The Implementation and Evaluation of a mHealth Intervention to Address Secondary Traumatic Stress among Frontline Mental Health Care Providers in South Africa

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Declaration

I declare that the thesis titled "*The Implementation and Evaluation of a mHealth Intervention to Address Secondary Traumatic Stress among Frontline MHCPs in South Africa*" is my own work. I have acknowledged information acquired from the literature and quoted the sources used. A comprehensive reference list is provided. This thesis has not been submitted for examination before for any other degree or at another university.

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Acknowledgements

The completion of this thesis is attributable to the wonderful people who encouraged and supported me throughout the process.

I would like to express my sincerest gratitude to my supervisor Prof. Anita Padmanabhanunni, who suggested this topic. It has been an absolute privilege to be supervised by you. Writing with a supervisor whose work I regard so highly encouraged me to submit a thesis that is the highest quality work I am capable of. Thank you for the generous advice, thoughtful feedback and sharing your wealth of knowledge with me, I have learnt so much from you.

A debt of gratitude to my family and friends. My husband, Pierre, for your continuous and unconditional support, inspiring me to challenge myself and the sacrifices you made in order for me to complete this thesis. To my parents, my father who made great sacrifices to allow me to pursue my education, for believing in my capabilities, and teaching me to pursue excellence in everything I do. To my mom, for the continued love and encouragement, and for showing me I can be a working mom and pursue my ambitions and goals. To my son, Luca, for inspiring me, I hope in turn this can inspire you to wholeheartedly pursue your dreams.

To Natalie Donaldson, for the editorial work on this project. Thank you for your invaluable contribution to this thesis

Lastly, to the wonderful participants who selflessly gave their time and shared their experiences with me. I hope I have done your experiences justice. Thank you for serving on the frontline of trauma work in our country.

Abstract

Providing mental health care to trauma survivors may lead to secondary traumatic stress (STS) amongst mental health care service providers (MHCPs) and existing interventions for STS are labour intensive and have limited accessibility. In contrast, mobile health (mHealth) interventions offer an alternative means of mental health care. This study implemented and evaluated the effectiveness of an international smartphone application (i.e., COVID Coach) that was designed to support health care providers' mental health during the COVID-19 pandemic. Participants included MHCPs working with traumatised populations in South Africa. The study used a triangulation design comprising of three interrelated phases. Phase One investigated the prevalence of STS and its associated risk and protective factors. Findings from Phase One showed that more than a quarter of the sample (33%) reported moderate levels of STS and that increased exposure to vicarious trauma and the female gender were associated with higher levels of STS. In addition, increased levels of STS and greater support from family were associated with increased post-traumatic growth (PTG). Phase Two explored the lived experience of trauma work and salient themes that emerged included shattered pre-existing assumptions and transformative experiences that were reminiscent of vicarious PTG. Phase Three comprised a randomised controlled trial of the COVID Coach mobile application and results revealed that the application did not produce significant shifts in the mental health outcomes of the intervention groups. Thus, despite the promising potential of digital mental health interventions to transform mental health care in developing countries, robust scientific evidence to substantiate the efficacy of these interventions is still notably absent and this study makes an important contribution to the research evidence base in this area.

Key words: burnout, compassion satisfaction, MHCPs, mHealth, mobile phone application, COVID Coach, vicarious post-traumatic growth, secondary traumatic stress

List of Abbreviations

ANOVA	Analysis of Variance
APA	American Psychiatric Association
ATM	Automated Teller Machine
CBT	Cognitive Behavioural Therapy
CD-RISC-10	Connor-Davidson Resilience Scale
CI	Confidence Interval
COVID-19	Coronavirus Disease
DSM-5-TR	Diagnostic and Statistical Manual of Mental Disorders, 5th Edition, Text Revision
FAMSA	Families South Africa
GAD-7	Generalised Anxiety Disorder-7
HIV&AIDS	Human Immunodeficiency Virus and the Acquired Immunodeficiency Syndrome
HPCSA	Health Professions Council of South Africa
IPA	Interpretative Phenomenological Analysis
LEC	Life-Events Checklist
MANOVA	Multivariate Analysis of Variance
MHCP	Mental Health Care Provider
MERS	Middle East Respiratory Syndrome
mHealth	Mobile Health
MHCSU	Mental Health Care Service User
MDSPSS	Multi-Dimensional Scale of Perceived Social Support
NGO	Non-Governmental Organisation

NHS	National Health Service
NPO	Non-Profit Organisation
PCL-5	Post-traumatic Stress Disorder Checklist
PHQ-9	The Patient Health Questionnaire-9
PTG	Post-traumatic Growth
PTGI–SF	Post-traumatic Growth Inventory-Short Form
ProQOL	Professional Quality of Life Scale
PTSD	Post-traumatic Stress Disorder
SADAG	South African Depression and Anxiety Group
SAPS	South African Police Service
SARS	Severe Acute Respiratory Syndrome
SASH	South African Stress and Health Study
SPSS-27	Statistical Package for the Social Sciences
STS	Secondary Traumatic Stress
SUS	System Usability Scale
T1	Baseline Test Results
T2	Post-test Results
UK	United Kingdom
USA	United States of America
WEMWBS	Warwick-Edinburgh Mental Well-Being Scale
WHO	World Health Organisation

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Chapter One: Introduction

South Africa has a high burden of trauma and exposure to traumatic events is prevalent (Hoosen et al., 2022; Padmanabhanunni, 2020a). The South African Stress and Health (SASH) study, the only large-scale mental health epidemiological study on mental health outcomes in South Africa, reports a lifetime traumatic experience prevalence rate of 73.8% among South African adults (Atwoli et al., 2013). More recent research reveals that 50% of the South African population have experienced two or more trauma-related experiences (Joubert et al., 2022).

It is well established that exposure to trauma is linked to a range of adverse mental health outcomes, most notably post-traumatic stress disorder (PTSD). PTSD and the associated symptomatology may interfere significantly with various areas of the individual's life, such as their vocational and interpersonal functioning (APA, 2023). PTSD and the related sequelae are a major public health concern and, if left untreated, can lead to other mental health difficulties, such as depression, substance abuse, and anxiety (Wyatt et al., 2018).

It follows that South African frontline mental health care providers (MHCPs) will provide services to individuals who have experienced potentially traumatic events (Padmanabhanunni, 2020a; Sui & Padmanabhanunni, 2016). This places frontline MHCPs at risk of developing secondary traumatic stress (STS) since treating PTSD often entails listening to mental health care service users (MHCSUs) narrate their traumatic experiences in detail (Munishvaran & Booysen, 2022). STS is the presentation of PTSD symptoms amongst service providers following exposure to a MHCSU's trauma narrative, even though they have not personally experienced the trauma (Figley, 2002; Kendall-Tackett & Beck, 2022). Symptoms of STS include negative emotions, decreased energy levels, flashbacks of the MHCSU's trauma, intrusive thoughts related to the MHSU's trauma, sleep difficulties,

nightmares, and avoiding memory triggers (Johansen et al., 2019; McNeillie & Rose, 2021; Munishvaran & Booysen, 2022). STS is a debilitating condition and, if left unaddressed, may result in the MHCP experiencing lower job satisfaction and decreased efficiency in the therapeutic services offered (McCarty, 2023; Sui & Padmanabhanunni, 2016). The high prevalence of trauma in South Africa accompanied with a low proportion of MHCPs to the population (Bantjes et al., 2016; Hitge & Van Schalkwyk, 2018) increases the probability of STS amongst these workers.

The current study was undertaken in the context of the Coronavirus Disease (COVID-19) pandemic in South Africa. Pandemics are typically classified as natural disasters and have a well-established potential to generate pervasive mental health problems among the general population and health care workers (Gruber et al., 2020; Lee et al., 2018; Maunder, 2009; Shah et al., 2020; Van Bortel et al., 2016). A pandemic is regarded as a traumatic event of extraordinary magnitude that far surpasses the range of typical human experiences (Dawood et al., 2022).

The COVID-19 pandemic appears to be a major risk factor for developing post-pandemic PTSD (Wathelet et al., 2021). However, there has been much debate amongst scholars as to whether the COVID-19 pandemic represents a traumatic event. The dominant diagnostic models exclude PTSD symptoms in response to future events that are feared in anticipation or through indirect exposure of COVID-19. The COVID-19 pandemic and the associated quarantine restrictions do not fit within the dominant diagnostic model, the Diagnostic and Statistical Manual of Mental Disorders (5th edition; DSM-5-TR) (O'Donnell & Greene, 2021; Wathelet et al., 2021). Yet, existing studies reveal that symptoms of PTSD and other mental health difficulties have increased due to the ongoing stressors associated with the pandemic (Akat & Karatas, 2020; Bridgland et al., 2021; Kira et al., 2023; Nguse & Wassenaar, 2021; Nzimande et al., 2022).

The demands of the COVID-19 pandemic far outweighed the personal and social resources at the time, creating significant stress and risk for adverse mental health outcomes (Dawood et al., 2022). The significant impact of the COVID-19 pandemic and its prevention measures on the general population meant that MHCPs treated MHCSUs who were contending with COVID-19 related stressors. The life-threatening nature of the pandemic, accompanied by the uncertainty, disrupted routines, prolonged social isolation, and financial insecurity, placed individuals at risk of significant adverse mental health outcomes and psychopathology (Gruber et al., 2020). In addition, the pandemic significantly increased the trauma burden in South Africa (Kim et al., 2020; Naidoo & Cartwright, 2022; Naidu, 2020).

MHCPs had to contend with personal fears of contagion, unanticipated professional demands, grief related to the loss of colleagues and loved ones due to infection with COVID-19, as well as the personal challenges introduced by a lockdown, such as social distancing from loved ones, child-care challenges, and concerns with their own personal health. This all contributed to increased stress and heightened MHCPs' vulnerability to adverse mental health outcomes, including STS (Dawood et al., 2022). However, most trauma interventions focus on trauma survivors and not the health care provider treating the survivor.

Existing interventions for STS are labour intensive and are limited in terms of accessibility given that they have mostly been delivered in-person. As such, the effectiveness of existing interventions has had mixed results. An international scoping review (i.e., Kim et al., 2022) on STS disorder interventions for service providers reported that, while these interventions hold promise, research on their efficacy has produced inconsistent results, largely due to these interventions being conducted in person and focusing on self-care and stress-management rather than on symptoms associated with STS.

In contrast, mobile health (mHealth) interventions can provide an alternative means of mental health care support to frontline MHCPs. However, for digital health interventions to

be disseminated and adopted, their efficacy needs to be established by means of comprehensive evidence-based studies, such as randomised control trials. There is a significant evidence-based practice gap in South Africa (Kagee, 2006; Kaminer et al., 2018) and the current study aimed to contribute to addressing this by implementing and evaluating the effectiveness of an international smartphone application (i.e., COVID Coach) that was designed to support self-care and the overall mental health of MHCPs working with trauma survivors during the COVID-19 pandemic.

This study's literature review is presented in Chapter Two and provides a conceptual basis for the study while also highlighting the gaps in the existing knowledge base in the area of digital mental health promotion. The landscape of mental health care services is discussed, as well as the most prevalent types of traumatic experiences in South Africa. The impact of trauma work on MHCPs is explored and the COVID Coach mobile application is proposed as a mHealth intervention to address STS and promote resilience among MHCPs.

Next, Chapter Three presents the Theoretical Framework that served as a guide to interpreting the findings of this study. The Theory on Professional Quality of Life (Stamm, 2010) and the Refined Model of Trauma Workers in South Africa (MacRitchie & Leibowitz, 2010) is discussed. Chapter Four presents the study's research aims and objectives, research questions and the research design for each phase of the study.

Chapters Five through to Seven present the respective analyses and results of the three phases. Chapter Five presents the analysis and results of Phase One of the study which formed the quantitative component of the study. Chapter Six covers the analysis and results of Phase Two of the study which aimed to explore the lived experiences of working with trauma survivors. Chapter Seven presents the analysis and results of Phase Three of the study, which aimed to implement and evaluate the effectiveness of the COVID Coach application in reducing STS and increasing resilience among South African MHCPs.

Chapters Eight, Nine and Ten form the respective discussion sections of the three phases. Chapter Eight offers an integrated discussion of the key findings obtained in Phase One in relation to existing literature. Chapter Nine presents the key findings from Phase Two in relation to existing literature. In Chapter Ten the key findings from Phase Three are discussed and interpreted in relation to existing literature.

Chapter Eleven is the final chapter of this study; the chapter offers the major findings of this study as well as the theoretical and clinical implications thereof. The limitations of the study are presented, and suggestions are offered for future studies.

Chapter Two: Literature Review

This chapter presents literature that provides a conceptual understanding for this study and highlights the gaps in the literature that require further investigation. First, the literature review outlines the prevalence of traumatic events in South Africa, descriptions of the types of traumatic events and the prevalence among various age groups is presented. The factors that predict elevated levels of trauma in South Africa are explored. Second, given that the study took place within the context of the COVID-19 pandemic, the literature review presents a discussion on the COVID-19 pandemic as an additional potential stressor and the impact thereof on MHCSUs. Next, the issue of limited access to mental health care is discussed, alongside the associated history of Psychology in South Africa. The landscape of mental healthcare in South Africa provides context for the discussion on the impact of caring for trauma survivors on a MHCP's professional quality of life. The framework for the Professional Quality of Life (ProQOL), which comprises of Compassion Fatigue, Compassion Satisfaction, STS, and burnout is discussed. The added stress of the COVID-19 pandemic on MHCP and the implications thereof is considered. Finally, mobile health (mHealth) interventions as a means of offering mental health care is discussed and the COVID Coach mobile application is presented. The section considers the significant gap in evidence-based studies on mobile health interventions in South Africa, indicating that this is a meaningful area of exploration in South Africa.

Exposure to Trauma in South Africa

PTSD is a global mental health concern, particularly in low- and middle-income nations like South Africa (Booysen & Kagee, 2022; Munishvaran & Booysen, 2022), which is characterised by a high prevalence of traumatic events (Joubert et al., 2022). The most common traumatic experiences in South Africa include physical violence, murder, emotional abuse, gender-based violence, physical assault, and sexual abuse (Joubert et al., 2022). In

addition, the high rates of serious life-threatening illness and injuries in South Africa contribute to the prevalence of trauma in South Africa (Joubert et al., 2022).

South African Adults' Exposure to Trauma

The SASH study, the only large-scale mental health epidemiological study on mental health outcomes, reported a 73.8% prevalence of exposure to at least one potentially traumatic event among adults (Atwoli, et al., 2013). The most common traumatic events included unexpected loss of a loved one (39.2%) followed by physical violence (37.6%), accidents (31.9%), and witnessing a traumatic event (29.5%).

A recent South African study examined trauma exposure among 6 765 adults in South Africa and found that 92% of adults had experienced one or more traumatic events, while 38.7% had experienced four or more traumatic events (Stevenson et al., 2023). Most adults in the sample (65%) had experienced physical assault, the most frequently experienced trauma, followed by assault with a weapon (50.2%) (Stevenson et al., 2023). Male participants reported more exposure to traumatic events (94%) compared to female participants (89.5%) in the study (Stevenson et al., 2023). In addition, male participants presented with a higher cumulative trauma burden than female participants (Stevenson et al., 2023).

Community studies have reported high levels of trauma exposure in South Africa. A study conducted at the Helderberg District Hospital in Cape Town reported trauma to be a major contributor to the burden of disease, accounting for 24.6% of presentations to the emergency centre (Marle & Mash, 2021). Intentional trauma accounted for 45.4% of trauma cases at the emergency centre, which included community assaults, intimate partner violence, and interpersonal violence (Marle & Mash, 2021). Similarly, a community study in the Western Cape Province among 500 adults seeking an HIV test found that 62% of participants had experienced a traumatic event, which included sexual and physical assault, murder of a close friend or family member, fire, and explosion (Kagee et al., 2017). The pervasive pattern

of experiencing trauma in South Africa is echoed in a qualitative study that explored forms of interpersonal violence in inner-city Johannesburg (Scorgie et al., 2017). The threat of sexual abuse, gang-related violence, and the threat of physical violence was prevalent among the participants (Scorgie et al., 2017). Similarly, a systematic literature review that included 34 studies confirmed that exposure to trauma is rife across various settings in South Africa, including homes, social relationships, schools, and community settings, and across all age groups (Hoosen et al., 2022). The researchers further reported an increased risk of mental health difficulties among trauma survivors in South Africa.

University Students, Children, and Older Adults' Exposure to Trauma

Studies among young adult university students have further confirmed the high levels of exposure to traumatic events. Padmanabhanunni (2020b) assessed the exposure of traumatic events among South African university students and reported that the most frequently experienced traumas included physical assault (69.3%), followed by road accidents (64.7%), the unanticipated death of a loved one (61.8%), assault with a weapon (47.7%), and life-threatening illness or injury (43.3%). Being held captive (5.7%) and subjection to a war zone (4.4%) were among the least reported trauma exposures among the sample (Padmanabhanunni, 2020b).

A recent large scale South African study sought to explore the prevalence of mental health difficulties amongst university students (N = 28 268) using a national student mental health survey distributed across 17 South African universities (Bantjes et al., 2023). Bantjes et al. (2023) reported that PTSD was the most common mental health disorder among the sample (21%). Across all the institutions included in the study, the PTSD prevalence rate ranged from 18.7% to 25.6%. The researchers concluded that university students in South African are exposed to high levels of trauma (Bantjes et al., 2023). This conclusion is

supported by Padmanabhanunni (2020b), who found that 97.6% of the sample of South African university students in their study had experienced a traumatic event.

