



# Psychosocial Influences on Coping and Wellbeing during the Covid-19 Lockdown in the Early Days of the Pandemic: A Mixed Methods Research

Kanu Priya Mohan<sup>1</sup> · Narisara Peungposop<sup>1</sup> · Pranav Kalra<sup>2</sup>

Received: 27 November 2020 / Accepted: 10 April 2022 / Published online: 28 November 2022  
© The International Society for Quality-of-Life Studies (ISQOLS) and Springer Nature B.V. 2022

## Abstract

This study focuses on the psychosocial impacts of COVID-19 restrictions on wellbeing and uses a mixed methods design to develop a more profound understanding about adaptive coping during stressful situations. The quantitative phase of this study examined the association between psychological capital, perceived stress, coping and wellbeing. The online survey was conducted in May 2020 and had 257 participants. The Structural Equation Modelling (SEM) results showed that the hypothesized model had an adequate fit [ $\chi^2(306, N=257)=547.185, p=0.00$ ]; and that both psychological capital and perceived stress were significant predictors of wellbeing. Significantly, young people reported a more negative impact on their wellbeing during the lockdowns. In the subsequent qualitative phase, in-depth interviews with 21 voluntary participants (14 females and 7 males) suggested that individuals could reappraise stressful situations and use coping strategies for psychosocial adaptation. From this research, it was identified that especially the younger age group is at risk, and that that psychosocial resources, such as psychological capital, could be developed to enhance coping and wellbeing with the ongoing impacts of the pandemic.

**Keywords** Psychological capital · Perceived stress · Life satisfaction · Positive mental health · Psychological distress · COVID-19

## Introduction

On March 11, 2020, the World Health Organization [WHO] declared COVID-19 a “pandemic” (Cucinotta & Vanelli, 2020). Since then, almost all countries across the world have faced several disruptions due to the COVID-19 health crisis. Many

---

✉ Kanu Priya Mohan  
kanum@g.swu.ac.th

<sup>1</sup> Behavioral Science Research Institute, Srinakharinwirot University, Bangkok, Thailand

<sup>2</sup> Engineering Science Programme, National University of Singapore, Singapore, Singapore

people have been placed under “lockdowns” as countries tried to combat the spread of COVID-19 infections. In this regard, COVID-19 has not only had a significant impact on people’s physical wellbeing, but also people’s psychological wellbeing (such as increasing stress, anxiety and mental health issues), social wellbeing (isolation), and financial wellbeing (monetary losses, job loss, etc.) (Bavel et al., 2020; Oosterhoff & Palmer, 2020; Roy et al., 2020; Shek, 2021). The lockdowns that have been implemented in numerous countries can be characterized by “large scale physical distancing measures and movement restrictions” (WHO 2020c, December 31) and have been termed as the “biggest psychological experiment” by Hoof (2020, April 9).

An overview study by Brooks et al. (2020) reported severe negative impacts of lockdowns on mental health and psychological wellbeing based on a review of 24 studies in the Lancet. Early research from China documented the negative impact of lockdowns on the local population (Cai et al., 2020; Dorcas, 2020; Nguyen et al., 2020; Zhang et al., 2020), decreasing mental health and wellbeing.

Many Asian countries were just starting to be placed under lockdowns when this research project was initiated in April 2020. At that time, there was no existing research that examined the psycho-social coping and wellbeing of people living under lockdown conditions in developing nations that were just starting to record COVID-19 cases. In this research, the focus is predominantly on India and Thailand in the early days of the pandemic, and on how psychological capital (including hope, optimism, resilience, and self-efficacy) can help to deal with the lockdown situation and what coping strategies of people are.

This research aims to contribute towards the literature on COVID-19 in two ways. The first is to quantitatively examine the relationship between psychological capital, coping and wellbeing in times of COVID-19. The second is to qualitatively study people’s actual coping strategies during the crisis. A two-phase mixed methods research design was used to build a comprehensive understanding of coping and wellbeing during the early days of the lockdown.

During the COVID-19 pandemic, mental health professionals and other experts have suggested strategies to help people cope with life under lockdown. However, there is a lack of information on how people have implemented coping strategies. Investigating how people implement coping strategies, and the impact that has on their wellbeing, can be helpful in developing more effective interventions to help people recover from the negative impact of the pandemic. Recording narratives on actual coping strategies can also be useful as a communicative tool, as suggestions on coping strategies may be more effective in changing behavior when combined with narrative evidence.

To embed this investigation in behavioral science theory, it was necessary to examine coping and wellbeing alongside the stress perceived by participants and the psychosocial resources they possessed. These factors were studied quantitatively in the first phase of the research. The research question examined during this phase was: what is the role of *psychological capital* and *perceived stress* in driving coping and wellbeing (measured by *life satisfaction*, *positive mental health*, and *psychological distress*)? Though the research starts with a quantitative study, a qualitative exploration was used to elucidate the findings and obtain the story behind the numbers.

The research question studied during the qualitative phase was: what are the experiences of stress and adaptive coping that could influence wellbeing during the lockdowns? The findings from both phases of research would be examined from the perspective of promoting psycho-social strategies to improve coping and for developing interventions.

The remainder of this paper is organized as follows. The next section discusses the related literature, while section three outlines our research methodology, and details the mixed methods design and research objectives for the quantitative and the qualitative phases. This is followed by discussion, implications, and conclusion.

## Literature Review

The literature review specifies the behavioral sciences theories that underpin this study, specifically the person-environment interaction model and the transactional model of stress and coping (Lazarus & Folkman, 1984). The review also includes the contextual background of the COVID-19 pandemic, research showcasing the impact of COVID-19 lockdowns on wellbeing, the psycho-social concepts of the research, and the related research evidence.

## The COVID-19 Pandemic in the Context of Asian Countries

When this study was designed (April 2020), there was not much research published about the impact of lockdowns in Asian countries. India and Thailand were the countries chosen for data collection as they went into lockdown around the same time. Another reason for choosing these two countries was rooted in the personal experiences and the research training of the authors, who included an Indian researcher living in Thailand and a Thai scholar. India and Thailand are both developing nations in Asia. India is a very large and diverse country, having a population of over 1 billion people (Alam, 2020). Thailand is a country located in the “center of mainland South-east Asia”, with a population of over 68 million people (Hafner, 2020). Both countries went into COVID-19 lockdowns around the same time and, hence, the researchers sought to capture the experience of people living in lockdowns in both countries in a systematic way.

India went into a “complete lockdown” on 25<sup>th</sup> March 2020 following the WHO guidelines (United Nations News, 2020). Thailand started implementing restrictions in the 2<sup>nd</sup> week of March 2020, and finally declared “a state of emergency” from 26 March 2020 as noted in a report by the World Health Organization (2020b, March 26). Although the COVID-19 lockdowns and restrictions were implemented in India and Thailand around the same time, the countries differ considerably in the types of measures taken, and thus the disease spread very differently in each country in the following months. However, this heterogeneity is beyond the scope of the current research. As this research used a convenience sampling technique, the survey participants initially contacted were in these 2 countries. However, as the survey information was

shared with their friends and families living in other countries, and hence the data reflects other nationalities as well (see demographic details in Table 2).

### **The Theoretical and Conceptual Underpinnings from the Behavioral Sciences: Wellbeing during COVID-19 Lockdowns**

This research was developed from a behavioral science perspective that allows for a holistic and a systematic understanding of behavior through its interdisciplinary approach (Mohan, 2015, 2016). Researchers have noted the scientific value of behavioral science knowledge in developing research and practice, especially in health, and reported from both western contexts (Irwin & Supplee, 2012; Riley, 2017) and in Asian contexts (Mohan, 2016). There were two rationales for utilizing a behavioral science approach to study life under lockdowns during the COVID-19 pandemic. Firstly, it allowed the researchers to develop the conceptual framework from an interdisciplinary perspective of psychology, positive psychology, social psychology, and mental health. Secondly, the behavioral perspective puts the interaction between the individual and the environmental factors that affect the wellbeing of people center-stage. Studying this interaction helps us to better understand wellbeing and coping, particularly during the pandemic. In addition, the findings of this research could be utilized for developing *applied behavioral science* interventions to deal with the impacts of the pandemic, as have been used for building resilience in the events of environmental or health-related disasters (Mohan & Peungposop, 2014). This is more important in the context of the pandemic, as researchers across the world have emphasized the urgent need for social and behavioral science insights to build an understanding of the effects of COVID-19 on various aspects of human life. More important, behavioral science insights are needed to develop appropriate responses to deal with these impacts (Bavel et al., 2020; Mukhtar, 2020). This was supported by the World Health Organization (WHO, 2020a), which emphasized that “guidance on mental health and psychosocial considerations” is imperative to deal with the effect of the pandemic.

There are two specific behavioral science theories that underpin this study. The first one is the *person-environment (P-E) theory*, which according to Edwards and Cooper (2013) has made a significant contribution to psychology research since it was originally presented by Lewin (1935). The P-E framework is important as it explains behavioral outcomes through the dynamic interaction of personal and environmental factors (Rauthmann, 2021). After Lewin, this perspective was elaborated through the *ecological theory* of Bronfenbrenner (1979), which highlighted the importance of understanding the dynamic interaction between various “eco-systems” that influenced an individual’s life. Various researchers have applied the P-E fit theory to understanding stress and its impact on wellbeing (see, Edwards et al., 1998; Edwards & Cooper, 2013). In their early work Edwards et al. (1998) had highlighted the importance of looking at the outcomes of “behavior, attitudes, and well-being” as jointly influenced by the characteristics of both the person and their environment. Edwards and Cooper (2013) explained that stress results as a lack of “fit” between an

individual's characteristics and the demands of the environment, and can impact psychological, physiological, and behavioral dimensions.

Another useful theory for the context of this study is the *transactional model of stress and coping* developed by Lazarus and Folkman (1984). This model viewed stress as a transaction between an individual and the perceived demands in the environment. Goh et al. (2010), explaining the transactional model, emphasize that a stressful event will initially trigger a primary appraisal, in which the individual may classify the stressful event as benign or challenging. If the event is perceived as challenging, this triggers a secondary appraisal during which an individual assesses his/her coping resources. Further, coping responses are initiated after the cognitive appraisal of the situation, with the resulting psycho-physiological experience of stress only occurring if the individual's coping processes become ineffective.

The above theories underpin this study in two ways. Firstly, in the quantitative phase of this research the interaction of the person with the environment is examined by testing the effects of psychosocial factors on coping and wellbeing. Secondly, the qualitative phase of the research explores the stress transaction by exploring how the perceived stressors were appraised, and which coping strategies were used to deal with the stress of the COVID-19 lockdowns by the participants. The following sections cover the review of the main concepts relevant to this study.

## Main Concepts

The main concepts identified for review are wellbeing, coping, psychological capital, and perceived stress. Relevant research is also shared.

