Introduction: The exercise for balance improvement program (ExBP) is a newly developed program which aimed to improve balance and prevent falls in older adults. Previous studies have testified its effectiveness in balance improvement, and found the ExBP is feasible for older adults to practice in daily life. Given the close relations between balance and other fitness components, the positive side effect of ExBP on fitness needs further evaluation. Therefore, the purpose of this study was to examine the effectiveness of ExBP for enhancing functional fitness of older adults. **Methods:** Sixty-one participants, aged 65-74 years, were randomly exposure to 16-week ExBP ($n = 21$) or Tai Chi (TC; $n = 20$) training, or no treatment (control group; CON; $n = 20$), along with an 8-week follow up. The Senior Fitness Test battery was applied to evaluate the functional fitness of the older adults.

Results: Except for body mass index, all the testing outcomes in ExBP group have presented significant improvements at the end of intervention. The ExBP group demonstrated more improvements than CON in chair stand, 8ft up and go, and 2min Step (Step). No significant differences were found between ExBP and TC on all testing outcomes except the Step where the ExBP group showed significantly higher performance in both post-test and follow-up test. Finally, there were no significant changes in all outcomes during the follow up period.

Conclusions: The ExBP is effective in improving functional fitness, especially in lower extremity muscle strength, agility/balance, and aerobic endurance of older adults.

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O761

DAILY MEANING SALIENCE PREDICTS DAILY PHYSICAL ACTIVITY IN PREVIOUSLY SEDENTARY EXERCISE INITIATES

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Introduction: Despite the widely known benefits of physical activity, most adults are insufficiently active and have difficulty maintaining new exercise programs. Understanding factors related to physical activity in previously sedentary exercise initiates may improve interventions designed to increase regular physical activity. One factor might be the extent to which individuals experience meaning in their lives on a daily basis. Individuals living lives with more experienced meaning, or meaning salience, may be more likely to engage in health behaviors including physical activity. This study examined daily meaning salience and physical activity in previously sedentary exercise initiates.

Methods: Sedentary adults ($N=80$, 78 % female, M age=43 years, $SD=11$) intending to increase physical activity were recruited to participate in a daily diary study during fitness center enrollment. Participants reported meaning salience, mood, and physical activity (duration and intensity) daily for the first 28 days. Fitness center attendance was extracted from the member database. Multilevel models controlled for within participant variation and examined the relationships between daily meaning salience and daily physical activity.

Results: Multilevel models revealed that controlling for mood, meaning salience was positively related to physical activity duration, $\beta=.21$, $p<.0001$, and intensity, $\beta=.21$, $p<.0001$. For every standard deviation increase in meaning salience, participants were 48% more likely to visit the fitness center, Odds Ratio=1.48 (95% CI=1.18,1.86), $p=.0008$.

Conclusions: Results suggest that increased meaning salience may play a role in physical activity participation in previously sedentary exercise initiates. Future research should use time-lagged analyses to examine the relationship across days and over longer intervals.

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O762

AN EXPLORATION OF SPORT PARTICIPATION AMONGST FEMALE ADOLESCENTS FROM ETHNICALLY DIVERSE GROUPS

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Introduction: Sport is an influential setting for promoting the health and well-being of adolescents and offers a potential vehicle through which to engage youth in physical activity. However, sport participation declines throughout adolescence, particularly in girls from diverse ethnic groups. The aim of this study was to explore current needs, facilitators and barriers to sport participation among ethnically diverse adolescent girls.

Methods: Six focus groups were undertaken in 2015. Participants included adolescent girls ($n=43$) who attended after school community groups. The interview schedule focused on their current sport participation, barriers and enablers to participation and feasibility of strategies to encourage further sport participation. Thematic data analyses were conducted.

Results: The majority of participants were originally from Iran, Pakistan and Afghanistan and have been living in Australia between one and ten years. Most spoke of their enjoyment of sport and understood the health benefits of participation, however several major barriers were identified. These were similar across each ethnic group and included lack of transport to venues, competing home obligations, negative experiences in Physical Education at school and cultural perceptions of female participation in sport. Girls suggested that future participation could be encouraged by providing female only sporting programs that were short term and flexible, providing a choice of sports and linking programs to nearby school facilities for ease of access.

Conclusions: These findings will inform future intervention strategies to increase sport participation among adolescent girls from ethnically diverse groups.

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O763

A RELATIONSHIP BETWEEN WORKPLACE HEALTH PROMOTION ENVIRONMENT AND LEISURE-TIME PHYSICAL ACTIVITY AMONG EMPLOYEES: A MULTI-SITE CROSS SECTIONAL STUDY

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Introduction: The workplace environment may determine not only work-related but also leisure-time physical activity among employees. However, few studies have investigated the association. The aim of this study was to investigate relationships between workplace health promotion environment and leisure-time physical activity among employees.

Methods: Of the 24 worksites and 670 sampled employees were recruited to the study from October to December, 2015, Kanto-area, Japan. Workplace health promotion environment was assessed by worksite representatives and our research team, using the Environmental Assessment Tool. Leisure-time physical activity was measured by Global Physical Activity Questionnaire for the employees. As covariates, sex, age, job-type, employment-type, shift-type, job strain, social support, size and location of worksites, job-category, and self-efficacy and self-regulation for physical activity were measured. Hierarchical linear modelling was conducted as a multi-level regression analysis. The study protocol was approved by the ethical committee of the Department of Medicine, The University of Tokyo (No. 10919).

Results: Twenty-three worksites and 489 employees completed the questionnaires. Of health-improving workplace environment, score of organizational characteristics and support had a significantly positive relationship with leisure-time physical activity in a crude model ($\gamma=0.72$, $p=0.013$) but a non-significant relationship in an adjusted model ($\gamma=0.57$, $p=0.147$). In a sensitivity analysis, scores of written policy ($\gamma=1.37$, $p<0.001$) and fitness facilities ($\gamma=2.01$, $p<0.001$) were positively associated with leisure-time physical activity in the adjusted model.

Conclusions: Specific workplace health promotion environment was positively associated with leisure-time physical activity. Policy supports and facilitating fitness could be effective to improve leisure-time physical activity among employees.

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O764

PHYSICAL ACTIVITY INTERVENTIONS IN OLDER ADULTS: A SYSTEMATIC REVIEW OF REVIEWS

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Introduction: The proportion of people meeting recommended physical activity guidelines declines with age. We conducted a systematic review of existing reviews to assess evidence on interventions to encourage older people to be more active.

Methods: Six electronic databases were searched in June 2015 in line with our protocol (PROSPERO: CRD42013004333). Older people were defined as those aged 50+. Two reviewers independently screened title, abstracts and reference lists, extracted data from included studies, and assessed the quality of reviews using the AMSTAR and Progress-Plus checklists.

Results: Seventeen papers reporting on 15 reviews including between 6 and 38 studies were included. Eleven focused specifically on older adults (mean age range: 60 to 77 years) and 4 reported sub-group analyses for older adults. Eleven included various types of interventions (e.g. supporting lifestyle change, walking groups, exercise classes); the remainder focused specifically on walking, remote, text-message and pedometer-based interventions. Five meta-analyses reported small (e.g. $d=0.14$) to medium (e.g. $d=0.52$) effects on physical activity, with moderate to high heterogeneity. Narrative reviews reported mixed findings. Some behavior change theories (e.g. social cognitive theory) and techniques (e.g. problem solving) were associated with more successful interventions across multiple reviews. Ascertaining other intervention and sample characteristics linked to effectiveness was hampered by limited reporting and some contradictory findings.

Conclusions: Our findings will be informative to researchers, intervention designers, and policy-makers but need to be interpreted in light of the generally poor quality of the reviews themselves and the quantity, quality and diversity of their included studies.

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O765

FACTORS ASSOCIATED WITH PHYSICAL ACTIVITY IN AUSTRALIANS WITH PARKINSON'S DISEASE

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Introduction: Parkinson's disease is a common and disabling neurodegenerative condition that is rapidly rising in prevalence. Exercise limits disability progression; people who have higher levels of physical activity (PA) have better physical function, mobility and quality of life. Despite these benefits, most people with Parkinson's have sedentary lifestyles. The aim of this study were to explore factors associated with PA of Australians living with PD.

