



Forecasting the Social Return on Investment Associated with Children's Participation in Circus-Arts Training on their Mental Health and Well-Being

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Abstract

The early and middle years of childhood are recognised as being pivotal in ensuring positive cognitive development throughout life, resulting in healthier societies. Healthier societies can mean a reduction in lifestyle related illness and therefore potentially reduce reliance on healthcare resources. The purpose of this study was to forecast the Social Return on Investment (SROI) associated with children's participation in a circus-arts program on their mental health and well-being. A mixed method approach was adopted for this study. Key stakeholders were children aged between 9 and 14 years. Children were surveyed ($n = 23$) and participated in focus group ($n = 55$) interviews, prior to and after, six months of circus-arts training. The questionnaire used was the internationally validated Kidscreen-27. Focus group interviews asked children their beliefs about how circus made them feel and benefits of participating in circus-arts training. Results from the pre/post survey indicated some positive improvements occurred concerning children's self-perceptions of personal health, though not statistically significant. Focus group results indicated positive impacts for children's mental wellbeing, socialisation skills, physical enjoyment and resilience. The SROI analysis found that for every one dollar invested, \$7 of social return may be generated due to participation in a circus-arts program. Improvement occurred across four key areas concerning children's mental health and well-being; stress relief, self-esteem, confidence and socialisation. Findings from this study indicate the value of investment in the performing arts, highlighting the importance the circus-arts for children's mental health. Associated impacts to improving children's self-esteem, confidence along with relieving stress are identified as decreasing the potential costs of treating associated illnesses: such as depression and anxiety. Improvements in socialisation have been linked to costs associated to social dysfunction: such as crime and incarceration.

Keywords SROI · Health · Wellbeing · Circus · Arts

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1 Introduction

This paper presents findings from a study identifying the Social Return on Investment (SROI) of a community-based circus program for young people in relation to their health and wellbeing. The purpose of this study was two-fold. Firstly, this study sought to provide a community-based arts organisation with evidence of the impact of one of their circus skills programs to enable them to seek further funding. Most community-based arts organisations within Australia are reliant on donations and grants (particularly government grants) to support their viability. Over the past few years funding for arts organisations in Australia has either been withdrawn or diminished, resulting in some organisations being forced to cease operations. As a result, arts organisations have become aware they need to provide sound evidence concerning the impact and influence their activities have in relation to providing services to local communities.

The second purpose of this study was to adopt a SROI approach as an academic research methodology. The SROI approach has not always had the investment of rigour associated with academic research. Some have argued to enable the SROI approach to be viewed as valid and reliable there is a need to apply objective and accurate application and calculation of the SROI methodology (Arvidson et al. 2013; Banke-Thomas et al. 2015). Maier et al. (2014) argues that academic acceptance of the SROI approach can be achieved when a calculated SROI ratio is considered as equally important to the methodology that was used to achieve it. Arvidson et al. (2010) argues the need for SROI studies to include both qualitative and quantitative data to improve research accuracy. The mixed-methods approach of this study complements this aim, where triangulation of information provides comprehensive investigation of a phenomenon (Creswell and Plano-Clark 2011).

Employing academic rigour to a SROI approach through the use of a mixed methods methodology was identified as an opportunity to provide greater illumination of health and wellbeing impacts and outcomes in relation to circus training. Furthermore, developing evidence to inform a SROI study was viewed as a tool through which the justification of resource allocation to a community-based arts organisation could aid in sustainability of its activities.

2 Literature Review

The focus of this review of literature is to provide an overview of relevant studies and knowledge concerning links between art (as a leisure activity) and health as well as discussing aspects related to the SROI approach. This literature review is not intended to be exhaustive as literature concerning art and health is particularly extensive and broad. As such the literature concerning art and health presented in this paper is used to guide, rather than educate, the reader.

It is acknowledged that the early and middle years of childhood development are pivotal and can shape a person's future for better or worse, with regard to mental, physical and psychosocial health and development (Bungay and Vella-Burrows 2013; Martlew and Grogan 2013). Often children's mental, physical and psychosocial health is developed through leisure type activities (Qvortrup et al. 2009). While a great deal of research has been conducted in relation to the health benefits sport can have in relation

to children's development, there are far fewer studies that have explored the impacts of children's engagement in art activities.

Engagement in arts-based activities are argued to be a potential resource for creating and maintaining good health. Indeed, participation in the circus-arts for leisure, fun and without explicit pursuit of professionalism, often also termed circus-for-all, community or social-circus, is a relatively current phenomenon where social-circus is suggested to have emerged from applied theatre. Cadwell (2018) discusses social-circus having been preceded by applied theatre, where similar to social-circus today, applied theatre is defined as the intentional application of theatre processes and performance in marginalised and/or non-arts based communities. Bolton (2004) provides a comprehensive anthropological discussion regarding the evolution of the circus-arts globally and the wellbeing benefits of participation, especially for youth. As argued by Cadwell (2018), the emergence of social-circus from applied theatre was a way of taking arts, specifically circus-arts, to the people. Caldwell (2018) outlines the alignment between Bolton's efforts to connect people with the circus-arts via engagement in the circus-arts outside of typical arts-based spaces, such as street corners, sports fields and other community settings. Inquiry regarding engagement in the arts, has shown many positive outcomes for wellbeing and health, whether these be the defined pursuits or incidental impacts.

Participation and involvement in the arts ranges from visual expressions such as writing, drawing and painting to more performance-based forms such as dance, theatre and circus. Participation and engagement across all arts can be defined as active (physical involvement, such as making art) and receptive (non-physical involvement, such as viewing art) (Davies et al. 2012). Arts engagement may also involve a combination of both active and receptive aspects. Research suggests that participation in some of the arts disciplines, primarily writing, drawing/painting, dance and drama, have been shown to have a positive impact on participant's health (Bungay and Vella-Burrows 2013; Davies et al. 2016; Daykin et al. 2008). In relation to young people, these creative activities have been found to have positively impacted mental wellbeing (Bungay and Vella-Burrows 2013).

Recent research suggests a minimum amount of arts engagement may be required to see a significant impact on people's health and wellbeing. A cross-sectional study by Davies, Knuiman and Rosenberg (2016) recognised a dose-response relationship between participatory arts and mental wellbeing. The study found that after adjustment for demographics (i.e. sex, age group, location, income, education, marital status, children), general health, sports engagement, religious activities and holidays, two or more hours of arts engagement per week (or 100 or more hours per year) resulted in better mental wellbeing for those who participated in art activities compared to those with no or lower levels of arts engagement. A recent study focusing on children actively engaged in arts identified improvements in children's subjective wellbeing (Barnes-Smith et al. 2015). This study focused specifically on active engagement in the expressive arts of dance, theatre and creative writing. While quantitative results from this pre/post intervention test study showed small improvements in children's self-perceptions of wellbeing, qualitative results showed participants had a high level of enjoyment resulting from their involvement in the arts based activities. A systematic review by Bungay and Vella-Burrows (2013) explored the impact and outcomes of participating in art based activities and young people's health. The systematic review

focused on singing, dance, music drama as well as visual arts and included studies focused on at-risk youth and healthy populations. Bungay and Vella-Burrows (2013, p.51) found ‘increased self-esteem, sense of achievement, empowerment, social skills, and positive behavioural changes are consistently reported’.

Active engagement in the performing arts of dance and drama has shown positive impacts on people’s health and wellbeing. Research suggests dance has a positive influence on the physical and psychosocial wellbeing of dancers (Burkhardt and Brennan 2012; Connolly et al. 2011; Criss 2011; Quiroga Murcia et al. 2010). Research also supports the benefits drama interventions can have on health. The systematic review by Daykin et al. (2008) focuses on the health impact of engagement in performing arts. The fourteen papers all pertain to drama-based interventions for children aged 11–14 years. Themed outcomes show improvements in socialisation and empowerment, health literacy and risk reduction regarding HIV/AIDS, and decreased drug use. As identified earlier circus arts involves a combination of features found in other performing and expressive arts (Bolton 2004). While the circus-arts are diverse, the focus of this study (and as such review of relevant literature) focused on human-only circus-arts at the community level, sometimes referred to as social or community circus (Bolton 2004).