### Wellbeing

The concept of wellbeing has no commonly agreed-upon definition (Dodge et al., 2012). In the context of the COVID-19 pandemic it may be appropriate to base our understanding of wellbeing as linked to overall health, which is defined by the World Health Organization in its constitution: "*Health is a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity*" (WHO, 1948; 2019).

In line with the behavioral science approach, wellbeing is studied using both the *hedonic* and the *eudemonic* traditions wellbeing research (Dodge et al., 2012). Specifically, wellbeing is examined from an interdisciplinary perspective by taking in the cognitive (life satisfaction), psychological (psychological distress), and mental health (positive mental health) dimensions of wellbeing during the lockdowns. Researchers like Winefield et al. (2012) have discussed about measuring both psychological wellbeing and distress to capture both negative and positive impact of situations on people. For this study, capturing both was essential as the study seeks to understand the negative impact but also explore the possibilities of enhancing positive aspects of wellbeing. Specifically, this research measures wellbeing in terms of 3 concepts- *life satisfaction* based on the work of Diener et al. (1985), the concept of *positive mental health* based on the work of Lukat

et al. (2016), and *psychological distress* based on the development of its screening scale by Kessler et al. (2003). Previous studies have shown that life satisfaction and positive mental health not only predict wellbeing but have positive consequences in the future as well (Bieda et al., 2019). The measurement of psychological distress in general population has been validated by various research studies and have been used to assess mental health and wellbeing (Furukawa et al., 2003; Kessler et al., 2002).

**Impact of COVID-19 Lockdowns on Wellbeing** Researchers across the world have launched many research initiatives to capture the impact of living under COVID-19 restrictions. As the COVID-19 pandemic spread from China, Zhang et al. (2020) reported their first study done in China after nearly a month of COVID-19 confinement of people and warned about the negative impacts on mental and physical health as well as psychological distress. This was further corroborated by the study of Dorcas (April 9, 2020), who reported that from the initial outcomes it was evident that adults in China, living in locations more affected by COVID-19 lockdowns reported higher levels of distress, and lower physical and mental health, and life satisfaction. More researchers, like Nguyen et al. (2020), also reported that COVID-19 had negative affect on people's health and health-related quality of life (HRQoL), especially among those who have suspected COVID-19 symptoms. Ivbijaro et al. (2020) have also noted the "increase in mental health difficulties, mental illness, and decreased well-being" (p. 396).

More recent research also notes these impacts. For instance, a wide number of major mental health issues have been reported globally due to the COVID-19 pandemic, such as stress, anxiety, depressive symptoms, insomnia, denial, anger, and fear (Torales et al., 2020). Various psycho-social issues are also arising such as social isolation, fear, anxiety, and psychological distress (Mukhtar, 2020), and notably affecting individuals and communities (Otu et al., 2020). Recent meta-analyses also report depression, anxiety, and other mental health impacts on younger people (Li et al., 2021).

Early research from both India and Thailand shows empirical evidence of the impact of COVID-19 lockdowns on mental health and wellbeing (such as Wang et al., 2021 in the context of Thailand; Grover et al., 2020 in the context of India). As noted by Roy et al. (2020), the mental health issues in the context of the COVID-19 pandemic in India are more complicated due to various factors, such as a large proportion of socially and economically vulnerable population, lack of pre-existing public health infrastructures, etc. Researchers in Thailand have also reported the significant negative impact of COVID-19 on psychological and mental health of frontline health workers as well as the general population (Nochaiwong et al., 2021). Since both these countries were the chosen contexts of this study, the researchers aimed to explore differences, if any, among them on the scores of wellbeing.

It is important to note that there might be differences in wellbeing of various groups based on the demographic factors, and these differences can make them

more vulnerable to the impacts. In their review of mental health in women during the pandemic, Almeida et al. (2020) reported that while women were affected more than men, certain subsections, such as pregnant women, were further affected. Researchers have noted the negative impact on wellbeing in terms of rising cases of stress, anxiety, depression, and other mental health issues among the younger age groups (Roy et al., 2020; Sundarasan et al., 2020). Thus, this research sought to examine the differences in coping and wellbeing in terms of nationalities, gender, and age groups.

## Coping

Research studies during the COVID-19 pandemic have highlighted the importance of promoting effective strategies to alleviate negative impact on wellbeing and build resilience (Polizzi et al., 2020; Holmes et al., 2020). The coping responses of an individual to the threats and stressors can be vital determinants of their psychological and over all wellbeing. Researchers have categorized coping responses, like Lazarus and Folkman (1984), who distinguished two basic coping categories, problem-focused and emotion-focused coping, or the three coping styles of task-oriented coping, emotion-oriented coping, and avoidance-oriented coping as identified by Endler and Parker (1999).

For this research, the theoretical perspective of the *transactional model of stress and coping* by Lazarus and Folkman (1984) showed the importance of measuring coping and its impact on wellbeing. In the current research, coping was measured in terms of the 14 coping strategies based on the work of Carver et al. (1989). This proved valuable as it offers a wide range of coping strategies; its utility in various contexts has been established through research; and it has two versions of the questionnaire, dispositional and situational (this research used situational), all of which have been documented in a research by Stanisławski (2019). The coping strategies, showing individualized response to stress, include self-distraction, active coping, denial, substance use, use of emotional support, use of instrumental support, behavioral disengagement, venting, positive reframing, planning, humor, acceptance, religion, and self-blame. Coping responses are influenced by an individual's personal characteristics, the environmental factors, and the context (Parkes, 1986). These factors can impact the perceived coping resources (Phillips, 2013), and the consequences such as a negative outcome of distress or a positive one of wellbeing. In a recent study conducted in 30 countries, Eisenbeck et al. (2022) found that coping responses and their impact on psychological wellbeing varied across countries. Hence, the current study proposed to empirically examine the differences in coping and wellbeing among the participants from different nationalities.

## Psychological capital

Psychological *capital* (PsyCap) is a positive psychological resource that is made up of 4 dimensions: optimism, hope, self-efficacy, and resilience (Luthans, et al., 2007; Rabenu & Yaniv, 2017). Various researchers like Rabenu et al. (2017) have provided evidence on the significant impact of PsyCap on wellbeing and coping in

various contexts. Avey et al. (2009) reported that PsyCap was positively associated with many psycho-social outcomes such as job satisfaction, psychological wellbeing, collaborative behavior, and positive work results, while PsyCap was negatively associated with anxiety, work-related stress, and non-adaptive behavior at work. Furthermore, researchers have found that PsyCap is positively related to psychological wellbeing, even when examining changes within people over time (Avey et al., 2010). Ding et al. (2015) showed in their research that PsyCap can have a significant impact on positive coping among nurses. The value of PsyCap as a psychological resource that buffers negative impacts on mental health and wellbeing has been noted in psychiatry (Broad & Luthans, 2020), among school children and adolescents (Finch et al., 2020), and Chinese nurses (Zhou et al., 2017).

### Perceived stress

This research aimed to measure *stress* from the COVID-19 restrictions in terms of a subjective evaluation by the participants of the stress they experienced. Defining *perceived stress*, Phillips (2013), explains that it does not simply allude to how an individual feels about the general stressfulness of their life, but rather to their “ability to handle such stress”. According to the transactional model of Lazarus and Folkman (1984), *perceived stress* is the individual’s assessment of a life situation as threatening or challenging and influences the coping mechanism chosen to deal with the situation. Many researchers have shown that perceived stress could have negative outcomes on the person but also influences the coping mechanisms they use to deal with stressful events (Edwards & Cooper, 2013; Lazarus & Folkman, 1984; Liu et al., 2021). Lee et al. (2016) mentioned in their review of several research works that perceived stress was a predictor of low life satisfaction.

Researchers as early as in February 2020 reported the stressful impact of COVID-19 restrictions on people (Bao et al., 2020). It is also important to understand that the impact of stress caused by the pandemic on people as it also may have prolonged impact on mental health (Liu et al., 2021). Hence, this research focused on capturing the perceived impact of the situational stress caused by the pandemic from 7 different sources, that are explained in the method section. The variable of *perceived stress* is a subjective evaluation of the stress from environment (the Covid restrictions) and is examined for its impact on coping and wellbeing.

Thus, the reviewed literature accentuates the significance of examining the impact of the lockdowns in people. Next, the research design of the study is explained.

## The Research Methodology

### A Mixed-Methods Research Design

An adaptation of the explanatory sequential design of mixed methods research (Creswell, 2014; Creswell & Plano Clark, 2011) seemed the most appropriate for this study after reviewing the research questions.



According to Creswell (2013a, 2013b, slide 6), a mixed methods design enables researchers to “collect, analyze and integrate both quantitative and qualitative data in a single study or in a sustained long-term program of inquiry to address their research questions”. Primarily, the mixed methods design would allow researchers to use multiple perspectives to collect data and gain rich insights as highlighted by researchers (Regnault et al., 2018; Tariq & Woodman, 2013). This research included two phases: the first phase was quantitative in nature and consisted of data collection and analysis; the second phase consisted of qualitative data collected through in-depth interviews and analyzed, which is useful for a deeper explanation of the quantitative findings (Schoonenboom & Johnson, 2017).

The research team got ethical clearance from the university for this research project (ref: SWUEC- 365/2563BE, dated 15.12.20). Ethical standards of research given by the university and the international guidelines (American Psychological Association, 2010) were followed. These included informed consent from the research participants, upholding standards of anonymity and confidentiality, and informing the participants that they had rights to withdraw at any time.

The methodological approaches used in the research are detailed in the next two sections showing the quantitative and the qualitative phases.

## Phase 1 of the Study: The Quantitative Research

The quantitative phase consisted of a cross-sectional study based on a survey in which people were asked several questions how they experienced the lockdowns. The aim was to study the relationships between psychological capital, perceived stress, coping and wellbeing. Data was collected via a web-based survey and analyzed using descriptive and inferential statistics. The following sections provide the details of the specific objectives, method, and the results in this phase.