Methods: A sample of 357 community dwelling ambulant people with Parkinson's completed an online or mailed survey. Participants were 60% male, mean age 68.6 (8.8), with PD duration of 6.1 years \pm 7.0, with mild to moderate disability. Physical activity was evaluated with the International Physical Activity Questionnaire. Factors of interest were considered within International Classification of Function (ICF) domains, and included motor (e.g., gait) and non-motor (e.g., fatigue, apathy, depression, anxiety) symptoms, disability, disease severity, exercise self-efficacy, perceived motivators and barriers to exercise and perceived health/illness. A multivariate linear regression model identified factors that contributed significantly to physical activity levels in each ICF domain.

Results: In the final multivariate model, age, BMI, exercise self-efficacy, perceived fitness, perceived motivators, and pre-clinical gait endurance limitations were found to be significant contributing factors to PA.

Conclusions: Identification of factors associated with PA may guide the development of behavioral interventions. The presence of psychological factors indicate the potential importance of addressing mental health in interdisciplinary programs to increase PA.

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O766

MOTIVES UNDERLYING FOOD CHOICES AS PREDICTORS OF HEALTHY EATING AMONG ADOLESCENTS

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Introduction: The study examined the motives underlying food choices as predictors of healthy eating among adolescents in both Australia and India. These included health, mood, convenience, sensory appeal, natural ingredients, price, weight control and familiarity.

Methods: The participants were 194 adolescents from Melbourne, Australia; and 623 adolescents from Mumbai, India. Healthy eating was assessed using questions from previous research and the 2013 Australian Dietary Guidelines. Motives underlying eating behaviors were assessed by the Food Choices Questionnaire. A cross-sectional survey was employed. **Results:** For adolescents in Australia, weight control was found to be the main predictor of healthy eating. On the other hand, convenience and sensory appeal were found to be the main predictors of healthy eating among adolescents in India.

Conclusions: These findings are discussed in relation to previous research and cultural differences in eating patterns between adolescents from the two countries. Longitudinal studies are needed to more fully assess the nature of the relationship; and qualitative studies to more fully address the different contextual factors.

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O767

BEHAVIORAL RISK FACTORS AND POOR EQ-5D HEALTH STATUS: PROVISIONAL FINDINGS

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Introduction: Physical inactivity, tobacco smoking, high body mass index and hazardous alcohol consumption are risk factors for poor health. However, their relationship with the EQ-5D, a commonly used measure of general health status, is poorly understood. This study examines the relationship between these factors, both individually and in combination, with the EQ-5D.

Methods: Data from the Prospective Outcomes of Injury Study was analyzed ($n=2856$) using modified multi-variable Poisson regression modelling and Ordinary Least Squares regression modelling.

Results: Early cross-sectional analyses indicated that tobacco smoking was associated with being less likely to have problems with pain or discomfort and high alcohol consumption was associated with being more likely to have problems with pain or discomfort. However, the variable with the strongest association with having problems on all five EQ-5D dimensions (mobility, self-care, usual activities, pain or discomfort and anxiety or depression) was disability. The combination of being physically inactive

and obese gave the highest predicted probability of problems with mobility, self-care, usual activities and pain or discomfort. In longitudinal analyses the association of behavioral factors and the EQ-5D visual analogue score and misery index was of small magnitude.

Conclusions: While it is clearly important to consider specific combinations of behavioral risk factors when assessing general health status using the EQ-5D, other factors such as disability are also important.

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O768

OLDER ADULTS AND PHYSICAL ACTIVITY: A LONGITUDINAL INVESTIGATION USING A DUAL-PROCESS MODEL

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Introduction: Physical activity can significantly buffer against age-related illness and disease. To assess the effects of deliberative and non-conscious processes for prediction of older adults' physical activity, we tested a dual-process model that integrated intentional and volitional processes with automatic processes.

Methods: Participants (N = 165) comprised community-dwelling older adults aged 65 years and older. A longitudinal design was adopted to investigate a sequential chain testing the direct and indirect effects of intentions, habit strength (Time 1), and action and coping planning (Time 2) on physical activity behavior (Time 3). Structural equation modelling was used to evaluate the model.

Results: The model provided a good fit to the data (RMSEA=.03, CFI=.99, TLI=.99, $\chi^2(115)=132.37$, $\chi^2/df=1.15$), accounting for 45% of the variance in physical activity behavior at Time 3. Physical activity was predicted by intentions, action planning, and habit. The association between intentions and physical activity was mediated by action planning ($\beta=.18$; $CI_{BCA}=.01$ to $.31$). An effect of sex was also found where males used fewer self-regulatory strategies (i.e., action and coping planning) and engaged in more physical activity than females.

Conclusions: By systematically investigating an integration of deliberate and non-conscious processes, this study provides a novel understanding of older adults' physical activity. Interventions aiming to promote the physical activity behavior of older adults should target the combination of intentional, volitional, and automatic processes to provide the optimal chance for behavior change.

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O769

DIETARY INTAKE AND EXECUTIVE FUNCTION: A META-ANALYSIS

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Introduction: For some individuals, maintenance of healthy dietary practices is challenging. Theories of health behavior (including Temporal Self-Regulation Theory and Dual Process Theory) suggest that executive function may predict individual's performance of health behaviors such as healthy dietary intake and food choice. While some studies have indicated an association between health behavior and executive function, this relationship is likely to be dependent on both the facet of executive

function and the behavior under investigation. This project conducted meta-analysis of the relationship between dietary intake and inhibition. Inhibition, a facet of executive function, has previously been linked to weight and weight gain and thus is plausibly related to dietary intake.

Methods: Fifteen studies were identified through using a comprehensive systematic review protocol. Nine of fifteen studies reported multiple effect sizes from the same sample. Robust variance estimation was used to calculate pooled effect sizes in order to allow for inclusion of all reported observations (k=37).

Results: Across all observations, the average correlation between dietary intake and inhibition was positive and significant ($r=.138$; $p=.0016$; 95% CI: 0.06, 0.22 $k=37$). On average, individuals who had *better* inhibition ate *less unhealthy food*. The relationship was subject to substantial heterogeneity, however, food type and the task used to measure inhibition were not moderators of this effect.

Conclusions: The present meta-analysis provides evidence that inhibitory control is related to differences in dietary intake. Evidence indicates that individuals with greater inhibitory control engage in a healthier pattern of dietary intake.

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O770

SUSTAINABILITY OF RESPONSIBLE ALCOHOL MANAGEMENT PRACTICES IN COMMUNITY SPORTS CLUBS: A 6 YEAR FOLLOW-UP STUDY

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Introduction: Sporting club participants more often have elevated levels of risky alcohol consumption and alcohol related harm compared to the general population. A community alcohol management program for sporting clubs was effective in increasing the implementation of alcohol harm-reduction practices and reducing risky alcohol consumption and harm. Current literature suggests that there is a natural attrition of intervention effect once support ceases. We aimed to determine if clubs can sustain the implementation of effective alcohol management practices after an intervention period.

Methods: Community football clubs in metropolitan and regional areas of New South Wales, Australia were followed over a six-year period, 2009-2015. Repeat cross sectional surveys were conducted pre-intervention (2009, N=42), post-intervention (2012, N=28) and at follow-up (2015, N=25) with a representative from each football club. Descriptive statistics were used to explore the proportion of clubs sustaining the implementation of 16 individual alcohol management practices; the implementation of a quality level of practice (80% or greater) and the mean number of practices implemented.

Results: The proportion of clubs implementing seven of the 16 individual alcohol management practices was sustained in 2015. The proportion (88%) of clubs implementing 80% of the practices was sustained in 2015 and the mean number of practices implemented by clubs was sustained overall (2012 and 2015 $\bar{x}=14$).

Conclusions: Implementation of alcohol management practices three years following intervention was sustained in terms of the proportion implementing 80% of practices and the mean number of practices. Sustainability was not evident for a number of individual practices.

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O771

HEALTH-RELATED FACTORS OF WELLBEING: A MAJOR ROLE OF SLEEP, PERCEIVED RESPECT, AND MUSIC LISTENING

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Introduction: Knowledge on common health-related factors (sleep, physical activity, consumption of vegetable/fruit, coffee, and alcohol) almost exclusively stems from epidemiological and experimental studies that do not consider behavioral fluctuations within and across days. Furthermore, evidence for under-researched health determinants such as listening to music and perceived respect is more anecdotal than conclusive. The above mentioned determinants on subjective and objective wellbeing were evaluated using a micro-longitudinal approach of high ecological validity.