Circus-based features incorporate floor work including slits, trampolining and tumbling, and aerial skills, such as trapeze and tissues (Barlati 2017). Bolton (2004) discusses modern circus as a whole performance, being thought provoking, having central theme and plot and theatrical circus as even more pronounced in children’s circus arts. Aubertin (2013) describes circus as sharing qualities of both sports and arts, and that circus can be used as a powerful empowerment tool for youth at risk of negative health and wellbeing outcomes. Circus-arts for children have been expanding in Australia and internationally in recent times. The renowned Cirque Du Soleil (2015, p. 1) and its Cirque Du Monde Program state:

‘Social circus programs can benefit many types of clientele. For instance, in South Africa, it is used to motivate kids born with HIV to follow their treatments. In Mongolia, workshops were held in juvenile prisons. In Quebec, social circus was used as a truancy prevention tool and, in Australia, with women survivors of sexual violence.’

Some evidence exists showing participation in the circus-arts may have positive effects on people’s health and wellbeing (Heller and Taglialatela 2018; Loïselle et al. 2018; Rivard et al. 2010; Spiegel et al. 2015; Spiegel and Parent 2017). Bolton (2004) argues that circus helps children experience risk, hard work, trust, aspiration and fun, stated as beneficial and lacking in Western children’s development. Seymour (2012) investigated the impacts of circus training on children with Autism Spectrum Disorder (ASD) in Australia. The research was observational and based on the professional experience of the primary investigator as a practised circus artist and trainer. Findings from this study indicated circus aides in assisting children with ASD to improve their levels of physical activity and gross motor skills, and improve social awareness and connectivity, beneficial for mental wellbeing (Seymour 2012).

In addition to the relatively recent academic research focusing on the health and wellbeing benefits concerning circus participation there are a few evaluative reports that

provide some insight into this domain. Reports such as *Culture has an Impact* (2014), and *The Centre for Practise and Research in Theatre* (2013) provide evidence regarding social circus programs in countries such as Finland, Afghanistan, Italy and Ecuador. Active participation in circus-based activities have been reported to assist young Finnish people with their confidence, social and teamwork skills, and was hence argued to be beneficial in helping to reduce social exclusion (*Culture has an Impact* 2014). The *Culture has an Impact* (2014) report focused on relatively healthy youth as well as youth with disabilities.

Circus participation has been identified as improving trust and socialisation as well as positively affecting cognitive and physical abilities for children in Afghanistan, Italy and Ecuador (*The Centre for Practise and Research in Theatre* 2013). An evaluation of Ecuador's Social Circus Program by Spiegel et al. (2015) also indicates positive health and wellbeing outcomes for children participating in circus-training. In particular, preliminary findings suggested participants were observed gaining valuable socialisation skills and improvements in mental wellbeing. Reports such as these indicate that circus is being evaluated in a community organisation context and, although not academically published, suggest positive health outcomes may occur due to circus participation.

Research regarding the impacts on children's health suggests some positive outcomes may occur due to circus participation, although this research is limited. Research in an Australian context has shown positive outcomes may be seen where circus is used as therapy to create health for children with ASD. To date there remains a gap in evidence regarding how circus may create and maintain health for children in the general Australian population.

2.1 Social Return on Investment

The SROI framework has often been used by social enterprise in the not-for-profit sector and is beginning to be facilitated in other fields (Arvidson et al. 2010; Banke-Thomas et al. 2015). Derived from a cost-benefit analysis (CBA), SROI is an economic measurement tool used to apply a dollar value to socially situated outcomes (Millar and Hall 2013; Pathak and Dattani 2014).

Conducting a SROI involves revealing the inputs and outcomes for stakeholders in respect to their engagement with activities of an organisation (Arvidson et al. 2010). The focus of a SROI is to identify monetary value of the benefits (be they social, economic and/or environmental) as well as costs created by an organisation. As a SROI focuses on non-traded, non-market goods there is a need to identify financial proxies that can be used to estimate the positive (or negative) social value created by the organisation through stakeholders' participation in their activities. The result of conducting a SROI is expressed as a ratio. For example, a SROI result of 4:1 indicates that for every dollar invested in an activity (or organisation) a social value of four dollars is created or saved. While the SROI approach uses monetary terms and values, the final SROI ratio is not intended to indicate financial value. A SROI ratio needs to be viewed as a comprehensive approach in regard to conveying a social value currency (Arvidson et al. 2010).

Often linked to performance management and improvements in service delivery, SROI is argued to provide evidence of socially innovative practices (Fazzi 2012;

Rotheroe and Richards 2007; Teasdale 2011). The purpose is to measure a double or triple bottom line, which can be described as accounting for multiple outcomes related to monetary, social and environmental values (Retolaza et al. 2016). Social indicators are established by aligning meaningful outcomes with measurable costs. Credited with recent development in the SROI framework, Nicholls et al. (2012) indicates SROI studies can focus on two distinctively different aims, these being either evaluative or forecast. An evaluative SROI has a retrospective focus and is based on actual social outcomes that have occurred and the financial costs associated with obtaining the outcomes. A forecast SROI aims to predict potential financial costs or savings based on social outcomes that can be achieved from an activity.

As with any framework seeking to monetize non-financial factors, SROI has both strengths and weaknesses (Hall et al. 2015; Pathak and Dattani 2014). Arvidson et al. (2010) provide a comprehensive discussion concerning the limitations and challenges inherent in any SROI study. A key challenge (and potential limitation) is related to the identification of measurement indicators to be used within a SROI. This includes identifying impact/outcome as well as input indicators. While identifying some indicators may be fairly simple (for example the amount spent on providing an activity), other indicators are more difficult to monetize (for example applying a financial proxy to a stakeholder benefit such as improved confidence). To overcome this challenge, proponents of SROI advocate the need to ensure all information concerning the development and identification of indicators is transparent (Arvidson et al. 2010; Nicholls et al. 2012). In addition, open and consistent engagement with stakeholders throughout a SROI process is viewed as ensuring the identification of indicators is agreed upon by all involved (Arvidson et al. 2010; Nicholls et al. 2012).

Another key challenge in relation to SROI studies is in relation to calculating the final ratio. Impacts or changes that have been identified within a study may have been caused by a range of factors external to the focus of the study (Arvidson et al. 2010). Essentially it cannot be assumed that any benefit/change/impact that has been identified within a SROI study was solely due to the organisation or the activities it provided to participants. For example, a program developed to improve the social skills of young people could not assume the program was completely responsible for any changes that occurred (either positive or negative) as participants could be involved in other similar activities or provided support from other sectors or family/peers. To overcome this challenge SROI studies need to incorporate a sensitivity analysis. This involves including calculations based on 'deadweight', 'attribution' and 'displacement'. Adjusting for deadweight within a SROI ratio calculation seeks to take account of a proportion of an outcome that may have happened without any intervention or program being offered. Adjusting for attribution seeks to take account of external factors, or the contribution of others, that may have played a role in the changes that were identified within a SROI study, while calculating for displacement focuses on the identification that an outcome may have been achieved but at the expense of another outcome, or other stakeholders may be adversely affected. As with the initial challenge identified above regarding identification of indicators, identifying indicators within a sensitivity analysis also needs to be transparent when reporting a final SROI ratio.

3 Research Setting

The SROI study was conducted in collaboration with the South Australian Circus Centre's (SACC) Cirkidz Circus School in Adelaide, South Australia. The SACC is a not-for-profit organisation offering circus-training programs for children. As a not-for-profit organisation SACC relies primarily on donations, member's fees and volunteers and has been in operation in Adelaide for over 30 years (Cirkidz 2018a). Programs are provided for children based on age ranges, beginning with children aged 2.5 to 5 years through to 17 years old. The SROI study focused on children aged 8 to 14 years old (hereafter referred to as Tweenz). Tweenz classes are focused on beginners or for children wanting to participate in circus for fun, however there is an option for those who are interested to progress into amateur and professional circus-artist programs if desired (Cirkidz 2018b). Tweenz classes are conducted weekly after school and Saturday mornings. Each class is 60 min long and coordinated by two trained circus skills facilitators. Tweenz classes are offered as a six month, 20 week semester, that is, children are enrolled for six months before they are required to enrol for another six month period.