The South African Police Service (SAPS, 2022) statistical report expands on the most frequently reported trauma exposures in South Africa, reporting contact crimes as the category with the highest recorded cases, which includes murders, attempted murders, sexual offences, assaults, and robberies. Between March 2021 and March 2022, SAPS recorded 607 163 contact crimes, a 13.4% increase in comparison to cases of contact crimes recorded in the previous financial year (SAPS, 2022). The total sexual offences recorded reflected a 14% increase from 46 214 reported cases between March 2020 to March 2021 to 52 694 reported cases the following year (SAPS, 2022). Kidnappings reflected an alarming increase of 79.4%, from 6 036 reported incidents between March 2020 to March 2021 to 10 826 cases reported between March 2021 and March 2022 (SAPS, 2022). Carjacking also reflected high rates, with 16 731 incidents of carjacking occurring in the 2020/2021 calendar year, which increased by 25.1% with a reported 20 923 carjackings in the 2021/2022 period (SAPS, 2022).

Trauma exposure and PTSD levels are also alarmingly high among South African children and adolescents. A study conducted in Cape Town ($N = 797$) reported that 92% of the sample of adolescents reported trauma exposure, and 28% presented with symptoms consistent with PTSD (Hiscox et al., 2021). Trauma exposure was similar for males (91.4%) and female participants (92.7%); however, PTSD was more prevalent among the female participants (Hiscox et al., 2021). Similarly, a study among an adolescent sample in Durban ($N = 723$) reported that 70% of the sample presented with PTSD, while 8.2% presented with complex (chronic exposure) developmental trauma (Valjee at al., 2018). Trauma exposure among older adults in South Africa is also high. For example, in a study conducted by Payne et al. (2020), the life-course trauma levels were found to be high among older South African

adults (N = 2 473) where, on average, participants experienced five out of the 16 traumatic experiences screened for.

Socio-economic, Historical, and Political Factors Related to the Exposure of Trauma

The elevated levels of trauma in South Africa are attributable to various historical, socio-economic, and political factors. More specifically, gender inequality, political volatility, poverty, crime, housing and food insecurity, and the history of apartheid and colonisation, are suggested to be at the root of high trauma levels in South Africa (Bantjes et al., 2023; Harriman et al., 2021). South Africa's distinctive history of apartheid and racial segregation are argued to play a significant role in the current high levels of trauma exposure (Joubert et al., 2022; Payne et al., 2020). Despite the transition to democracy in 1994, pervasive social and economic inequalities prevail because of the history of racial segregation, exploitation, and oppression in South Africa (Joubert et al., 2022). The South African landscape is characterised by systematic oppression, with the rise in violence and economic strife following apartheid leading to widespread trauma exposure (Payne et al., 2020).

Furthermore, the lasting socio-economic inequality and limited access to resources that remain prevalent following apartheid often leads to high incidences of trauma in South Africa, amplifying mental health conditions (Atwoli et al., 2013; Hoosen et al., 2022). For example, high levels of illiteracy, poverty, and unemployment are associated with high levels of crime, gangsterism, substance use, and gender-based violence in South Africa (Joubert et al., 2022; Kagee, 2023). In addition, it has been suggested that the violent history of apartheid has contributed to a culture of violence and the normalisation of the use of aggression to resolve conflicts and/or achieve goals (Joubert et al., 2022). Violence perpetration in the country is five times higher than the global average (Scorgie et al., 2017), and violence is the

foremost cause of death among South African youth (Hoosen et al., 2022). These high levels of violence further contribute to the high trauma burden.

While traumatic events are rife in South Africa, certain population groups are disproportionately impacted by trauma exposure (Ng et al., 2020). The evidence suggests that individuals from low socio-economic backgrounds, from previously marginalised racial groups, and individuals who have less social support, are at an increased risk of experiencing a traumatic event (Maercker et al., 2022). Lower income communities present with higher levels of trauma exposure due to high rates of poverty and limited access to basic resources in South Africa, such as inadequate policing (Booysen & Kagee, 2022). Previously marginalised racial groups are more vulnerable to trauma exposure as they often reside in high-risk communities that are characterised by gang violence, poverty, and substance use (Padmanabhanunni, 2020c). These areas also present with a higher risk of road accidents and associated traumatic events because of inadequate roads and overloaded public transport vehicles (Padmanabhanunni, 2020c). In addition, previously marginalised groups from lower social economic backgrounds are more vulnerable to the adverse implications of trauma exposure, as they likely have limited economic and social support to facilitate coping with the trauma exposure (Padmanabhanunni, 2020c).

South Africans residing in informal settlements are at an increased risk of trauma exposure (Maercker et al. 2022; Ndungu et al., 2020). Informal settlements in South Africa are characterised by extremely high levels of violence, high density populations, inadequate policing, as well as vulnerability to poor health and infectious diseases, which place these communities at a significantly higher risk of trauma exposure (Ndungu et al., 2020). Related to this, substance use is often used as a coping mechanism in urban informal settlements and is a further risk factor for trauma exposure, as it may be associated with higher levels of violence and transactional sex (Ndungu et al., 2020).

The COVID-19 Pandemic as a Potential Traumatic Stressor

Historically, pandemics have had long-lasting negative psychological, sociological, and economic implications (Akat & Karatas, 2020; Maunder, 2009; Shah et al., 2020; Van Bortel et al., 2016). The Ebola Virus, the Severe Acute Respiratory Syndrome (SARS), Human Immunodeficiency Virus and the Acquired Immunodeficiency Syndrome (HIV&AIDS), and the Middle East Respiratory Syndrome (MERS), are previous pandemics and/or epidemics that have had severe and far-reaching consequences (Akat & Karatas, 2020). Research suggests that the impact of previous pandemics and/or epidemics went beyond the threat to physical health, as the intense fear and uncertainty associated with disease outbreaks elicited long lasting adverse mental health outcomes (Akat & Karatas, 2020). Anxiety, PTSD, and depression are among the most prominent mental health conditions associated with previous pandemics and/or epidemics (Akat & Karatas, 2020).

Van Bortel et al. (2016) reported on the psychosocial implications of the Ebola Virus epidemic between 2013 and 2016 in Guinea, Liberia, and Sierra Leone, and concluded that adverse mental health outcomes were related to the traumatic nature of the fear of contracting the virus, witnessing loved ones die from the virus, and feelings of isolation and helplessness. Survivors of the virus reported experiences of shame and guilt owing to their sense of having infected others, as well as stigmatisation and blame from their communities which compounded psychological distress (Van Bortel et al., 2016). Overall, the Ebola Virus epidemic was associated with significant increases in PTSD, anxiety, and depression (Van Bortel et al., 2016).

Similarly, the SARS epidemic in 2003 was associated with persistent psychological symptomatology, such as PTSD and depression, among individuals who were infected with SARS but survived, and an increase in suicide rates among adults infected with SARS was also reported (Liu et al., 2007). Furthermore, significant psychological distress was

experienced by health care providers during this time (Maunder, 2009). Similarly, the MERS was associated with psychological trauma, depression, and anxiety, among health care providers and the general population (Shah et al., 2020).

More recently, COVID-19, a severe respiratory disease, was declared a global public health emergency and a pandemic by the World Health Organisation in 2020 (WHO, 2020). The outbreak of COVID-19 has been described as a devastating natural disaster that adversely impacted people across the world and has been widely referred to as a significant global traumatic event that impacted children, young people, middle aged people, the elderly, health care staff, and students (Akat & Karatas, 2020; Kira et al., 2023; Nguse & Wassenaar, 2021; Nzimande, 2022).

Conceptualisations of Trauma and Traumatic Events

There has been much debate among scholars as to whether the COVID-19 pandemic and its associated consequences can be classified as a traumatic event since it does not fit within the dominant diagnostic model (i.e., the DSM-5-TR). The DSM-5-TR conceptualises a traumatic event to constitute either direct or indirect exposure to threatened or actual death, serious injury, or sexual violence (APA, 2023). In the context of the COVID-19 pandemic, this conceptualization is particularly relevant. Individuals who have contracted COVID-19 often face the immediate and terrifying threat of severe illness or death, thereby meeting the DSM-5-TR criteria for direct exposure to a traumatic event. The very nature of the disease, which has claimed millions of lives globally and has an unpredictable course, introduces a level of psychological stress that goes beyond typical medical diagnoses. Emotional turmoil accompanies the physical suffering—such as the fear of infecting loved ones—which adds layers of trauma.

Health care providers are also at risk of meeting the criteria for trauma exposure as defined by the DSM-5-TR. They are indirectly exposed to threatened or actual death and

serious injury while treating COVID-19 patients. The constant exposure to severely ill patients, the high mortality rates, and the burden of making life-and-death decisions contribute to a highly stressful work environment. Moreover, health care providers often witness the emotional and physical suffering of their patients, adding an additional layer of vicarious trauma (Wathelet et al., 2021).

While the DSM-5-TR's definition of a traumatic event clearly encompasses the experiences of COVID-19 patients and healthcare providers, the classification becomes less certain when applied to the broader experiences of the general population during the pandemic. Factors such as quarantine, stigmatization, widespread fear, remote work, and economic instability have undoubtedly added stress to people's lives. However, according to the criteria set forth by the DSM-5-TR, these factors may not strictly qualify as traumatic stressors (Wathelet et al., 2021).

Existing diagnostic models, such as the DSM-5-TR, consider direct traumatic exposure to past potential life-threatening experiences as risk factors for PTSD (Bridgland et al., 2021). Therefore, traumatic responses to indirect trauma exposure, such as through social media and news reports, and future traumatic stressors do not align with current pathogenic models (Bridgland et al., 2021). Given this, it follows that the DSM-5-TR excludes trauma exposure in relation to future events that are feared in anticipation of the event occurring and excludes indirect exposure through news reports and social media exposure (Bridgland et al., 2021). However, existing studies have found that news reports of COVID-19 related deaths have been found to contribute to elevated levels of fear and anxiety (Bridgland et al., 2021; Nguse & Wassenaar, 2021). The DSM-5-TR further excludes experiences that do not entail a threat to life or physical injury, such as financial stress and reduced social support associated with the pandemic (Bridgland et al., 2021). Simply, if the DSM-5-TR diagnostic model is strictly applied, many of the consequences and stressors associated with the COVID-19

pandemic do not meet the criteria for a traumatic event that can lead to PTSD. However, both international and local studies report that the number of PTSD cases increased during the COVID-19 pandemic.

Defining the COVID-19 Pandemic as a Traumatic Event

Bridgland and colleagues (2021) investigated the notion of COVID-19 as a traumatic stressor that could elicit PTSD symptoms, with specific consideration given to the impact of anticipating future events and the indirect exposure to stressors. Participants (N = 1 040) were recruited from the United States of America (USA), the United Kingdom (UK), Canada, Australia, and New Zealand. Participants were asked to indicate their experiences of direct exposure to events associated with COVID-19, future events they anticipate may occur, and indirect exposure to COVID-19 stressors, such as media reports. Participants completed the Post-traumatic Stress Disorder Checklist-5 (PCL-5), which was modified to measure pre-, peri-, and post-traumatic responses in relation to COVID-19.

An important contribution of the study is that participants experienced PTSD symptoms in relation to the anticipation of future events (i.e., events that had not yet happened), which contradicts the view that PTSD only presents following a traumatic event (Bridgland et al., 2021). In addition, the study reported that participants presented with PTSD symptoms associated with both direct COVID-19 infection as well as indirect exposure to COVID-19 (i.e., through the news or social media). Trauma symptoms included intrusive re-experiencing, avoidance, hyperarousal, and altered cognition and mood. While 13.2% of the participants presented with symptoms consistent with PTSD, only 2% of the participants had been diagnosed with COVID-19 and only 5% had a loved one that had tested positive for COVID-19. Therefore, 13.2% of the participants in the study presented with PTSD symptomatology even though their traumatic exposure did not align with Criterion A of the DSM-5-TR (Bridgland et al., 2021). The researchers concluded that the psychological

repercussions of the pandemic extend beyond the medical repercussions (Bridgland et al., 2021).

The findings from Bridgland et al.'s (2020) study challenges the current diagnostic model and suggests that PTSD symptoms can be elicited by future events that have not yet taken place and by indirect experiences, such as news reports and social media coverage. Bridgland et al. (2021) offer that their results could be interpreted as a reflection of the "hedonic treadmill" (p. 11), where experiences that are slightly stressful are experienced as more negative in comparison to their generally stress-free lives (as participants were all from Western countries). They further offer the consideration that the participants' responses could be a normal response to stress and, therefore, not a pathology. However, the key contribution of the study conducted by Bridgland et al. (2020) is that it presents evidence that future events associated with the COVID-19 pandemic, direct exposure to the pandemic (i.e., a COVID-19 diagnosis), and indirect exposure associated with the pandemic (i.e., social media and news coverage) can potentially predict PTSD, even if the pandemic does not fit within the DSM-5-TR diagnostic model.

These findings are supported by an international study that explored the cumulative impact of the COVID-19 pandemic in seven Arab countries ($N = 1\ 347$), while controlling for past traumas and cumulative stressors (Kira et al., 2023). The study found that the COVID-19 pandemic significantly predicted PTSD among the sample, with stressors associated with the COVID-19 pandemic (i.e., social distancing, fear, isolation, and anxiety) being cited as the predominant stressors that predicted PTSD (Kira et al., 2023). Kira et al.'s (2023) findings lend support to Bridgland et al.'s (2021) study, as their findings confirmed that the fear and anticipation inherent to the COVID-19 pandemic is a multiple complex trauma that presents with various stressors and a cumulative impact.

The threat of infection, the economic implications of the pandemic, social distancing, fear, isolation, and anxiety are cited as predominant stressors (Kira et al., 2023; Nzimande et al., 2022). Importantly, the fear and anticipation of being infected with COVID-19 is highlighted as a significant factor that makes the pandemic a traumatic stressor, as the anticipation of negative future events is a prominent predictor of perceived distress (Kira et al., 2023). In addition, the regions of the brain (i.e., the insula, the ventromedial prefrontal cortex, and the amygdala) that are associated with anticipating future events have a strong association with post-traumatic stress (Kira et al., 2023). Therefore, the traumatic stress associated with COVID-19 goes beyond just the threat of contracting the virus but extends to the economic and social implications that further threaten a person's sense of safety (Kira et al., 2023).

O'Donnell and Greene (2021) assessed 26 existing qualitative and quantitative studies with the aim of exploring the mental health implications of the COVID-19 pandemic using a trauma informed perspective. The researchers considered the prevalence of symptoms related to trauma exposure and other psychopathology among a variety of population groups, such as health care providers, children, students, and members of the general population (O'Donnell & Greene, 2021). The study revealed that the COVID-19 pandemic elicited an increase in trauma exposure and was associated with high prevalence rates of trauma related symptoms. However, O'Donnell and Green (2021) highlight that PTSD prevalence rates are significantly dependent on the context of the study (i.e., where the study took place), what was happening in the country during the time in which the study took place, and the COVID-19 rates during the time in which the study took place. They, therefore, argue that prevalence studies merely present a snapshot of the time of the study, which may change over time (O'Donnell & Greene, 2021).

A South African study lends support to the abovementioned international studies, as it also found that the COVID-19 pandemic was associated with post-traumatic stress symptomatology (Nzimande et al., 2022). Nzimande at al. (2022) reported a prevalence rate of 35.4% for traumatic stress symptoms among the population group of adults during the pandemic ($N = 489$). However, they found that female participants presented with significantly higher levels of traumatic stress, higher levels of intrusive re-experiencing, avoidance, and hyperarousal during the COVID-19 pandemic in comparison to male participants (Nzimande et al., 2022). Social isolation and a younger age were the predominant risk factors for post-traumatic stress among the sample. Nzimande et al. (2022) propose that young people faced barriers in relation to engaging with their social support systems, thereby placing them at a higher risk of developing post-traumatic stress symptoms. The high prevalence of post-traumatic stress symptoms is attributed to the South African government's lockdown regulations, which have been described as one of the most stringent lockdowns in the world (Nzimande, 2022). For example, South Africans were not allowed to leave their homes, except for essential services, medical attention, or for the collection of social grants.

These studies (i.e., Bridgland et al., 2021; Kira et al., 2023; Nzimande, 2022; O'Donnell & Greene, 2021) suggest that COVID-19-related stressors have contributed to symptoms of PTSD, despite pandemic-driven stressors not aligning with the DSM-5-TR's criteria for trauma exposure. These stressors include the lack of support, financial stress, social distancing, loss of loved ones, the dissemination of incorrect information, and isolation (Nzimande, 2022). In addition, daily news reports on the prevalence and mortality rates of COVID-19 served as a constant reminder of the threat the pandemic posed and further contributed to pandemic stressors (Nguse & Wassenaar, 2021). Wathelet et al. (2021) caution that applying the DSM-5-TR diagnostic criteria too strictly introduces the risk that many individuals may not receive the appropriate mental health care treatment that they need,

despite experiencing PTSD symptoms. As such, they argue for the expansion of the DSM-5-TR's conceptualisation of trauma exposure to ensure that individuals receive the appropriate diagnosis and treatment. They do, however, acknowledge that expanding the diagnostic criteria may also introduce the risk of overdiagnosis and the pathologising of a widespread response to the pandemic (Wathelet et al., 2021).

COVID-19 and the Impact on Mental Health

Despite contestation on whether the COVID-19 pandemic constitutes a traumatic event that can elicit PTSD, it is undeniable that the COVID-19 pandemic introduced distinctive stressors that could be detrimental to mental health (Gruber et al., 2020; O'Donnell & Greene, 2021).