Methods: Seventy-seven young healthy adults completed mood, stress, and fatigue items five times/day for four consecutive days. Along with each data entry, salivary cortisol and alpha-amylase were assessed as markers of objective wellbeing. Self-reported physical activity and respect were included at each entry. Moreover, sleep quality (in the morning), and consumption of vegetable/fruit/coffee/alcohol and music listening (at the end of the day) were assessed.

Results: In regard to subjective wellbeing, we identified sleep quality, average perceived respect and listening to music as major predictors. Effects of physical activity appeared rather minor, while there were no effects of vegetable/fruit and coffee or alcohol consumption. Furthermore, restful sleep predicted lower daily amylase activity while respect was negatively related to cortisol output. Coffee consumption positively predicted daily amylase and cortisol output.

Conclusions: These findings provide important insights regarding potential resources of wellbeing. The effects of sleep, music, and perceived respect on subjective and/or biological markers of wellbeing are promising, and possible long-term consequences as well as specifically targeted interventions need to be investigated further.

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O772

THE INFLUENCE OF ILLNESS PERCEPTIONS AND SELF EFFICACY ON EMOTIONAL OUTCOMES AFTER JOINT REPLACEMENT

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Introduction: Whilst substantial evidence of the influence of illness perceptions and self-efficacy on illness outcomes exists, few studies have addressed the dynamic of change in such beliefs nor addressed these questions amongst surgical populations. The current prospective study examines such questions in terms of the short and longer-term emotional outcomes of osteoarthritis hip and knee replacement patients. We also examine whether adherence to exercise rehabilitation mediates the relationships between beliefs and emotional outcomes.

Methods: This prospective longitudinal study included three assessments (before surgery, and six weeks and nine months after surgery). 40 hip and knee replacement patients ($M=68.90$ yrs, $SD=7.60$) were recruited in a general hospital and completed a questionnaire-booklet including the Revised Illness Perceptions Questionnaire, the General Self-Efficacy Scale, the Self-Efficacy for Rehabilitation Outcome Scale, the Falls-Efficacy Scale, the Hospital Anxiety and Depression Scale, the Short Form of Psychological Well-Being Index, the Medication Adherence Report Scale and the Morisky Medication Adherence Scale (adapted for exercise adherence).

Results: A series of multiple hierarchical regression analyses were performed, using residual change scores as independent variables. Mediation was tested using bootstrapping. Early increases? (T1-T2) in general self-

efficacy and perceived illness consequences predicted 6-week anxiety and depression outcomes; while late give direction (T2-T3) in general self-efficacy and emotional representations predicted 9-month depression and emotional well-being. Exercise adherence did not mediate these relationships

Conclusions: Change in illness cognitions variably explains emotional outcome. Such findings hold implications regarding both the content and the implementation timing of future interventions.

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O773

DAILY ASSOCIATIONS BETWEEN SOCIAL SUPPORT AND AFFECT AMONG PATIENTS AFTER HEMATOPOIETIC STEM CELL TRANSPLANTATION

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Introduction: Few studies concern social support processes within the context of the everyday life of patients after hematopoietic stem cell transplantation (HSCT). The present study addresses this gap by examining the links between patient's daily provided and received support and their daily positive (PA) and negative affect (NA). Moderator effect of gender was also examined.

Methods: Eighty-nine patients after first autologous or allogeneic HSCT reported received and provided social support as well as affect for 28 consecutive evenings (starting from the first day after transplantation unit discharge). Multilevel modeling was used to investigate within- and between-day effects for PA and NA separately, with both provided and received support as predictors and vice versa (affect as predictor of support exchange), and time as a covariate. Interaction terms (gender x predictor) were computed to test moderator effect.

Results: Multilevel analyses indicated that predictive models of social exchange fitted the data better. Daily support provision was significantly associated only with PA: Patients provided more daily support in the days with higher PA experience. Significant interaction effect indicated the presence of gender differences on the person level: Positive effect of PA on support provision was significant only among men.

Conclusions: Findings suggest that daily positive affect may have positive associations with support provision in patients after HSCT, which is in congruence with the broaden-and-build theory of PA and the previous studies on the emotion regulation. Gender differences were significant at the between-person level.

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O774

CONTEXTUAL AND ATTITUDINAL BARRIERS TO HELP-SEEKING FOR SKIN CANCER DETECTION IN RURAL SOUTH AUSTRALIA

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Introduction: Australians are diagnosed with skin cancer at more than five times the global rate. Those living in regional, rural and remote areas of Australia are at particular risk of skin cancer morbidity, but little is known about why this is so. This study identifies barriers to help-seeking for skin cancer-related issues among rural South Australian adults.

Methods: 201 randomly selected rural adults (18–94 years, 66% female) were presented with a skin-cancer-related scenario via telephone and asked the extent to which various barriers would impede their help-seeking, based on an amended version of the Barriers to Help-Seeking Scale.

Results: Older (≥ 63 years) and less educated participants perceived stronger barriers to help-seeking than their younger, more educated counterparts. Contrary to what was hypothesized, socioeconomic status, gender and farmer/ non-farmer status did not predict stronger overall barriers, but some gender and occupation-related differences were detected at the item, and item and domain levels respectively. Believing that problems like this are just a part of life, wanting to make their own decisions (and not be too influenced by others), reluctance to “get emotional”, concerns about privacy, taking too long to see a general practitioner and not wanting to sound like they are complaining, are examples of barriers that were widely endorsed ($> 35\%$ of participants) in this context.

Conclusions: What is known about barriers to skin detection from international studies, does not necessarily apply to rural South Australians, and even this is not a homogenous group. Interventions need to be targeted accordingly.

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O775

HOW DOES GENETIC TESTING FOR HYPERTROPHIC CARDIOMYOPATHY AFFECT ILLNESS BELIEFS AND BEHAVIOR?

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Introduction: Hypertrophic cardiomyopathy (HCM) is a genetic heart disease which can result in sudden death at a young age. Family members may undergo cascade genetic testing following gene fault discovery in the family, creating a new group of genotype positive/phenotype negative (G+P-) ‘patients’ who may or may not develop HCM. This study explored experiences of HCM genetic testing and the impact of a G+P-result.

Methods: A purposive sample of 31 family members offered genetic testing for HCM were recruited from a specialized multidisciplinary cardiology clinic, including 19 G+P-, 4 negative gene results, 4 with HCM and 4 who declined the test. Semi-structured interviews were conducted face-to-face or by phone, as preferred by participants. Transcribed audio-recordings were coded using Framework Analysis.

Results: Participants perceived the main benefit of genetic testing was for the next generation, and stated directly that it had minimal impact on their own lives. However, G + P- participants described many changes to illness beliefs, including worry, uncertainty, perceived heart symptoms, and misconceptions about current and future HCM diagnosis. This had a behavioral impact, including family pressure to get tested, restricting physical activities for themselves and their children, and variable clinical management, ranging from discontinued monitoring for ‘carriers’ to acceptance of medical procedures for perceived HCM.

Conclusions: Participants interpreted the meaning of a positive genetic test result in variable ways, leading to confusion about disease status and management. The effects this may have on an otherwise healthy individual should be communicated prior to testing to enable informed decision making.

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O776

STROKE RISK PERCEPTIONS IN PATIENTS WITH ATRIAL FIBRILLATION: EXPERIENCE COUNTS

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Introduction: Studies investigating associations between patients’ risk perception and medical risk assessment often report substantial discrepancies. Misperceptions of personal risk can be problematic since they might negatively affect motivation for behavioral change or personal well-being. Purpose of the present study was to investigate which factors beyond medically established risks determine stroke risk perception in an at-risk patient group.

Methods: In an observational cross-sectional study we surveyed 184 atrial fibrillation patients in anticoagulant treatment. Information about clinical stroke risk factors were assessed via patient records/patient information management systems. Stroke risk perception, lifestyle behaviors (e.g. physical activity, smoking), treatment perceptions, critical life events, perceived stress and social support were assessed via a study-nurse-administered standardized questionnaire.