### The Quantitative Research Objectives

Based on the literature study, two research objectives for this phase of the research were formulated:

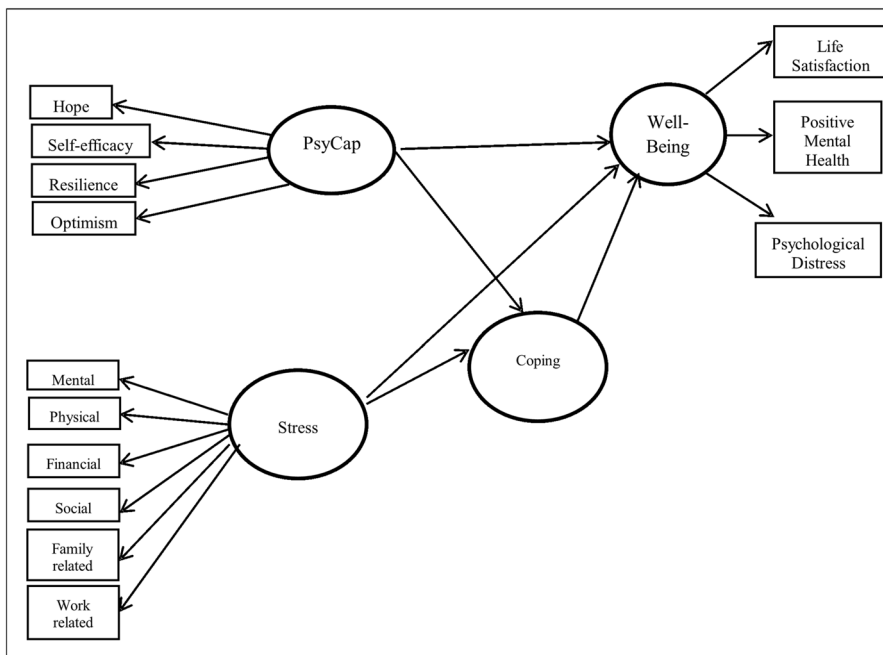
- 1) To study the relationships of psychological capital (*PsyCap*), and perceived stress with coping and wellbeing of the people under COVID-19 lockdowns.
- 2) To compare differences in coping and wellbeing between different demographic groups based on nationality, gender, and age.

The researchers developed a conceptual model for the quantitative phase based on the literature review. As psychological capital could promote positive coping (Ding et al., 2015) and predict wellbeing (Broad & Luthans, 2020), this research hypothesized the positive effect of *psycap* (measured in 4 dimensions of hope, efficacy, resilience, and optimism) on coping and wellbeing (measured in 3 dimensions of *life satisfaction*, *positive mental health*, and *psychological distress*)

during the pandemic as well. As coping helps to manage stress and results in wellbeing (Lazarus & Folkman, 1984; Lee et al., 2016; Liu et al., 2021), hypothesized effects among these variables were also predicted. As noted by Lee et al. (2016), it was also hypothesized that perceived stress would have a direct impact on wellbeing. The hypothesized model has been depicted in Fig. 1. The model represents variables as ovals and measured dimensions as rectangles.

## The Sample and Data Collection

The population of this research were people living under COVID-19 lockdown and restrictions. Based on the guidelines for estimating sample size, 10 observations per parameter must be taken (Aguinis et al., 2009; Bentler & Chou, 1987). Thus, the estimated sample size was 200 persons as there are at least 14 dimensions of the chosen variables in the proposed research. Through an online survey, data was collected from 257 participants. Data was collected through convenience sampling between 11<sup>th</sup> to 21<sup>st</sup> May 2020. The survey link was shared through digital platforms such as emails and social media applications such as *WhatsApp* and *Line*. Participation was voluntary and ethical practices of taking informed consent from participants, sharing research objectives, confidentiality, etc. were followed.



**Fig. 1** The Conceptual Model for the Quantitative Phase

## The Research Instruments

For this research, some instruments were developed for the study, while others were adapted from existing instruments to measure the variables in the study under the COVID-19 context. The instruments adapted to ask the respondents to report their experiences specific to the COVID-19 lockdown included those measuring *psychological capital*, *perceived stress*, *coping*, and *psychological distress*. For instance, to measure coping, the question description included the following: “Please indicate how you have been responding in context of the Covid-19 situation and the experience of living in the arising situation such as a lockdown/ or other restrictions”. Demographic information was also collected from the participants about their gender, age, nationality, etc.

All the instruments were checked for content validity by 2 experts, and pilot tested with 3 experts in the field of psychology and behavioral science to improve the item clarity. Further, all instruments were checked for reliability by using Cronbach’s alpha, reported high internal consistency ( $\alpha=0.73$  to  $0.91$ ) based on the criteria by Nunnally and Bernstein (1994). The details of the instruments measuring each variable, origin of scale, type of scale, dimensions and number of items, and the reliability scores are given in Table 1.

## Quantitative Results

The data collected from the survey was analyzed and is reported in the sub-sections of demographic details, exploratory factor analysis, and testing research objectives 1 and 2 by correlation and SEM analysis ANOVA, respectively.

### Demographic Data

Data was collected from 257 participants. Among the sample, 124 respondents (48.2%) were from India, 84 (32.7%) were from Thailand, and the rest were from other countries; 59.1% were females, and 41.6% were below 40 years. In terms of work, 35.4% worked in the private sector, followed by 23.3% in universities. At the time of data collection, 48.2% had lived for 8 weeks or more under the lockdown. The main demographic information about the sample is provided in Table 2.

### Exploratory Factor Analysis (EFA) of Coping

An EFA of the 14 coping strategies was conducted to explore whether the coping strategies could be grouped into specific categories that related to the Covid-19 lockdown situation. The results showed that the coping responses from the participants could be grouped into 3 factors. The Kaiser–Meyer–Olkin measure of 0.81 meant that the sample from which these data were collected was adequate. Meanwhile, Bartlett’s test of sphericity was statistically significant, with a  $p$  value equal

**Table 1** The Research Instruments in Quantitative Phase

Variable	Instrument details	Type of scale	Number of dimensions/ items	Reliability (Cronbach's alpha)
Demographic information	Developed by researcher	Tick the answer	Specific areas; 8 items	-
Psychological Capital	Adapted from PsyCap Questionnaire (PCQ) by Luthans et al. (2007)		4 dimensions; 12 items	0.91
Perceived Stress	Developed by the researchers, asking respondents to rate the impact of COVID-19 on social, emotional, physical, financial, family-related, and work-related areas	4-point Likert scale; where, 1 = no impact and 4 = very deep impact	6 dimensions; 6 items	0.73
Coping	Adapted from the <i>Situational Version of the Brief COPE Inventory</i> , by Carver et al. (1989)	4 points Likert scale; where, 1 = I haven't been doing this at all, and 4 = I've been doing this a lot	14 dimensions/ strategies for coping; 14 items	0.79
Life Satisfaction	Adapted from the <i>Satisfaction with Life Scale</i> (SWLS) by Diener et al. (1985)	5 points Likert scale; where, 1 = Strongly disagree, and 5 = Strongly agree	1 dimension; 5 items	0.81
Positive Mental Health	Adapted from the <i>Positive Mental Health</i> scale (PMH) by Lukat et al. (2016)	5 points Likert scale; where, 1 = Strongly disagree, and 5 = Strongly agree	1 dimension; 8 items	0.91
Psychological Distress	Adapted from the <i>Kessler Psychological Distress Screening Scale</i> (K6) by Kessler et al. (2003)	5 points Likert scale; where, 1 = All of the time, and 5 = None of the time	1 dimension; 6 items	0.87

**Table 2** Demographic Characteristics of the Sample ( $n=257$ ) in the Quantitative Phase

Characteristics	Sub-category	n	%
Gender	Female	152	59.1
	Male	105	40.9
Marital status	Married	152	59.1
	Single	95	37.0
	Divorced	9	3.5
	Other	1	0.4
Age	21 – 30 years old	49	19.1
	31 – 40 years old	58	22.6
	41 – 50 years old	103	40.1
	51 – 60 years old	39	15.2
	61–70 years old	5	1.9
Nationality	More than 71 years	3	1.2
	Indian	124	48.2
	Thai	84	32.7
	British	12	4.7
	Singaporean	8	3.1
	Filipino	8	3.1
	Other Asian countries	7	2.7
	USA	5	1.9
Other countries	9	3.5	

to 0.00. At this point the researchers were confident about sample adequacy and that there were no missing values. The emerging factors explained 48.15% of the variance and were named according to the review of previous research on coping. In particular, the factor 1—*functional coping* had 4 coping strategies that with factor loadings from 0.84 to 0.61; factor 2- *problem focused coping* had 4 coping strategies with factor loadings from 0.72 to 0.53; and factor 3- *emotion/avoidance coping* had 6 coping strategies with factor loadings from 0.69 to 0.40. These emerging factors were then used in the further analyses.

## Results for the Quantitative Research Objective 1

The quantitative techniques of correlation analysis and structural equational modeling analysis were used to evaluate the relationships among the variables.

**Correlation Analysis** The Table 3 shows the correlation among the study variables. The results showed that all the 4 dimensions of psychological capital (hope, efficacy, resilience, and optimism) had statistically significant ( $p < 0.01$ ) positive relationships with the 2 dimensions of wellbeing (satisfaction with life and positive mental health), and a statistically significant negative ( $p < 0.01$ ) relationship with psychological distress (higher scores indicate more distress). Furthermore, all the 4 dimensions of psychological capital had statistically significant positive relationships

**Table 3** Correlation Analysis among the Study Variables

Variable	Dimension	1	2	3	4	5	6	7	8	9	10	11	
1	Psychological Capital	Hope	1										
2		Efficacy	0.73**	1									
3		Resilience	0.59**	0.58**	1								
4		Optimism	0.63**	0.59**	0.53**	1							
5	Perceived Stress	Stress	-0.14	-0.1	-0.06	-0.06	1						
6	Coping	FuncCop	0.34**	0.28**	0.31**	0.67	1						
7		ProbFoCop	0.22**	0.23**	0.16**	0.24**	-0.01	0.54**	1				
8		EmoAvCop	0.02	-0.05	-0.06	0.01	0.13*	0.38**	0.31**	1			
9	Wellbeing	SWLS	0.47**	0.38**	0.30**	0.34**	-0.23**	0.17**	0.12	0.08	1		
10		PMH	0.70**	0.62**	0.52**	0.60**	-0.22**	0.31**	0.21**	-0.01	0.62**	1	
11		Psy Distress	-0.47**	-0.46**	-0.31**	-0.42**	0.37**	-0.15*	0.24**	-0.09	-0.31**	-0.50**	1

$n = 257$ ; \* $p < 0.05$ ; \*\* $p < 0.01$

Variables: FuncCop = Functional coping; ProbFoCop = problem based coping; EmoAvCoping = emotion/avoidance coping; SWLS = satisfaction with life; PMH = positive mental health

( $p < 0.01$ ) with only 2 factors of coping (functional coping and problem focused coping), but not the 3<sup>rd</sup> factor of emotion/avoidance coping.

The variable of perceived stress had statistically significant relationships ( $p < 0.01$ ) with all the 3 dimensions of wellbeing. But interestingly perceived stress had no significant relationship with any of the 3 coping factors. Among the 3 factors of coping, only *functional coping* had significant correlation ( $p < 0.0$ ) with all the 3 dimensions of wellbeing.