Gruber et al. (2020) highlight the three ways in which COVID-19 adversely impacted mental health. First, the pandemic was prolonged worldwide, with a significant amount of uncertainty about when it would end. Daily routines and access to resources, such as food and cleaning supplies, were significantly disrupted (Gruber et al., 2020). Secondly, the pandemic was a multidimensional stressor with far reaching implications for individuals, families, work, as well as health and education systems. The adverse implications further extend to macrosystems, where political, cultural, and economic divides were aggravated (Gruber et al., 2020). The disruption to interpersonal relations played a key role in the adverse psychological effects predicted by the pandemic. Loneliness and isolation were prominent as people were separated from their loved ones for prolonged periods due to illness, social distancing restrictions, and the fear of contracting the virus or infecting others (Gruber et al., 2020). Interpersonal relationships were strained due to prolonged quarantine and stay-at-home policies, either introducing or exacerbating marital strife, conflict between siblings, parent-child disputes, financial insecurity, and substance use, which are established risk factors for adverse mental health implications (Gruber et al., 2020). In addition, most parents had to

work from home whilst simultaneously having to look after their children, which has been associated with increased stress, fatigue, and decreased parental satisfaction (Gruber et al., 2020). Furthermore, the loss of loved ones was experienced as more strenuous given that traditional and religious grieving processes were disrupted due to lockdown restrictions (Gruber et al., 2020). The third group of stressors identified by Gruber et al. (2020) was the loss of protective factors and coping mechanisms during the pandemic, such as hobbies, activities, and social engagement. The loss of coping strategies was likely more pronounced among the elderly, who were also more susceptible to COVID-19 infection (Gruber et al., 2020).

It can be seen, therefore, that the COVID-19 pandemic resulted in or exacerbated mental health difficulties, because the stressors experienced outweighed the individual and societal resources at the time (Gruber et al., 2020). Gruber et al. (2020) argue that the psychological sequelae of COVID-19 will predict a severe and sustained "mental health curve" (p. 414) that will mirror the COVID-19 virus itself.

Given that the mental health field is already under-resourced in South Africa, the field of Psychology will need to significantly shift to accommodate and adapt to address the challenges predicted by the pandemic. Adaptations that have been suggested includes further research and training on telehealth and hybrid service delivery models, single-session interventions, and interventions delivered by lay counsellors to increase reach and accessibility (Gruber et al., 2020). Gruber and colleagues (2020) specifically highlight that one of the lessons of past pandemics is the significant strain placed on health care workers and the need for appropriate and accessible mental health care for those at the frontlines of service provision. Therefore, they call for further research on ways to support health care providers and reduce the risk of PTSD following the COVID-19 pandemic.

Mental Health Outcomes of Trauma Exposure

Exposure to trauma is associated with a higher risk of adverse mental health outcomes, including depression, anxiety, substance use, and sleep disturbances (Joubert et al., 2022; Watson, 2019). PTSD is widely acknowledged as the dominant consequence of trauma exposure and is considered a major public health concern, both internationally and locally (APA, 2023; Gluck et al. 2021; Joubert et al., 2022; Sancassiani et al., 2019; Sommer et al., 2017; Watson, 2019).

PTSD is a psychiatric disorder characterised by intrusive memories in the form of dreams or flashbacks of the traumatic event, avoidance of reminders of the event, negative changes in mood, changes in cognition (e.g., negative evaluation of the self and others), and changes in physiological arousal (e.g., difficulty concentrating and sleeping difficulties) (APA, 2023). The DSM-5-TR notes that PTSD can occur following exposure to one of the following stressors: death or threatened death, injury or threatened injury, accident, or sexual violence (APA, 2023). Furthermore, according to the DSM-5-TR, exposure entails direct exposure, being an eyewitness, learning about a loved one's traumatic experience, and/or repeated exposure to aversive details in the line of duty (APA, 2023). PTSD symptomology can impact an individual's areas of functioning, such as interpersonal relationships, work, or school performance, and can predict unhealthy lifestyle behaviours (APA, 2023; Lawrence et al., 2023).

PTSD is further associated with psychiatric comorbidity, such as substance use disorder, major depressive disorder, anxiety, and somatic disorders (Swain et al., 2017; Watson, 2019). Depression is commonly cited as co-occurring in the aftermath of traumatic experiences, and depression and PTSD have been found to frequent co-occur among South African trauma survivors (Joubert et al., 2022). Among a sample of adults who had experienced one or more trauma exposures within the last five years (N = 120), 66% of

participants met the criteria for major depression (Joubert et al., 2022). In addition, the study reported a cumulative impact of multiple and ongoing traumatic experiences, with individuals who had experienced more than one trauma presenting with significantly greater levels of PTSD symptomology in comparison to those with a single traumatic exposure (Joubert et al., 2022).

Mental Health Outcomes Associated with the COVID-19 Pandemic

The COVID-19 pandemic has been argued to be a traumatic stressor that had a detrimental impact on mental health (Bridgland et al., 2021; Joska et al. 2020; Kim et al., 2020; Naidu, 2020; Nguse & Wassenaar, 2021). The impact of the COVID-19 pandemic will have long term implications, including social difficulties, financial and economic difficulties, loss of employment, and compromised physical and mental health (Ferreira, 2021). The COVID-19 pandemic has elicited significantly higher stress levels, an increase in substance use, an increase in intimate partner violence, as well as feelings of loneliness and suicidal thoughts, all of which have profound long term mental health implications (Ferreira, 2021). Furthermore, the uncertainty and fear of the COVID-19 vaccination, adjusting to online work and working from home, changes in parental roles and having to school children from home, isolation, and a general mistrust in the government's approach to handling the pandemic, present secondary implications of the pandemic for mental health in South Africa (Ferreira, 2021).

Recent studies suggest that the COVID-19 pandemic elicited symptomatology consistent with PTSD and resulted in or exacerbated mental health issues, such as anxiety and depression (Bridgland et al., 2021; Cooke et al., 2020). It has also been found that the COVID-19 pandemic elicited traumatic stress responses, such as intrusive re-experiencing, avoidance, and heightened arousal (Cooke et al., 2020). A significant body of research (cf. Cooke et al., 2020; Joska et al., 2020; Kim et al., 2020; Naidu, 2020; Nguse & Wassenaar,

2021; Vahratian et al., 2021) have confirmed the mental health implications of the COVID-19 pandemic across various countries, which include heightened levels of stress, anxiety, loneliness, depression, and PTSD.

A meta-analysis of the prevalence of post-traumatic stress and psychological stress during the COVID-19 pandemic reported high levels of traumatisation and other mental health difficulties associated with the COVID-19 pandemic, with one in four adults requiring mental health care services during the pandemic (Cooke et al., 2020). A longitudinal study conducted in the UK found a significant decline in mental health at the beginning of the pandemic, with various mental health implications being reported, such as an increase in suicidal ideation, heightened anxiety, and symptoms of depression (O'Connor et al., 2021). The risk factors for more severe mental health outcomes during the pandemic included age (i.e., young people aged 19-29 years), gender (i.e., female), economic disadvantage, and pre-existing mental health challenges (O'Connor et al., 2021). These findings are consistent with a cross-sectional study conducted in the USA that reported a significant increase in symptoms associated with depression and anxiety (Vahratian et al., 2021). The greatest increases in anxiety and depression symptoms were reflected among participants aged 18 to 29 years of age, as well as participants who did not have a high school level education. Vahratian et al. (2021) further reported a significant increase in unmet mental health needs during the pandemic, which likely increased mental health difficulties.

In South Africa, the COVID-19 pandemic intensified existing mental health conditions and increased the risk of psychological distress (Joska et al. 2020; Kim et al., 2022; Naidu, 2020). The pandemic presented additional traumatic stressors among South Africans, such as health-related fears, financial difficulties, food insecurity, and the loss of loved ones, which exacerbated pre-morbid mental health difficulties such as depression,

substance use, trauma, suicidal ideation, obsessive compulsive symptoms, self-harm, and psychosis among South Africans (Naidoo & Cartwright, 2022).

A South African study reported an unprecedented mental health crisis during the COVID-19 pandemic, finding exceptionally high levels of anxiety (73.3%), high levels of loneliness (71.8%), and diminished life satisfaction amongst participants during the pandemic (Pretorius & Padmanabhanunni, 2021). It was also found that female participants in the study presented with higher levels of loneliness and anxiety in comparison to male participants, however no gender differences were found in terms of life satisfaction. These results were attributed to the fear of being infected with the virus, as well as the isolation and social distance restrictions of the lockdown (Pretorius & Padmanabhanunni, 2021). Overall, the mental health implications of the COVID-19 pandemic were found to be greater among South Africans who had experienced trauma in the past (Joska et al., 2020; Kim et al., 2022). Kim et al. (2022) considered the mental health impact on South Africans residing in Soweto, a township in the city of Johannesburg. The researchers reported that past childhood traumatic experiences placed adults at an increased risk of depression during the pandemic due to the fear of contracting COVID-19 (Kim et al., 2022). The lockdown restrictions also led to feelings of loneliness and isolation, as access to support systems outside one's home was prohibited (Joska et al, 2020). Furthermore, an increase in domestic violence was reported in South Africa during the lockdown period, with 87 000 cases of gender-based violence being reported in the first two weeks of the lockdown (Chothia, 2020; Joska et al., 2020).

While the COVID-19 lockdown restrictions in South Africa reduced the transmission of COVID-19, Joska et al. (2020) also assert that the restrictions may have triggered past trauma among black South Africans who had restrictions placed on their movement during apartheid. As a result, past traumas may have been triggered due to re-living experiences that

resemble traumas prior to 1994, eliciting anxiety, fear, and PTSD symptomatology (Joska et al, 2020). Therefore, the COVID-19 pandemic significantly compounded the trauma burden, PTSD levels, and consequent mental health difficulties in South Africa.

Psychology and Mental Health Care in South Africa

In South Africa, the discipline of Psychology and the provision of mental health care has a contentious history. Psychology became a distinct discipline in the 1920s following the rapid expansion of intellectual assessments across the world (Laher & Cockcroft, 2019). In South Africa, racial segregation during apartheid was justified using intellectual assessments on the pretext of purported racial variations in test results (Laher & Cockcroft, 2019). All South Africans were subjected to intelligence tests that were created and normed for White South Africans, and the results were unfairly applied to support apartheid ideologies claiming the superiority of white South Africans and the inferiority of 'other' racial groups (Long, 2016; Pillay & Barnes, 2020). Simply, the results from these assessment tools served as the rationale for discriminative and segregated educational practices (Laher & Cockcroft, 2019; Shuttleworth-Edwards, 2016).

The tenets of apartheid were also applied to Psychology training programmes and Black South Africans were prohibited from training and practicing within the profession (Laher & Cockcroft, 2019). As such, psychologists did not represent the cultural and racial diversity of South Africa and Psychology was relatively unknown within Black communities (Laher & Cockcroft, 2019). As a result, during apartheid, mental health care was accessible only to the privileged White minority (Siyothula, 2019). Following the democratisation of South Africa in 1994, the Psychology profession has focused on its own transformation.

Access to Mental Health Care Services in Post-apartheid South Africa

The Mental Health Care Act (No. 17 of 2002) has played an important role in increasing the accessibility of mental health care for all South Africans (Siyothula, 2019).

Previously, mental health care services were only accessible in psychiatric hospitals, which were in the tertiary level of health care, and access was limited and based on an intricate referral system (Siyothula, 2019). To ameliorate this and make mental health care more accessible, the South African government extended the scope of Psychology to include community settings and district hospitals (Padmanabhanunni et al., 2022).

Despite these changes, researchers studying post-apartheid South Africa continue to report extensive inequality in access to mental health care services (Das-Munshi et al., 2016; Jantjies et al., 2019). Mental health care still reflects the economic inequalities of the apartheid era and remains an unequally distributed resource in South Africa, despite increasing recognition that mental health is a significant public health issue and that unmet mental health needs are prevalent (Das-Munshi et al., 2016; Jantjies et al., 2019; Siyothula, 2019). In other words, the inequitable distribution of mental health care resources and a scarcity of MHCPs remains a significant challenge in South Africa, especially within the public health sector (Padmanabhanunni et al., 2022; Siyothula, 2019).

Available data reveals that a third of the South African population suffers from a mental illness, while 47.5% of the population are at risk of receiving a psychiatric diagnosis during their lifetime (Kim et al., 2022; Rouillard et al., 2016). Furthermore, one in six South Africans suffer from depression, an anxiety disorder, or a substance use disorder, and an estimated 60% of the population meet the criteria for a PTSD diagnosis (Nguse & Wassenaar, 2021). However, due to the limited access to mental health care services, 75% of people in South Africa do not receive treatment for their mental health challenges (Bantjes et al., 2016; Nguse & Wassenaar, 2021). In addition, among those who have receive treatment, only 5.7% had obtained care from a mental health care professional (Bantjes et al., 2016). Therefore, there is a significant treatment gap in South Africa, with very few individuals obtaining the mental health care they require.

The distribution of mental health care between urban and non-urban communities remains prevalent, with urban areas having a substantially higher concentration of psychologists than rural communities (Padmanabhanunni et al., 2022; Siyothula, 2019). The majority of psychologists are based in Gauteng and the Western Cape, two very urbanised and populated provinces in South Africa (Padmanabhanunni et al., 2022). In contrast, most rural communities in KwaZulu-Natal, for example, only have one psychologist who serves a population of half a million people (Siyothula, 2019). In general, rural communities have limited access to mental health care, which is further exacerbated by a lack of financial means, lack of transport, and far distances that need to be travelled to access mental health care (Padmanabhanunni et al., 2022).

The Health Professions Act (Act No. 56 of 1974) determines the scope of practice of all health care providers in South Africa, and treating PTSD typically falls within the realm of professional psychologists. As such, clinical psychologists and counselling psychologists are the primary trauma MHCPs, yet there is a significant shortage of clinical and counselling psychologists in South Africa (Hitge & Van Schalkwyk, 2018). There are 9218 registered psychologists in South Africa (HPCSA, 2022), however, South Africa has a population of 60.6 million people (Statistics South Africa, 2022). Given these statistics, it is estimated that South Africa has 2.5 psychologists per 100 000 people, which is significantly less than the global average (Padmanabhanunni et al., 2022). For example, the USA has an estimated 33.3 psychologists per 100 000 people (Padmanabhanunni et al., 2022). Simply, trauma work comprises a significant portion of the mental health care needs in South Africa and psychologists and counsellors are at the frontline of trauma work, yet there are not enough mental health care service providers in South Africa to meet the mental health care needs of the growing population (Nguse & Wassenaar, 2021; van Zyl et al., 2017).

Efforts to Increase Access to Mental Health Care Services in South Africa

In 2003, the registered counsellor category was introduced to increase access to mental health care, particularly for disadvantaged communities in South Africa (Joubert & Hay, 2021). According to the Health Professions Council of South Africa (HPCSA), the registered counsellor's scope of practice includes performing mental health status screening, basic assessment, and short-term psychological interventions to enhance personal functioning (HPCSA, 2022). There are 2 482 registered counsellors who serve at the frontline of mental health care service provision in South Africa (HPCSA, 2023), and they are typically based in schools, private practices, hospitals, and social services organisations (Joubert & Hay, 2021; Rouillard et al., 2016).

In 2014, the South African government adopted a policy on the training and remuneration of non-professional community health care providers or lay counsellors to further ameliorate the gap in the provision of mental health care services in South Africa (Padmanabhanunni, 2020a). The policy made provision for the inclusion of lay counsellors in the formal mental health care structure with the aim of making mental health care services more accessible and affordable (Dewing et al., 2015; Kagee, 2023). Lay counsellors are non-professional mental health care service providers and are typically community members, without formalised mental health qualifications, who volunteer to work in community-based Non-Governmental Organisations (NGOs) or Non-Profit Organisations (NPOs) (Connolly et al., 2021). Lay counsellors offer emotional and social support, trauma counselling, education on the prevention of gender-based violence, HIV counselling, and medication adherence counselling (Kagee, 2023; Padmanabhanunni, 2020a). They receive short-term training from the NGO or NPO that they work with, and this tends to entail basic counselling skills (Connolly et al., 2021; Padmanabhanunni, 2020a). Lay trauma counsellors play an essential

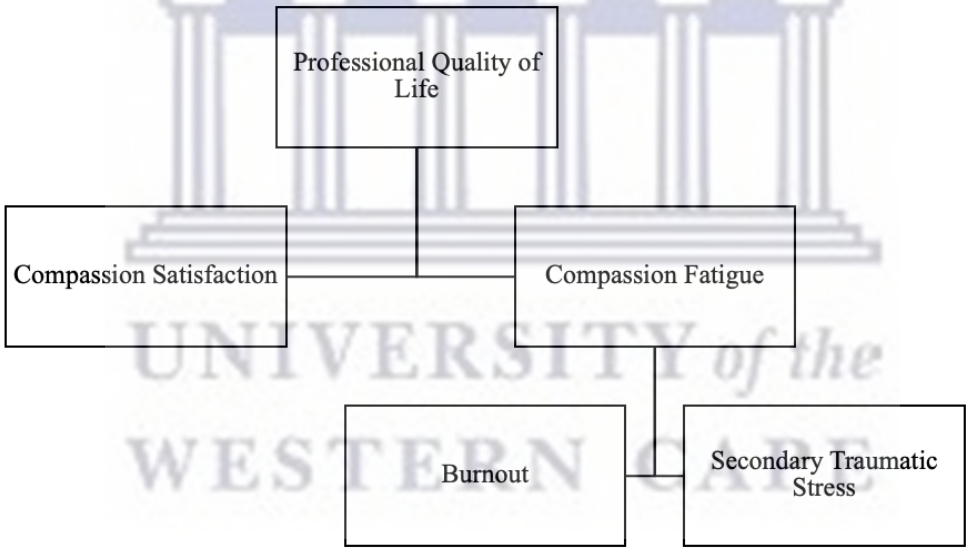
role in providing frontline trauma care and are often the first point of contact for trauma survivors in South Africa (Kagee, 2023).