4 Methods

A key aspect in relation to conducting any SROI is the involvement of stakeholders (Arvidson et al. 2013). The primary stakeholders of this SROI study were children who were participating in the Tweenz classes provided by Cirkidz. However, initial discussions with secondary stakeholders were undertaken: this included the SACC general manager, the SACC Artistic Director, circus trainers as well as children's parents. Initial discussions were undertaken to establish what aspects of circus-training for children should be the focus of the SROI. Involving secondary stakeholders in preliminary discussions also assisted the research team with identifying the type and scope of SROI to be conducted as well as the measurement tools and techniques to be adopted. From these initial discussions it became apparent that both SACC staff as well as parents were interested in the impact circus training has in relation to the health and wellbeing of children who participated in the Tweenz classes. It also became apparent that a forecast SROI was of interest. As identified earlier, a forecast SROI is focused on predicting potential costs or savings in relation to the social impact or outcome of an activity.

As such the research team developed a research strategy that sought to identify the health and wellbeing impact for children in relation to their participation on Tweenz classes. This required focusing the study on children's own perceptions of participating in the circus skills classes, that is children were to be central to identifying if and how any change in health and wellbeing occurred. It is argued and supported that children in this study's age range are capable of accurately self-reporting on their own health and wellbeing (Eiser and Varni 2013).

Based on recommendations from Arvidson et al. (2013) and Maier et al. (2014) in regard to incorporating both quantitative and qualitative research methods into SROI studies, the researchers for this prospective SROI study adopted a convergent-parallel mixed methods approach (Bryman 2006; Creswell and Plano-Clark 2011). A mixed method convergent-parallel approach identifies both qualitative and quantitative strands

of a study: 1) To have equal weighting, 2) Ensure data collection occurs simultaneously, 3) Data analysis of each strand is initially conducted separately, 4) Data results from each strand is integrated to form a final understanding of a phenomena (Creswell and Plano-Clark 2011).

The use of the convergent-parallel mixed methods approach was chosen as appropriate because of the paucity of studies explaining the impact of circus-arts on health and wellbeing, particularly in relation to the general population in Australia. Creswell and Plano-Clark (2011) suggest this approach is suitable where little or no data exists, allowing findings to emerge equally from both quantitative and qualitative approaches. Mixing methods in such a way can also enhance the strength of a study through triangulation (Bryman 2006; Greene et al. 1989; Kramer 2011).

The quantitative strand of the prospective SROI study assumed a within-subject pre-post study design, used to assist in understanding change over time (Salkind 2010). Simultaneously, the qualitative strand of the study sought the views of children's personal experiences regarding circus participation to allow themes to emerge. The findings from both quantitative and qualitative strands were analysed for congruency following separate analysis.

The need to control for covariate or confounding factors that may have impacted on the changes in participants' health and wellbeing was sought to be reduced in the SROI study through the adoption of a within-subjects pre/post design (Vogt 2005). A within-subjects design allows variables that may impact the participants to remain constant over time, hence reducing potential impact of external variables (Cramer and Howitt 2004). As participants were compared only to themselves at baseline, any resulting changes occurring could be viewed as being associated with the circus intervention. However, to gain an accurate understanding of how consistent the Tweenz classes were, factors impacting consistency were taken into consideration and data was collected to ensure good internal reliability. These factors included an audit of consistency of circus training classes, trainer tuition and participant attendance.

In relation to consistency of classes it was identified that all trainers were provided a defined lesson-plan guiding all Tweenz classes across the 20-week training semester. An audit was performed once throughout the 20 weeks of circus training, both against the lesson plan and between classes to assess the consistency of delivery of circus training. Trainers were not informed the audit was occurring to ensure potential bias was reduced. The class audit indicated consistency both across classes as well as adherence to the structured lesson plan.

Discussions with SACC management confirmed all Tweenz trainers received the same circus-training tuition at SACC. Tweenz classes involved trainers working in pairs with at least one trainer having a minimum of five years' experience in the role. SACC provided the research team with de-identified information regarding children's attendance to Tweenz classes. Attendance to the Tweenz sessions across the semester were high consistently, with 90% of participants attending their class each week.

The standardised survey tool used to collect health and wellbeing quantitative data was the Kidscreen-27 questionnaire (The KIDSCREEN Group Europe 2006). The Kidscreen-27 cross-cultural questionnaire was developed across 13 European countries, with a sample of over 22,800 children aged between 8 and 18 years (Ravens-Sieberer et al. 2014). This self-completed tool aims to measure health and wellbeing from the child's perspective. The Kidscreen-27 instrument consists of 27 questions covering five

health and wellbeing dimensions using a 5-point Likert-type rating scale (ranging from 1 = never to 5 = always to a range of statements). Overall total values of the five domains are represented within a minimum and maximum range of 27 (lowest) to 135 (highest). The five individual domain names, definitions and their specific scores are as follows regarding upper and lower score limits:

- Physical wellbeing: 5 (lowest) to 25 (highest) across five related questions, exploring the level of the child's physical activity, energy and fitness and extent a child feels unwell or complains of poor health.
- Psychological wellbeing: 7 (lowest) to 35 (highest) across seven related questions, regarding positive emotions and satisfaction with life and absence of feelings such as loneliness and sadness.
- Autonomy and Parent relation: 7 (lowest) to 35 (highest) across seven related questions, regarding quality of interaction between child and carer and whether the child feels loved/supported by family. Also, the child's perceived level of autonomy and financial resources.
- Social Support and Peers: 4 (lowest) to 20 (highest) across four related questions, regarding social relations with friends and peers, including perceived quality of interactions and support.
- School Environment: 4 (lowest) to 20 (highest) across four related questions, regarding the child's perceived personal cognitive capacity, learning and concentration and feelings about school and school teachers.

Additional questions were added to the first page of the questionnaire regarding information concerning participation in circus training (i.e. how long) as well as participation in other types of physical activity opportunities after school. No questions were removed or modified from the original KIDSCREEN-27 survey.

KIDSCREEN-27 has been shown to be both a valid and reliable tool in relation to measuring the subjective health and wellbeing of children. Ravens-Sieberer et al. (2007) identify the test-retest reliability within a two week delivery as acceptable across the five dimensions, where they identified intra-class correlation coefficient scores to be between 0.61–0.74. Robitail et al. (2007) indicate that the KIDSCREEN-27 instrument has acceptable internal consistency, with Cronbach's alpha coefficients between 0.78–0.84 across the five dimensions. The KIDSCREEN Group Europe (2006) indicated acceptable construct validity through aligning with hypothesised outcomes using Cohen's effect sizes. The effect size calculations showed that outcomes regarding impacts of socio-economic status, parental education, health care needs and utilisation, mental health status, social and parental support confirmed strong effects where hypothesised (Cohen's $d > 0.70$). Acceptable correlations with comparable measures using Pearson correlation coefficients established convergent validity, where $r = 0.32$ – 0.63 (The KIDSCREEN Group Europe 2006).

Qualitative data collection involved conducting focus groups with children who participated in Tweenz classes. Focus group questions were semi-structured and open-ended (Milne and Oberle 2005; Neergaard et al. 2009; Sandelowski 2010). Focus group questions sought children to reflect and respond to benefits they perceived they gained from participating in the circus skills sessions.

Both survey and focus group rounds of data collection occurred simultaneously post circus training session, across participating classes in the first (week one) and last (week 20) of the circus-training program. To enhance reliability of results, the participants were surveyed and focus groups conducted by the same researcher on a class-by-class basis, on site at SACC site, in the same room for all classes. Children's parents/caregivers were not present during and did not assist the children in focus groups or in completion of the Kidscreen-27 survey.

While children were asked to record their name on their Kidscreen-27 questionnaire these were coded in data entry to ensure participant traceability across the pre/post test survey. Focus groups were conducted for approximately the same amount of time (10–15 min) with similar amounts of participants per focus group ($n = 6–7$). Focus groups were recorded using a professional voice recorder to aid in accurate transcription. All transcription and coding was conducted by the same researcher. Participant's first names were taken per focus group prior to recording, to ensure participant traceability across the study period.

Kidscreen-27 survey results initially entered manually into Microsoft Excel, then transferred into the IBM Statistical Package for Social Sciences (SPSS) statistical software program, Version 21. Comparisons of participants pre/post median scores were sought using non-parametric testing performed in SPSS 21: within subjects, two-tailed, Wilcoxon Signed Ranks Test, with exact significance level set at $p = 0.05$. This was done to establish if statistically significant change had occurred: across the sample's overall total health and wellbeing median scores; and across the five individual Kidscreen-27 domain median scores.