Results: With the exception of prior stroke experience, standard medical risk factors, for instance, congestive heart failure, vascular disease, diabetes, but also socio-demographic factors (age, gender, education) and, in particular lifestyle factors, such as obesity, physical inactivity or smoking did not make a difference in terms of whether patients perceived lower or higher stroke risk. Instead, it was experience of treatment side-effects, perceived stress and certain types of life events which were significantly associated with higher perceived stroke risk.

Conclusions: The findings support the notion that risk perceptions – even in people with manifest clinical risk – seem largely based in the experiential system, that is may be “felt” rather than “known”. This lack of “self-evidence” of risk highlights the importance of educational-motivational efforts to facilitate life-style changes and medication adherence in patients at risk for stroke.

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O777

SUBJECTIVE WELL-BEING, HEALTH BEHAVIOR AND OTHER HEALTH FACTORS AS PREDICTORS OF FALLS IN POSTMENOPAUSAL WOMEN

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Introduction: Knowledge of predictors of falls in women before old age is scanty. The purpose was to find these predictors.

Methods: Kuopio Osteoporosis Risk Factor and Prevention (OSTPRE) study cohort, Finland was used: 8656 women aged 57–66 responded to health questions in 1999 and to fall questions in 2004. We compared women with frequent falls (2+ within 12 m)(n=2016) to women with no falls (n=5259) and excluded occasional (one fall) fallers (n=1381) resulting in study population of 7275 women. Subjective well-being (SWB) was measured with four questions: feelings of interest in life, ease of living, happiness and loneliness. Number of reported chronic health disorders diagnosed by a physician was a measure of morbidity. Logistic regression was the statistical method.

Results: Fall history was the strongest predictor of fall (OR 3.16 (95 % CI 2.8–3.6)), followed by morbidity (OR=1.14 (1.1–1.2)) for one unit increase, SWB (OR 1.06 (1.04–1.1)), BMI (OR 1.04 (1.02–1.04)), smoking (OR 0.71 (0.6–0.9)), use of antidepressants (OR 1.62 (1.3–2.1)), leisure physical activity (PA)(OR 0.89 (0.8–1.001)). The adjusted final model included: fall history (extremely strong), morbidity (strong), SWB (strong), mobility (moderate), smoking (weak protection!), alcohol (weak), PA (weak). R² of the model was 5–8 %.

Conclusions: The strong effect of fall history suggests a genetic trait. Health status and SWB are also considerably related to fall risk health behavior to some degree but partly controversially. Further study aims to reveal interactions of predictors and potential causal pathways including if residual confounding explains the seemingly positive effect of smoking.

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O778

PREVALENCE AND ASSOCIATED FACTORS OF CONDOM FAILURE DURING TRANSACTIONAL SEX WITH MALE CLIENTS AMONG TRANSGENDER WOMEN WHO WERE SEX WORKERS SERVING MEN IN SHENYANG, CHINA

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Introduction: Transgender women providing sex service to men in feminine dressing (TG-SW) are at high risk of HIV transmission as they have high prevalence of HIV and unprotected anal sex (UAI). Condom failure is another threat yet to be investigated.

Methods: An anonymous cross-sectional study surveyed 220 eligible participants in Shenyang, China. Eligibility included: 1) self-reported as a transgender/transsexual woman (pre-operative or post-operative), 2) ≥18 years old, 3) anal intercourse with ≥ 1 male client (last three months), and 4) feminine dressing during transactional sex.

Results: HIV prevalence (self-reported or tested in this study) and UAI with male clients (last month) was 25.9% and 26.8%, respectively. Among those not having UAI (n=161), 59.0% reporting having ≥1 of the four types of condom failure (i.e., breakage, slippage, removal during sex, worn after penetration). Adjusted for background factors (e.g. income and HIV sero-status), significant factors of condom failure included: 1) number of transgender-related behaviors (Adjusted odds ratio (AOR)=2.11), 2) uncertainty about proportion of clients knowing of his transgender status (AOR=0.20), 3) cue to action for condom use (AOR=0.71), and 4) psychosocial variables including social support (AOR=0.96), self-esteem (AOR=0.86), depression (AOR=1.04), anxiety (AOR=1.13), loneliness (AOR=1.15), self-stigma toward TG-SW (AOR=1.10), and perceived stigma toward TG-SW among friends (AOR=2.17).
Conclusions: Prevalence of HIV and UAI with clients was high. Even worse, around 60% of those not having UAI self-reported condom failure. Condoms were used but sex was not protected. Integrated interventions, taking psycho-social factors into account, are warranted to prevent condom failure, besides preventing UAI.

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O779

RATIONALE AND DESIGN: INNOVATIVE METHODS TO INCREASE HIV TESTING AMONG MEN WHO HAVE SEX WITH MEN IN RESOURCE-LIMITED, REGIONAL QUEENSLAND.

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Introduction: Men who have sex with men (MSM) in regional and rural areas face actual and perceived barriers to accessing HIV screening. Addressing barriers to HIV testing allows MSM to test more regularly for HIV. Increasing HIV testing rates will reduce the number of undiagnosed HIV cases in the community and allow for earlier diagnosis and treatment. We describe a pilot project that will assess the feasibility and effectiveness of time-limited, peer-based mobile clinic van intervention to facilitate alternative HIV testing methods among MSM in a resource-limited, regional setting (Toowoomba).

Methods: Participants who are MSM in the Toowoomba/Darling Downs region, aged over eighteen and are either HIV negative or HIV unknown will be recruited. Participants will be invited to participate in the research project using Respondent Driven Sampling and through advertisements and profiles on geo-social networking sites. The research project will use a mobile clinic van to provide 'point of care' HIV and syphilis screening delivered by trained peer 'HIV/STI test facilitators' employed by Queensland Positive People. The mobile clinic van will be parked in discreet locations in close proximity to local beats in Toowoomba and will provide testing one evening a week for twelve weeks. Participants will also be invited to participate in a HIV home test postal kit program delivered by Queensland Positive People for repeat HIV screening. This pilot project may provide more sustainable insights into improving access to alternative HIV testing methods that allow MSM living in regional Queensland to confidentiality test for HIV.

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O780

A RANDOMIZED CONTROLLED TRIAL EVALUATING THE EFFICACY OF PROMOTING HIV SELF-TESTING AND ONLINE REAL-TIME COUNSELLING ON INCREASING HIV TESTING AMONG MEN WHO HAVE SEX WITH MEN IN HONG KONG

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Introduction & purpose: HIV testing is an important global HIV prevention strategy but under-utilized by men who have sex with men (MSM). This study evaluated the efficacy of an intervention promoting free HIV self-testing (HIVSRT) with online real-time counselling versus a control promoting free traditional HIV testing and counselling (HTC) to increase HIV testing rates over a 6-month follow-up period among MSM.

Methods: A parallel-group, non-blinded randomized controlled trial was conducted. Participants were MSM who were not HIV positive and had not been tested for HIV (last 6 months); 430 participants were randomized into the intervention group (n=215) and control group (n=215). In addition to the online video promoting traditional HTC watched by the control group, the intervention group watched another video (guided by the Health Belief Model) promoting HIVSRT, received motivational interviewing by phone and were given a free HIVSRT kit. By appointment, participants took up HIVSRT with real-time standard-of-care pre-test and post-test counselling provided by experienced nurses through social media. The follow-up rate was 86.5% (intervention group) and 85.1% (control group) at Month-6.

Results: Between-group differences for baseline background characteristics and potential confounders were statistically non-significant. The intervention group reported higher prevalence of HIV testing of any type (88.8% vs. 49.3%, RR=1.80, ARR=39.5%, $p<.001$) and HIV self-testing (83.3% vs. 2.3%, RR=36.22, ARR=81%, $p<.001$) within the last 6 months, as compared to that of the control group (intention-to-treat analysis).

Conclusions: MSM showed good responses to HIVSRT and online real-time counselling. It is a potential means to increase HIV testing.

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O781

THE INVESTIGATION AND ANALYSIS OF HOSTILE PSYCHOLOGY ABOUT HIA/AIDS PATIENTS

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Introduction: Recently the incidence of HIV/AIDS patients has increased along with a corresponding increase in HIV/AIDS fear in the general public. The aim of this study was to describe the level of hostility perceived by HIV/AIDS patients in Nanning, and to identify factors associated with hostility.