The Impact of Caring for Trauma Survivors

Working with trauma survivors can impact a MHCP's professional quality of life. As depicted in Figure 1 below, professional quality of life comprises of both the positive (i.e., compassion satisfaction) and negative aspects (i.e., compassion fatigue) of a helping professional's work (Stamm, 2010).

Figure 1

Diagram of Professional Quality of Life



According to Stamm (2010), the concept of professional quality of life is complex as it relates to individual, organisational, and societal aspects. However, understanding the positive and negative aspects of professional quality of life and working with trauma are important considerations in understanding the impact on MHCPs (Koutra et al., 2022). The importance of a mental health care worker's professional quality of life lies in its impact on the services rendered, as it has implications for the mental health care worker's ability to be empathic and responsive to the needs of a mental health care service user (MHCSU)

(Laverdière et al., 2019). A good professional quality of life is associated with a mental health care worker's effectiveness and may impact the outcome of the counselling or psychotherapeutic process (Laverdière et al., 2019).

Compassion Fatigue

Compassion fatigue is defined as the stress that presents due to vicarious traumatic exposure, and it presents as physical and mental exhaustion, accompanied by feelings of being overwhelmed and not coping (Singh et al., 2020). Compassion fatigue has implications for the MHCPs personal wellbeing and the quality of services that they are able to render (Singh et al., 2020). Furthermore, compassion fatigue has been associated with low job satisfaction, psychosomatic presentations, substance use, absenteeism, depersonalisation, and depression (Singh et al., 2020). However, studies have found that higher levels of vicarious trauma exposure and a high trauma caseload predict compassion fatigue, while supervision, organisational support, and co-worker support serve as protective factors (Singh et al., 2020).

The two constructs of compassion fatigue, namely burnout and STS, are explored below.

Burnout. As depicted in Figure 1 above, burnout is one of the features of compassion fatigue and is described as typically presenting with "exhaustion, frustration, anger and depression" (Stamm, 2010, p. 12). Literature consistently demonstrates that MHCPs are vulnerable to burnout due to the empathic demands of their work (Laverdière et al., 2019; Padmanabhanunni, 2020a; Singh et al., 2020). Burnout typically entails emotional exhaustion, feeling detached from MHCSUs, depersonalisation, and a reduced sense of competence (Koutra et al., 2022; Singh et al., 2020; Stamm, 2010).

Burnout presents gradually, following an accumulation of challenges associated with work, and can be caused by an overwhelming workload or not feeling supported at work (Stamm, 2010). The consequences of burnout for MHCPs include a reduced sense of

empathy, reduced productivity, disengagement, decreased quality of counselling, and absenteeism (Pirelli, 2020; Temitope & Williams, 2015). Furthermore, MHCPs often feel unable to continue with their work (Laverdière et al., 2019). Literature demonstrates that consistent exposure to the trauma narratives of MHCSUs can also lead to burnout.

Existing international studies (cf. Laverdière et al., 2019; Singh et al., 2020; Xie et al., 2020) and local studies (cf. Jensen et al., 2022; Jordaan et al., 2007; Padmanabhanunni, 2020a; Peltzer & Pengpid, 2014) confirm that MHCPs are at risk of burnout, particularly those who work with traumatised MHCSUs. A systematic review focusing on job demands and compassion fatigue among MHCPs reported a 24.2% prevalence rate of burnout across 15 studies, with burnout being the most commonly experienced aspect of compassion fatigue among the sample (Singh et al., 2020). Across the studies included in the systematic review, burnout was predicted by a high trauma caseload and working in an inpatient facility, while co-provider support and the provision of sufficient information about trauma work was found to be a protective factor among MHCPs in the sample (Singh et al., 2020).

A Canadian study conducted with registered psychologists ($N = 240$) reported that 11% of the sample presented with high burnout levels, while 52% presented with low levels of burnout (Laverdière et al., 2019). Higher levels of burnout were predicted by a large caseload and working solely in institutions (Laverdière et al., 2019). Participants who presented with high levels of burnout presented with lower levels of empathy towards the MHCSUs they worked with (Laverdière et al., 2019).

A Chinese study conducted by Xie et al. (2020) with psychiatric nurses ($N = 352$), who work with a range of diagnoses including trauma, found that most of the participants experienced moderate levels of burnout (73.6%). They also found that being married increased emotional wellbeing and served as a protective factor for lower levels of burnout among the participants. Furthermore, older psychiatric nurses presented with lower levels of

burnout, which was attributed to enhanced problem solving skills that these participants had gained over time through experience (Xie et al., 2020).

Similarly, South African studies have highlighted the risk of burnout among South African MHCPs. Jensen et al. (2022) investigated the professional quality of life among professional MHCPs (n = 36) and lay MHCPs (n = 121), working within a mental health facility or a community health centre in South Africa. Participants included psychiatric nurses, social workers, and lay counsellors. This study found that burnout was prevalent among the participants, with an overall presentation of moderate levels of burnout. However, burnout was highest among community workers and lay workers who presented with elevated levels of burnout. Jensen et al. (2022) suggest that community workers and lay workers experienced higher levels of burnout due to elevated social difficulties, health problems, and a limited support system.

Padmanabhanunni (2020c) explored the professional quality of life of lay trauma counsellors (N = 146) and reported that 20% of the sample presented with low levels of burnout, while 22.4% presented with high levels of burnout. Furthermore, it was found that male participants and younger participants reported higher levels of burnout. These findings are consistent with an earlier South African study that found that half of the participating clinical and counselling psychologists showed moderate to high levels of burnout (Jordaan et al., 2007). One South African study also found that a history of personal trauma placed lay counsellors at an increased risk of burnout (Peltzer & Pengpid, 2014).

Secondary Traumatic Stress (STS). As depicted in Figure 1 earlier, STS is the second aspect of compassion fatigue and is defined as a negative response to being consistently exposed to trauma narratives (Kendall-Tackett & Beck, 2022; Stamm, 2010).

STS is characterised by symptoms that mirror PTSD, such as insomnia, fear, intrusive re-experiencing, avoidance of reminders associated with the vicarious trauma, and distressing

emotions (McNeillie & Rose, 2021; Stamm, 2010). STS is also characterised by cognitive alterations and interpersonal difficulties. Cognitive alterations include fearful thoughts and alterations in the trauma worker's view of themselves, others, and the world (Figley, 2002; McNeillie & Rose, 2021). Interpersonal difficulties include mistrust and suspicion towards other people's motives (Johansen et al., 2019; McCann & Pearlman, 1990; Stamm, 2010). The impact of STS does not present after a single counselling or therapeutic process with a trauma survivor; instead, the impact is cumulative (Masson & Graham, 2022; Pearlman & Mac Ian, 1995) with a rapid onset (Stamm, 2010). STS that is not addressed may lead to lower job satisfaction and a decreased efficiency in the therapeutic and counselling services offered, due to a reduced ability to engage empathically with MHCSUs (Laverdière et al., 2019; McCarty, 2023). STS has consistently been identified as the dominant adverse psychological consequence of providing care to traumatised people.

A systematic review of international research (USA, Germany, Austria, Switzerland, Australia, Greece, UK, Italy, Belgium, Israel, and Canada) included 15 studies conducted with psychologists, counsellors, psychiatric social workers, psychiatric nurses, and/or other-related allied MHCPs (Singh et al., 2020). The researchers reported that 19.8% of MHCPs across the included studies presented with STS, with large scale traumatic events and a higher caseload of traumatised MHCSUs predicting STS across the studies (Singh et al., 2020). In addition, MHCPs who worked in inpatient facilities were at an increased risk of STS. Co-worker support and the provision of sufficient information about trauma work was found to be a protective factor among MHCPs across these studies (Singh et al., 2020).

Laverdière et al. (2019) reported that 33% of their sample of Canadian psychologists presented with STS, which was predicted by a higher caseload of traumatised MHCSUs and long-term therapy MHCSUs. Among Chinese psychiatric nurses, Xie et al. (2020) reported that 74.1% of the sample presented with moderate levels of STS, which was predicted by

reduced sleep quality, while more experience (i.e., 10 years or more) served as a protective factor. It is suggested that psychiatric nurses with more experience have learnt effective coping skills over the years and feel more competent in their role, which serves as a protective factor (Xie et al., 2020).

Existing research indicates that STS is of great significance in the South African context and is a potential public health concern in the mental health field (Padmanabhanunni, 2020a; Peltzer & Pengpid, 2014; Sui & Padmanabhanunni, 2016). A study conducted with lay trauma counsellors in the Western Cape found that almost half of the sample presented with high levels of STS (Padmanabhanunni, 2020a). Similarly, a study conducted with lay counsellors who provide support to people with HIV in South Africa found that half of the participants presented with symptoms of STS, and high caseloads and a history of personal trauma was found to place lay counsellors at an increased risk of STS (Peltzer & Pengpid, 2014). A study conducted with psychologists in South Africa who do trauma work found that all participants described experiencing reactions characteristic of STS, with participants reporting involuntary intrusive memories related to a MHCSU's trauma narrative and persistent negative emotions, such as irritability, anger, sadness, and powerlessness (Sui & Padmanabhanunni, 2016).

Socio-economic challenges in South Africa compound the burden of vicarious trauma exposure for MHCPs. Booysen and Kagee (2022) refer to this as the "double burden" (p. 142). Socio-economic challenges and poverty place South African MHCPs at an increased risk of experiencing adverse effects following vicarious trauma exposure (Booysen & Kagee, 2022). Furthermore, working in low-resourced communities in South Africa is associated with ongoing trauma exposure and economic constraints (e.g., poverty, unemployed, limited resources), which tends to predict and perpetuate traumatic stress (Booysen & Kagee, 2022).

Compassion Satisfaction

Despite the challenging nature of their work, not all trauma workers experience negative psychological outcomes related to exposure to the trauma narratives of the MHCSUs that they work with. Many MHCPs feel a sense of fulfilment, meaning, and joy because of their work, which is referred to as compassion satisfaction (Kang & Yang, 2022; Somoray et al., 2017; Stamm, 2010).

As depicted in Figure 1 earlier, compassion satisfaction is a component of professional quality of life and is defined as positive feelings associated with assisting others and the ability to help (Stamm, 2010). While burnout is attributed to organisational aspects, compassion satisfaction develops through engaging empathically with MHCSUs (Stamm, 2010), and entails a sense of fulfilment, growth, and satisfaction derived from the person's work and helping others (Burnett & Wahl, 2015; Lluch-Sanz et al., 2022).

Compassion satisfaction consists of three components: the satisfaction that the helping professional derives from their work, their feelings of competence and doing their job well, and the level of collegial and social support available (Koutra et al., 2022; Stamm, 2010). Figley (2002) proposes factors that promote compassion satisfaction, such as social support, stress management, psychoeducation, and self-soothing. Compassion satisfaction contributes to a mental health care worker's ability to continue with psychotherapy, counselling, and/or trauma work, despite the difficulties inherent in this kind of work (Laverdière et al., 2022). Furthermore, compassion satisfaction is believed to combat and protect against compassion fatigue (Stamm, 2010).

A Canadian study reported that 9% of psychologists in the sample presented with low levels of compassion satisfaction, while 51% of the participants presented with high levels of compassion satisfaction (Laverdière et al., 2019). Higher compassion satisfaction presented

among psychologists who worked in private practice. However, only conducting individual therapy predicted lower levels of compassion satisfaction (Laverdière et al., 2019).

A Chinese study considered compassion satisfaction among psychiatric nurses and found that most of the participants (81.8%) presented with moderate levels of compassion satisfaction (Xie et al., 2020). In this study, compassion satisfaction was predicted by good quality of sleep, frequent exercise, and family support (Xie et al., 2020).

A South African study reported significantly lower levels of compassion satisfaction than international studies (Padmanabhanunni, 2020c). Only 27.8% of a sample of South African lay trauma counsellors reported high levels of compassion satisfaction, with 29% reporting low levels of compassion satisfaction. Furthermore, female participants were more likely to present with higher levels of compassion satisfaction in comparison to male lay trauma counsellors who participated in the study (Padmanabhanunni, 2020c).

Another South African study reported that compassion satisfaction was high among psychiatric nurses, social workers, and lay counsellors, except for community based MHCPs who presented with average levels of compassion satisfaction (Jensen et al., 2022). Across all participants, high levels of compassion satisfaction presented alongside average levels of burnout and fatigue, suggesting that gaining fulfilment from one's work does not reflect the mental health care worker's wellbeing (Jensen et al., 2022).

Vicarious Post-traumatic Growth

Literature has increasingly highlighted the possibility of personal growth for trauma workers because of the work that they do (cf. Bhagwagar, 2022; Cohen & Collens, 2013; Coleman et al., 2021; Hernández et al., 2010; Sui & Padmanabhanunni, 2016). Vicarious PTG is another positive outcome that could occur as a result of coping with the aftermath of a traumatic experience (Henson et al., 2021; Riffle et al., 2020; Tedeschi & Calhoun, 2004).

PTG is defined as personal growth after a traumatic experience (Riffle et al., 2020; Tedeschi & Calhoun, 2004). Similarly, trauma workers who are exposed to vicarious trauma have reported personal transformation and growth, which is referred to as vicarious PTG (Coleman et al., 2021). Vicarious PTG is experienced by MHCPs who witness a MHCSU's process of growth through the counselling or therapeutic process and, as a result, go through their own process of personal growth (Cohen & Collens, 2013; Coleman et al., 2021). The process often leads to positive alterations in the mental health care worker's perception of the self and the world (Manning-Jones et al., 2015).

A recent review of studies focusing on MHCPs in India reported that working within the field of Psychology and mental health equipped MHCPs with tools that facilitated their own personal growth (Bhagwagar, 2022). In addition, feeling fulfilled through witnessing a MHCSU's healing contributed towards vicarious PTG (Bhagwagar, 2022). This review also found that moderate levels of STS were predictive of vicarious PTG, while higher levels of STS had an inverse relationship to vicarious PTG (Bhagwagar, 2022).

A Colombian and American study revealed that the majority of participating psychologists believed that trauma work had positively transformed them (Hernández et al., 2010). The psychologists in the sample indicated that witnessing the MHCSUs that they work with overcome adverse circumstances positively changed their own attitudes, behaviours, and emotions.

Similarly, a South African study found that psychologists in the sample reported vicarious PTG, including an increase in interpersonal connectedness, an increased appreciation for life, increased personal strength, and positive changes in their philosophy of life and self-perceptions (Sui & Padmanabhanunni, 2016).

Implications of the COVID-19 Pandemic on Mental Health Care Providers

The field of Psychology had to respond to the COVID-19 global crisis by offering mental health care that focused on managing the mental health challenges caused by or exacerbated by the pandemic, such as anxiety and depression (Goldschmidt et al., 2021). Related to this, existing studies confirm that the COVID-19 pandemic and the resulting preventative measures had a significant impact on the mental health of MHCPs (Mahlangu et al., 2023; Robertson et al., 2020). The COVID-19 pandemic presented various challenges for MHCPs and, therefore, increased the risk factors associated with STS.

The COVID-19 introduced a transition from in-person therapy and/or counselling to virtual platforms (Naidoo & Cartwright, 2022). Actualising change in the delivery of health care services typically requires 16 years (Asbrand et al., 2023). However, due to the COVID-19 pandemic and the lockdown restrictions implemented, the transition to virtual platforms was sudden and unexpected. This meant that most MHCPs did not feel prepared for this transition as they did not have the relevant experience and/or had not received adequate training to deliver mental health care services in this way (Aafjes-van Doorn et al., 2022; Goldschmidt et al., 2021).

Online therapy requires access to suitable devices and a stable internet connection, and internet costs in South Africa are significantly high (Goldschmidt et al., 2021). During this time, MHCPs in low-resourced areas, NGO/NPO settings, and under-serviced regions of South Africa, reported on their experiences of struggling with connectivity (Goldschmidt et al., 2021). MHCPs, such as clinical and counselling psychologists, were more likely able to transition easily to online platforms since they had the resources to do so, while many lay counsellors and registered counsellors, who are on the frontline of mental health care service provision, had to continue with in-person delivery due to a lack of adequate resources. However, continuing with in-person delivery during the pandemic was associated with high

levels of anxiety and stress related to the fear being infected with the virus and/or transmitting the virus to loved ones (Mahlangu et al., 2023).

A study conducted in the USA ($N = 339$) found that the pandemic introduced significantly higher stress levels and immediate traumatic implications for psychotherapists in their sample (Aafjes-van Doorn et al., 2022). Most participants (74.9%) in the study reported feeling more tired during therapy sessions that took place during the COVID-19 pandemic, and a third of the participants experienced a decrease in their sense of competence (Aafjes-van Doorn et al., 2022). In addition to managing their own fears, losses, and health concerns, it was found that the COVID-19 pandemic increased vicarious traumatisation and self-doubt amongst MHCPs (Aafjes-van Doorn et al., 2022). Two thirds of the participants in the study presented with moderate levels of vicarious traumatisation, while 15% reported high levels of vicarious traumatisation (Aafjes-van Doorn et al., 2022). Risk factors for vicarious traumatisation during the COVID-19 pandemic included younger age, with less experienced MHCPs reporting significant difficulties with online therapy (Aafjes-van Doorn et al., 2022). In addition, feelings of exhaustion, a diminished sense of competence and confidence, as well as a reduced sense of therapeutic connection and alliance with MHCSUs were linked to increased levels of vicarious traumatisation (Aafjes-van Doorn et al., 2022). The researchers argue that the implication of STS tends to be compounded when the MHCP and the MHCSU both experience a catastrophe, such as the COVID-19 pandemic, at the same time (Aafjes-van Doorn et al., 2022).