**Structural Equation Modeling Analysis (SEM)** The hypothesized relationships in the Fig. 1 among the study variables were tested using the SEM by *MPlus* software version 7.31. The results showed that both PsyCap ( $\beta = 0.68$ ,  $p = 0.000$ ) and perceived stress ( $\beta = -0.24$ ,  $p = 0.000$ ) were significant predictors of wellbeing ( $\beta = 0.68$ ,  $p = 0.000$ ). PsyCap was a significant predictor of coping ( $\beta = 0.37$ ,  $p = 0.000$ ). Contrary to the hypothesized relationship between perceived stress-coping-wellbeing, the results showed that there was no significant effect between perceived stress and coping ( $\beta = 0.09$ ,  $p = 0.304$ ), though a small and significant effect existed between coping and wellbeing ( $\beta = 0.11$ ,  $p = 0.04$ ). Furthermore, PsyCap had no significant effect on perceived stress ( $\beta = -0.09$ ,  $p = 0.24$ ).

The analysis also confirmed that the 3 factors, *satisfaction with life*, *positive mental health*, and *psychological distress*, were significant indicators of wellbeing ( $\beta = 0.78$ ,  $\beta = 0.98$ ,  $\beta = -0.63$  respectively; all significant  $p = 0.000$ ).

Additionally, the hypothesized model (see Fig. 1) was tested using maximum likelihood method, and the results found an adequate fit using the recommended values of goodness of fit statistics (Hu & Bentler, 1999),  $\chi^2(306, N=257) = 547.185$ ,  $p = 0.00$ ; as shown in Table 4.

## Results of the Quantitative Research Objective 2

To evaluate the differences between in coping and wellbeing among the groups based on nationality, gender and age, an independent samples t-test/ ANOVA was done.

**Based on Nationality** Though it may be difficult to categorize this research into a contextual or structural comparison, as suggested by van de Vijver (2009), the researchers aimed to provide an “exploratory” comparison of the impact of COVID-19 restrictions on various groups. But no significant differences among Indian

**Table 4** The Goodness of fit statistics for the SEM Analysis

Measure	$\chi^2$	$\chi^2/df$	CFI	TFI	RMSEA	SRMR
Recommended values		< 3	> 0.90	> 0.90	< 0.05	< 0.09
Model values	547.185, $p = 0.00$	1.7	0.92	0.91	0.05	0.078

and Thai respondents were found in all the 3 dimensions of wellbeing. However, some differences in the groups were found among the scores on the strategies of coping which were- 1) Indians have significantly higher denial coping than Thai ( $t(196)=2.47, p=0.02$ ). 2) Indians have significantly lower substance use coping than Thai ( $t(196)=-2.36, p=0.02$ ). 3) Indians have significantly higher mental disengagement coping than Thai ( $t(196)=2.47, p=0.01$ ). 4) Indians have significantly higher spiritual coping than Thai ( $t(196)=3.78, p=0.00$ ).

**Based on Gender** An independent-samples t-test was conducted to compare coping among gender. There was a significant difference in the scores for substance coping among females ( $M=1.19, SD=0.50$ ) and males ( $M=1.37, SD=0.77$ );  $t(269)=-2.36, p=0.02$ . These results suggest that males used substance coping more than women during the lockdown. No significant differences were found in scores on wellbeing among females and males.

**Based on Age-Groups** A one-way ANOVA was conducted to compare the 6 age-groups. While no significant differences in groups existed on coping, it was found that the younger age groups reported significant impact on all 3 dimensions of wellbeing- lower levels of satisfaction with life (SWLS) and positive mental health (PMH), and higher levels of psychological distress (PsyDist). Normality checks and Levene's test were carried out and the assumptions met. There was a significant difference in mean SWLS [ $F(5, 248)=2.44, p=0.035$ ] between the age-groups. There was a significant difference in mean PMH [ $F(5, 248)=2.81, p=0.017$ ] between the age-groups. There was a significant difference in mean PsyDist [ $F(5, 248)=6.1, p=0.000$ ] between the age-groups.

Post hoc comparisons using the Tukey test were carried out. The results showed- 1) There was a significant difference between 21–30 years old and 61–70 years old ( $p=0.049$ ), with younger people having on average -6.87 lower PMH than the older group. 2) The 21–30 years old have significantly higher *psychological distress* when compared to older age groups such as 3.34 on an average higher than 41–50 years ( $p=0.000$ ); 3.99 on an average higher than 51–60 ( $p=0.000$ ); and 5.91 on an average higher than 61–70 years old ( $p=0.043$ ).

## The Implications of Phase 1 Results for Developing the Phase 2

In summary, the quantitative analysis showed that psychological capital had significant relationships with coping and wellbeing among the sample; the hypothesized model had an adequate fit in the context of the COVID-19 restrictions; and the lockdown had a significant negative impact on the wellbeing of the younger age groups than for older age groups.

There were 4 significant implications from the results that were important in designing the qualitative phase: 1) since results showed that *PsyCap* was a significant predictor of coping and wellbeing, it was important to develop a deeper understanding of how inner psychological resources were being applied by the



participants to cope with the stress of the lockdowns; 2) As perceived stress did not show a significant relationship with coping, it was necessary to further explore how the situation was being appraised by the participants; 3) As *functional coping* had significant correlation ( $p < 0.0$ ) with all the 3 dimensions of wellbeing, it was important to further investigate which coping strategies were helpful to the participants for adaptive coping with the challenges/ stressors; 4) Finally, as the lockdowns especially impacted the wellbeing of younger age groups, the researchers decided to explore their experiences in-depth.

## Phase 2 of the Study: The Qualitative Research

The main objective of this phase was to develop a deeper understanding of the perceived stressors, the process of appraisal, and the adaptive coping practices of the participants during the COVID -19 lockdown and restrictions. The qualitative phase of research was initiated immediately after the survey data was analyzed from 22 May to 8 June 2020. The design was adapted for online data collection but followed the qualitative research guidelines of Creswell (2013a, 2013b). Data was collected through in-depth interviews conducted between 11<sup>th</sup> June to 2<sup>nd</sup> July 2020. The method and the findings from this phase are presented in detail.

## Method

### The Participants

The inclusion criteria were, a) voluntary participation, as indicated by the respondents in the phase 1 survey; b) having lived with restrictions and still living under lockdown; and c) possessing the technical ability to access the online interview platform.

There were 21 participants who interviewed using the online platform of Google Meet. Among them, were 7 males and 14 females. In terms of nationalities, there were 8 Indians, 7 Thai and the rest were of other nationalities. Based on age variations, there were 9 participants from the 21–30 age group. The interviews with the younger age groups were conducted till data was saturated. Other participants included 4 each from the 31–40, 41–50, and 51–60 age groups. To ensure that it was possible to develop a deep understanding about participants' experiences, data was collected from the participants until saturation, as has been highlighted by Charmaz (2006).

### The Procedure and Instruments

After the quantitative data analysis, the researchers reviewed the qualitative research objectives that were outlined before the data collection in phase 1 of the study. The objectives and plan for phase 2 were modified based on the significant findings of phase 1. The steps in this phase can be summarized as:

- 1) Develop the research interview protocol and semi structured questions based on review of related theories, research, and the findings of phase 1.
- 2) Send the interview protocol and questions to 2 experts- one in qualitative research and the other expert in behavioral science for content checking.
- 3) Tryout cognitive interviews (with 3 persons); analyze the feedback; and improve the questions.
- 4) Identify and contact the participants who had volunteered during the survey. Out of 28 people, 21 could confirm availability for the online interviews.
- 5) Seek informed consent, share the interview objectives and guidelines, and set up appointments for the interviews.
- 6) Conduct the in-depth interviews online using Google Meet platform between 11<sup>th</sup> June to 2<sup>nd</sup> July 2020. Permission was taken to make recording of the interviews.
- 7) Ensure rigor by having a team of 2 researchers conduct the interview. After each interview, notes were exchanged and discussed.
- 8) Analyze data using qualitative thematic analyses based on the work of Braun and Clarke (2006).
- 9) Triangulation of data analyses was ensured by cross checking of emerging themes among the researchers.

## Qualitative Research Findings

The qualitative data analysis of the interviews was conducted following the guidelines of Creswell (2013a, 2013b). The technique of thematic analysis was used for the data analysis, adapting it from the 6-phase framework provided by Braun and Clarke (2006). The main findings are presented by themes that emerged and are depicted in 2 parts to answer the qualitative research questions.

### Findings to Answer the Qualitative Research Objectives

The main purpose of this phase was to explore in-depth about the perceived stressors, their appraisal, and the adaptive coping practices of the participants during the COVID -19 lockdown and restrictions.

The qualitative data was coded and analyzed. The identified themes showed that the experience of living with the lockdowns and restriction imposed by the COVID-19 situation could be examined with reference to the transactional model of stress showcasing the processes of primary appraisal of the situational stress, followed by the secondary appraisal, and the use of specific coping responses.

### The primary appraisal of the stressors/ challenges

The participants shared their early experiences in response to the question: “What were your main challenges with regard to the lockdown situation?”. Their initial appraisals about the lockdown situation were given at the beginning of

lockdowns and restrictions. This was the *primary appraisal* of the situation by the participants. The data were analyzed, and 5 clusters of responses emerged:

- i. *Anxiety and fear about the COVID-19 disease.* The participants shared that they experienced anxieties and fear about contracting the virus and how the virus would affect them.

“There were some people who bought at the nearby market who had COVID and I am not sure what would happen to me...” [P7].

- ii. *Uncertainty about the situation.* The participants shared that they felt stressed about the situation as they did not know much about the virus, the spreading of the pandemic, and its effect on their own lives.

“There was so much uncertainty... with the pandemic and the news” [P3]  
 “It was challenging to accept... what will we do? What will happen to my job?” [P13].

- iii. *Concern for the wellbeing of family and loved ones.* Many participants expressed their concerns about their family and loved ones, such as how to keep them safe from COVID-19, or what would happen if their family members who lived far away from them were to test positive for the virus.

“I felt stressed ... someone in my husband’s office got it... I feel nervous if he will get it” [P7].  
 “I was anxious about my family members living away...” [P2].

- iv. *Challenges of work/study at home.* The participants indicated that their experience of staying at home brought challenges such as adjusting to working from home or studying from home within limited spaces, use of new technology, etc.

“I had no time to think but had to start teaching online” [P9].  
 “There was no extra table at home... it was uncomfortable sitting all the time” [P10].

- xxii. *Social isolation* Especially the younger age group (21–30 years) indicated they experienced social isolation and loneliness; they indicated feeling stressed due to having to remain inside and not being able to meet their friends/ work colleagues/ families.

“It was like the sense of freedom has gone away” [P3].  
 “I was so lonely, bored...day seemed empty” [P4].

## The secondary appraisal and the coping responses of the participants

After the *primary appraisal* of the situation, the participants were questioned regarding their *secondary appraisal*. Participants had to respond to the open-ended question: “What did you do to cope with the challenges/ stress of the situation?” This reflected the secondary appraisal by considering how the participants re-assessed the situation, looked for resources to adapt to the situation, and used specific coping strategies. At least four of the older participants shared that they did not perceive the stay-at-home orders of the lockdown as a stressful order to comply with but rather as a “challenge” or an “opportunity”.