A Wilcoxon Signed Rank Test was used to determine if the scores from the same cases at baseline differed significantly over time (Cramer and Howitt 2004). A Shapiro-Wilk test for normality was also conducted in SPSS 21. Posthoc power was calculated in accordance with the Wilcoxon Signed Rank Test using G-Power statistical software. Effect size estimate was attained in accordance with Pallant's (2007) directions for calculating effect size with a Wilcoxon Signed Rank Test in Microsoft Excel ($r = Z/\text{square root of } n$).

Thematic analysis was employed to analyse focus group data (Sandelowski 2010). Transcription of each focus group recording using Microsoft Word was conducted by the researcher involved with conducting the focus groups. Transcriptions were verified against each recording by a second researcher before all qualitative data was transferred into NVivo 11 software. NVivo 11 was used to allocate nodes/themes to sections of text. Initial themes were identified by the researcher involved in the focus group sessions. Subsequent analysis of focus group data was undertaken by the second researcher to confirm identified themes.

Ethical clearance was attained from the [University] Human Research Ethics Committee regarding this study. Prior to the study a detailed information sheet and an opt-out consent form was given to parents/legal guardians of all potential child participants. The information was distributed via email from Cirkidz to parents/caregivers. Hard copies were also provided on site at Cirkidz prior to commencing the study. The researcher was available prior to commencing the study to answer any questions parents/guardians had and to ensure that awareness of the study had reached the target group. Written consent was obtained from both parents/caregivers and children involved in the study. Children's names were recorded and coded for the purpose of

anonymity and child safety and mandatory reporting requirements. Pseudonyms are used when presenting qualitative data in vivo, in all results section.

5 Findings

The focus of the study was to ascertain a SROI ratio in relation to children's participation in a circus skills program. To develop a SROI ratio the study adopted a mixed methods approach incorporating the use of a self-completed questionnaire as well as focus groups. This section of the paper provides results from the quantitative and qualitative data collection processes.

The age range of participants in the study was between 8 and 14 years, with an average age of ten years old. The survey sample included the same 23 participants' in the pre and post circus training data collection process. Of this sample, five children reported to have never participated in circus training before (22%). The average amount of time the remaining survey sample had participated in circus was 2.4 years (range of 1-5 years). Eight children reported they did not participate in any other organised physical activity other than circus, outside of school (35%). The remaining children reported they participate in an average of 1.2 organised physical activities other than circus, outside of school (65%).

The focus group sample was larger and consisted of differing children pre and post circus training, allowing a broad range of information to be collected. A total of 55 children were involved in the pre circus training focus groups (75% female; 25% male), with 54 children involved in the post circus training focus groups (74% female; 26% male).

5.1 Kidscreen-27 Findings

The attained sample size was relatively small ($n=23$). A Shapiro-Wilk test for normality revealed that data were not normally distributed. Hence, due to the small sample size and lack of normal distribution, non-parametric testing was conducted to provide accurate test outcomes and analysis.

A within-subjects post-hoc power analysis was performed in accordance with a Wilcoxon Signed Rank test to show power of the results given the sample size attained ($n=23$). The observed power with sample size of 23 was calculated to be $d=0.14$ ($\alpha=0.05$). The posthoc power analysis shows the sample size used for the quantitative strand in this study does not have sufficient power to adequately reduce the potential for a Type 2 error. The probability of detecting any effect is low. Furthermore, G-Power software calculations indicate the sample was undersized by approximately 104 participants (according to Wilcoxon Signed Rank Test, seeking moderate power of $d=0.5$, $n=127$).

A two-tailed, within subjects Wilcoxon Signed Rank Test was conducted, with significance level of $p=0.05$. Effect size was calculated in accordance with the Wilcoxon Signed Rank Test. Results presented in Table 1 indicate the change identified across the Kidscreen-27 total score and the individual domain scores. Table 1 presents median scores pre and post 20 weeks of circus training as well as the corresponding effect size and level of significance.

Table 1 Kidscreen-27 survey results

Kidscreen-27 domains	Median pre	Median post	Z	Exact sig. (2 tailed) $p = 0.05$	(r)
Physical wellbeing	20	20	-0.33	0.76	-0.05
Psychological wellbeing	28	29	-1.12	0.27	-0.17
Autonomy and Parent relation	25	27	-1.14	0.26	-0.17
Social Support and Peers	16	16	-0.92	0.37	-0.14
School Environment	15	15	-0.99	0.34	-0.15
Total Overall Score	105	106	-0.91	0.37	-0.13

Note: rounding has occurred to two decimal places

While it can be seen that the *Total Overall Score* as well as the *Physical wellbeing* and *Autonomy and Parent relation* domains did increase from pre to post testing, a Wilcoxon Signed Rank Test revealed no statistically significant improvements (Table 1). Total overall score showed a small effect size ($r = -0.13$) indicating that regardless of sample size, repeated testing would likely still show a small effect. Effect size was calculated in accordance with the Wilcoxon Signed Rank Test (Pallant 2007). The effect size is classified as small by using Cohen's (2013) effect sizes of 0.2 = small effect, 0.5 = medium effect and 0.8 = large effect. The Wilcoxon Signed Rank Test revealed similar results in the Kidscreen-27 five individual domains (Table 1). Based on these calculations the researchers were 95% confident that 20 weeks of circus training had no statistically significant impact on participating children's subjective health and wellbeing as measured by the Kidscreen-27.

5.2 Focus Group Findings

Four key themes were identified from thematic analysis of focus groups with children involved in circus skills training. The themes were Mental wellbeing, Physical enjoyment, Resilience and Socialisation. All names used in this section are pseudonyms to ensure anonymity of participants.

5.2.1 Mental Wellbeing

When asked how circus made them feel and what benefits they believed came from doing circus, participant's responses showed that circus helped relieve stress, built self-esteem and confidence. These three factors are accepted components of creating good mental health (Maddux 2014; Thoits 2013). Good, or positive, mental health has been described as having predominantly positive emotions as well as being able to flourish, that is function well both psychologically and socially (Keyes 2002).

Children participating in Tweenz classes indicated feelings of relief from life stressors, freedom, and happiness. For example, children reported they found a sense of freedom from participating in circus. Freedom is defined here as per how the children discussed their 'sense of freedom' as it emerged within their life contexts. Hence, freedom is defined in terms of the children finding a sense of relief from tasks

they expressed they felt they were *required* to undertake in their everyday lives, such as school work. Circus participation providing feelings of ‘freedom’ emerges as circus is a choice for the children where their sense of autonomy and determination are their own during that time. This expression of freedom by participants aligns to work by Fernandes and Dittrich (2018) regarding degrees of freedom, where freedom can have differing meanings in differing contexts. In accordance with Fernandes and Dittrich (2018), freedom here can be defined as one’s perceived sense of free will or access to genuine choice, are perceived to override elements of related social control. Children reported they thought circus helped to refresh them mentally and made them feel happy. Some children went further to say that without their weekly circus session they felt sad. Harry stated that circus was like ‘...*happy juice...It releases happiness into your blood stream that makes you happy*’. Jennifer said ‘*Circus takes your mind off some things... sad things...Cirkidz is like a pick-up, it’s my weekly pick-up...It’s [circus] a time where you can have freedom...sometimes its sort of an escape*’.

Children also reported that circus helped them feel better about themselves and improved their self-esteem. Terry explained that circus helped ‘*Because you can do more things, you feel like you have a purpose in life*’. Christina said that for her, circus ‘*helps with my self-esteem*’. Children identified that circus improved their self-esteem because it provided them with the opportunity to feel good about themselves. Sally claimed ‘*I think it improves my mood because when you’re doing a trick and you’ve done it right it just feels really good, I felt very good when I finally landed a front flip*’. Furthermore, Charlie explained that ‘*When I complete something that I found a bit scary like in acro [acrobatics] it just helps me feel better about myself*’.

Participants reported that doing circus made them feel brave and proud. Meg explained that circus offers ‘*Success, it probably gives you a feeling of happiness, you’re proud of yourself*’. Peter emphasised circus made him feel confident, saying:

‘I got way better at stepping up courage to do new things, like going all the way on the monkey bars which I couldn’t do before, I’m more confident to try new tricks that I invented, I invent tricks on my trampoline’.

A sense of pride and confidence in his abilities was discussed by Brian, saying:

‘You do sit down and watch something and then you get to try it out and it’s fun to learn all the little bits and try and get your hand in the right position and everything and then once you’ve accomplished it you get kind of a proudness because like woohoo I can do this!’.