A mixed-methods study conducted with psychologists and psychotherapists in Europe ($N = 698$) highlighted some of the significant stressors that MHCPs faced during the pandemic (Asbrand et al., 2023). The study found that 73.6% of participants said their work routines had changed due to COVID-19 and reported the changes as unwanted, while 48.3% experienced the MHCSUs they worked with as significantly more distressed in comparison to

the previous year (Asbrand et al., 2023). Clinically, the psychologists in the sample indicated that treating depression and trauma online was more strenuous, as non-verbal cues were minimised. As a result, they had to spend more time in preparation for seeing MHCSUs online (Asbrand et al., 2023). Furthermore, conducting therapy sessions whilst wearing personal protective equipment (i.e., a mask and/or visor) added an additional stressor for psychologists who continued with in-person sessions, as these made it challenging for them to read non-verbal cues, which they felt impacted the therapeutic relationship (Asbrand et al., 2023).

Furthermore, participants in the abovementioned study experienced the constant changes in workplace COVID-19 policies and the general lack of clear direction from their superiors as strenuous (Asbrand et al., 2023). In addition, psychologists who worked in teams reported various challenges, ranging from a decline in cohesiveness, increased absenteeism, conflict among colleagues, reduced collegial support, and feelings of isolation. Participants experienced heightened stress for their own safety, and those who travel with public transport were particularly fearful of contracting the COVID-19 virus (Asbrand et al., 2023). Childcare was also a significant concern for participants and video sessions were strenuous for psychologists whose children were at home (Asbrand et al., 2023).

A qualitative study reported on the experiences of South African psychologists (N = 16) during the COVID-19 pandemic (Goldschmidt et al., 2021). A significant increase in the demand for mental health care was reported by the psychologists in the study, to the extent that participants referred to a mental health crisis in South Africa. This, together with the limited availability of mental health care services in South Africa, lead to feelings of being overwhelmed (Goldschmidt et al., 2021). The experiences of the psychologists in this study are reminiscent of fatigue and burnout, as they reported emotional and physical exhaustion attributed to the increased need for their services as well as due to the transition to online

therapy sessions (Goldschmidt et al., 2021). Participants experienced online sessions as taxing and described frequent headaches from the sudden increase in screen-time. In addition, the psychologists reported an increase in their own anxiety levels due to the stressors and uncertainties of the pandemic, and as a result of their lack of adequate experience in delivering therapy via an online platform, as well as the lack of clear direction from regulatory bodies (Goldschmidt et al., 2021).

A more recent South African qualitative study investigated the mental health implications of the COVID-19 pandemic on frontline health care workers ($N = 44$) in Gauteng and the Eastern Cape (Mahlangu et al., 2023). Participants in this study did not include MHCPs but rather focused on doctors, nurses, and care service providers, such as those who bathed health care service users, changed linen, worked in the kitchen, and cleaning staff. The study reported that the COVID-19 health crisis was associated with increased levels of post-traumatic stress symptoms, anxiety, stress, sleep difficulties, increased irritability, and depression among frontline health care workers. Participants in the study reflected on their own personal loss of colleagues and loved ones and the lack of time to mourn due to the demands of their work. In addition, a profound sense of helplessness and feeling a loss of control was reported, which were often associated with feelings of frustration or guilt (Mahlangu et al., 2023). Participants' appraisals reflected heightened anxiety and fear of contracting the COVID-19 virus and the possibility of death, which was exacerbated by a fear of infecting their loved ones. In addition, participants reported experiences of significant fatigue and burnout (Mahlangu et al, 2023).

Overall, however, there is a general lack of South African research that focused specially on the experiences of MHCPs during COVID-19, with the bulk of the literature exploring the experiences of health care workers, such as nurses, medical doctors, and paramedics (David et al., 2021; Waring & Giles, 2021).

Mobile Health (mHealth) Interventions

Digital technologies have been introduced to support the growing need for mental health care services, both internationally and locally. Digital solutions to health care create the possibility of improving access to mental health care and extending the range of interventions available (Bantjes, 2022). Mobile health (mHealth) interventions are smartphone applications developed with the aim of improving health and mental health through MHCSUs self-applied interventions and/or in combination with therapy or counselling (González-Pérez et al., 2023).

mHealth interventions offer an alternative means of offering mental health care services and are geared towards improving the user's wellbeing and overall mental health (Bakker et al., 2016). mHealth interventions include applications that are focussed on supporting particular mental health diagnoses, encouraging healthy behaviour, aiding emotional regulation, and psychoeducation (Bakker et al., 2016). The purpose of mHealth interventions is to overcome obstacles in accessing care, given that they are less expensive than conventional methods, they offer consistent availability, they address scheduling difficulties, and they can minimise the reluctance to access help due to stigma (Bantjes, 2022; Bush et al., 2019). mHealth applications and interventions also offer the user autonomy, independence, and control over accessing mental health support, and are more economical (Bantjes, 2022).

Various studies have provided evidence of mHealth applications showing promising results in treating PTSD (cf. Kuhn et al., 2017; Miner et al., 2016; Possemato et al., 2016). For example, the PTSD Coach application was developed by the USA Department of Veteran Affairs and offers a psychoeducational component, a function to track symptoms, and appointment reminders. A randomised control trial reported a significant reduction in symptoms of PTSD and depression post-treatment among participants who used the PTSD

Coach application, in comparison to participants who were on a waitlist for mental health care services (Kuhn et al., 2017). Possemato et al.'s (2016) study also reported significant PTSD symptom reduction following the use of the PTSD Coach among their sample of veterans. Similarly, a study applied the PTSD Coach to a community sample of participants who had been diagnosed with PTSD and participants indicated that they experienced the application as helpful because they were able to obtain beneficial tools through the application (Miner et al., 2016). Furthermore, the effect size on symptom reduction was modest (Miner et al., 2016).

Roy et al. (2017) reported a reduction in PTSD symptomatology among a sample of military service members and their family members following the use of mHealth applications for six weeks in a randomised control trial. Participants in the study used various mHealth applications with a variety of content and focus points. These included Life Armor and PE Coach (i.e., psychoeducation), Tactical Breather (i.e., deep breathing exercises), Eventful (i.e., enhancing social engagement), and Simple Yoga (i.e., physical exercise and relaxation). The results were positive, with participants demonstrating significantly reduced PTSD, depression, and anxiety symptomatology (Roy et al., 2017).

mHealth applications aimed at promoting resilience have demonstrated efficacy. For example, a randomised control trial evaluated the efficacy of a cognitive behavioural therapy (CBT) mHealth application (i.e., the GGBI application) that was designed to increase resilience to body image triggers and reduce body image disturbance (Aboody et al., 2020). The results indicated that the application was significantly effective in increasing resilience to body image dissatisfaction triggers. Similarly, a randomised control trial investigated the efficacy of a mobile device-based resilience training programme aimed at enhancing resilience, reducing symptoms of depression, and increasing the quality of life among parents of children with cancer (Luo et al., 2021). Participants in the intervention group presented

with significant improvements in resilience scores, less symptoms of depression, and improved quality of life scores than the control group. The researchers in this study concluded that the mHealth intervention effectively increased resilience and alleviated symptoms of depression among the sample (Lou et al., 2021).

The Wysa application is an artificial intelligence chat-based application, developed with the aim of building resilience and enhancing mental wellbeing for users (Sinha et al., 2023). The Wysa includes a text-based conversational-agent, CBT tools, as well as mindfulness exercises aimed at assisting stress, anxiety, and depression (Sinha, 2023). A mixed-methods study reported that the high user group experienced significant improvements in self-reported depression symptoms and 67.7% of users reported that they experienced the application as helpful (Inkster et al., 2018). Similarly, a study applied the Wysa application with participants suffering from chronic pain (N = 2 194) (Meheli et al., 2022). The comparison of pre-test and post-test scores revealed significant improvements in generalised anxiety symptoms (Meheli et al., 2022). In summary, mHealth interventions have displayed great promise in addressing mental health care challenges. mHealth Interventions Addressing STS and Promoting Resilience

A systematic literature review highlights the limited research available as well as the need for further research on the effectiveness of existing interventions for addressing STS among trauma workers (Bercier & Maynard, 2015). Existing interventions include self-help programmes, structured workshops, and online training sessions. However, very few randomised control trials have tested the efficacy of these interventions (Sprang et al., 2019). Related to this, in a systematic review conducted, Driss et al. (2021) highlight the need and benefits of mHealth applications in supporting health care workers during the COVID-19 pandemic.

The National Centre for Telehealth and Technology designed the Provider Resilience Mobile application to enhance professional quality of life among MHCPs working with military personal (Provider Resilience, 2016). The application aims to address STS and build resilience (Provider Resilience, 2016). The Provider Resilience application employs two self-assessment tools: the Professional Quality of Life (ProQOL) Scale, which assesses STS and compassion satisfaction; and the Burnout Visual Analogy Scale, which entails users rating themselves on ten affective areas (Provider Resilience, 2016). The Provide Resilience application also provides psychoeducation on burnout, STS, and compassion fatigue, and offers tools to enhance self-care, promote resilience, and decrease burnout (Provider Resilience, 2016). These tools include physical exercise, motivational sayings, and video resources (Wood et al., 2017).

A pilot study tested the Provider Resilience application with 32 MHCPs (Wood et al., 2017). The participants displayed a significant decrease in burnout and compassion fatigue after one month of using the application, but no significant changes in resilience were noted (Wood et al., 2017). In contrast, an earlier study conducted by Jakel et al. (2016) with a sample of oncology nurses found no significant relationship between the use of the Provider Resilience application and STS and burnout. For reasons not yet published, the Provider Resilience application has been discontinued and is no longer available for download.

A study with a group of neonatal intensive care unit nurses ($N = 22$) to determine the effectiveness of Moodfit Premium, a mHealth intervention aimed at enhancing mindfulness, was conducted to determine whether the application could enhance the participants' professional quality of life (Egami & Highfield, 2023). The study took place over three weeks and applied a single-group pre-test and post-test design. The study found that the application showed promising efficacy, with a significant decrease in participants' STS scores. However,

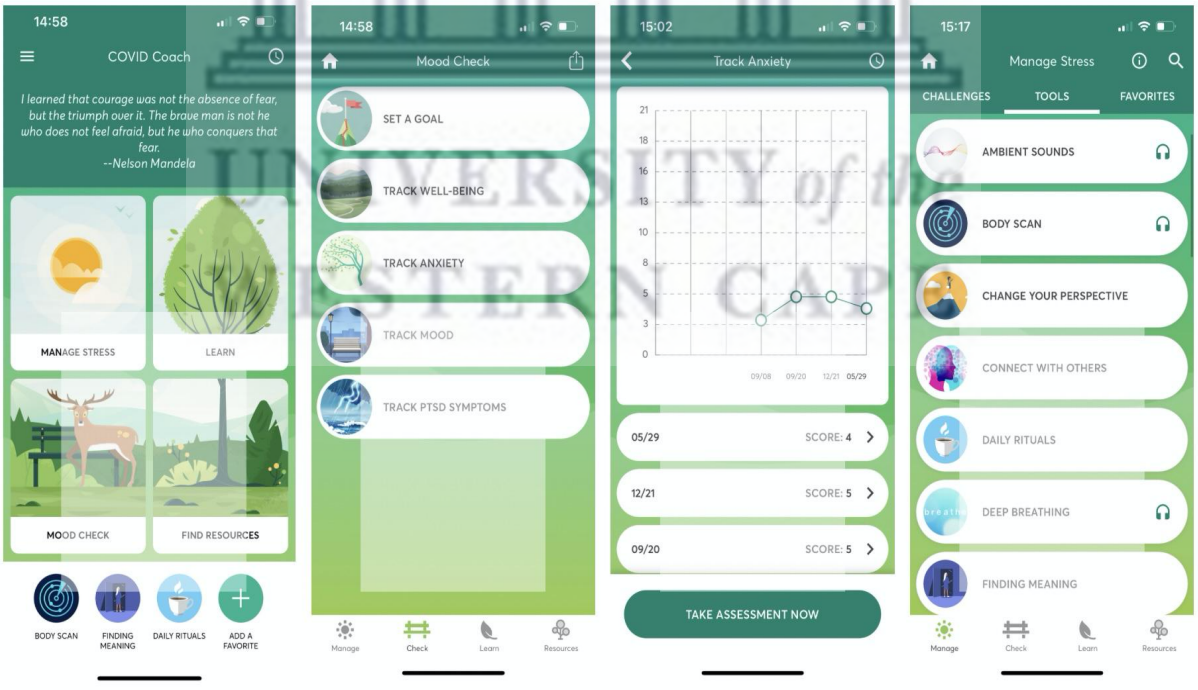
the participants' burnout and compassion satisfaction levels did not change significantly (Egami & Highfield, 2023).

The COVID Coach Mobile Application

The current study evaluated the efficacy of the COVID Coach mobile application. The National Centre for PTSD designed the COVID Coach mobile application to assist users in managing stress associated with the COVID-19 pandemic (Jaworski et al., 2021). The application offers evidence-informed tools for improving self-care, emotional wellbeing, and overall mental health (Jaworski et al., 2021). The application comprises of four main sections: Manage Stress, Learn, Mood Check, and Find Resources (Jaworski et al., 2021). An image of the COVID Coach application interface has been provided as Figure 2 below.

Figure 2

The COVID Coach Application Interface



The 'Manage Stress' section of the application offers tools and strategies for coping with stress and allows the user to focus on specific a challenge that they are currently

experiencing, such as coping with stress, loneliness, sleep difficulties, and creating space for myself (Huang, 2020; Jaworski et al., 2021). Each challenge also offers tools and coping skills. For example, one of the tools offered for stress is guided meditation (Huang, 2020).

The 'Learn' section offers information on mental health and physical wellness and offers a designated section for health care providers that includes information on identifying burnout and trauma, research-supported self-care strategies, and includes a section for partners of health care providers.

The 'Find Resources' section offers details and information on various services and organisations available, such as the National Suicide Prevention Lifeline, Domestic Violence Hotline, and Substance Abuse support networks. However, these resources are limited to the USA context and not focussed on the South African context.

The 'Mood Check' section employs self-report tools for the user to monitor various aspects of their mental health over time, such as wellbeing, anxiety, mood, and trauma symptoms. The results are presented in a graph allowing the user to track their mental health and wellbeing over time. The self-report tools used by the application include the Warwick-Edinburgh Mental Well-Being Scale (WEMWBS), the Generalised Anxiety Disorder-7 (GAD-7), The Patient Health Questionnaire-9 (PHQ-9), and the Post-traumatic Stress Disorder Checklist (PCL-5). These self-report tools are detailed in Appendix A.

A study drawing on anonymous analytics data (N = 143 097) explored the usage and retention of the COVID Coach application (Jaworski et al., 2021). The COVID Coach application has received very high ratings across various online stores, with an average of 4.8 out of 5 stars on the Apple App Store, and an average of 4.7 out of 5 stars on the Google Play Store (Jaworski et al., 2021). The analysis of active users indicates that the application is frequently and consistently used, with the 'Manage Stress' section (i.e., tools to assist with stress and anxiety) being the most used section of the application (Jaworski et al., 2021). In

addition, the other three sections were also accessed frequently (Jaworski et al., 2021). The study found that individuals who presented with significant PTSD symptomatology at the start of using the application were more inclined to return to the application and continue engagement with the application and engaged more frequently with the application in comparison to those with subclinical presentations (Jaworski et al., 2021). This finding may suggest that the application was more than likely experienced as useful for those with PTSD. In addition, individuals who presented with moderate levels of depression had a higher frequency of engagement than those with subthreshold depression (Jaworski et al., 2021). The analysis further revealed that the daily active usage of the COVID Coach application remained consistent across time (Jaworski et al., 2021). The results from this study are indicative of the COVID Coach application being successfully integrated and well received by application users.

The COVID Coach application has demonstrated a significant improvement in decreasing symptoms of anxiety and depressions. A randomised control trial assessed the efficacy of mHealth applications among essential workers and unemployed individuals during the COVID-19 pandemic in the USA (Comtois et al., 2022). Participants were randomly assigned to one of four mHealth applications, one of which was the COVID Coach application. Participants used the application for a period of four weeks, given that the literature on typical patterns of engaging with mHealth intervention reflected that users tend to utilise the application for the first two weeks with a significant decline in engagement after four weeks of use (Comtois et al., 2022). Furthermore, it has been found that various mHealth interventions show efficacy following two weeks of use (Comtois et al., 2022). Of the participants allocated to use the COVID Coach application (n = 212), 107 participants were essential workers, and 105 participants were unemployed as a result of the pandemic. The study reported a significantly positive impact, with a significant decrease in anxiety and

depression symptoms after four weeks of engagement with the COVID Coach application (Comtois et al., 2022).

The study further reported good usability ratings for all the applications included in the study, with the COVID Coach application having one of the highest usability ratings (Comtois et al., 2022). The COVID Coach application also had a very high adherence rating, with result showing that participants using the COVID Coach application were more likely to engage with the application in comparison to two of the other applications (Comtois et al., 2022). The researchers conclude that the COVID Coach application is an effective self-guided mental health tool with good acceptability and usability (Comtois et al., 2022).