Analyzing the responses about the *secondary appraisals*, five clusters of responses emerged:

- i. *Understanding the situation about what was needed to be done during the pandemic.* The participants shared that after the initial anxiety, they tried to learn more in terms of the appropriate responses towards safety and health.

“I was already aware of the situation...I started to read more to understand” [P18].

- ii. *Psycho-behavioral changes.* Many of the participants expressed that as they dealt with the situation, they tried to reframe their outlook, change their mindset about it, and take actions, such as planning to deal with the new circumstances.

“I changed myself... what can I do/ what is that I can’t control?” [P17].

“I thought that must get over this anxiety... plan for how I can sustain life” [P21].

- iii. *Setting up daily routines and safety behavior.* Many participants described that they tried to deal with the situation by various strategies such as adding a structure to their day, developing routines, and planning to go outside using safety and protection measures.

“I can set routine to my day” [P1].

“I try to protect myself... I go out only at night to buy essentials when there are few people” [P18].

- iv. *Managing the work/study at home.* The participants explained that they tried to get used to the situation of working/ teaching/ studying online, by accepting the use of new technology, learning from others, and managing to function within the confined physical spaces.

“I don’t know much about *Teams* but I try to learn from my friends and colleagues to teach online” [P13].

“... there was only limited space to work at home for both is us...so I learn to manage” [P12].

xxii. *Setting up online interactions with friends and family* (among the younger age group). The younger participants mentioned that they tried to stay in contact with their friends and family by using social media apps for chats and video calls as well as playing games.

“I set up calls on ZOOM with family... watched movies with friends online” [P17].

The coping responses related to living in times of lockdown were further analyzed, and compared with the findings from the quantitative study, and literature about the coping processes. From this exercise, four clusters of coping responses were identified:

- i. *Psychological*: The coping responses in this domain can be classified in three sub-clusters:
  - a) *Cognitive coping* such as reframing- “I just had to live through this to think better” [P2]. These coping strategies were aligned with the functional coping from the quantitative study.
  - b) *Affective coping* such dealing with emotions of fear, anxiety, and uncertainty “I want to win myself” [P7]. These coping strategies were aligned with the emotional/ avoidance coping from the quantitative study.
  - c) *Conative coping* or coping that was directed towards action taken to deal with the situation- “I decided to do little by little everyday” [P9]. These coping strategies were aligned with the problem-solving coping from the quantitative study.
- ii. *Behavioral*: coping responses include 2 sub-clusters related to the behavioral changes made by the participants -
  - a) COVID-19 related behavioral responses such as “I just follow all rules” [P1], “learned quickly how to sanitize everything I purchased” [P1]; “I am ok about staying inside” [P9]; and “I don’t mind wearing masks... I follow all the rules” [P17]. These were aligned with the problem-solving coping strategies from the quantitative study
  - b) Other behavior- adapting behavior to suit living indoors such as “I learnt to exercise at home” [P3]; and also picking up hobbies, “I started cooking at home for my family” [P6]. These coping strategies were more aligned with the some of the functional coping from the quantitative study.
- iii. *Interpersonal behavior*: related to how the participants interacted with others and included 2 specific sub-clusters,
  - a) reaching out to support others- “...everyone was working from home, so we discussed our problems” [P13].
  - b) communicating about self with others- “I say...open up to others to discuss problems” [P11].

- iv. *Adapting to working/ studying at home*- some of the participants reported specific coping responses in all 3 clusters of psychological, behavioral and interpersonal categories but specific to the context of work/ study at home. These included:
- adapt oneself by finding solutions- “rely on your own resourcefulness” [P2].
  - taking technological support from others- “take help from the technical staff at university” [P7].
  - sharing experiences with peers- “...got informal support by chatting on the *Line* (app)” [P9].

Thus, the thematic analyses of the interview data show that the participants moved from primary appraisal to secondary appraisals and that they employed various coping strategies to deal with the situational challenges. The results of the qualitative findings are summarized in Fig. 2. In this figure, the first block shows the cluster of primary appraisals, the second block highlights the secondary appraisal domain, while the third and last block shows different psycho-social coping strategies.

These findings are discussed in conjunction with the quantitative results in the next section.

## Discussion, Implications, and Conclusion

### Discussion

The main purpose of this mixed methods research was to examine the role of psycho-social factors in the coping and wellbeing of those living under COVID-19 lockdowns. The quantitative findings confirmed the hypothesized relationships

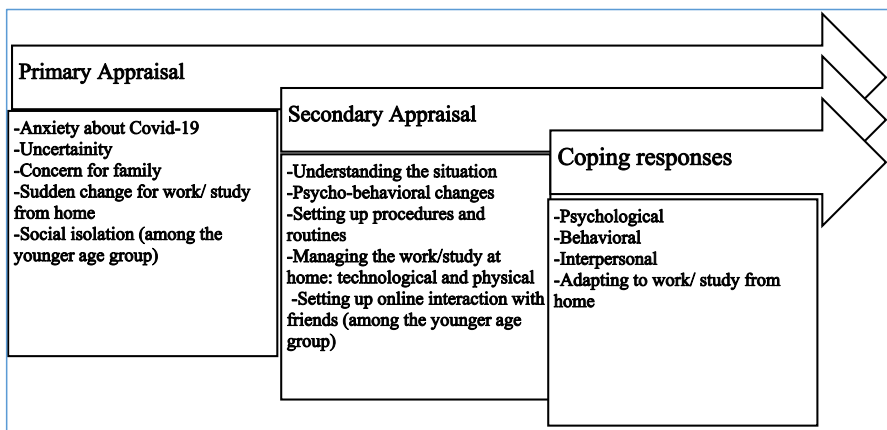


Fig. 2 The Domains of Appraisal and Psycho-social Coping Responses of the Participants

between psychological capital, coping and wellbeing. However, no significant relationships were found between perceived stress, psychological capital, and coping. These findings could be explained from the qualitative results which revealed that after initial appraisal of the stress from the situation, participants reassessed the situation, leading to secondary appraisals. Then participants employed psycho-social-behavioral coping strategies to manage their wellbeing. Thus, secondary appraisals and coping mechanisms could have lessened the impact of perceived stress among the participants.

The findings of both the phases of research can be integrated to understand the impact of the lockdown on the wellbeing of participants. Understanding the mechanisms used to cope with stress through the theoretical perspectives of the person-environment (P-E) interactions can be important as highlighted by Edwards and Cooper (2013). This study found that both psychological and psycho-social factors have impact on the coping and wellbeing of the people living with the pandemic situation.

In the quantitative phase, the SEM analysis of the hypothesized model confirmed the effect of *psychological capital* and *perceived stress* on coping and wellbeing (measured through the dimensions of *life satisfaction*, *positive mental health*, and *psychological distress*). Previous research confirms the findings that *psychological capital* could have a role in preventing negative impacts of stress as well as predicting wellbeing (Avey et al., 2009; Avey et al., 2010; Ding et al., 2015; Santisi et al., 2020; Zhou et al. 2017). Additionally, this inner psychological resource can support an individual in managing the uncertainties of life (Santisi et al., 2020). With reference to the pandemic, Maykrantz et al. (2021) found that PsyCap could be a useful cognitive resource for the health protective behaviors that are required in a lockdown scenario. Emerging research conducted during the pandemic has shown that psychological resources could protect against both the immediate and long-term negative impacts on wellbeing (Pellerin & Raufaste, 2020).

Interestingly, in the quantitative research, perceived stress did not have a direct significant effect on coping but did have a direct and significant negative effect on wellbeing. This can be explained by the transactional model of stress and coping; while the level of perceived stress is important, the dimension or type of perceived stress is a better predictor of coping strategy. Measuring type of perceived stress required qualitative research. This finding can be explained by a 2013 study by Phillips, who noted that the perception of stress is an interaction between the individual and his/her environment. An individual engages in a continuous process of coping and appraisal in which they consider their own resources, past experiences and adapt to the challenges of the situation, hence reducing the impact of the perceived stress from the situation. Another explanation is that the quantitative analysis combined different dimensions of stress into a single latent variable, which would essentially measure the level of stress. However, this single latent 'stress-level' variable was not correlated with coping. Thus, qualitative study was needed to observe how the individual's assessment of stress affected the coping strategy.

The qualitative results provided valuable insights about the stress-coping-wellbeing phenomena experienced during the COVID-19 lockdowns. According to Ungar et al. (2013) features of both individuals and their environments affect their resilience in a stressful situation. The findings from this research were examined from the perspective of the transactional model of stress and coping (Lazarus & Folkman, 1984). It was found that the research participants' primary and secondary appraisals of their perceived stress influenced their adaptive coping with the lockdown and restrictions. The *secondary appraisal* of the situation by the participants led to four emerging clusters of coping responses, which were related to the following domains: cognitive (*understanding the situation*), psychological (*psycho-behavioral changes*), behavioral (*managing the work/study at home*) and interpersonal (*setting up online interactions*). As can be seen from this study, it is the secondary appraisal that can be crucial to the outcomes of a stressful situation (Lazarus & Folkman, 1984).

From the quantitative results it was found that *coping* during the lockdowns could be grouped in 3 factors- *functional coping* and *problem focused coping* and *emotional/avoidance coping*. Moreover, *functional coping* had significant correlation ( $p < 0.0$ ) with all the 3 dimensions of wellbeing. The emerging themes of coping practices from the qualitative phase confirmed the use of these different strategies and that these could be categorized as psychological, behavioral, interpersonal, and related to COVID-19. Lazarus and Folkman (1984) had highlighted that coping implies the dynamic use of cognitive and behavioral efforts to handle both external and internal stressors. It is important to highlight that it is the positive coping techniques that lead to resilience, and ultimately wellbeing (Ricea & Liu, 2016). Many studies conducted during the pandemic supports these findings; for instance, Tuason et al. (2021) found that "intentional coping" was used by people who reported high psychological wellbeing. In another study, Polizzi et al. (2020) explain that identifying the adaptive coping strategies could be effective in reducing worry, boosting resilience and recovery during the pandemic.

Both the quantitative and qualitative findings highlighted the deeper impact of the COVID-19 lockdown on the wellbeing of participants of a younger age. The quantitative data made it clear that the younger age group of 21–30 years experienced more psychological distress during the lockdowns. The qualitative research further confirmed the impact on wellbeing among younger age groups, who reported significant concerns related to future uncertainty in their jobs and finances. Similar experiences are reported by a recent study on Malaysian university students (Sundarasan et al., 2020) and among Appalachian students (Hagedorn et al., 2021). Emerging research about the impacts of the COVID-19 pandemic notes the vulnerability of younger age groups in the Indian context (Roy et al., 2020), in the Thai context (Nochaiwong et al., 2021), and other contexts (Deng et al., 2021), which was further confirmed in a meta-analysis study by Li et al. (2021).