5.2.2 Physical Enjoyment

Physical enjoyment was another theme to emerge from the focus group data. Physical enjoyment relates to wellbeing (Bjorgen 2015) and is defined here as the subjective belief about how a person feels about their physical self and physical world in relation to their wellbeing. Motivation to be physically active is argued to relate to enjoyment especially for children in their middle years (Owen et al. 2014).

Participants discussed enjoying the physicality of circus, with some children saying circus helped them to *'be active and feel fit'* and this was something they enjoyed. The diversity of the physicality required when participating in circus, was a strong element within this theme. Children overwhelmingly enjoyed the varied nature of doing circus. Louis said she felt that *'Circus is not one thing, at Cirkidz you learn fifty to one hundred things'*. This was furthered by Stuart, who said *'There's always something for you to do, whereas soccer, you're practicing the same thing over and over... there are still things in this room I haven't tried'*. Geoffrey stated *'In circus, there are lots of aspects of different sports and stuff'*. Angela felt that she enjoyed circus because *'You try new things...you need to try more things in life, trying more is better'*.

Another aspect in relation to the physical enjoyment of participating in circus was children reporting they view circus as an alternative to sport. For a number of children circus was preferred over sport due to disliking the competitive nature of sport.

'In other places you feel like you have to accomplish something, here they don't force you to accomplish something...at Cirkidz there's no pressure to get everything right, it's more of a free environment' (Tom).

'I don't want it [circus] to be normal to be honest, cause if it was it would turn into a competition. It would be like other sports, netball, you would get teased for not being able to do stuff' (Diane).

Children also expressed this dislike of competition as often linked to parental and societal pressures. For example, Ollie explained that *'Circus is something to do to keep your parents from telling you to go do sports, go do sports, no! (laughs)...I just enjoy other things more than sport'*. Tricia believed that *'Here you can't let anyone down either, it's like, hey I'm me'*. A similar view was identified by Connie who said:

'I just prefer swinging on a trapeze and doing other stuff than running around a muddy court trying to kick a ball with people yelling at me...I prefer this [circus] and dance rather than team sports'.

5.2.3 Resilience

A theme of focusing on resilience was identified from the focus group data. While the definition of resilience is contested, it is defined here as reflecting the self-referent constructs related to *'adversity and the psychosocial processes, that mediate and moderate the reciprocal relations between them'* (Kaplan 2005, p. 52).

Focus group data indicated children were linking circus activities to examples of being able to successfully cope with failure, as they appeared to see challenges as opportunities. Children's responses showed strong positive links between circus participation and being resilient and coping with difficulty. For example, Bruce believed that *'Sometimes it [circus] helps with skills in life, like if you have things in life you might want to achieve, you know you need to do other steps to achieve it'*.

Patty reflected on her circus participation, saying:

'We have learnt it before but we do it differently, we keep on stretching forward so it will be a bit harder each time, for instance, we start with cartwheels then we go to hand overs and we go to tuck jumps and stuff, and we do a flip, and if you know how to do tuck jumps really well, you could end up doing a flip in a couple of years time'.

Ruth also suggested that circus involved the need to continue to develop was indicated when she stated *'Determination, hard work...you have to stick to it'.*

5.2.4 Socialisation

Socialisation was identified as a theme as children reported many positive feelings about their interactions with their peers and trainers. These responses were often linked to learning new skills. The interactions that were facilitated through the learning of circus skills in a circus-arts environment, allowed the children to feel safe and to be themselves, with the opportunity to enjoy learning from others and feelings of fulfilment through teaching their peers. Children felt safe to be themselves and express themselves with their peers.

Jillian said that *'You can have purple hair and no one will judge you'* and *'Everyone is very accepting, more so than at school or in sports'*. Sebastian expressed he thought *'We're all happy to be like, weirdos'*, with Mark saying *'all the trainers and all the people in your group they are really welcoming, you don't feel like you don't belong'*.

Socialisation is defined as the process by which a person learns culturally relevant knowledge, behaviours and skills in relation to the people and environment around them (Laible and Thompson 2014). Furthermore, the influence of close relationships is acknowledged as having strong influence on childhood socialisation and shaping who we become as adults (Laible and Thompson 2014).

Children also expressed they had formed bonds with peers in their specific training groups. Carl explained *'I like the social aspect of it [circus], you get to know new people'*, and Chris said he got to *'meet new people'* with Meg saying she got to *'make new friends'*. Children discussed the dislike of attending classes that were not their enrolled class due to the lack of friendships outside their usual class. Rupert explained that they can do *'A make up class, yeah but it's a different class, your friends aren't there'*. Meg said that *'where if you're just by yourself with no-one to talk to, you're like yeah, especially if you're doing acro in a make up class and you're all like ehhhh ok yeah I'll just stand here'*.

Children found enjoyment from teaching others and learning from their peers. For example, Esther claimed that helping others with circus *'feels special because when you teach other people that don't know how to do it, they learn and then they might know something else you don't know and they can teach you'*. Furthermore, Ruth followed, saying *'And it's just a really nice feeling to be able to say like oh yeah, I learnt how to do this, I can teach you if you like and it's just really nice to be able to pass on the knowledge'*. Frank elaborated, saying:

'I bought a unicycle and I'm helping to teach others how. It feels really good because I like watching the people develop their skills, I like watching them come and be like oh I don't know, and then get on a unicycle and get a feel for it and watching them learn'

and become better and better, Jenny, she started off saying oh you can ride a unicycle can you help me, so now we are both at the same level'.

Children also acknowledged that the trainers played a large role in helping them. Children appeared to look up to their trainers as role models. The interactions children had with their trainers were regarded as related to children and their peer's interactions and overall learning. Joyce said that in circus *'You can learn different things with your friends because the trainers also help you, when you're learning new things they [trainers] show you and if you need help they help you'*. Patty said *'These are the best teachers I've had'*, Adam agreed saying *'we have amazing teachers'*. Muriel discussed her trainers, saying *'they watch what you are doing and pay attention to whether or not you can and if you can't they help you until you get better at it'*.

5.3 Discussion of Findings

Findings from the quantitative and qualitative analysis indicate that participation in the circus arts was relatively consistent with previous related research. Outcomes of improved mental wellbeing including: confidence and self-esteem, as well as social support and socialisation (as identified by focus groups), were consistent with main reported outcomes identified in systematic reviews of research by Bungay and Vella-Burrows (2013) and Daykin et al. (2008). These reviews focused on impacts of art participation on child health. Furthermore, comparable outcomes of improvements in mental health and social skills have been seen in studies relating to physical activity interventions (Biddle and Mutrie 2007; Brown et al. 2013).

Adopting convergent-parallel mixed methods approach to data analysis requires the need to compare and contrast results. Table 2 presents a side-by-side comparative analysis of survey and focus groups results. Congruency was allocated levels as either: poor, indicating a very low level, moderate, indicating some congruency, and strong, signifying a very high level. As has been noted earlier, while the pre/post survey results did indicate some improvements in children's self-perceptions of health across a number of domains, these were not statistically significant. As such it could be argued that the health improvements identified from the survey should not be incorporated in the side-by-side comparative analysis. However, recent discussions amongst some in the academic community concerning the use of *p*-values and statistical significance to justify 'true' and/or effect results within quantitative studies (Amrhein and Greenland 2018; Bernardi et al. 2017) indicates the need to view *p*-values and statistical significance as an inference rather than as a reality (Amrhein and Greenland 2018). As Bernardi et al. (2017) point out, assuming statistically non-significant effects as zero effects fails to take account of Type II errors, i.e. the risk of missing a 'real' effect. As such, any positive effects on children's health identified via the pre/post survey were viewed as potentially 'real'. Comparing quantitative results with qualitative findings provided an opportunity to confirm (or not) the effect of circus training on children's health. Essentially, the study utilised the qualitative findings as a means to account for the potential of missing a 'real' effect not statistically identified from the quantitative analysis. Table 2 presents a side-by-side comparative analysis of survey and focus groups results. Congruency was allocated levels as either: poor, indicating a very low level, moderate, indicating some congruency, and strong, signifying a very high level.

Comparative analysis of the findings from the Kidscreen-27 survey and focus groups shows psychological and mental wellbeing, social support and peers as well as socialisation to have strong level of congruency (Table 2). Physical wellbeing and physical enjoyment saw a moderate level of congruency. Autonomy and parent relation, school environment and resilience saw poor congruency levels during comparative analysis. The following discussion focuses on those items identified as having a strong level of congruency. This is not to suggest the findings that attained moderate levels of congruency should not be noted, however as the focus of this study was to develop a SROI ratio there is a need to ensure that the items to be included in SROI analysis are based on strong connections between both quantitative and qualitative data analysis.