Aside from the abovementioned studies, there is minimal research on the efficacy of the COVID Coach application. However, the COVID Coach application is built upon the PTSD Coach application model, which is empirically supported (Jaworski et al., 2021). The COVID Coach application offers many of the same tools and features offered by the PTSD Coach application, with additional features aimed specifically at supporting difficulties associated with a pandemic, such as insomnia, loneliness, isolation, stress, and COVID-19 psychoeducation (Jaworski et al., 2021). Therefore, given that the COVID Coach application was recently released (i.e., April 2020), most of the research on its efficacy is drawn from research based on the PTSD Coach application.

A systematic literature review focusing on mHealth interventions to support health care providers confirms the efficacy of the PTSD Coach application in supporting health care workers (Drissi et al., 2021). This recommendation is based on the PTSD Coach application addressing difficulties that health care workers may struggle with, such as stress, insomnia, frustration, anxiety, and feelings of hopelessness (Drissi et al., 2021). Similarly, Wong and colleagues (2020) present the PTSD Coach application as a supportive resource for health care providers for the same reason. Wong et al.'s (2020) study considered strategies to

manage the difficulties health care workers face, and they highlight the need for stress management tools (such as the PTSD Coach application) being combined with trauma-informed interventions in assisting with the mental health and wellbeing of health care workers. Furthermore, they advocate for the use of the PTSD Coach application for promoting accessible empowerment and healing among health care workers (Wong et al., 2020).

The CBT component of the PTSD Coach application is highlighted as beneficial for health care workers and the mindfulness interventions offered by the application are presented as useful tools for assisting health care providers in accepting emotional experiences (Wong et al., 2020). Wong et al.'s (2020) study also suggests the applicability of the PTSD Coach application for health care workers as it presents tools that can assist with difficulties commonly experienced by this population, such as trauma symptomatology tracking, distress, and insomnia.

The use of the PTSD Coach application is further supported in previous studies that have demonstrated user satisfaction as well as efficacy in reducing PTSD symptoms. A study conducted in Sweden with trauma survivors ($N = 179$) explored the efficacy of the PTSD Coach application (Hensler et al., 2022). Participants were included in the study if they had experienced a traumatic event within the last two years and presented with mild to severe PTSD symptoms. The study involved a randomised control trial, where the intervention group used the PTSD Coach for three months and the control group was assigned to a waitlist and did not engage with the application at all. The primary outcome was PTSD symptomatology and the secondary outcomes included depression and somatic symptoms (Hensler et al., 2022). The primary outcome (i.e., PTSD) was assessed at the point of screening, followed by a baseline assessment and a follow-up assessment, while depressive

and somatic symptoms (i.e., the secondary outcomes) were assessed at baseline and follow-up (Hensler et al., 2022).

Multiple regression models were applied, and the results indicate that participants who had access to the PTSD Coach application presented with a clinically significant reduction in post-traumatic stress symptoms and depressive symptoms after three months of using the application in comparison to the control group (Hensler et al., 2022). The intervention group also displayed a higher probability of demonstrating clinically significant recovery and were less likely to meet the criteria for PTSD after using the application in comparison to the control group (Hensler et al., 2022). In addition, participants in the intervention group experienced the PTSD Coach application as satisfactory and slightly to moderately helpful. The researchers conclude that the PTSD Coach is an effective intervention in reducing symptoms associated with PTSD and depression (Hensler et al., 2022).

An earlier study conducted in the USA by Kuhn et al. (2017) also used a randomised control trial to assess the efficacy of the PTSD Coach application with a sample of adults (*N* = 120). Adult participants were included if they met the criteria for probable PTSD, had access to a mobile phone, spoke English fluently, experienced a trauma more than a month prior, and were not currently being treated for PTSD. Similar to the study conducted by Hensler et al. (2022), participants were randomly allocated to the intervention group (i.e., using the PTSD Coach application for 3 months) or a waitlist group (Kuhn et al., 2017). The waitlist participants received no intervention, but details of the application and how to download it were sent to participants following the post-treatment assessments. Self-report assessments took the form of web-based assessments and were conducted at baseline and at post-treatment after three months (Kuhn et al., 2017). These self-report assessments assessed PTSD symptoms, depression, and psychosocial functioning, and findings showed clinically

significant reductions in PTSD severity and depression severity, as well as a significant improvement in psychosocial functioning for participants in the intervention group in comparison to participants in the control group (Kuhn et al., 2017). The clinically significant reduction in PTSD symptomatology supports the efficacy of the PTSD Coach application for trauma survivors. The results also indicate that the application offers benefits beyond the treatment of PTSD, since it was found to be useful for depression and psychosocial functioning (Kuhn et al., 2017). Kuhn et al. (2017) acknowledge that future studies are needed to better understand the mechanisms that make the PTSD Coach application an effective intervention. However, drawing on social cognitive theory, they propose that the underlying mechanism of increasing one's skills, social support, and confidence in dealing with PTSD symptoms, may be central to the improvements noted (Kuhn et al., 2017).

The Dutch version of the PTSD Coach application has shown efficacy in decreasing negative trauma cognitions and increasing resilience in a randomised control trial with Dutch health care providers (van der Meer et al., 2020). Health care providers (i.e., nurses, doctors, ambulance drivers, and first responders) who presented with trauma symptomatology (N = 287) were randomly assigned to an intervention group, where participants engaged with the PTSD Coach application for one month, or a control groups, where participants received no intervention. Participants were assessed at baseline, post-intervention, and a one month follow up (van der Meer et al., 2020). Participants were required to complete online assessments that measured self-reported trauma symptoms, negative thoughts associated with trauma, resilience, and social support (van der Meer et al., 2020). While the study reported no effect on trauma symptoms, participants in the intervention group displayed increased resilience and a decrease in negative trauma-related thoughts in comparison to the control group. The efficacy in reducing trauma cognitions and increasing resilience was attributed to the tools offered by the PTSD Coach application that focus on reframing cognitions, as well

as the tools provided for coping with distress and emotional responses (van der Meer et al., 2020).

The PTSD Coach application was also found to be beneficial in terms of psychoeducation, as the most participants reported that the application contributed to their knowledge of post-traumatic stress (van der Meer et al., 2020). The health care providers in the study reported that the application was helpful and easy to use, and continuous access to the support provided by the PTSD Coach application was viewed as empowering (van der Meer et al., 2020). Based on these findings, the researchers argue that the PTSD Coach application holds great promise in benefiting health care providers (van der Meer et al., 2020). Specifically, they believe that the reduction in negative trauma-related thoughts is a significant potential benefit of the application given that an increase in negative trauma cognitions predicts higher levels of post-traumatic stress. Therefore, the researchers conclude that the PTSD Coach application is likely to serve as a preventive method among health care providers who are at risk for STS (van der Meer et al., 2020).

The efficacy of the PTSD Coach application has only recently been explored in the South African context. A study conducted by Bröcker et al. (2022) with adults who presented with a PTSD diagnosis ($N = 20$) evaluated the applicability of the PTSD Coach application in a low-resource country as well as the efficacy of the application as a PTSD intervention. The study also aimed to explore if volunteer counsellor support enhanced treatment outcomes. The study involved two pilot studies.

The first pilot study included randomly assigning participants who met the criteria for PTSD ($n = 10$) to the PTSD Coach Online (i.e., a web-based version) with the support of a volunteer counsellor (Bröcker et al., 2022). The second pilot study explored the same research questions as the first pilot study, but with the intervention being delivered through the use of the PTSD Coach mobile application instead of the web-based version, PTSD

Coach Online (Bröcker et al., 2022). In the second pilot study, the participants (n = 10) were randomly assigned to either the PTSD Coach mobile application with volunteer counsellor support or the self-managed PTSD Coach mobile application. In doing this, the researchers were able to assess potential differences between mobile application platform and the web-based platforms. The first pilot study applied three assessments: a baseline pre-intervention assessment, an assessment at four weeks (i.e., mid-point), and a post-intervention assessment (i.e., 8 weeks). The second pilot study assessed at baseline and post-intervention (Bröcker et al., 2022). Assessments included traumatic exposure (i.e., Life Events Checklist) and PTSD severity (i.e., Clinician-Administered PTSD Scale for DSM-5 (CAPS-5)), as well as exploring the perceived helpfulness of the PTSD Coach intervention (Bröcker et al., 2022).

The results from this study indicate that both PTSD Coach platforms (i.e., the mobile application and the web-based platform) demonstrated clinically significant efficacy with a significant decrease in PTSD symptoms among the participants (Bröcker et al., 2022). In addition, the results indicate that the PTSD Coach application with counsellor support and without counsellor support were both well received, with participants reporting a positive experience (Bröcker et al., 2022). However, participants with volunteer counsellor support reported that the additional support increased their motivation to engage with the application. Furthermore, the user satisfaction ratings of the PTSD coach application were good. While both platforms reflected clinical efficacy in reducing trauma symptomatology, the results suggest that the PTSD Coach mobile application is more suited to the South African context than the web-based platform since there was less attrition in the group who engaged with the PTSD mobile application in comparison to the group that engaged with the web-based platform (Bröcker et al., 2022). This finding was attributed to computer literacy challenges.

At the time of writing this report, no international or local research could be found that focuses on the efficacy of the COVID Coach application or the PTSD Coach application for MHCPs (van der Meer et al., 2020).

Summary

The literature review presented demonstrates the far-reaching implications of vicarious trauma exposure. Specifically, the impact of trauma work on professional quality of life (i.e., compassion fatigue, burnout, STS, and compassion satisfaction) among MHCPs has been shown. Given the trauma burden in South Africa, MHCPs are particularly vulnerable to the potential negative impact of working with trauma survivors. In addition, MHCPs have had to respond to the detrimental mental health implications and compounded trauma burden associated with the COVID-19 global pandemic, adding to their traumatic stress exposure.

Existing interventions for STS are time intensive and have limited accessibility. While studies have shown that digital mental health interventions can effectively address adverse mental health outcomes, mHealth interventions have not been comprehensively evaluated with South African health care providers and, more specifically, with MHCPs. The literature highlights the need for randomised control trials in South Africa to determine the efficacy of digital mental health interventions among MHCPs.

Research has shown that the COVID Coach application and the PTSD Coach application is empirically supported as an effective mHealth intervention. For example, research has shown that the COVID Coach application and the PTSD Coach application have been effective in reducing PTSD and depression symptomatology and increasing psychosocial functioning among trauma survivors. Research has also shown that these mHealth interventions have been effective for health care providers who are at risk of trauma exposure, where the use of these applications was shown to increase resilience and reduce negative trauma cognitions.

However, only one study has shown the applicability and efficacy of these mHealth interventions in the South African context and no studies have been conducted exploring the efficacy of mHealth interventions, such as the COVID Coach application, with MHCPs. Simply, no South African studies have examined the efficacy of mHealth applications in addressing the mental health challenges experienced by mental health care service providers working with trauma survivors. The present study aimed to address these gaps in the local and international literature.

Chapter Three: Theoretical Framework

This chapter describes the theory on Professional Quality of Life (Stamm, 2010) and the Refined Trauma Model for Trauma Workers in South Africa (MacRitchie & Leibowitz, 2010) which served as the lens for interpreting the findings of this study. The ProQOL provides a metric to assess the positive and negative implications of working in the helping profession, and a theoretical perspective on these constructs. The Refined Trauma Model aims to understand the implications of trauma work in South Africa.

Theory on Professional Quality of Life

The Professional Quality of Life Theory (Stamm, 2010) is discussed in detail in the literature review, as such this section provides a brief overview and considers the applicability of the theory to the present study. Professional Quality of Life (Stamm, 2010) incorporates two components, compassion satisfaction and compassion fatigue. Compassion satisfaction refers to the positive feelings and the pleasure derived from the ability to help others through one's work. Compassion fatigue comprises of two components, the first is burnout, which presents as exhaustion, frustration, hopelessness, and depression (Stamm, 2010). The second is STS, which is associated with vicarious exposure to trauma survivors, that could lead to fear, insomnia, intrusive images, and/or avoiding triggers related to the MHCSU's traumatic experience (Stamm, 2010).

The aspects of the Professional Quality of Life theory (Stamm, 2010) are independent of each other, a trauma worker can experience both compassion fatigue and compassion satisfaction at the same point in time. The theory recognises the complex and nuanced impact trauma work has on a MHCP, through recognising that positive and negative implications can coexist. This makes the theory (Stamm, 2010) applicable to the study as it considers the positive and negative implications of the helping profession, which aligns with this current

study which considered STS, burnout as well as work satisfaction, PTG, and resilience, which are associated with trauma work.

The Professional Quality of Life theory (Stamm, 2010) extends to organisational aspects and interpersonal factors that predicts a MHCP's quality of life when exposed to vicarious trauma, for example burnout is related to the demands of the organisational environment, while STS is an intrapersonal distress. This consideration makes the Professional Quality of Life theory suited to the study's exploration of the associated risk and protective factors of STS, as well as the relationship between work related factors and STS, burnout, work satisfaction, and vicarious post-traumatic growth for MHCPs. Furthermore, the theory was considered appropriate for this current study, since it has been used in previous studies exploring compassion fatigue and compassion satisfaction among MHCPs (Padmanabhanunni, 2020a, Ray et al., 2013).

Refined Model of Trauma Workers in South Africa

The Refined Model of Trauma Workers in South Africa (MacRitchie & Leibowitz, 2010) presents the relationship between vicarious trauma exposure and STS. Exposure to trauma narratives may lead to STS, however various factors influence the variability in the degree that STS is experienced (MacRitchie & Leibowitz, 2010). The model (MacRitchie & Leibowitz, 2010) outlines the components in the development of STS, as well as the interrelationship between these variables. MacRitchie and Leibowitz (2010) propose the impact of moderating variables, which include individual characteristics (i.e., levels of empathy), personal factors (i.e., personal traumatic experiences), and environmental factors (i.e., social support). These factors are proposed to moderate the relationship between the level of exposure to vicarious trauma and the MHCP's mental health outcomes (MacRitchie, 2006). Therefore, the Refined Model of Trauma Workers in South Africa (MacRitchie & Leibowitz, 2010) is a suitable theory for interpreting the findings of Phase One of the current

study given that it explored the prevalence and associated risks and protective factors of STS, such as exposure to vicarious trauma and resilience (i.e., personal factors), work-related factors and perceived social support (i.e., environmental factors), and demographic factors (i.e., individual characteristics).

A primary variable in the development of STS includes the level of exposure to trauma (MacRitchie & Leibowitz, 2010). The severity of the trauma case, along with the duration of exposure and detail of the vicarious trauma exposure determine the level of exposure to trauma (MacRitchie & Leibowitz, 2010). The model (MacRitchie & Leibowitz, 2010) considers rape, torture, death, abuse, violence, and threat to life as the more severe trauma cases that increase trauma exposure and place MHCPs at a greater risk of developing STS. The model provides justification for this study as these traumatic experiences are among the most common traumatic experiences in South Africa (Joubert et al., 2022) and MHCPs are likely to be exposed to these trauma cases. The model is further suited to this study as the level of exposure to vicarious trauma is investigated as a potential risk factor in the development of STS in Phase One of the study.

A personal history of trauma places the trauma worker at an increased risk of developing STS and influences the severity of STS (MacRitchie & Leibowitz, 2010). It is suggested that MHCPs with a history of personal trauma are at risk of "re-traumatisation" (p. 17) which is associated with increased levels of STS symptomatology (MacRitchie, 2006). Unresolved traumatic experiences compound and intensify STS among trauma workers (MacRitchie, 2006). While personal traumatic experiences among the sample were not accessed, the current study is justified by MacRitchie (2006) who notes that the high levels of traumatic experiences in South Africa increases the probability that South African trauma workers have experienced a personal trauma, and thus South African MHCPs are at a significant risk of developing STS. This provides motivation for the investigation of STS

levels among the participants (Phase One), their qualitative experiences of working with trauma (Phase Two), and the mHealth intervention offered to participants (Phase Three).

Empathy is an additional personal aspect that increases susceptibility to STS (MacRitchie, 2006). Empathy can be a "vicarious emotional process" (p. 63), where the MHCP may experience an emotional reaction to another's experience (MacRitchie, 2006). Empathy facilitates the transference of traumatic content from the primary to the secondary victim and, therefore, makes the empath more prone to developing STS (MacRitchie & Leibowitz, 2010). The participants in this study include MHCPs, a population that typically offer enhanced levels of empathy and the capacity to care for others (Padmanabhanunni, 2020a). The study's population is justified by the model which asserts that high levels of empathy contribute to the trauma worker's vulnerability to developing STS (MacRitchie & Leibowitz, 2010).

From an environmental perspective, perceived social support and supportive professional environments are associated with lower levels of STS (MacRitchie & Leibowitz, 2010). The model differentiates between received support and perceived support, where the perception of emotional support can serve as a protective factor for MHCPs (MacRitchie & Leibowitz, 2010). A higher level of perceived social support is associated with lower levels of risk of STS (MacRitchie & Leibowitz, 2010). The model acknowledges that social support is only an effective protective factor if the MHCP makes use of the support network (MacRitchie, 2006). This study evaluated whether perceived social support served as a protective function against STS, which aligns with MacRitchie and Leibowitz's (2010) model. At an organisational level, the work setting's response to MHCPs with STS is a factor considered by the model, with a lack of support significantly compounding the levels of STS experienced. For example, supervisory support can counteract the negative implications of

trauma exposure (MacRitchie, 2006). As such, this study investigated supervisory support as a potential protective factor of STS among the sample.