## Implications of the Research

The findings of this research could be meaningful to researchers and practitioners in the areas of mental health and psycho-social wellbeing. Researchers



understanding the psycho-social and behavioral impacts of COVID-19 pandemic can use these results to substantiate their findings. In their meta-analysis of mental health burden from the pandemic, Nochaiwong et al. (May 2021) have highlighted that research to measure the psychological and social impact of the COVID-19 on mental health could be crucial in managing mental health burden afterwards.

This study's findings showed that inner psychological resources such as PsyCap could have significant positive impacts on coping and wellbeing. Rabenu et al. (2017) have explained that PsyCap could help individuals to adapt by positively reframing a stressful situation. In their longitudinal study, Pellerin and Raufaste (2020) show that developing psychological resources could be helpful to protect individuals' well-being during stressful circumstances like the pandemic. Applied behavioral scientists may find these results useful for designing specific interventions, such as to enhance PsyCap to help people deal with the negative impacts of the pandemic, or to ensure there is enough support for younger age groups. The necessity for such research-based interventions have been emphasized by recent researchers (Bavel et al., 2020; Mukhtar, 2020; Tsamakidis et al., 2021).

As noted by researchers (Simon et al., 2021; Singh et al., 2020), the impact of COVID-19 on vulnerable communities/groups warrants special attention, especially with the purpose of developing targeted interventions (Villani et al., 2021). It is further recommended that suitable interventions and policy changes to provide support to these vulnerable groups (such as the young) need to be developed through an integrated participation of various stakeholders such as governments, state/provincial administrations, healthcare workers and local communities (Dubey et al., 2020; Roy et al., 2020, Simon et al., 2021; Singh et al., 2020).

### Limitations of the Research

This research initiative is limited in its scope as it studied the impact of COVID-19 lockdowns only during the earlier stages of the pandemic, and that too using a limited sample based on convenience sampling technique. The convenience sampling technique limited the demographic reach of the survey. As most of the data was from Thai and Indian participants, further research would be necessary to assess the extent to which coping strategies observed in this study can be useful in other cultural contexts. Since data was collected through online platforms, it meant internet accessibility was necessary for the participants, and thus limited the number of responses. This research was conducted during the initial lockdown period of the pandemic; however, it may be meaningful to collect longitudinal data about the impact of pandemic on wellbeing as was done by Bittmann (2022) in Germany, Giovanis and Ozdamar (2022) in the context of UK, Morrison et al. (2022) in New Zealand. Thus, the findings from this research may not be representative for the complete experience of lockdowns but is meant to share exploratory insights for future research and applications.

## Conclusion

The researchers anticipate that these empirical insights, regarding the psycho-social impacts on coping and wellbeing during the pandemic, could be valuable to international academic communities that are learning from each other. As noted by recent researchers (such as Morales-Rodríguez et al., 2021; Tsamakis et al., 2021), the psychosocial efforts to support vulnerable populations during the pandemic could be important for recovery from the impacts by enhancing resilience and psychological wellbeing. Hence, these empirical findings could be significant for developing suitable psycho-social interventions to help people cope effectively and positively affect wellbeing as they deal with the challenges of the pandemic.

**Funding** The research leading to these results received funding from Institute of Strategic Wisdom and Research, Srinakharinwirot University, Bangkok, Thailand, under Grant Agreement No. 701/2563 (2020).

## Declarations

**Ethical Practices and Informed Consent** All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975 (in its most recently amended version). This research passed formal ethical clearance from the university's ethics committee (ref: SWUEC- 365/2563, 2020). Informed consent was obtained from all individual participants involved in the study.

**Conflicts of interest** The authors have no conflicts of interest to declare that are relevant to the content of this article.

## References

- Aguinis, H., & Harden, E. E. (2009). Sample size rules of thumb: Evaluating three common practices. In C. E. Lance & R. J. Vandenberg (Eds.), *Statistical and methodological myths and urban legends: Received doctrine, verity, and fable in the organizational and social sciences* (pp. 269–288). Routledge
- Alam, M. (2020). *India*. Retrieved 8 October 2020, from <https://www.britannica.com/place/India>.
- Almeida, M., Shrestha, A., Stojanac, D., et al. (2020). The impact of the COVID-19 pandemic on women's mental health. *Archives of Women's Mental Health, 23*, 741–748. <https://doi.org/10.1007/s00737-020-01092-2>.
- American Psychological Association. (2010). *American Psychological Association ethical principles of psychologists and code of conduct*. Retrieved 29 Apr 2020, from <http://www.apa.org/ethics/code/index.aspx>.
- Avey, J. B., Luthans, F., & Jensen, S. (2009). Psychological capital: A positive resource for combating employee stress and turnover. *Human Resource Management, 48*, 677–693. <https://doi.org/10.1002/hrm.20294>.
- Avey, J. B., Luthans, F., Smith, R. M., & Palmer, N. F. (2010). Impact of positive psychological capital on employee well-being over time. *Journal of Occupational Health Psychology, 15*(1), 17–28. <https://doi.org/10.1037/a0016998>.
- Bao, Y., Sun, Y., Meng, S., Shi, J., & Lu, L. (2020). 2019-nCoV epidemic: address mental health care to empower society. *Lancet, 395*(10224), e37–e38. [https://doi.org/10.1016/S0140-6736\(20\)30309-3](https://doi.org/10.1016/S0140-6736(20)30309-3).
- Bavel, J. J. V., Baicker, K., Boggio, P. S., et al. (2020). Using social and behavioural science to support COVID-19 pandemic response. *Nature Human Behavior, 4*, 460–471. <https://doi.org/10.1038/s41562-020-0884-z>.

- Bentler, P. M., & Chou, C.-P. (1987). Practical issues in structural modeling. *Sociological Methods & Research*, 16(1), 78–117. <https://doi.org/10.1177/0049124187016001004>.
- Bieda, A., Hirschfeld, G., Schönfeld, P., Brailovskaia, J., Lin, M., & Margraf, J. (2019). Happiness, life satisfaction and positive mental health: Investigating reciprocal effects over four years in a Chinese student sample. *Journal of Research in Personality*, 78, 198–209. <https://doi.org/10.1016/j.jrp.2018.11.012>.
- Bittmann, F. (2022). How Trust Makes a Difference: The Impact of the First Wave of the COVID-19 Pandemic on Life Satisfaction in Germany. *Applied Research in Quality of Life*, 17(3), 1389–1405. <https://doi.org/10.1007/s11482-021-09956-0>.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>.
- Broad, J. D., & Luthans, F. (2020). Positive resources for psychiatry in the fourth industrial revolution: Building patient and family focused psychological capital (PsyCap). *International Review of Psychiatry (Abingdon, England)*, 32(7–8), 542–554. <https://doi.org/10.1080/09540261.2020.1796600>.
- Bronfenbrenner, U. (1979). *The Ecology of Human Development*. Harvard University Press
- Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S. W., Greenberg, N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: Rapid review of the evidence. *Lancet*, 395(10227), 912–920. [https://doi.org/10.1016/S0140-6736\(20\)30460-8](https://doi.org/10.1016/S0140-6736(20)30460-8).
- Cai, H., Tu, B., Ma, J., Chen, L., Fu, L., Jiang, Y., & Zhuang, Q. (2020). Psychological Impact and Coping Strategies of Frontline Medical Staff in Hunan Between January and March 2020 During the Outbreak of Coronavirus Disease 2019 (COVID-19) in Hubei, China. *Medical Science Monitor: International Medical Journal of Experimental and Clinical Research*, 26, e924171. <https://doi.org/10.12659/MSM.924171>.
- Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology*, 56, 267–283
- Charmaz, K. (2006). *Constructing Grounded Theory: A Practical Guide through Qualitative Analysis*. Sage Publications
- Creswell, J. W. (2013a). *Qualitative Inquiry & Research Design: Choosing among Five Approaches* (3rd ed.). Sage Publications
- Creswell, J.W. (2013b). Steps in conducting a scholarly mixed methods study. DBER Speaker Series. 48. Retrieved 8 October 2020, from <https://digitalcommons.unl.edu/dberspeakers/48>.
- Creswell, J. W. (2014). *Research Design: Qualitative, Quantitative and Mixed Methods Approaches* (4th ed.). Sage Publications
- Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and Conducting Mixed Methods Research* (2nd ed.). Sage Publications
- Cucinotta, D., & Vanelli, M. (2020). WHO declares COVID-19 a pandemic. *Acta Biomed*, 91(1), 157–160. <https://doi.org/10.23750/abm.v91i1.9397>.
- Deng, J., Zhou, F., Hou, W., Silver, Z., Wong, C. Y., Chang, O., Drakos, A., Zuo, Q. K., & Huang, E. (2021). The prevalence of depressive symptoms, anxiety symptoms and sleep disturbance in higher education students during the COVID-19 pandemic: A systematic review and meta-analysis. *Psychiatry research*, 301, 113863. <https://doi.org/10.1016/j.psychres.2021.113863>.
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction with Life Scale. *Journal of Personality Assessment*, 49(1), 71–75
- Ding, Y., Yang, Y., Yang, X., Zhang, T., Qiu, X., He, X., Wang, W., Wang, L., & Sui, H. (2015). The mediating role of coping style in the relationship between psychological capital and burnout among Chinese nurses. *PLoS ONE*, 10(4), e0122128. <https://doi.org/10.1371/journal.pone.0122128>.
- Dodge, R., Daly, A., Huyton, J., & Sanders, L. (2012). The challenge of defining wellbeing. *International Journal of Wellbeing*, 2(3), 222–235. <https://doi.org/10.5502/ijw.v2i3.4>.
- Dorcas, A. (2020). First glimpse on the health conditions of adults after 1 month into COVID-19 lockdown. *MedIndia*. Retrieved 21 May 2020, from <https://www.medindia.net/news/first-glimpse-on-the-health-conditions-of-adults-after-1-month-into-covid-19-lockdown-194282-1.htm#>.
- Dubey, S., Biswas, P., Ghosh, R., Chatterjee, S., Dubey, M. J., Chatterjee, S., Lahiri, D., & Lavie, C. J. (2020). Psychosocial impact of COVID-19. *Diabetes & Metabolic Syndrome*, 14(5), 779–788. <https://doi.org/10.1016/j.dsx.2020.05.035>.
- Edwards, J. R., Caplan, R. D., & Harrison, R. V. (1998). Person-environment fit theory: Conceptual foundations, empirical evidence, and directions for future research. In C. L. Cooper (Ed.), *Theories of organizational stress* (pp. 28–67). Oxford University Press