Methods: Self-report questionnaires assessing hostility using the SCL-90 were completed by 1516 individuals with HIV/AIDS from two HIV clinics in Nanning.

Results: Hostile negative was evident for 1440 (95%) of cases, and hostile positive for 76 (5.0%) cases. The hostility of HIV/AIDS patients varied according to sex, living habits, living environment, amateur training situation, adherence to medicine, sleep, evaluating their own mental health, understanding the country policy – "four free one care", and whether for help related institutions ($p < .05$). Hostile psychology was positively correlated with depression ($r=0.488$, $p<.05$). We used the Hostile factor as the dependent variable, and four independent variables (depression,

evaluating their own mental health, sleep and sex) were entered into a stepwise regression model.

Conclusion: Very few patients reported perceptions of HIV/AIDS hostility but 95% reported experiencing negative hostility, and 5% reported positive hostility. Our analyses suggest that the perception of hostility in patients is associated with a number of interpersonal and situational factors.

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O782

ADVERSE EXPERIENCES, RISK BEHAVIOR AND PSYCHOLOGICAL ADJUSTMENT IN HIV/AIDS INFECTED ADULTS IN NORTH OF PORTUGAL

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Introduction: HIV is one of the most concerning infectious agents worldwide. The relationship between early adverse experiences and the risk behaviors for HIV/AIDS is known, but until now no study compared victimization history and psychological adjustment in patients according different forms of contamination.

Methods: Data from 371 infected patients was collected in hospitals in the North of Portugal that deliver treatment of HIV/AIDS. Participants were referred by medical staff, and data were collected through an interview, in a single moment of evaluation, usually after outpatient medical appointment. The mean age of the participants was 46.83 years ($SD = 11.77$), mostly male (70%) and with diagnoses known, on average, for 10.13 years ($SD = 6.42$).

Results: We identified three distinct groups concerning forms of contamination: 1. Sexual risk behavior (62%); 2. Injection drug user (IDU) (26%); 3. Infected by an intimate partner (12%). The three groups were statistically different related to the number of adverse experiences in childhood and adolescence/adulthood, with the IDU group reporting the higher number at all stages of life, followed by the sexual risk behavior group. The group of women infected by an intimate partner reported significantly less adverse experiences. However, this last group reported significantly higher rates of depressive symptomatology. They revealed to live more distressed by the possibility of having their diagnosis known by their family, neighbors and friends, fearing rejection, abandonment and stigmatization.

Conclusions: The knowledge of needs and specificities of the different HIV groups are relevant for HIV/AIDS prevention and clinical intervention.

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O783

FACTORS ASSOCIATED WITH HIV INFECTION AMONG CAREGIVERS OF PEOPLE LIVING WITH HIV/AIDS

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Introduction: Literature has shown that family members and friends of people living with HIV/AIDS (PLWHA) have increased risks for HIV infection. However, few studies have focused on caregivers (i.e.,

family members and friends) of PLWHA. This study aimed to explore the status of HIV infection and associated factors among caregivers of PLWHA.

Methods: Cross-sectional study by convenience sampling was conducted and 192 caregivers of PLWHA were recruited in the designated hospital for HIV/AIDS treatment from March to June, 2013 in Guangzhou, China. Multivariate unconditional logistic regressions were performed to explore the related factors with HIV infection of caregivers.

Results: Among the 192 participants, 166 (86.5%) were family members, and 97 (50.5%) were spouses and sexual partners of PLWHA. The rate of overall HIV infection was 36.5 percent, and the rate of HIV infection among spouses and sexual partners was 51.6% (50/97). Multivariate Logistic regressions indicated that being married or in sexual relationship with the PLWHA ($OR=4.46$, 95% CI : 2.13~9.37), homosexuality/bisexuality ($OR=4.52$, 95% CI : 1.68~12.21) and drug use ($OR=6.76$, 95% CI : 1.72~26.53) were risk factors for caregivers' HIV infection, whereas emotional closeness ($OR=0.23$, 95% CI : 0.10~0.54) with PLWHA was protective factor for caregivers' HIV infection.

Conclusions: The rate of HIV infection was rather high for the caregivers of PLWHA, especially among spouses and sexual partners of PLWHA in China. Strategies to promote emotional closeness between spouses/sexual partners and PLWHA may be potentially effective. More studies are warranted to explore the relationship between emotional ties with PLWHA and HIV infection of their caregivers.

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O784

USING AVOIDANCE FRAMED MENTAL IMAGERY TO REDUCE ALCOHOL CONSUMPTION: EVIDENCE FROM A RANDOMISED CONTROLLED TRIAL.

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Introduction: Research using self-regulation theory indicates that goal orientation can be used in combination with mental imagery to harness behavior change. While some evidence suggested that approach-oriented imagery is effective to promote health-protective behaviors, the utility of avoidance-oriented imagery to reduce health-risk behavior remains unclear. The present randomized controlled trial utilized avoidance and neutrally framed imagery to examine the efficacy of mental imagery in reducing alcohol consumption over a six-week intervention period.

Methods: A 2(time; baseline and intervention) × 2(condition; avoidance and neutral imagery) mixed factorial design was utilized with 92 adults of the general population that reported binge drinking at least once every six weeks. An initial six-week baseline period was utilized to measure participants' usual drinking patterns, followed by a further six-week intervention period. Participants received audio imagery instructions and practiced daily. Follow-up drinking behaviors (daily alcohol consumption, number of binge-drinking sessions and number of drinking days in a week) were assessed.

Results: The results of the repeated measures ANOVA's showed a significant reduction in total number of drinks consumed over time for both the avoidance and neutral imagery conditions. A significant reduction in number of drinking days was found for the avoidance condition only. No significant reduction on the number of binge drinking sessions was found.

Conclusions: These findings suggest that avoidance framed mental imagery is an effective, convenient, and low cost intervention strategy for reducing number of alcoholic drinks consumed and number of drinking days but may not be effective in reducing high levels of binge drinking.

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O785

AN INTEGRATED SMOKING CESSATION INTERVENTION FOR MENTAL HEALTH PATIENTS: A RANDOMISED CONTROLLED TRIAL

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Introduction: Interventions with a potential population health impact are required to redress the disproportionate tobacco-related health burden experienced by persons with a mental illness. The efficacy of a smoking cessation intervention initiated within an acute psychiatric inpatient setting and continued post-discharge was assessed.

Methods: A randomized controlled trial was undertaken across four psychiatric inpatient facilities in Australia. Participants ($N = 754$) were randomized to receive either usual care ($n = 375$) or a 4-month multimodal smoking cessation intervention ($n = 379$), upon discharge. Outcomes assessed at 6 and 12 months post-discharge were: 7-day point prevalence smoking abstinence (primary outcome); daily cigarette consumption, quit attempts, nicotine dependence and readiness to quit (secondary outcomes).

Results: Abstinence rates were higher for intervention participants (16.9%) than controls (9.5%) at 6 months post discharge ($OR 1.07$, $p = 0.03$), but not at 12 months ($OR 1.02$, $p = 0.46$). At both 6 and 12 months post-discharge, intervention group participants were smoking fewer cigarettes per day ($p = 0.005$), were more likely to have reduced their cigarette consumption by at least 50% ($p = 0.02$), and to have attempted to quit one ($p = 0.001$) or more ($p = 0.002$) times, relative to controls.

Conclusions: Provision of 4 months of multimodal cessation support to all smokers following discharge from a psychiatric inpatient facility resulted in greater abstinence in the short term. Additional research is required to identify strategies for further promoting quitting behaviors and ultimately achieving sustained smoking cessation among persons with a mental illness.

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O786

TOBACCO USE AND INTEREST IN SMOKING CESSATION AMONG PEOPLE WHO INJECT DRUGS IN A MEDICALLY SUPERVISED INJECTING CENTRE (MSIC)

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Introduction: Tobacco smoking is a leading cause of preventable death. Although, smoking rates in the general population are decreasing (15.8%), the rate of tobacco smoking among persons who inject drugs (PWID) remains high, ranging from 71% to 96%. Understanding PWID tobacco smoking and interest in quitting is paramount to being able to address their tobacco use and reduce tobacco-related harms. This study sought to examine smoking-related behaviors and interest in smoking cessation among PWID engaged in a MSIC.