Positive psychological health was identified as strongly congruent between the corresponding survey domain, psychological wellbeing, and identified focus group theme mental wellbeing (Table 2). While the survey findings indicate a non-significant, minor improvement from pre to post circus training (Table 1), focus group findings suggest children identified positive mental health as a benefit of participating in circus. Children explained that circus participation made them feel happy because they found relief from life stressors and helped with their self-esteem and confidence.

Survey and focus group data indicated that the circus-arts may positively influence children's mental wellbeing, as circus participation was associated with maintaining levels of happiness and life satisfaction. Focus group data suggested that children view their involvement in circus to create positive feelings and good mental wellbeing. Children identified that they found stress relief from circus participation. High levels

Table 2 Side by side analysis of survey and focus group findings

Kidscreen-27 domains	Focus groups (Themes)	Level of congruency	Reasoning
Psychological wellbeing	Mental wellbeing	Strong	Survey domains relate to perceived happiness, enjoyment and self-esteem. Focus groups identified children felt happiness due to stress relief and circus helped them build confidence and good self-esteem.
Social support and peers	Socialisation	Strong	Survey and focus groups both included items related to interactions with peers.
Physical wellbeing	Physical enjoyment	Moderate	Concerns regarding physical health were identified in both survey and focus group data. However, these two items relate to different elements of physical wellbeing hence are considered only moderately congruent.
Autonomy and parent relation	No data	Poor	No qualitative themes emerged relating to parent relationships or economic concerns during focus groups.
School environment	No data	Poor	No qualitative themes emerged during focus groups relating to children's schooling environment outside of circus.
No Data	Resilience	Poor	Survey did not include any specific items in relation to Resilience or coping in the face of adversity.

Three levels of congruency ratings: Poor, Moderate, Strong

of perceived stress a person may experience has been associated with significantly lower levels of health and wellbeing (Thoits 2010). Paying particular attention to poor mental wellbeing, heightened stress levels have been strongly associated with increases in depression and anxiety. Thoits (2010) suggests that such reductions in mental health status have been shown in research to be often preceded by ongoing heightened feelings of stress. Hence, where stress may be relieved, it is feasible that mental health may remain stable, or potentially even improve. Furthermore, the impact of stress on motivation to be physically active has also been argued as negatively correlated. Stults-Kolehmainen and Sinha (2014, p. 81) identify that heightened stress levels 'impairs efforts to be physically active'. Good levels of physical activity are widely acknowledged to be beneficial for people's health and wellbeing (Biddle and Asare 2011). Being physically active in circus-training, may relieve stress, therefore further improve motivation to remain physically active. This is furthered by Stults-Kolehmainen and Sinha (2014) who indicate an iterative relationship may exist between engagement in physical activity and stress. Evidence has also shown that having good confidence in personal capabilities may assist children to remain motivated to succeed (Himmler and Koenig 2012). Therefore having a good level of confidence may also influence this positive feedback relationship. For example, there is potential that children are motivated to participate due to confidence in abilities, hence remaining active in circus and finding stress relief, further reinforcing engagement in circus as a physical activity.

Focus group findings of good self-esteem may help to further illuminate children's maintenance of positive mental health and wellbeing. Having positive self-esteem has been associated with good health and wellbeing (Mann et al. 2004), and reductions in risk of depression and anxiety and is especially meaningful for young peoples' development (Boden et al. 2008). Self-esteem is defined as a measure of how much we may value ourselves and our abilities (Blascovich and Tomaka 1991; Brown et al. 2016). It stands that children essentially evaluated themselves as having improved, giving them a sense of increased self-value and self-worth. Self-esteem may be an outcome of the success children experienced when participating in circus training. Research by Neff (2011) acknowledges this relationship, suggesting that self-esteem is an outcome, not a cause of success. It may be argued that through learning circus skills students are given opportunities to succeed and learn to manage failure. Hence, these outcomes identified in focus groups may indicate that circus participation works to maintain positive mental health through benefitting self-esteem and confidence, and protects from poor mental wellbeing that could occur due to stress.

The participant's positive social interactions were recognised as strongly congruent between survey domain of social support and peers and the focus group theme of socialisation (Table 2). Survey results indicate a non-significant result regarding perceptions of social support and peers, where scores remained stable from pre to post circus training (Table 1). Focus group analysis identified the circus-training environment was supportive of children building positive social interactions and relationships. Both the survey and focus group findings suggest that circus participation can assist in maintaining good levels of participant socialisation skills.

The ability of people to form social bonds and navigate social interactions successfully is argued to directly impact health and wellbeing. Boyer and Nelson (2015) state children's social interactions become increasingly impactful during transitions from early to middle, and adolescent years. This is due to children experiencing heightened

responses to social stressors. However, relief from this issue has been associated with having good social competence, thereby improving children's physical and mental health outcomes. Hence, children who learn how to effectively interact with others may be better able to form stronger bonds and positive networks of support (Armstrong et al. 2005; Boyer and Nelson 2015). The greater the social connectivity and social support, the more likely children are able to manage stress and see improvements in health and wellbeing across their lifespan (Boyer and Nelson 2015; Repetti et al. 2002). However, the number of social connections appears irrelevant, with this study's focus group evidence suggesting it is the quality of relationships that matters most to participants. Findings show children felt supported to be themselves. The children found friends, made as a result of participating in circus training, and sought to remain in those same close networks. This suggests the quality of support and social interactions allowed the children to feel able to connect with others and that the number of friends was unrelated to social support. This analysis is supported by previous research, which argues children's health and wellbeing is contended to be better created and maintained by higher quality support networks, as opposed to quantity (Kerri et al. 2013). It could be argued the circus-training environment itself encourages valuable social interactions that support children's health and wellbeing.

Findings also suggest there are links between social interactions and the surrounding circus-training environment. Children expressed feeling safe; this in turn allowed them an enhanced personal creative expression that also appeared to benefit others. Children acknowledged trainers as very supportive regardless of their skill level, as their trainers took the time to show, describe and explain elements of circus training. Research by Bean et al. (2014) suggests that where the relationship of children with their sports and physical activity educators is based on empowerment, children's health and wellbeing is improved. In supporting the children through empowering them to learn at their own pace, the trainers may be assisting to create and maintain good health and wellbeing for participants.

Caring and supportive non-parental adults are also argued to be a significant part of successful physical activity programs for youth physical and cognitive development (Agans et al. 2015). Notably, trainers were not the only way children were learning. Children were able and encouraged, to teach and learn from their peers and found great satisfaction and enjoyment from this. Littlefield et al. (2017) reason that children's social and emotional skills develop in relation to their environmental circumstances, inclusive of their relationships with educators, parents and peers. Moreover, children's social interactions and expressions may in turn help to have shaped this environment conducive to promoting such positive interactions. This view is also represented by Batorowicz et al. (2016) who identify that the social environment represents a systemic and self-affecting relationship, where individuals and environments interact and shape each other. Thus where children are supported through the circus-arts to form good social bonds and social competence, these outcomes may serve to further promote a supportive environment in which to do so.

5.4 Developing a SROI Ratio

A SROI ratio is based on a theory of change (Arvidson et al. 2013). This paper presented a prospective SROI, that is based on social changes that have been identified using a convergent-parallel mixed methods approach, what costs could be saved in relation to

children's future health and wellbeing. We acknowledge the short term nature of the study used to develop a SROI ratio. We would argue that the benefits of continued participation in the activity by the children would not diminish the initial findings. As Martlew and Grogan (2013) point out, long-term benefits of engagement in activities that supports physical and cognitive development for children has shown beneficial lasting outcomes. We also acknowledge the forecast SROI analysis presented in this paper may only be representative of change that can occur across this shorter time frame. Future investigations should consider the benefit of a longitudinal, evaluative SROI analysis.

The relevance of changes that were identified is broad. The early and middle years of childhood are recognised as being pivotal in ensuring good physical and cognitive development (Martlew and Grogan 2013). Healthier societies can mean a reduction in lifestyle related illness and therefore potentially reduce reliance on healthcare resources (Fineberg 2012). Furthermore, societies with higher rates of health and wellbeing have been shown to be more economically productive (Dollard and Nesar 2013). Consequently identifying what actions and activities can assist in shaping good health and wellbeing for children, may support a variety of positive outcomes into the future.