- Edwards, J.R., & Cooper, C.L. (2013). The Person-Environment Fit Approach to Stress: Recurring Problems and Some Suggested Solutions. In: Cooper C.L. (eds) *From Stress to Wellbeing* (Volume 1). Palgrave Macmillan
- Eisenbeck, N., Carreno, D. F., Wong, P., Hicks, J. A., María, R. G., Puga, J. L., Greville, J., Testoni, I., Biancalani, G., López, A., Villareal, S., Enea, V., Schulz-Quach, C., Jansen, J., Sanchez-Ruiz, M. J., Yıldırım, M., Arslan, G., Cruz, J., Sofia, R. M., Ferreira, M. J., ... García-Montes, J. M. (2022). An international study on psychological coping during COVID-19: Towards a meaning-centered coping style. *International journal of clinical and health psychology: IJCHP*, 22(1), 100256. <https://doi.org/10.1016/j.ijchp.2021.100256>.
- Endler, N. S., & Parker, J. D. A. (1999). *Coping Inventory for Stressful Situations (CISS): Manual* (2nd ed.). Multi-Health Systems
- Finch, J., Farrell, L. J., & Waters, A. M. (2020). Searching for the HERO in Youth: Does Psychological Capital (PsyCap) Predict Mental Health Symptoms and Subjective Wellbeing in Australian School-Aged Children and Adolescents? *Child Psychiatry and Human Development*, 51(6), 1025–1036. <https://doi.org/10.1007/s10578-020-01023-3>.
- Furukawa, T. A., Kessler, R. C., Slade, T., & Andrews, G. (2003). The performance of the K6 and K10 screening scales for psychological distress in the Australian National Survey of Mental Health and Well-Being. *Psychological Medicine*, 33(2), 357–362. <https://doi.org/10.1017/S003329170200670>.
- Giovanis, E., & Ozdamar, O. (2022). Who is left behind? Altruism of giving, happiness and mental health during the Covid-19 period in the UK. *Applied Research in Quality of Life*, 17(1), 251–276. <https://doi.org/10.1007/s11482-020-09900-8>.
- Goh, Y. W., Sawang, S., & Oei, T. P. S. (2010). The Revised Transactional Model (RTM) of Occupational Stress and Coping: An improved process approach. *The Australian and New Zealand Journal of Organisational Psychology*, 3, 13–20. <https://doi.org/10.1375/ajop.3.1.13>.
- Grover, S., Sahoo, S., Mehra, A., Avasthi, A., Tripathi, A., Subramanyan, A., Patojoshi, A., Rao, G. P., Saha, G., Mishra, K. K., Chakraborty, K., Rao, N. P., Vaishnav, M., Singh, O. P., Dalal, P. K., Chadda, R. K., Gupta, R., Gautam, S., Sarkar, S., Sathyanarayana Rao, T. S., ... Janardran Reddy, Y. C. (2020). Psychological impact of COVID-19 lockdown: An online survey from India. *Indian Journal of Psychiatry*, 62(4), 354–362. [https://doi.org/10.4103/psychiatry.IndianJPsychiatry\\_427\\_20](https://doi.org/10.4103/psychiatry.IndianJPsychiatry_427_20).
- Hafner, J. A. (2020). *Thailand*. Retrieved 8 October 2020, from <https://www.britannica.com/place/Thailand>.
- Hagedorn, R. L., Wattick, R. A., & Olfert, M. D. (2021). “My entire world stopped”: College students’ psychosocial and academic frustrations during the COVID-19 pandemic. *Applied Research in Quality of Life*, 1–22. <https://doi.org/10.1007/s11482-021-09948-0>
- Hoof (2020). Lockdown is the world’s biggest psychological experiment - and we will pay the price. *World Economic Forum*. Retrieved from <https://www.weforum.org/agenda/2020/04/this-is-the-psychological-side-of-the-covid-19-pandemic-that-were-ignoring/>.
- Holmes, E. A., O’Connor, R. C., Perry, V. H., Tracey, I., Wessely, S., Arseneault, L., Ballard, C., Christensen, H., Cohen Silver, R., Everall, I., Ford, T., John, A., Kabir, T., King, K., Madan, I., Michie, S., Przybylski, A. K., Shafran, R., Sweeney, A., Worthman, C. M., & Bullmore, E. (2020). Multidisciplinary research priorities for the COVID-19 pandemic: A call for action for mental health science. *The Lancet Psychiatry*, 7(6), 547–560. [https://doi.org/10.1016/S2215-0366\(20\)30168-1](https://doi.org/10.1016/S2215-0366(20)30168-1)
- Hu, L.-T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6(1), 1–55. <https://doi.org/10.1080/10705519909540118>.
- Irwin, M., & Supplee, L. H. (2012). Directions in implementation research methods for behavioral and social science. *The Journal of Behavioral Health Services & Research*, 39(4), 339–342. <https://doi.org/10.1007/s11414-012-9293-z>.
- Ivbijaro, G., Brooks, C., Kolkiewicz, L., Sunkel, C., & Long, A. (2020). Psychological impact and psychosocial consequences of the COVID 19 pandemic Resilience, mental well-being, and the coronavirus pandemic. *Indian Journal of Psychiatry*, 62, S395–S403. [https://doi.org/10.4103/psychiatry.IndianJPsychiatry\\_1031\\_20](https://doi.org/10.4103/psychiatry.IndianJPsychiatry_1031_20).
- Kessler, R. C., Andrews, G., Colpe, L. J., Hiripi, E., Mroczek, D. K., Normand, S.-L.T., Walters, E. E., & Zaslavsky, A. M. (2002). Short screening scales to monitor population prevalence and trends in non-specific psychological distress. *Psychological Medicine*, 32(6), 959–976. <https://doi.org/10.1017/S0033291702006074>.
- Kessler, R. C., Barker, P. R., Colpe, L. J., Epstein, J. F., Gfroerer, J. C., Hiripi, E., Howes, M. J., Normand, S.-L.T., Manderscheid, R. W., Walters, E. E., & Zaslavsky, A. M. (2003). Screening for serious mental illness in the general population. *Archives of General Psychiatry*, 60(2), 184–189

- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer
- Lee, J., Kim, E., & Wachholtz, A. (2016). The effect of perceived stress on life satisfaction: The mediating effect of self-efficacy. *Ch'ongsonyonhak yongu*, *23*(10), 29–47. <https://doi.org/10.21509/KJYS.2016.10.23.10.29>.
- Lewin, K. (1935). *A dynamic theory of personality*. McGraw Hill
- Li, Y., Wang, A., Wu, Y., Han, N., & Huang, H. (2021). Impact of the COVID-19 Pandemic on the Mental Health of College Students: A Systematic Review and Meta-Analysis. *Frontiers in Psychology*, *12*, 669119. <https://doi.org/10.3389/fpsyg.2021.669119>.
- Liu, S., Lithopoulos, A., Zhang, C. Q., Garcia-Barrera, M. A., & Rhodes, R. E. (2021). Personality and perceived stress during COVID-19 pandemic: Testing the mediating role of perceived threat and efficacy. *Personality and Individual Differences*, *168*, 110351. <https://doi.org/10.1016/j.paid.2020.110351>.
- Lukat, J., Margraf, J., Lutz, R., van der Veld, W.M., Becker, E.S. (2016). Psychometric properties of the Positive Mental Health Scale (PMH-scale). *BMC Psychology*, *4*(8). <https://doi.org/10.1186/s40359-016-0111-x>.
- Luthans, F., Youssef, C. M., & Avolio, B. J. (2007). *Psychological capital: Developing the human competitive edge*. Oxford University Press. Print ISBN-13: 9780195187526. <https://doi.org/10.1093/acprof:oso/9780195187526.001.0001>.
- Maykrantz, S. A., Langlainais, L. A., Houghton, J. D., & Neck, C. P. (2021). Self-Leadership and Psychological Capital as Key Cognitive Resources for Shaping Health-Protective Behaviors during the COVID-19 Pandemic. *Administrative Sciences*, *11*, 41. <https://doi.org/10.3390/admsci11020041>.
- Mohan, K.P. & Peungposop, N. (2014). Building Resilience: A Behavioral Science Perspective for Effective Management during Global Disasters and Public Health Crises. In G.J. Kost & C.M. Curtis (Eds), *Global Point-of-Care Strategies for Disasters, Complex Emergencies, and Public Health Crises: Enhancing Standards of Care at the Site of Need* (pp. 497–506). AACC Press.
- Mohan, K. P. (2015). *Behavioral science research: An evaluation of the historical roots, evolution and future development in Thailand*. Research Report No.170, Behavioral Science Research Institute (BSRI), Srinakharinwirot University, Bangkok, Thailand. Retrieved 10 October 2020, from <http://bsri.swu.ac.th/upload/262296.pdf>.
- Mohan, K.P. (2016). The Development of Behavioral Sciences, and its Research & Contributions: Glimpses from the BSRI, Thailand. In Thai book, พฤติกรรมศาสตร์มุมมองในศาสตร์ที่แตกต่าง [Behavioral science in different perspectives]. Bangkok (Thailand): Behavioral Science Research Institute, Srinakharinwirot University
- Morales-Rodríguez, F. M., Martínez-Ramón, J. P., Méndez, I., & Ruiz-Esteban, C. (2021). Stress, Coping, and Resilience Before and After COVID-19: A Predictive Model Based on Artificial Intelligence in the University Environment. *Frontiers in Psychology*, *12*, 647964. <https://doi.org/10.3389/fpsyg.2021.647964>.
- Morrison, P. S., Rossouw, S., & Greyling, T. (2022). The impact of exogenous shocks on national wellbeing. New Zealanders' reaction to COVID-19. *Applied Research in Quality of Life*, *17*, 1787–1812. Advance online publication. <https://doi.org/10.1007/s11482-021-09977-9>.
- Mukhtar, S. (2020). Psychological health during the coronavirus disease 2019 pandemic outbreak. *International Journal of Social Psychiatry*, *66*(5), 512–516. <https://doi.org/10.1177/0020764020925835>.
- Nguyen, H. C., Nguyen, M. H., Do, B. N., Tran, C. Q., Nguyen, T. T. P., Pham, K. M., ... Duong, T. V. (2020). People with Suspected COVID-19 Symptoms Were More Likely Depressed and Had Lower Health-Related Quality of Life: The Potential Benefit of Health Literacy. *Journal of Clinical Medicine*, *9*(4), 965. <https://doi.org/10.3390/jcm9040965>.
- Nochaiwong, S., Ruengorn, C., Thavorn, K., Hutton, B., Awiphan, R., Phosuya, C., Ruanta, Y., Wongpakaran, N., & Wongpakaran, T. (2021). Global prevalence of mental health issues among the general population during the coronavirus disease-2019 pandemic: A systematic review and meta-analysis. *Scientific Reports*, *11*(1), 10173. <https://doi.org/10.1038/s41598-021-89700-8>.
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric Theory* (3rd ed.). McGraw Hill
- Oosterhoff, B., & Palmer, C. A. (2020). Attitudes and psychological factors associated with news monitoring, social distancing, disinfecting, and hoarding behaviors among US adolescents during the Coronavirus Disease 2019 pandemic. *JAMA Pediatrics*, *174*(12), 1184–1190. <https://doi.org/10.1001/jamapediatrics.2020.1876>.