MacRitchie and Leibowitz (2010) suggest that various factors moderate responses to STS and complex interrelationships of these factors determine a trauma worker's level of risk for developing STS. Empathy moderates the relationship between level of exposure to trauma and STS (MacRitchie & Leibowitz, 2010). Trauma workers with a history of personal trauma have an increased level of empathy towards their clients, which in turn increases their level of STS (MacRitchie & Leibowitz, 2010). Empathy and personal trauma experience have a combined effect on the development of STS, and account for the variance in the development and level of STS among trauma workers (MacRitchie & Leibowitz, 2010).

The final aspect of the Refined Model of Trauma Workers is the outcome of vicarious trauma exposure, that is the STS reaction. According to the model (MacRitchie & Leibowitz, 2010) the outcome of STS includes psychological, cognitive, and physiological consequences, which may result in the trauma worker withdrawing from their career prematurely, further highlighting the need for an intervention that targets STS among MHCPs. In addition, the high trauma rates in South Africa may leave trauma workers feeling helpless and unable to keep MHCSUs safe, leaving them suspectable to STS (MacRitchie, 2006). These consequences of STS served as a guide for the exploration of the participants' lived experiences of working with trauma in Phase Two of this study. Moreover, these consequences highlight the need for STS interventions and provide further motivation for Phase Three of this study (a mHealth intervention targeting STS and resilience). Interventions targeting STS may prevent MHCPs premature withdrawal from the field, this is particularly important given the shortage of MHCPs in South Africa (Hitge & Van Schalkwyk, 2018; Nguse & Wassenaar, 2021). In sum, the Refined Model of Trauma Workers is contextually relevant to this study since it was developed for the South African context.

Chapter Four: Research Methodology

This chapter presents the research aims and objectives, research questions and the research designs that will direct each phase of the present study. Details of the participants, procedures, instruments, and data analysis for each phase is discussed. Finally, the chapter presents the ethical considerations pertaining to the study.

Research Aim and Objectives

The overall aim of the current study was to implement and evaluate an internationally developed smartphone intervention (i.e., the COVID Coach mHealth application) to address STS and promote resilience among MHCPs in South African, which included clinical and counselling psychologists, registered counsellors, and lay trauma counsellors.

To achieve the abovementioned aims, the following research objectives served as a guide for this research:

1) to determine the prevalence of STS among MHCPs who work with trauma survivors in South Africa;
2) to determine the associated risk and protective factors of STS, such as vicarious post-traumatic growth, exposure to vicarious trauma, resilience, and the perceived adequacy of social support for MHCPs in South Africa;
3) to assess demographic and work-related factors and their relationship to STS, burnout, work satisfaction, and vicarious post-traumatic growth for MHCPs in South Africa;
4) to explore the lived experiences of frontline MHCPs who work with traumatised populations in South Africa; and
5) to assess the effectiveness of the COVID Coach mHealth application in reducing STS and building resilience among MHCPs in South Africa.

Research Questions

Following from the research aims and objectives, this study sought to answer the following research questions:

1) What is the prevalence of STS among MHCPs working with trauma survivors in South Africa?
2) What are the associated risk and protective factors of STS for MHCPs in South Africa?
3) What is the relationship between demographic and work-related factors and STS, burnout, work satisfaction, and vicarious post-traumatic growth for MHCPs in South Africa?
4) What are the lived experiences of frontline MHCPs who work with traumatised populations in South Africa?
5) How effective is the COVID Coach application in reducing STS and building resilience among MHCPs in South Africa?

Research Design

This study employed triangulation as the research design. Triangulation refers to combining data and methodologies to gain an in-depth understanding of the phenomena being studied (Hammerton & Munafò, 2021) and is useful approach for exploring human behaviour (Noble & Heale, 2019). In addition, triangulation increases the credibility, validity, and trustworthiness of a study's outcomes (Noble & Heale, 2019). Given that the focus of this study was on MHCPs and STS, triangulation was an appropriate design for achieving the research aims and objectives.

Using triangulation, this study incorporated quantitative surveys and qualitative interviews and included three interrelated phases, each with their own research designs,

procedures, and methods of analysis. Participants in Phases Two and Three were included based on the results from Phase One.

Phase One: Prevalence, Risk Factors, and Protective Factors of STS

Research Design

The first phase of the study formed the quantitative component of the research and involved an online survey aimed at exploring the prevalence of STS among frontline MHCPs, specifically those working in the field of trauma in South Africa. Demographic factors and work-related factors and their relationship to STS, burnout, work satisfaction, and vicarious PTG was explored. The online survey also identified associated risk and protective factors, such as vicarious PTG, exposure to vicarious trauma, general resilience, and the perceived adequacy of social support.

Participants

Participants in Phase One included 326 clinical and counselling psychologists, lay counsellors, and registered counsellors, who provided mental health care to traumatised populations in South Africa. The inclusion criteria included that the participant was currently working in South Africa as a clinical psychologist, counselling psychologist, lay counsellor or registered counsellor, and had worked with trauma survivors for a minimum of one year. The minimum one-year inclusion criteria is based on a previous South African study (Padmanabhanunni, 2020a) that examined the Professional Quality of Life among lay trauma counsellors and applied this inclusion criteria.

Purposive sampling was applied to locate the participants, which entails the selection of participants who are knowledgeable on the phenomenon of interest, allowing for information-rich data to be collected (Campbell et al., 2020). Purposive sampling aligned with the aims and objectives of this study, as all three phases of the study investigated

participants who worked specifically with traumatised populations. The socio-demographic characteristics of the participants in Phase One are summarised in Table 1 below.

Table 1

Phase One: Socio-demographic Characteristics of Participants

Variable	Category	*n*	%
Gender			
	Male	68	20.9
	Female	255	78.2
	Non-binary	2	0.6
	Trans masculine	1	0.3
Education			
	High School	4	1.2
	Trade School	6	1.8
	Bachelor's degree	70	21.5
	Honour's degree	38	11.7
	Master's degree	169	51.8
	Doctorate degree	39	12
Relationship Status			
	Single	96	29.4
	Married / domestic partnership	206	63.2
	Widowed	4	1.2
	Divorced	14	4.3
	Separated	3	0.9
Work Setting			
	Private practice	158	48.5
	Government clinic	6	1.8
	Private Hospital	13	4.0
	Government Hospital	39	12.0
	NGO	43	13.2
	University Counselling Centre	19	5.8
	Schools	19	5.8

	Other	29	8.9
Therapeutic Approach			
	CBT	117	35.9
	DBT	11	3.4
	Psychodynamic	32	9.8
	Psychoanalysis	7	2.1
	PCT	68	20.9
	Gestalt Therapy	10	3.1
	Eclectic	63	19.3
	ACT	4	1.2
	BWRT	6	1.8
	Reality Therapy	1	0.3
	Narrative Therapy	1	0.3
	Art Therapy	1	0.3
	Hypnotherapy	1	0.3
	Missing	4	1.2
Access to Supervisor			
	No	47	14.4
	Yes	278	85.3
	Missing	1	0.3
Able to Turn to Supervisor			
	No	23	7.1
	Yes	270	82.8
	Missing	33	10.1
Religious			
	No	88	27
	Yes	233	71.5
	Missing	5	1.5
Registration/Work Category			

Lay Counsellor	22	6.7
Registered Counsellor	120	36.8
Counselling Psychologist	77	23.6
Clinical Psychologist	107	32.8

Procedure

A list of registered counsellors, clinical psychologists, and counselling psychologists and their contact details was requested (Appendix B) and obtained from the Health Professions Council of South Africa (HPCSA). The list of email addresses was requested from the HPCSA in 2020 prior to the Protection of Personal Information Act (POPIA) coming into effect on 1st July 2021. NGOs that provide trauma services were also contacted for ethical approval to access lay counsellors. An invitation to participate in the study with information about the nature and aims of the study (Appendix C) was emailed to all potential participants, with the link to the online survey that was created using Google Forms. Participants were asked to provide their email addresses upon completing the survey. The purpose of collecting email addresses was to link individual responses to specific participants. This enabled the researcher to identify those participants who exhibited signs of STS and, consequently, could be included in Phase Two and potentially Phase Three of the study. Participants were required to complete the informed consent (Appendix D) before starting the online survey. The survey was undertaken in the period September 2020 - February 2021.

Instruments

The online survey included five self-report instruments and a demographic questionnaire. The Professional Quality of Life Scale (ProQOL: Stamm, 2005; Appendix E) is a 30-item self-report measure used to assess compassion fatigue (i.e., STS and burnout) and compassion satisfaction (Stamm, 2002). It entails three subscales: Compassion

Satisfaction, Burnout, and STS (Stamm, 2002). Each subscale has ten items, which are answered according to a 5-point scale (i.e., 1 = 'Never' to 5 = 'Very often'). High scores on the subscales indicate high levels of compassion satisfaction, STS, and/or burnout. The ProQOL has demonstrated sound internal consistency, with Cronbach alpha's of .82 for the compassion satisfaction subscale, .78 for the STS subscale, and .71 for the burnout subscale (Stamm, 2010).

The ProQOL has been applied extensively in the South African context, with Cronbach alpha's of .79 for the compassion satisfaction subscale, .76 for the STS subscale, and .71 for the burnout subscale reported by Padmanabhanunni (2020a). Similarly, earlier studies by Elkonin and van der Vyver (2011) and Mathias and Wentzel (2017) reported Cronbach alpha's of .98 and .87 respectively for the compassion satisfaction subscale, .80 and .87 respectively for the STS subscale, and .69 and .90 respectively for the burnout subscale.

The Post-traumatic Growth Inventory-Short Form (PTGI–SF: Cann et al., 2010; Appendix F) is a 10-item scale used to measure PTG. The items assess the participant's perceived growth following traumatic events in relation to the following factors: Relating to Others, New Possibilities, Personal Strengths, Spiritual Change, and Appreciation of Life (Cann et al., 2010). Responses are given using a 6-point scale (0 = 'I did not experience this change as a result of my crisis' to 5 = 'I experienced this change to a very great degree as a result of my crisis'). A coefficient alpha of .86 for the total score was reported and sound internal consistency reliability was reported by both Cieslak et al. (2016) and Kehl et al. (2014), with a Cronbach's alpha of .94 and .92 respectively. The PTGI-SF has not been utilised in the South African context, but it has been applied in Chile, which is also a developing country, and adequate psychometric properties were noted (García & Wlodarczyk, 2016).

The Connor-Davidson Resilience Scale (CD-RISC-10: Connor & Davidson, 2003; Appendix G) is a self-report scale used to measure general resilience. The scale comprises of 10 items that reveal the participant's ability to overcome challenges, where a higher score reflects higher levels of resilience. The scale provides an indication of the participant's ability to tolerate change, personal problems, illness, pressure, failure, and painful feelings (Connor & Davidson, 2003). The CD-RISC-10 displays a high internal consistency with a Cronbach's alpha of .88 (Scali et al., 2012) and the scale has been used in a South African study where the researchers note a satisfactory reliability with a Cronbach's alpha of .80 (Fatoki, 2018).

The Life-Events Checklist (LEC: Weathers et al., 2013; Appendix H) screens for possible traumatic experiences in the participant's lifetime and assesses exposure to 16 potentially traumatic events linked to PTSD. It demonstrates adequate psychometric properties as an assessment of traumatic exposure (Weathers et al., 2013). The LEC has been applied in South Africa and has shown good levels of reliability and validity (Mhlongo et al., 2018). The current study examined MHCPs' exposure to vicarious trauma and, therefore, the LEC was adapted to reflect vicarious exposure to trauma through their work. Participants were asked if they experienced any of the 16 possible traumatic experiences through their work with MHCSUs in the past month.

The Multi-Dimensional Scale of Perceived Social Support (MDSPSS: Zimet et al., 1990; Appendix I) assesses the perceived adequacy of social support from family, friends, and significant others. It includes 12 items, with a 7-point rating scale (1 = 'Disagree' to 7 = 'Very strongly agree'). The MDSPSS displays a very good internal reliability for the total scale, with a Cronbach's alpha of .88. The subscales have a Cronbach's alpha of .91 (Significant Other), .87 (Family), and .85 (Friends) (Zimet et al., 1990). The MDSPSS has been used in a South African study, where it displayed a good internal consistency and reliability with a Cronbach's alpha of .89 (van Heyningen at al., 2017). An earlier South

African study (Bruwer et al., 2008) found the MDSPSS to be psychometrically sound with a good internal consistency and factorial validity.

Participants in this study were also asked to complete a demographic questionnaire and work-related survey (Appendix J). Items included age, gender, relational status, religion, highest level of education, registration category, years of experience in the field, case load, availability and/or supervisory support, and the amount of trauma they treated per month.

Data Analysis

The Statistical Package for the Social Sciences (SPSS-27) was used to capture and analyse the data collected during Phase One. The demographic information, exposure to traumatic events through work (LEC), STS symptoms, burnout, and compassion satisfaction (ProQOL), and vicarious PTG, were summarised using descriptive statistics (i.e., means, standard deviations, and frequencies of variables).

Product-moment correlation coefficients were used to measure the relationship between demographic factors and work-related factors with STS (ProQOL), burnout (ProQOL), work satisfaction (ProQOL) and vicarious PTG (PTGI-SF). Product-moment correlation coefficients assessed the relationship between exposure to vicarious trauma (LEC) and STS, perceived social support (MDSPSS) and STS, and resilience (CD-RISC-10) and STS and vicarious PTG. The correlation coefficient indicates the strength of the relationship between the variables (Rosenthal & Rosnow, 1991).

A moderated multiple regression analysis (Cohen et al., 2014) was used to explore resilience (CD-RISC-10) and perceived social support (MDSPSS) as possible moderators of professional quality of life (ProQOL) and vicarious PTG (PTGI–SF). In order to determine the differences between the different categories of MHCPs (i.e., independent variables), a multivariate analysis of variance (MANOVA) was used to investigate these comparisons in terms of trauma exposure, STS, burnout, vicarious PTG, resilience, and perceived social

support (dependent variables). MANOVA was used as there were several dependent variables (Rosenthal & Rosnow, 1991).

Reliability and Validity

The instruments utilised have demonstrated sound reliability and validity. In addition, the research design has been clearly delineated, thereby promoting the reliability and validity of Phase One of the study (Nowell et al., 2017).

Phase Two: Lived Experiences of Working with Trauma Survivors

Phase Two formed the qualitative component of the study and used one-on-one interviews with participants to gather qualitative information on the lived experiences of being on the frontline of trauma work.

Research Design

Phase Two applied interpretative phenomenological analysis (IPA), which allows for the deep exploration of the participants' lived experiences, their perception of their experiences, and the impact of their experiences (Nizza et al., 2021; Smith & Shinebourne, 2012). IPA is particularly suitable for exploring a process (Nizza et al., 2021; Smith & Shinebourne, 2012) and this aligns with the cumulative nature of STS as well as the process that vicarious PTG entails.

Participants

The inclusion criteria for participating in Phase Two of the research required that participants had provided services to trauma survivors for a minimum of one year and were experiencing STS at the time of the study. Participants who met the inclusion criteria were invited to participate in Phase Two, resulting in 20 participants from Phase One being interviewed. Existing guidelines on qualitative sample sizes in health-related research suggest that thematic saturation is reached by 20 interviews (Vasileiou et al., 2018).

Procedure

Interviews were conducted using an online platform that was most convenient for the participants (e.g., Zoom or Google Hangout) and were audio recorded with each of the participants consent (Appendix K). Interviews were guided by a semi-structured interview schedule (Appendix L), which was sent to the participants before the interview to guide them in preparing for the interview and to minimise emotional distress. During the interview, some questions were adjusted and/or probing questions were included to allow for more in-depth engagement and/or clarification on important and interesting information that was provided by the participant. Overall, the interview questions invited participants to share their experiences of working with people who have survived a traumatic event and the impact this had on their worldview, lives, and relationships. Participants were also asked to share their coping strategies when working with trauma survivors. The interviews took place in the period August 2021 – February 2022.

Data Analysis

IPA procedures, as delineated by Smith and Shinebourne (2012), were applied to the data obtained during the interviews to discover themes related to the lived experiences of being on the frontline of trauma work. The interviews were transcribed verbatim, and IPA was used to analyse the data into themes (Alase, 2017; Nizza et al., 2021). The transcripts were analysed using the four stages of IPA (Smith & Shinebourne, 2012). The first stage of IPA (Smith & Shinebourne, 2012) included engaging in an interpretative relationship with the transcripts, transcripts were read several times and the researcher revisited the audio recordings of the interviews to familiarise herself with the data.

The second stage of IPA (Smith & Shinebourne, 2012) entailed initial noting where semantic content was explored, and significant responses and statements were noted in the margins of the transcripts. The third phase of IPA focused on the development of emergent

themes (Smith & Shinebourne, 2012). The researcher used the notes from the previous phase to group statements. At times this also required the researcher to revisit the transcripts. The fourth stage focused on integrating themes by seeking similarities between the emerging themes (Smith & Shinebourne, 2012). This was done by tabulating the themes that emerged alongside quotations from the transcripts. Thereafter, related themes were grouped (Nizza et al., 2021; Smith & Shinebourne, 2012).

Trustworthiness and Rigour

Trustworthiness was achieved by ensuring credibility, transferability, dependability, and confirmability throughout Phase Two of the research (Nowell et al., 2017). Prolonged engagement with the transcripts was employed to ensure credibility. Transferability was ensured by providing thick descriptions throughout the write-up, allowing the reader to assess the transferability of the findings. Dependability was achieved through thoroughly documenting the research process. Confirmability was achieved by providing readers with reasons and justifications for theoretical and methodological decisions made throughout the research process. Furthermore, an audit trail was undertaken and a reflexive journal was kept.

Phase Three: Implementation and Evaluation of the COVID Coach Application

Phase Three of the study involved a randomised control trial to assess the effectiveness of the COVID Coach application in reducing STS and increasing resilience.