Methods: Between November 2015 and January 2016 an online cross-sectional survey was administered to eligible MSIC clients. To be eligible to participate clients had to be: aged ≥ 18 years; self-report tobacco use; have satisfactory English comprehension; and be able to provide informed consent.

Results: Of the 214 eligible individuals, 202 consented to participate (94%). Most (99%) were daily smokers who were moderately to heavily nicotine dependent (77%). The majority (83%) had made at least one quit attempt in their lifetime although previous quit attempts were largely unaided relying mostly on will power (70%). Most (68%) indicated that they would like to quit smoking, believed they had the self-efficacy to quit smoking (63%) and would like to receive access to smoking cessation care while visiting a MSIC (61%).

Conclusions: PWIDs were highly nicotine dependent, interested in quitting smoking and would like to receive access to smoking cessation care while at a MSIC.

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O787

THE FEASIBILITY OF TEXT MESSAGE INTERVENTIONS TO REDUCE EVENT SPECIFIC DRINKING IN A HIGH RISK GROUP
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Introduction: Hospitalization for alcohol-related injury appears to be increasing despite a reduction in 18-24 year olds' drinking. One factor that may account for this finding is event specific drinking (e.g., Christmas or New Year's drinking). Therefore, our aim was to trial the efficacy of a text message intervention for university students during two week long events: Orientation Week (O'Week) and Re-O'Week. We also aimed to determine whether reducing event specific drinking in this high risk group would have an impact beyond the event itself.

Method: Participants were 130 first year university students in Study 1 (O'Week) and 192 psychology students in Study 2 (Re-O'Week). In both studies, students were randomly assigned to either a control condition or an intervention condition. Both conditions reported their drinking before the event, during the event, and fortnightly during the semester after the event. Those in the intervention condition also received a text message every night during the events promoting drinking in moderation.

Results: In Study 1, women in the intervention condition consumed significantly fewer drinks than women in the control condition during both O'Week ($M=17.1$ vs. $M=26.4$; $t(70)=-1.927$, $p<.05$) and the semester following intervention ($M=5.0$ vs. $M=7.5$; $t(70)=-2.263$, $p<.05$). There was no difference for men. In Study 2 there was no difference in drinking

during Re-O'Week or during the semester after the intervention for any students.

Conclusions: The current study represents an innovative approach to reducing alcohol consumption during known periods of risk that can be implemented in any population.

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O788

FAMILY AND PEER INFLUENCES ON ALCOHOL CONSUMPTION AMONG YOUTH IN MALAYSIA: AN EXPLORATION OF ETHNIC DIFFERENCES

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Introduction: The National Survey 2011 reported that the prevalence of alcohol use in Malaysia was 12% (MOH, 2011b). Malaysian studies are generally based on small numbers from academic centers, national household survey or studies done in controlled environment. Therefore, this study aims to capture data that reflect the ecological factors such as gender, ethnicity and social influences that may influence alcohol consumption amongst Malaysian youth within community settings where socialization or such risk factors occurs.

Methods: Data were collected with a combination of interviews and self-administered questionnaires available in Bahasa Malaysia and English adapted from the CDC Youth Risk Behavior Survey. Convenience sampling was used to recruit the study sample across 6 semi urban and urban sites, in Malaysia.

Results: Subjects consist of 326 respondents: 103 Malays, 111 Chinese and 112 Indians, 171 male and 155 female (mean age 21 years). Having a combination of at least one family member and one friend who consumed alcohol was a significant driver of alcohol use: 80% in this category had tried alcohol; 55% were current drinkers; and 35% were binge drinkers. With respect to ethnicity, 72% of Chinese youth had tried alcohol or were current drinkers (49%). The highest levels of binge drinking were noted among the Indian youth (31%) followed by Chinese youth (23%) and significantly less in Malay youth (5%).

Conclusions: Family alcohol consumption patterns appear to have the highest impact on risky consumption patterns among youth within certain community settings in Malaysia. Such consumption patterns differ within the three ethnic groups.

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O789

TOBACCO SMOKING CESSATION INTENTIONS AND PREFERENCES FOR QUIT SUPPORT AMONG CLIENTS OF DRUG AND ALCOHOL TREATMENT SERVICES IN AUSTRALIA

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Introduction: In Australia 77-95% of people entering drug and alcohol treatment smoke tobacco – five times the prevalence of the general adult population. A commonly cited barrier to addressing smoking in this setting is the belief that clients are not interested in quitting.

Methods: Clients, who were self-reported smokers, attending one of 32 drug and alcohol services in NSW, QLD, ACT and SA, Australia enrolled in a larger cluster-RCT study were invited to complete an online touchscreen tablet baseline assessment survey. Smoking history, cessation support preferences and demographics were assessed.

Results: $N=900$ smokers. Most participants received their primary income from a government pension (78%), earned <AUD\$400/week (55%), had not completed secondary schooling (55%) and identified as male (58%). On average smokers consumed 18 cigarettes/day, had attempted to quit in the past (80%), intended to quit within the next 6 months (75%) and made an average of 2.24 serious quit attempts in the past 12 months. The most popular types of smoking cessation care clients wanted from drug and alcohol services were the provision of free or cheap NRT (79%), support and encouragement to quit (68%), to be asked if they would like to quit (61%) and to be followed-up and given support to stay quit (60%). Only 51% of clients knew they could access NRT patches at very low cost through their doctor.

Conclusions: Clients in substance abuse treatment who smoke tobacco are interested in quitting and would like support from drug and alcohol treatment services.

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O790

IS A SCHOOL-BASED PHYSICAL ACTIVITY INTERVENTION TARGETING SECONDARY SCHOOL STUDENTS COST EFFECTIVE?

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Introduction: Few school-based interventions have been successful in reducing physical activity decline and preventing overweight and obesity in adolescent populations, resulting in very limited cost effectiveness analyses have been reported. This study aims to report the cost and cost effectiveness of the Physical Activity 4 Everyone (PA4E1) intervention implemented in secondary schools.

Methods: The PA4E1 cluster randomized controlled trial was implemented in 10 Australian secondary schools (5 intervention: 5 control) and

consisted of intervention schools receiving seven physical activity promotion strategies and six implementation support strategies. Costs associated with physical activity strategies, and intervention implementation strategies within the five intervention schools were estimated and compared to the costs of usual physical activity practices of schools in the control group. The cost of implementing the intervention was estimated from a societal perspective, based on the number of enrolled students (Grade 7, $n = 837$). The economic analysis outcomes were the incremental cost effectiveness ratios for the following: minute of MVPA per day gained and MET hours gained. Project records were used to estimate intervention costs.

Results: The intervention cost AUD \$329,952 over 24 months, or \$394 per student in the intervention group. This resulted in a cost effectiveness ratio of \$56 (\$35 - \$147) per additional minute of MVPA, and \$1 (\$0.6-\$2.7) per MET hour gained per person per day.

Conclusion: PA4E1 is a cost effective intervention for increasing the physical activity levels and reducing unhealthy weight gain in adolescents, a period in which physical activity typically declines.

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O791

CAN WE MINIMISE THE IMPACT OF ARGUMENTS FROM INDUSTRY OPPOSING ALCOHOL AND SUGARY DRINK POLICIES? TESTING THE PROTECTIVE EFFECTS OF PUBLIC HEALTH ADVOCACY MESSAGES

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Introduction: Policies encouraging healthy behaviors are often strongly opposed by well-funded industry lobby groups. Public health advocates must compete against anti-policy messages to secure high levels of public support for important health policies. This study first tested the effectiveness of advocacy messages containing inoculation and/or narrative components in generating support for four different health policies (increased taxes and marketing restrictions on sugary drinks and alcohol). Importantly, it then explored whether these messages improved resistance to subsequent persuasive anti-policy messages typical of alcohol and sugary-drink industries. **Methods:** In a randomized online experiment $N=6,000$ Australian adults were assigned to receive one of five advocacy messages at time 1: (i) control; (ii) standard pro-policy arguments (SPPA); (iii) SPPA + inoculation (directly refuting the opposition); (iv) SPPA + narrative (short, personal story); (v) SPPA + inoculation + narrative. At time 2 respondents were exposed to an anti-policy message ($n=3,285$). Generalized linear models tested for differences between conditions in policy support and anti-industry beliefs at time 1, and again after exposure to the anti-policy message at time 2 (average time between surveys=15.8 days).