- Otu, A., Charles, C. H., & Yaya, S. (2020). Mental health and psychosocial well-being during the COVID-19 pandemic: The invisible elephant in the room. *International Journal of Mental Health Systems*, 14(38), 1–5. <https://doi.org/10.1186/s13033-020-00371-w>.
- Parkes, K. R. (1986). Coping in stressful episodes: The role of individual differences, environmental factors, and situational characteristics. *Journal of Personality and Social Psychology*, 51(6), 1277–1292. <https://doi.org/10.1037/0022-3514.51.6.1277>.
- Pellerin, N., & Raufaste, E. (2020). Psychological Resources Protect Well-Being During the COVID-19 Pandemic: A Longitudinal Study During the French Lockdown. *Frontiers in Psychology*, 11. <https://doi.org/10.3389/fpsyg.2020.590276>.
- Phillips, A.C. (2013). Perceived Stress. In: Gellman M.D., Turner J.R. (eds), *Encyclopedia of Behavioral Medicine*. Springer. [https://doi.org/10.1007/978-1-4419-1005-9\\_479](https://doi.org/10.1007/978-1-4419-1005-9_479).
- Polizzi, C., Lynn, S. J., & Perry, A. (2020). Stress and Coping in the Time of Covid-19: Pathways to Resilience and Recovery. *Clinical Neuropsychiatry*, 17(2), 59–62. <https://doi.org/10.36131/CN20200204>.
- Rabenu, E., Yaniv, E., & Elizur, D. (2017). The relationship between psychological capital, coping with stress, well-being, and performance. *Current Psychology. A Journal for Diverse Perspectives on Diverse Psychological Issues*, 36(4), 875–887. <https://doi.org/10.1007/s12144-016-9477-4>
- Rabenu, E., & Yaniv, E. (2017). Psychological Resources and Strategies to Cope with Stress at Work. *International Journal of Psychological Research*, 10(2), 8–15. <https://doi.org/10.21500/20112084.2698>.
- Rauthmann, J. F. (2021). Capturing Interactions, Correlations, Fits, and Transactions: A Person-Environment Relations Model. In John F. Rauthmann (ed), *The Handbook of Personality Dynamics and Processes*, pp 427–522. Academic Press. ISBN 9780128139950, <https://doi.org/10.1016/B978-0-12-813995-0.00018-2>.
- Regnault, A., Willgoss, T., & Barbic, S. (2018). Towards the use of mixed methods inquiry as best practice in health outcomes research. *Journal of Patient-Reported Outcomes*, 2, 19. <https://doi.org/10.1186/s41687-018-0043->
- Ricea, V., & Liu, B. (2016). Personal resilience and coping with implications for work Part 1: A review. *Work: Journal of Prevention, Assessment & Rehabilitation*, 54(2), 325–333. <https://doi.org/10.3233/WOR-162300>.
- Riley, W. T. (2017). Behavioral and Social Sciences at the National Institutes of Health: Adoption of research findings in health research and practice as a scientific priority. *Translational Behavioral Medicine*, 7(2), 380–384. <https://doi.org/10.1007/s13142-017-0474-4>.
- Roy, A., Singh, A. K., Mishra, S., Chinnadurai, A., Mitra, A., & Bakshi, O. (2020). Mental health implications of COVID-19 pandemic and its response in India. *International Journal of Social Psychiatry*, 1-14. <https://doi.org/10.1177/0020764020950769>.
- Santisi, G., Lodi, E., Magnano, P., Zarbo, R., & Zammitti, A. (2020). Relationship between Psychological Capital and Quality of Life: The Role of Courage. *Sustainability*, 12(13), 1–14. <https://doi.org/10.3390/su12135238>.
- Schoonenboom, J., & Johnson, R. B. (2017). How to Construct a Mixed Methods Research Design. *Kolner Zeitschrift Für Soziologie Und Sozialpsychologie*, 69(Suppl 2), 107–131. <https://doi.org/10.1007/s11577-017-0454-1>.
- Shek, D. (2021). COVID-19 and Quality of Life: Twelve Reflections. *Applied Research in Quality of Life*, 16(1), 1–11. <https://doi.org/10.1007/s11482-020-09898-z>.
- Simon, J., Helter, T. M., White, R. G., et al. (2021). Impacts of the Covid-19 lockdown and relevant vulnerabilities on capability well-being, mental health and social support: An Austrian survey study. *BMC Public Health*, 21, 314. <https://doi.org/10.1186/s12889-021-10351-5>.
- Singh, S., Roy, D., Sinha, K., Parveen, S., Sharma, G., & Joshi, G. (2020). Impact of COVID-19 and lockdown on mental health of children and adolescents: A narrative review with recommendations. *Psychiatry Research*, 293. <https://doi.org/10.1016/j.psychres.2020.113429>.
- Stanislawski, K. (2019). The Coping Circumplex Model: An Integrative Model of the Structure of Coping with Stress. *Frontiers in Psychology*, 10, 694. <https://doi.org/10.3389/fpsyg.2019.00694>.
- Sundarasan, S., Chinna, K., Kamaludin, K., Nurunnabi, M., Baloch, G., Khoshaim, H., ... Sukayt, A. (2020). Psychological Impact of COVID-19 and Lockdown among University Students in Malaysia: Implications and Policy Recommendations. *International Journal of Environmental Research and Public Health*, 17(17), 6206, 1–13. <https://doi.org/10.3390/ijerph17176206>.
- Tariq, S., & Woodman, J. (2013). Using mixed methods in health research. *JRSM Short Reports*, 4(6), 2042533313479197. <https://doi.org/10.1177/2042533313479197>.
- Torales, J., O'Higgins, M., Castaldelli-Maia, J. M., Ventriglio, A. (2020). The outbreak of COVID-19 coronavirus and its impact on global mental health. *International Journal of Social Psychiatry*, 3-6. <https://doi.org/10.1177/0020764020915212>.

- Tsamakis, K., Tsiptsios, D., Ouranidis, A., Mueller, C., Schizas, D., Terniotis, C. ... Rizos, E. (2021). COVID 19 and its consequences on mental health (Review). *Experimental and Therapeutic Medicine*, 21, 244. <https://doi.org/10.3892/etm.2021.9675>.
- Tuason, M. T., Guss, C. D., & Boyd, L. (2021). Thriving during COVID-19: Predictors of psychological well-being and ways of coping. *PLoS ONE*, 16(3), e0248591. <https://doi.org/10.1371/journal.pone.0248591>.
- Ungar, M., Ghazinoor, M., & Richter, J. (2013). Annual research review: What is resilience within the social ecology of human development? *Journal of Child Psychology and Psychiatry*, 54(4), 348–366. <https://doi.org/10.1111/jcpp.12025>.
- United Nation News (2020). *COVID-19: Lockdown across India, in line with WHO guidance*. Retrieved 6 October 2020 from <https://news.un.org/en/story/2020/03/1060132>.
- van de Vijver, F. J. (2009). Types of comparative studies in cross-cultural psychology. *Online Readings in Psychology and Culture*, 2(2). <https://doi.org/10.9707/2307-0919.1017>.
- Villani, L., Pastorino, R., Molinari, E., et al. (2021). Impact of the COVID-19 pandemic on psychological well-being of students in an Italian university: A web-based cross-sectional survey. *Global Health*, 17, 39. <https://doi.org/10.1186/s12992-021-00680-w>.
- Wang, C., Tee, M., Roy, A. E., Fardin, M. A., Srichokchatchawan, W., Habib, H. A., Tran, B. X., Hussain, S., Hoang, M. T., Le, X. T., Ma, W., Pham, H. Q., Shirazi, M., Taneepanichskul, N., Tan, Y., Tee, C., Xu, L., Xu, Z., Vu, G. T., Zhou, D., ... Kuruchittham, V. (2021). The impact of COVID-19 pandemic on physical and mental health of Asians: A study of seven middle-income countries in Asia. *PLoS One*, 16(2), e0246824. <https://doi.org/10.1371/journal.pone.0246824>.
- Winefield, H., Gill, T., Taylor, A., & Pilkington, R. (2012). Psychological well-being and psychological distress: Is it necessary to measure both? *Psychology of Well-Being: Theory, Research and Practice*, 2(3), 1–14. <https://doi.org/10.1186/2211-1522-2-3>.
- World Health Organization (2019). Constitution. Retrieved 18 November 2020, from <https://www.who.int/about/who-we-are/constitution>.
- World Health Organization (2020a). *Mental health and psychosocial considerations during the COVID-19 outbreak*. Retrieved 10 Apr 2020a, from <https://www.who.int/publications-detail/mental-health-and-psychosocial-considerations-during-the-covid-19-outbreak>.
- World Health Organization (2020b). *Coronavirus disease 2019 (COVID-19) WHO Thailand Situation Report – 26 March 2020b*. Retrieved 6 October 2020b, from [https://www.who.int/docs/default-source/searo/thailand/2020-03-26-tha-sitrep-33-covid19-final.pdf?sfvrsn=78872b2f\\_0](https://www.who.int/docs/default-source/searo/thailand/2020-03-26-tha-sitrep-33-covid19-final.pdf?sfvrsn=78872b2f_0).
- World Health Organization (2020c). *Coronavirus disease (COVID-19): Herd immunity, lockdowns and COVID-19*. Retrieved 18 January 2022, from <https://www.who.int/news-room/questions-and-answers/item/herd-immunity-lockdowns-and-covid-19>.
- Zhang, S. X., Wang, Y., Rauch, A., & Wei, F. (2020). Unprecedented disruption of lives and work: Health, distress and life satisfaction of working adults in China one month into the COVID-19 outbreak. *Psychiatry Research*, 288, 112958. (Advance online publication.) <https://doi.org/10.1016/j.psychres.2020.112958>.
- Zhou, H., Peng, J., Wang, D., Kou, L., Chen, F., Ye, M., Deng, Y., Yan, J., & Liao, S. (2017). Mediating effect of coping styles on the association between psychological capital and psychological distress among Chinese nurses: A cross-sectional study. *Journal of Psychiatric and Mental Health Nursing*, 24(2–3), 114–122. <https://doi.org/10.1111/jpm.12350>.

**Publisher's Note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Springer Nature or its licensor (e.g. a society or other partner) holds exclusive rights to this article under a publishing agreement with the author(s) or other rightsholder(s); author self-archiving of the accepted manuscript version of this article is solely governed by the terms of such publishing agreement and applicable law.