Through the use of a convergent-parallel mixed methods approach data analysis showed positive impacts on children's mental health and socialisation in respect to their participation in circus skills training. The changes were seen across four key areas: Stress Relief, Self-esteem, Confidence and Socialisation.

Survey and focus group results were compatible where the Kidscreen-27 questionnaire domains of 'psychological wellbeing' paired well with focus group themes related to mental health: stress relief, self-esteem and confidence. The Kidscreen-27 domain 'peers and social support' showed compatibility with the focus group theme of socialisation. Whilst other positive outcomes were identified, the decision to base the development of a forecast SROI ratio on triangulated and comparable results only was viewed as assisting with ensuring a relatively high level of rigour was applied to the study.

The relative significance of the key areas of congruency is discussed below in relation to meaning and costs to the individual and society. Discussion here aims to highlight the importance each key area has for creating and maintaining the health and wellbeing of people and their community, while also signifying the negative outcomes that can result when these key areas of people's lives are neglected. All attempts to value notable changes identified during the development of the prospective SROI ratio have been sourced by aligning change to verifiable and credible data sources.

5.4.1 Inputs, Outputs and Outcomes

This section briefly outlines the investments (inputs) which enabled the circus skill training sessions (outputs) to be conducted that led to the changes identified by stakeholders (outcomes).

The investment (i.e. the cost of enrolment) in the Cirkidz Tweenz program across a six month period was identified as \$550. The outputs (i.e. activities generated by the investment) was the circus skills training session classes. Classes were structured ensuring all participants to the activity experienced the same components of circus skills. All SACC circus trainers had been trained in circus at Cirkidz, allowing continuity and consistency of skills delivery. Tweenz circus classes occurred once per week for a six month period (referred to as a semester). The average size per Tweenz

class was 15 students, with two trainers per class. All children were offered the opportunity to perform in a school-wide circus performance at the end of each semester.

The outcomes that were identified from stakeholders (child participants in the Tweenz program) and analysed via the congruent mixed methods approach were: Stress Relief, Self-esteem, Confidence and Socialisation. Changes across each of these outcomes were allocated proxy costings according to relevant, available evidence.

Data showed a clear benefit to participating children's mental health. Data from the Kidscreen-27 questionnaire showed children's mental health improved by 4.5% in the psychological wellbeing domain. Furthermore, focus group data analysis supported the survey results, with participants indicating circus helped alleviate stress, built self-esteem and confidence.

The social benefits of having positive mental health can be seen by looking at the social and individual burden of ill-health. The Australian Institute of Health and Welfare (2016) estimates the cost of mental illness to society in 2013 as approximately \$3b, up from approximately \$2.2b in 2005. Global estimates of the financial/economic burden of depression and anxiety suggest a large financial burden results from poor mental health (Konnopka et al. 2009; Luppá et al. 2007). Such burden has been estimated through academic analysis of cost of illness and medical intervention cost-effectiveness studies. Improvements in mental health may mean reduced economic and health burden, allowing for investment of resources in supporting health-creating activities, where more sustainable economic gains may be made to benefit society.

In-depth analysis of both the survey and focus group feedback identified specific mental wellbeing benefits, these being Stress relief, Self-esteem and Confidence.

Increased levels of stress have been associated with increased risk of physical and mental illness. Evidence suggests strong correlations with high stress levels and poor mental and physical health. Research has shown that 'stressors proliferate over the life course and across generations, widening health gaps between advantaged and disadvantaged group members' (Thoits 2010, p.S41) Providing children with the opportunity and space to find relief may assist in alleviating the negative impacts that can occur due to stress. Table 3 outlines the proxy costings for Stress Relief.

Self-esteem is defined as how much we may value, approve or like ourselves and how we may perceive and act on ideas of self-deficiency (Blascovich and Tomaka 1991). Self-esteem may be further defined as freedom from depressive concepts of the self at any given moment in time. Children reported that circus helped them feel better about themselves and improved their self-esteem.

Evidence suggests that having good levels of self-esteem assists in coping when faced with difficult tasks (Sowislo and Orth 2013). How well one copes and values their ability to succeed during difficulty can be safeguarded with good levels of self-esteem. Overall, positive self-esteem results in good health and wellbeing, while poor self-esteem is a risk factor contributing to negative life outcomes (Sowislo and Orth 2013; Trzesniewski et al. 2006). Table 4 outlines the proxy costings for Self-esteem.

Children reported gains in their self-confidence. Confidence is defined as the level of belief one has in one's self to succeed (Bénabou and Tirole 2002). This concept while related to self-esteem, differs slightly. Where self-esteem may dictate how we perceive and deal with self-deficiency, having confidence is associated to how we may believe we are able to incorporate or overcome deficiency going forward. Table 5 outlines the proxy costings for Confidence.

Table 3 Stress relief proxy

	Description	Value	Rationale	Source
Indicator	Stress relief		Increased levels of stress have been associated to increased risk of physical and mental illness. Circus may assist with coping with life stressors.	Survey data (psychological wellbeing) & focus group data
Proxy	Per 6 months treatment psychology/ist. Drugs per 6 months	\$2892 \$12	Australian Psychological society recommends the following costing for any patient in 2016: \$241 per hour approx. (varies according to time of session, see pdf). Therefore, 1 session every two weeks for 6 months = 12 weeks x \$241 = \$2892. (cost to full fee paying parent to send child to psychologist for treatment of depression/anxiety).	Australian Psychological Society, Pharmaceutical Benefits Scheme

Socialisation is defined as the process of learning how to mix socially with others and learning socially acceptable behaviours within a given culture (Van Krieken et al. 2010). Children reported an increase in the Kidscreen-27 domain of social support and peers, of 3.65% between their pre and post measurements. Furthermore, pairing with survey results, focus group data revealed the positive outcomes of good socialisation the students believed was related to Cirkidz circus training.

Socialisation especially in the early years of life is argued as necessary for decreasing social dysfunction and crime in later years of life. Socialisation assists children to learn and practice empathy for others and can help them understand their own place in their world. There is evidence that suggests that low empathy is linked to bullying and bullying has an impact on health and wellbeing (Jolliffe and Farrington 2006). Social dysfunction, leading to crime links to increases in costs of policing, court costs and

Table 4 Self-esteem proxy

	Description	Value	Rationale	Source
Indicator	Self esteem		Circus assists children to feel good about themselves and interactions with others. Circus allows children to learn at their own pace in a supportive, non competitive environment.	Survey data (psychological wellbeing) & focus group data
Proxy	Per 6 months treatment psychologist. Drugs per 6 months.	\$2892 \$12	Costing can relate to treating mental illness. Self esteem links to depression - links to feeling poorly about ones self and life, having severe negative impact on self-esteem.	Australian Psychological Society, Pharmaceutical Benefits Scheme

Table 5 Confidence proxy

	Description	Value	Rationale	Source
Indicator	Confidence		Circus assists children to feel good about themselves and interactions with others. Circus allows children to learn at their own pace in a supportive, non competitive environment.	Survey data (psychological wellbeing) & focus group data
Proxy	Per 6 months treatment psychology/ist. Drugs per 6 months.	\$2892 \$12	Costing can relate to treating mental illness. Self worth links to anxiety – feelings that they may not be good enough, low self-belief/-confidence, putting people at risk of anxiety disorders.	Australian Psychological Society, Pharmaceutical Benefits Scheme

imprisonment (Vazsonyi et al. 2015). The Australian Institute of Criminology (2014) and the Australian Bureau of Statistics (2016) show that some of the most common form of offences recorded for young people are public order offences. Such offences are often linked to social dysfunction, where poor socialisation can increase the risk of a person committing a crime. The Productivity Commission (2015) shows that the incarceration rates of adults cost \$35,802 M (or \$3.6B approx.) in 2005, and these prisoner incarceration rates continue to rise. In 2014, there were 32,683 incarcerated persons nationally, the cost of imprisonment per prisoner, per day in Australian prisons nationally was \$281 and the cost to taxpayers of detaining a young person was \$227,760 per person, per annum (Productivity Commission 2015). According to the AIC³⁶, the criminal justice system has continued to increase in expenditure by an average of 10% per year since 2003. In 2012, the cost of policing accounts for 71% of the total cost of corrections - seeing \$432 (tax dollars) spent per person/per head of population annually in Australia. Table 6 outlines the proxy costings for Socialisation.