Results: SPPA + narrative messages increased policy support at time 1 relative to the control group. Prior exposure to narrative or inoculation messages (conditions iii and iv) was most effective at reducing the persuasive impact of the anti-policy message at time 2 compared to the control group.

Conclusions: Dissemination of advocacy messages using narrative or inoculation components can help make the public resistant to future efforts at persuasion by industry groups.

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O792

A RANDOMIZED TRIAL OF A BEHAVIORAL ECONOMIC INTERVENTION TO DECREASE CLINICIAN ORDERING OF LOW-VALUE HEALTH SERVICES

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Introduction: Clinicians often order services that do not improve patient outcomes and can lead to unnecessary harms and costs (i.e., low-value services). We tested whether a strategy grounded in behavioral economics could decrease clinician ordering of such services.

Methods: We conducted a stepped wedge cluster randomized trial with 45 primary care clinicians in 6 clinics. At the start of the control period, clinicians were shown *Choosing Wisely*® recommendations to avoid imaging for uncomplicated low back pain, imaging for uncomplicated headaches, and unnecessary antibiotics for acute sinusitis. At the start of the 6-month intervention period, clinicians were invited to commit to following these recommendations. Clinicians who committed received point-of-care reminders of their commitment and patient education handouts, along with weekly emails with resources to improve communication with patients about low-value care. The primary outcome was the difference between the intervention and control periods in the proportion of applicable visits with orders for the targeted services. We estimated differences in proportions using linear mixed models with random effects for providers nested in practices, adjusted for patient characteristics, time, and diagnosis.

Results: All 45 clinicians committed to following the 3 *Choosing Wisely* recommendations. Across 18,013 clinic visits, the intervention was associated with a 1.4% decrease in the proportion of visits with orders for the targeted services (95% CI, -2.7% to -0.2%; $P = 0.02$).

Conclusions: A behavioral economic intervention that paired commitment to following *Choosing Wisely* recommendations with supports to promote adherence to this commitment led to fewer orders for low-value services.

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O793

COST-EFFECTIVENESS OF A DECISION AID FOR BREAST RECONSTRUCTION AFTER SURGERY

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Introduction: The decision to have breast reconstruction following a mastectomy is a ‘preference sensitive’ decision that should incorporate a patient’s values, attitudes and preferences. A recent study, the *Breast RECONstruction Decision Aid (BRECONDA)* study, assessed the impact of an online patient decision aid (PtDA) to assist women faced with having to decide whether or not to have breast reconstruction surgery, finding that women using the decision aid experienced significantly less decisional conflict than women receiving standard care. The purpose of this study is to examine the cost effectiveness of the BRECONDA PtDA compared to no PtDA for Australian women with breast cancer.

Methods: Health services usage and quality of life measures were collected for 222 women (106 in control condition, 116 in treatment) as part of the BRECONDA study. Outcome measures were difference in utility scores, as measured by the EURO-QOL 5D, the extent to which these correlate with the traditional measures of effectiveness such as decisional regret, satisfaction, and decisional conflict. Cost comparisons were based on health services usage (e.g., hospitalizations, outpatient visits, and GP visits) and cost of the PtDA.

Results: The results suggest no differences in cost of services or EURO-QOL 5D. However, the differences in decision regret and decision conflict suggest that the PtDA was valued by women, and raises questions about the appropriateness of traditional measures of outcome evaluation used to evaluate PtDA.

Conclusions: The study concludes with recommendations for behavioral medicine researchers on the appropriate way to assess the cost effectiveness of PtDAs.

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Quality-adjusted life years associated with traumatic brain injury: Evidence from the Brain Injury Outcome New Zealand in the Community study.

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Introduction: Traumatic brain injury (TBI) is a leading cause of disability and has long-term impacts on the individual, their families, and society. The results from a recent study (Brain Injury Outcome New Zealand in the Community: BIONIC) suggest that for first ever TBI, 4% die within 12 months of their injury, 29% of TBI survivors at 12 months are dependent on others. This study reports on the health-related quality of life for traumatic brain injury (TBI) using the EQ-5D-3L instrument for individuals with mild and moderate-severe TBI.

Methods: Data from BIONIC on quality of life for 400 TBI cases were measured at baseline and 12 months’ post TBI using the EQ-5D on five dimensions: mobility, self-care, usual activities, pain or discomfort, and anxiety or depression. Participant’s health state preferences were also elicited using the visual analogue scale method.

Results: The average first year QALY per TBI case was estimated to be 0.57 and the loss of QALY relative to age and sex- matched reference population was 0.38 QALYs. The difference in QALY was greater in males compared to females. Applying these estimates to the 2010 NZ adult population, there would be a median 6436 (95% UI 5378, 7495) first ever TBI in NZ. The total first year QALY attributable to TBI were 3907 (95% UI 3150, 4704).

Conclusions: TBI results in significant loss in utility for many sufferers. The paper concludes by comparing the losses from TBI to other health conditions.

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PSYCHOSOCIAL DETERMINANTS OF PHYSICIANS' ACCEPTANCE OF RECOMMENDED THERAPIES BY AN ANTIBIOTIC COMPUTERISED DECISION SUPPORT SYSTEM

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Introduction: Antibiotic computerized decision support systems (CDSS) were developed to facilitate optimal prescribing, but acceptance of their recommendations has remained low. We aimed to evaluate physicians' perceptions and attitudes toward antibiotic CDSS, and to determine psychosocial factors associated with acceptance of CDSS recommendations for empiric therapy.

Methods: We conducted a mixed-methods study in a 1500-bed adult tertiary-care hospital in Singapore, with its in-house antibiotic CDSS that integrates antimicrobial stewardship with electronic prescribing. Focus group discussions were conducted among purposively sampled physicians and data analyzed using the framework approach. Emerging themes were included in the questionnaire with newly-developed scales for the subsequent cross-sectional survey involving all physicians. Principal components analysis was performed to derive the latent factor structure that was applied in multivariable analyses.

Results: Physicians expressed confidence in the credibility of CDSS recommendations. Junior physicians accepted CDSS recommendations most of the time, while senior physicians acknowledged overriding recommendations in complex patients with multiple infections or allergies. Willingness to consult CDSS for common and complex infections (OR 1.68; 95%CI 1.16–2.44) and preference for personal or team decision (OR 0.61; 95%CI 0.43–0.85) were associated with the acceptance of CDSS recommendations. Cronbach's alpha for scales measuring physicians' attitudes and perceptions toward acceptance of CDSS recommendations ranged from 0.64 to 0.88.

Conclusions: Physicians' willingness to consult an antibiotic CDSS determined the acceptance of its recommendations. Physicians would choose to exercise their own or clinical team's decision over the CDSS recommendations in complex patient situations when the antibiotic prescribing needs were not met.

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INTERVENTIONS TO INCREASE ADHERENCE TO THERAPEUTIC EXERCISE IN OLDER ADULTS WITH LOW BACK PAIN AND/OR OSTEOARTHRITIS: A SYSTEMATIC REVIEW AND META-ANALYSIS.

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Introduction: Chronic low back pain and osteoarthritis are the most common causes of musculoskeletal pain in older adults worldwide. High quality evidence has demonstrated that exercise improves pain and function in both groups. However, ongoing adherence to exercise programs is recognized as

an important factor determining longer-term effectiveness. The objective of this systematic review was to evaluate whether interventions aimed at increasing adherence to therapeutic exercise do increase adherence among older adults with chronic low back pain and/or hip/knee osteoarthritis.

Methods: A systematic review and meta-analysis was conducted. Five databases were searched until January 2016. Randomized controlled trials that isolated the specific effects of an intervention aiming to improve adherence to therapeutic exercise among adults ≥ 45 years of age with chronic low back pain and/or hip/knee osteoarthritis were included.

Results: Of the 3712 unique studies identified, 9 studies (1045 participants) were eligible. Four studies, two targeting motivation and two including behavioral graded exercise reported statistically significant findings favoring adherence interventions. Meta-analysis using a random effects model was conducted with the two studies that included booster sessions and measured adherence using a self-reported numeric rating scale. The pooled effect of these studies was significant (SMD 0.39, 95%CI 0.05 to 0.72, $z=2.26$ ($p=0.02$), $I^2=35\%$).