5.5 Calculating the SROI Ratio

This section of the paper discusses the process of the SROI ratio calculation. In calculating any SROI ratio it is necessary to make assumptions or use data which is not subject to universal agreement. To assess the degree that this may influence a final value that has been calculated, a sensitivity analysis is carried out and the results recorded. Reductions in value are made to mitigate issues related to over-claiming outcomes/benefits of the SROI analysis. These reductions are referred to as Deadweight, Attribution and Displacement (Arvidson et al. 2010). By doing this, the value of the benefits can be expressed within defined limits. The most significant assumptions that were made were tested in the sensitivity analysis as detailed below.

5.5.1 Deadweight

A reduction for deadweight reflects the fact that a proportion of an outcome might have happened without any intervention. Deadweight has been calculated on the proportion

Table 6 Socialisation proxy

	Description	Value	Rationale	Source
Indicator	Socialisation		Builds empathy (and vice versa) for others, social capital and ensures a safe space. Poor socialisation is associated to social isolation and may lead to social dysfunction in youth - and can be linked to crime. May also be described as improving cognitive ability.	Survey data (psychological wellbeing) & focus group data
Proxy	Juvenile detention Spent on policing in 2012	\$624 per person per day - \times 182 days (6 months)= \$113,880. \$216 p/p (national average), per 6 months.	Literature in relation social dysfunction: linked to criminology - self-control theory is linked to dysfunction and socialisation. Socialisation especially in the early years of life is argued as necessary for decreasing dysfunction and crime in later years. There is evidence that suggests that low empathy is linked to bullying - bullying has an impact on health and wellbeing. Social dysfunction, leading to crime links to increases in costs of policing, court costs and imprisonment.	Australian Institute of Criminology, Australian Productivity Commission, ABS, Australian Commissioner for Children and Young People.

of people who would be active on their own accord. As this study was identified as the first of its kind and assumes a forecast SROI analysis, no control group was included in the research strategy. Therefore, comparable external information was sought to ascertain the level of association of the intervention to the outcome.

Comparable information was drawn from the Australian Child Wellbeing Survey; Mental health of children and adolescents (Lawrence et al. 2015). This report identified the level of change across a much larger time frame than our study. However, some indications can be drawn to inform the percentage of deadweight attributable to our calculations. The report shows that from a sample of almost 3000 children between the ages of 6-17 years. The change in mental health between 1998 and 2014 (16 years) remained stable: where mental health overall appeared to remain relatively stable, increasing by less than 1 % (0.9%). This calculates to 0.056% (0.9/16 years) of an improvement in children's mental wellbeing per year. We therefore predict that 0.028% of any improvement in mental wellbeing seen in our sample, may have occurred even without circus training across the six month period.

Youth offenders represented approximately 0.4% of the total national Australian population in the year 2015 (Australian Bureau of Statistics 2016). Accordingly, there is a 0.4% chance that young people will offend. The likelihood of repeat offending is high however has not been included in this SROI analysis.

5.5.2 Attribution

Attribution takes account of external factors, or the contribution of others, that may have played a part in the changes that are identified. Attempts were made to control for covariates that may impact the results. Participants were asked if they participated in any other organised physical activity outside of school. This was done to estimate the level of attribution that can be made regarding the percentage of attributable impact from participation in circus training being due to the intervention. Data analysis showed that from the sample, children participated in other organised sports at an average frequency of 1.2 times per week. We may therefore estimate that we can be 50% sure that the results are due to circus participation and not some other organised physical activity. Hence, level of attribution is set at 50%. We acknowledge that this is an estimation only and further investigations should attempt to control for other possible covariate factors.

5.5.3 Displacement

Displacement applies when one outcome is achieved but at the expense of another outcome, or another stakeholder is adversely affected. In relation to the Tweenz program, displacement could have arisen as a result of children ceasing to take part in another activity because they were involved in the regular circus training sessions. However due to the nature of groups involved in the program, i.e. their parents enrolled them into the program and the majority of the participants were already engaged in other activities there is little risk of displacement. In addition, displacement was not identified in the course of participant feedback.

Table 7 Deadweight & attribution measures

Indicator	Deadweight	Attribution
Stress relief Self-esteem Confidence	Mental illness overall risk = Australian Child Wellbeing Survey; Mental health of children and adolescents 2015 ³⁹ , p.138 : Over 16 years = 0.9% improvement in child mental health. This calculates to 0.056% annually (0.9/16 years) with 0.028% improvement across the six month period.	50% Youth survey respondents reported participating in an average of one other, out of school organised physical activity. Hence, there is an estimated 50% attribution of the identified outcomes being due to circus training.
Socialisation	Youth offenders represented approximately 0.4% risk of offending of the total equivalent population in 2015 ³⁶ .	

Table 8 Impact outcome calculations

Outcome	Value (V)	Less attribution (A)	Less deadweight (D2)	Impact per person
Stress Relief	\$2892	50%	17.5%	\$1193
Self esteem	\$2892	50%	17.5%	\$1193
Confidence	\$2892	50%	17.5%	\$1193
Socialisation	\$216	50%	0.4%	\$108

An SROI is expressed as a ratio of return and is calculated by dividing the value of the impact by the value of the investment. However before the calculation is made the Impact Value is adjusted by deducting Deadweight and Attribution percentages. This is to reflect the present day value of benefits projected into the future. The formula for calculating an SROI can be expressed as follows:

$$\text{Total Impact Value} = \text{Sum of Impact Costs} \text{ minus Deadweight percentage and Attribution percentage}$$

$$\text{SROI} = \frac{\text{Total Impact Value}}{\text{Total Investment}}$$

Table 7 provides a summary of Deadweight and Attribution percentages adopted for this study.

The resultant calculations for each impact outcome has been provided in Table 8 below.

The Total Impact Value equates to \$3686 per person. Based on this a social return on investment of \$7 was calculated for every \$1 invested in the Cirkidz Tweenz program, that is \$3686/\$550 = \$7.¹

6 Conclusion

This paper has presented findings from a study identifying the Social Return on Investment (SROI) of a community-based circus program for young people in relation to their health and wellbeing. The SROI analysis provided in this report has demonstrated the extent to which the SACC Tweenz program has been effective and brought about positive changes, specifically in relation to mental wellbeing and socialisation. Based on the use of a rigorous congruent mixed methods research approach as well as assumptions based on relevant literature and costs, the resultant SROI analysis has shown that the SACC Tweenz program has created a prospective social value of \$7 for every \$1 of investment.

Throughout this paper a number of issues and limitations have been identified, including the use of statistically non-significant results as well as developing economic proxies for social outcomes. Some additional limitations need to also be acknowledged, particularly in relation to the tools used to obtain the data as well as the participant sample. The use of focus groups with children can pose a number of issues such as aspects related to group dynamics as well as analysing children's views within responses (Morgan et al. 2002). The relatively modest survey response rate from pre

¹ Figures have been rounded to whole numbers

to post survey may have further impacted the study's validity. During the study all the children continued to participate in the circus program throughout the six months and participant numbers remained stable for the qualitative strand of this study. The difference between the survey and focus group dropout rates may indicate the participants did not like the survey procedure or the questionnaire. In relation to the participant sample, the vast majority of those involved in the study had been participating in circus training for some time and were apparently healthy. As such, findings may be more aligned to the effects of circus training over a longer period rather than the relatively short six month period the study was conducted.

Building on these findings it could be concluded that any 'scaling-up' of the Tweenz program to more young people could provide further positive social returns, particularly in relation to reducing future mental health costs associated with youth. In particular, providing regular circus-arts training to youth could be viewed as an opportunity to implement a health promotion initiative for families as well as a cost effective preventive health program.

Further research may include investigating the impact of circus training for different groups, including children who have never participated in the activity before or specific at-risk groups. Future studies could also be conducted with older participants involved in circus training as well as conducting longitudinal studies. This could assist with understanding whether other social impacts occur for other groups as well as assist with understanding the benefits of long-term involvement in a physical arts program can have in relation to social outcomes. In relation to SROI studies, we argue there is a need for further academically focused studies to be conducted, particularly in respect to leisure based, community activities. As noted earlier in the paper, community based leisure organisations are constantly required to justify the use of public funding to support their activities. Supporting and encouraging the use of SROI studies, particularly in collaboration with academic researchers, has the potential to assist organisations with continuing to provide leisure opportunities to local communities.

Compliance with Ethical Standards

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

Conflict of Interest The authors declare that they have no conflict of interest.

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