Conclusions: From the available data there is evidence that the use of multi-component behavioral interventions targeting motivation, including behavior graded exercise and/or booster sessions with a physiotherapist do improve adherence to therapeutic exercise among older adults with chronic low back pain and/or hip/knee osteoarthritis.

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SUPPORT WORKERS AS AGENTS FOR HEALTH BEHAVIOR CHANGE: PERCEPTIONS OF CLIENTS WITH COMPLEX NEEDS, SUPPORT WORKERS AND CARE COORDINATORS

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Introduction & Purpose: The population is ageing in many countries. Enhancing community aged care support workers' role in self-management support is therefore timely. This paper presents perceptions of impacts of training, delivered to 140 workers from five Australian community aged care providers, designed to enhance their knowledge, skills and confidence to understand, recognize and respond to complexity and support behavior change. Central research question: Can support workers be taught motivational skills and apply them to supporting positive behavior change in their aged care clients?

Methods: Evaluation of training on communication, complexity, behavior change and self-management support involved pre/immediately post/3-month post training surveys with support workers ($n=35/76/52$) and coordinators ($n=15/26/12$), pre/post interviews clients ($n=10/7$) and focus groups with support workers ($n=24$) and coordinator(s) ($n=8$) at the conclusion of the project. Quantitative analysis of survey data and qualitative thematic analysis of interviews and focus groups was complimented with case studies of interactions from practice.

Results: Support workers reported greater awareness, skills and confidence in working with complexity, reinforcing the value of their existing practices and skills. Coordinators reported greater appreciation of support workers' skills, and greater awareness of their support and supervision needs. Clients, support workers and coordinators reporting improved interactions with clients, client health outcomes, care coordination, communication and teamwork. Mental health literacy remained the biggest knowledge gap.

Conclusions: Educators, policy makers and services should account for these contributions, given growing fiscal restraint and focus on consumer-directed care. Support workers are ideally placed to motivate clients to achieve behavior change goals.

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MEDICAL HUMANITIES REFLECTION OF INDIGENOUS HOSPICE CARE IN CHINA

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Introduction: Death is inevitable; however, the Chinese requirement for the quality of death has completely left behind its claim to the economic development and the quality of life. This research aims to solve three questions around hospice care: What effect does Chinese culture have for it in China? What are the opportunities and threats for its development? Combined with the concept of medical humanities, what measures can be taken to reform it?

Methods: Using “hospice care” and (“medical humanities” or “Chinese culture”) as the search strategy, the researchers collected articles authored between January 1, 1987 and January 1, 2016 in CNKI in order to compare Chinese and Western hospice care and put forward corresponding measures and suggestions through the documentation analysis method.

Results: 105 articles were found which indicate that global cancer incidence and mortality rates have soared year by year, and China is moving in the stage of rapid ageing. More and more individuals feel confused and even have lost their human dignity in the process of aging towards death, not only due to the influence of traditional concepts, but also because of the crises of individualized modern society, mechanized medical treatment, and routinized medical processes.

Conclusions: Faced with such a situation, Chinese hospice care must: be locally based; inherit and carry forward traditional cultures; initiate special hospice service and establish psychological support systems; function well with religion and spirituality; and establish Chinese characteristics and medical humanities characteristics to promote the healthy and ordered development of hospice care.

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THE RISK OF DEPRESSIVE SYMPTOMS ACCORDING TO LIVING ALONE AND SOCIAL SUPPORT AMONG JAPANESE OLDER POPULATION: A FIXED EFFECTS ANALYSIS OF LONGITUDINAL DATA FROM THE JAPAN GERONTOLOGICAL EVALUATION STUDY

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Introduction: Living alone and social support are crucial risk factors for depressive symptoms among older people. However, there is little longitudinal evidence on the association between living arrangements and depressive symptoms. The study aims were to examine the association between living alone and depressive symptoms among older Japanese

people and to investigate whether this association was mediated by level of social support.

Methods: The study population was physically and cognitively independent 30,045 community residents aged 65 to 74 who participated in Japan Gerontological Evaluation Study (JAGES) conducted in 2010 and 2013. Between-waves changes in living conditions (“Kept living with someone”, “Transited to living alone”, “Transited to living with someone”, or “Continuously living alone”) were used to predict changes in depressive symptoms measured by the Geriatric Depression Scale. First-difference regression models were used, controlling for changes in time-varying confounding factors. We then further added the hypothesized mediating variables, provision and receipt of emotional and instrumental social support. Results: Both men and women who transitioned to living alone during 3 year follow-up period reported increased depressive symptoms compared to those who kept living with someone: $\beta=0.77(95\%CI:0.41,1.13)$ and $\beta=0.32(95\%CI:0.10,0.53)$, respectively. Those associations remained significant after adjusting for social support variables. Women who continuously lived alone also increased depressive symptoms, which was partially mediated by instrumental social support.

Conclusions: Living alone appeared to deteriorate mental health among Japanese older people, although our study results revealed social support may not be effective approach to prevent depressive symptoms among them.

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APPRAISING THE EFFECTS OF DESIRE FOR HEALTH INFORMATION AND TRUST IN PHYSICIAN ON THE PREFERENCE FOR SHARED DECISION MAKING OF THE SWISS ELDERLY POPULATION

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Introduction: A relevant factor, contributing to a better health care experience is represented by the extent to which patients trust their physician. Moreover, in order to have a say on treatment decisions, patients have to possess enough health information that is reliable as well as easy to discern. The study’s aim was to examine the impact of desire for health information and trust in physician on older adults’ preference to contribute in treatment decisions.

Methods: A random sample of Swiss individuals aged 65–80 years old was surveyed (N = 826). Multinomial logistic regression was performed to establish the probability that older adults’ treatment decision-making preferred roles (active, collaborative, passive) are predicted by the degree of desire for health information and trust in physician.

Results: The majority of Swiss older adults preferred a collaborative (51%) or active role (35.3%) in treatment decisions. The probabilities for preferring an active role significantly increased with desire for health information (odds ratio [OR] = 1.64 $p < 0.001$) and trust in physician (OR = 0.66, $p < 0.05$). Nevertheless, the chances for preferring a collaborative role in treatment decisions significantly augmented only with desire for health information (OR = 1.33, $p < 0.001$).

Conclusions: The results of this research may inform medical professionals and investigators to conceptualize innovative treatment decision aids for the elderly group. The study extended past evidence by providing a wider understanding on the effects produced by desire for health information and trust in physician on elderly’s preferred role in treatment decisions.

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DOES PHYSICAL ACTIVITY AND SEDENTARY BEHAVIOR CHANGE DURING THE RETIREMENT TRANSITION? FINDINGS FROM A SERIES OF NOVEL N-OF-1 NATURAL EXPERIMENTS

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Introduction: The retirement transition is associated with significant lifestyle changes and disruption to prior habits. Therefore, it may represent an opportunity to change health behaviors in older adults. Previous group-based studies show levels of physical activity (PA) and sedentary behavior (SB) change after people retire. However, findings regarding the direction of change are inconsistent between studies. Changes have been investigated at the aggregated group level but not at the individual level. **Method:** A series of seven N-of-1 natural experiments was conducted with participants approaching retirement. PA and SB, measured by tri-axial accelerometry, and ecological momentary assessments of sleep, mood, stress, time pressure and cognitive theory-based determinants of

behavior were collected daily for 3-7 months. The study period included time before and after participant's retirement. Dynamic modelling methods were used to determine the direction of PA/SB change, predictors of PA/SB, and change in predictors pre- to post-retirement at the individual level.

Results: PA and SB trajectories differed considerably between participants (e.g. some showed a significant decrease whilst others showed a significant increase in PA after retirement). The predictors of daily PA and SB also differed between participants. For some participants, the predictors identified in the period before retirement were different from those identified in the period after.

Conclusions: Post-retirement PA and SB trajectories are heterogeneous. Therefore, interventions tailored to individuals may be most effective. N-of-1 methods can be used to identify unique predictors of behavior for an individual, which can inform highly personalized interventions to change their PA and SB.

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