Research Design

The Solomon Four Group Design (Solomon & Lessac, 1968) was applied to the study as it is considered the gold standard for intervention research (LavanyaKumari, 2013; LoBiondo-Wood et al., 2018). The design entails four groups, two of which receive the intervention and two are control groups which reduces the impact of confounding variables (LavanyaKumari, 2013). This design has been applied successfully in the African context in a

study that tested a mobile intervention aimed at improving the mental health of pregnant women in Nigeria (Ishola & Chipps, 2015). The design in this study included the following:

Group 1: Pre-test; COVID Coach application; Post-test

Group 2: Pre-test; No intervention; Post-test

Group 3: No pre-test; COVID Coach application; Post-test

Group 4: No pre-test; No intervention; Post-test

Group 1 measured changes related to the intervention, which was the use of the COVID Coach application. Group 2 controlled for the effects of history (e.g., extraneous events that occur in the environment) and maturation (e.g., mental and/or physical changes experienced by the participants) that may have influenced the results of the study. Group 2 further controlled for the risk of regression towards the mean. Both Group 3 and Group 4 did not receive pre-tests, thereby minimising the testing bias that the pre-test may have introduced in Groups 1 and 2 (LoBiondo-Wood et al., 2018).

Participants

Phase Three encompassed 27 participants who satisfied the inclusion criteria: working with trauma survivors for at least one year, experiencing STS at the time of the study, and expressing a willingness to participate. This sample size aligns with previous research exploring mHealth interventions with health care providers (Egami & Highfield, 2023; Wood et al., 2017).

Procedure

Stratified random sampling was used to assign participants ($N = 27$) to the four groups, with six participants in Group 1, and seven participants each in Group 2, Group 3, and Group 4. Stratified random sampling allows for subgroups of a population to be sufficiently represented in the sample (Elfil & Negida, 2017).

Groups 1 and 3 formed the mobile intervention groups and these participants were asked to download the COVID Coach application, which was available as a free download on iPhone and Android mobile devices. Participants received an electronic document that served as a guide on the use and features of the application (Appendix M). Participants also received a video demonstrating how to navigate the application and the tools that are offered by the application. Participants in the intervention groups were asked to use the COVID Coach application for four successive weeks, which aligns with previous research (cf. Wood et al., 2017). Participants were also asked to enable the reminders provided by the COVID Coach application on their mobile devices. Technical support was offered to participants via WhatsApp or email. The intervention was applied in October - November 2022 for four weeks. Groups 2 and 4 formed the control groups and received no intervention. However, for ethical reasons, the COVID Coach application was offered to the control group participants after the study was concluded.

Baseline test results (T1) on primary outcome measures (i.e., ProQOL, PTGI–SF, and CD-RISC-10) for participants in Groups 1 and 2 were collected. After the four-week intervention, all participants were re-tested using the primary outcome measures (T2).

Participants in Groups 1 and 3 were also asked to complete the System Usability Scale (SUS; Appendix N) to assess their experience of the COVID Coach application. The SUS is a self-report scale that is used to assess the perceived usability of an application and consists of 10 items that are answered using a 5-point scale based on strength of agreement (Bangor et al., 2008). The items assess the extent to which participants find a technology accessible, informative, and/or beneficial, where higher scores are indicative of better usability. The SUS is considered to be the industry standard when assessing the usability of websites or mobile applications (Lewis, 2018) and it displays a good reliability with a Cronbach's alpha of .91 (Bangor et al. ,2008). Six participants from the intervention groups

(i.e., Groups 1 and 3) also participated in qualitative interviews to investigate their experience of using the COVID Coach application.

Data Analysis

The Solomon Four Group Design was analysed by conducting a 2x2 factorial analysis on the post-test scores, where the first factor was "with the intervention" versus "no intervention" and the second factor was "pre-test" versus "no pre-test" (Rosenthal & Rosnow, 1991). Comparing Groups 1 and 3 with Groups 2 and 4 helped determine the effectiveness of the COVID Coach application. The comparison between Groups 3 and 4 established the effects of pre-testing and a 2x2 factorial design using multivariate factorial analysis of variance was applied. To establish if there were differences between groups before the intervention, Hotelling's T^2 was used to compare Groups 1 and 2 in relation to the pre-test measures. Groups 1 and 3 post-test scores were compared using Hotelling's T^2 to determine if participants were sensitised to the intervention by the pre-testing. A multivariate factorial analysis of variance determined the effect of pre-testing on post-test scores, and the interaction between pre-testing and the intervention.

The effect of the mobile phone intervention (i.e., the COVID Coach application) was compared to no intervention. Groups 1 and 2 were compared in terms of pre-test and post-test scores on the primary outcome measures using analysis of variance (ANOVA).

The mean score of the SUS was used to assess the usability of the COVID Coach application. In addition, the qualitative interviews were transcribed, and IPA was applied to identify participants' experiences of the COVID Coach application.

Ethical Considerations

Ethical approval was obtained from the Biomedical Research Ethics Committee of the University of the Western Cape for the study (Appendix O; Ethics Reference Number: BM20/8/16). A request was also sent to the HPCSA to obtain the contact details of

psychologists and registered counsellors, and to various NGOs requesting access to lay counsellors at their sites (Appendix B).

All potential participants were informed of the purpose of the study and how the information would be used (Appendix C) and all participants were required to sign an informed consent form (Appendix D), which also assured participants that their responses would remain confidential and anonymous and that they had the right to withdraw their participation at any time without consequence. Permission was obtained from participants for the interviews to be audio recorded (Appendix K). Only the researcher and research supervisor had access to the recordings and transcriptions, and these were stored safely and securely in a password protected folder. The recording and transcripts will be destroyed after five years from the study being concluded.

While the principle of no harm informed the study, the nature of the study and discussing STS could have elicited distressing emotions for participants. Therefore, participants were given the contact details of the South African Depression and Anxiety Group (SADAG), Families South Africa (FAMSA), and Lifeline who all offer free and accessible counselling services.

Chapter Five: Phase One Analysis and Results

The current chapter presents the results of Phase One of the study, the quantitative analysis component, which aimed to determine the prevalence of STS among clinical and counselling psychologists, registered counsellors, and lay counsellors who work with trauma survivors in South Africa. An additional objective was to determine the relationship between demographic and work-related factors and STS, burnout, work satisfaction, and vicarious PTG. Furthermore, Phase One aimed to explore the associated risk and protective factors, such as vicarious PTG, exposure to trauma, resilience, and the role of social support among frontline MHCPs in relation to STS.

Statistical Analysis

SPSS-27 was used to capture the data and conduct the statistical analysis of the data gathered in Phase One. The demographic information, exposure to traumatic events, STS, burnout, compassion satisfaction, and vicarious PTG were summarised using descriptive statistics (i.e., means, standard deviations, and frequencies of variables).

The relationships between demographic and work factors and STS, burnout, work satisfaction and vicarious PTG were assessed by computing the product-moment correlation coefficients. The vicarious PTG factors comprised of relationship to others, new possibilities, personal strength, spiritual change, and appreciation. A regression analysis was conducted to explore predictors of PTG.

To determine the mediational role of fortitude, path analysis with SPSS Amos 27 was used. Product-moment correlation coefficients assessed the relationships between exposure to trauma, perceived social support, resilience, STS, and vicarious PTG. The possible mediating role of perceived social support in the relationship between trauma exposure and STS was

tested through a mediational analysis by computing standardised indirect effects. In contemporary analysis, indirect effects represent a measure of mediation.

A *t* test for independent groups was applied to assess differences in relation to gender, religious versus non-religious, access to a supervisor and those without, ability to turn to a supervisor or not, and professionally qualified versus unqualified participants. ANOVA with Scheffe's post-hoc analysis was used to conduct a multiple comparison to determine the differences between registered counsellors, psychologists, and lay counsellors in terms of work-related factors, vicarious PTG, compassion satisfaction, STS, burnout, and exposure to trauma.

The research sample consisted of 326 MHCPs in South Africa who completed an online survey, which included 184 clinical and counselling psychologists (i.e., 56.4% of the sample), 120 registered counsellors (i.e., 36.8% of the sample), and 22 lay counsellors (i.e., 6.7% of the sample). The intercorrelations, descriptive statistics, and reliabilities of the study variables are reported in Table 2.

Table 2

Descriptive Statistics, Intercorrelations, and Reliabilities of Study Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Compassion Satisfaction	—														
2. Burnout	-.68***	—													
3. STS	-.35***	.64***	—												
4. PTG	.28***	-.20***	.03	—											
5. Appreciation	.16*	-.01	.19***	.75***	—										
6. New Possibilities	.21***	-.18**	.01	.90***	.64***	—									
7. Spiritual	.26***	-.26***	-.06	.85***	.46***	.70***	—								
8. Relating to Others	.35***	-.27***	-.05	.84***	.50***	.67***	.70***	—							
9. Strength	.20***	-.10	.06	.86***	.56***	.74***	.66***	.66***	—						
10. Resilience	.44**	-.46**	-.39**	.25**	.10	.24**	.22**	.23**	.25**	—					
11. Trauma Exposure	-.10	.19***	.16**	-.15**	.05	-.18**	-.19***	-.15**	-.13**	-.15**	—				

12. Social Support	.17**	.17**	.03	.09	.08	.03	.07	.15**	.06	.11*	.05	—			
13. Significant Other	.08	.08	.08	.07	.04	.02	.09	.08	.05	.05	.04	.82***	—		
14. Family Support	.12**	-.12**	.02	.14**	.13**	.08	.10	.18**	.10	.107	.06	.87***	.60***	—	
15. Friends Support	.24***	-.21***	-.03	.02	.03	-.04	-.02	.10	.01	.13*	.03	.80***	.46***	.54***	—
M	38.3	20.2	20.4	31.1	6.03	5.7	5.9	6.7	6.7	30.7	7.3	68.4	24.2	22.1	22.2
SD	4.8	5.4	6.3	10.5	2.3	2.6	2.8	2.4	2.5	5.4	5.8	13.6	5.1	5.8	5.4
Alpha (α)	.88	.77	.85	.91	.56	.74	.80	.71	.82	.85	.94	.94	.95	.94	.95

***p = 000, **p > .001, *p < .0

Resilience was positively related to compassion satisfaction, PTG, new possibilities, spirituality, and relating to others, but negatively related to burnout and STS. Social support, family support, and friend support had a positive correlation with compassion satisfaction, and family support was negatively correlated to burnout. STS was negatively correlated to resilience, while burnout and STS were both positively correlated to exposure to trauma. Exposure to trauma was negatively associated with PTG, new possibilities, relating to others, and personal strength.

The literature considers alphas above .70 as highly reliable and those above .50 as moderately reliable (Harris et al., 2019). Table 2 indicates that the compassion satisfaction subscale, burnout subscale, STS subscale, PTG subscale, new possibilities subscale, spirituality subscale, relating to others subscale, personal strength subscale, CD-RISC, LEC, and the MDSPSS all display high reliability alphas. The Appreciation subscale displays moderate reliability.

Prevalence of Secondary Traumatic Stress (STS)

The first objective of the study was to determine the prevalence of STS among clinical and counselling psychologists, registered counsellors, and lay counsellors who work with trauma survivors in South Africa. The manual for the ProQOL (Stamm, 2010) suggests cut-off scores are set around the 25th and 75th quartile. Stamm (2010) suggests the following broad cut off points across the three subscales: 42 or more is considered a high score, while a score between 23 and 41 is considered a moderate score. Using these cut off points, the current results from this study suggest that, of the 326 participants, 66.6% of the sample displayed low levels of STS, 32.8% displayed moderate levels of STS, and 0.6% presented with high levels of STS.

Exploring Predictors of Post-traumatic Growth

Regression coefficients were computed to assess the association between the respective predictor variables (i.e., STS, trauma exposure, burnout, compassion satisfaction, support from a significant other, family support, and friend support) and the outcome variable (i.e., PTG). Table 3 represents the regression coefficients for predicting PTG.

Table 3

Regression Coefficients for Predicting PTG

Variables	B	SE	95% CI	β	*t*	*p*
STS	.473	0.116	[0.245, 0.701]	.282	4.077	.000
Trauma Exposure	-.222	0.095	[00.409, -0.034]	-.122	-2.326	.021
Burnout	-.287	0.173	[-0.628, 0.053]	-.146	-1.660	.098
Compassion Satisfaction	.440	0.160	[0.126, 0.753]	.201	2.756	.006
Significant Other	-.050	0.134	[-0.313, 0.214]	-.024	-0.371	.711
Family Support	.323	0.125	[0.077, 0.569]	.177	2.588	.010
Friend Support	-.303	0.124	[-0.547, -0.059]	-.155	-2.444	.015
Resilience	.363	0.117	[0.133, 0.594]	.185	3.098	.002

The results of the analysis indicate that STS had a significant positive association with PTG (β = .282, 95% CI [0.245, 0.701]). This finding indicates that higher STS scores predict

higher PTG scores. Thus, higher levels of STS predict increased experiences of perceived PTG.

The significant negative association between trauma exposure and PTG (β = -.122, 95% CI [-0.409, -0.034]) suggests that high levels of trauma exposure predict lower levels of PTG. Lower levels of exposure to trauma are associated with increased experiences of PTG. It can, therefore, be concluded that lower levels of exposure to trauma yield greater levels of PTG for MHCPs, while higher levels of trauma exposure are associated with lower levels of PTG.

Compassion satisfaction had a significant positive association with PTG (β = .201, 95% CI [0.126, 0.753]). This suggests that higher compassion satisfaction scores predict higher levels of PTG. Consequently, compassion satisfaction predicts a higher perception of growth among trauma workers following trauma exposure.

There was a significant positive association between family support and PTG (β = .177, 95% CI [0.077, 0.569]), suggesting that family support predicts higher PTG scores. A higher perception of family support is associated with increased levels of PTG among trauma workers. However, the inverse was found for friend support, as there was a significant negative relationship between friend support and PTG. (β = -.155, 95% CI [-0.547, -0.059]). This indicates that a decreased perception of friend support predicts higher levels of PTG.

The positive relationship between resilience and PTG (β = .185, 95% CI [0.133, 0.594]) indicates that higher levels of resilience predict higher PTG scores among the participants.

Exploring Associated Risk and Protective Factors

The second objective of Phase One was to determine the associated risk and protective factors of STS among the MHCPs who participated in this study. The relationship between trauma exposure and STS was assessed, as well as the respective mediating roles of

social support, support from a significant other, family support, and friend support. Figures 3 to 6 represent the mediational models that were tested using path analysis.

Figure 3

Role of Social Support in the Exposure to Traumatic Events-STS Relationship

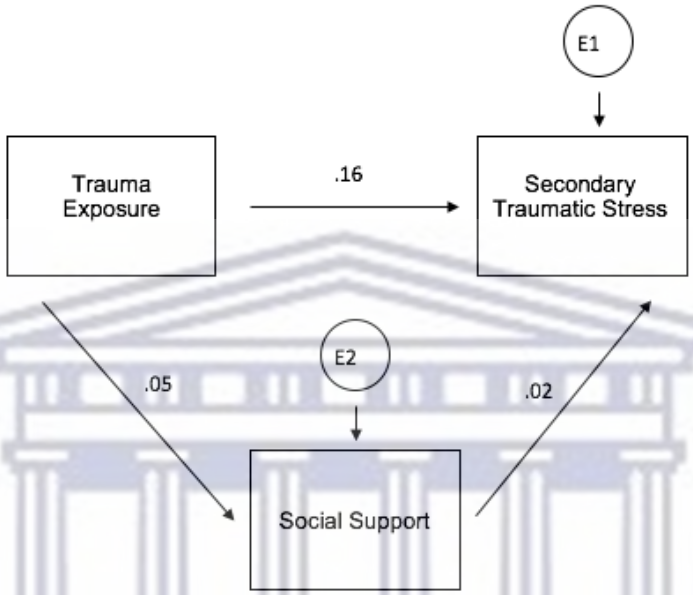


Figure 4

Role of Family Support in the Exposure to Traumatic Events-STS Relationship

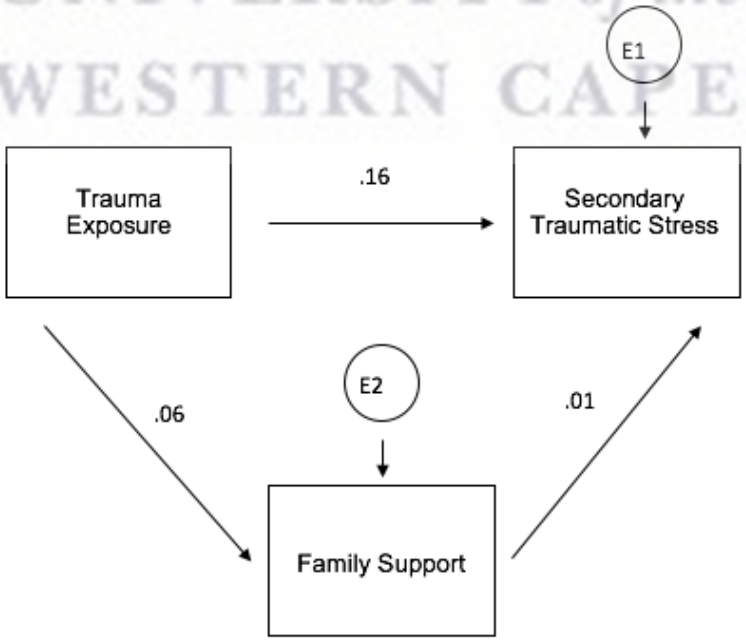


Figure 5

Role of Significant Other Support in the Exposure to Traumatic Events-STS Relationship

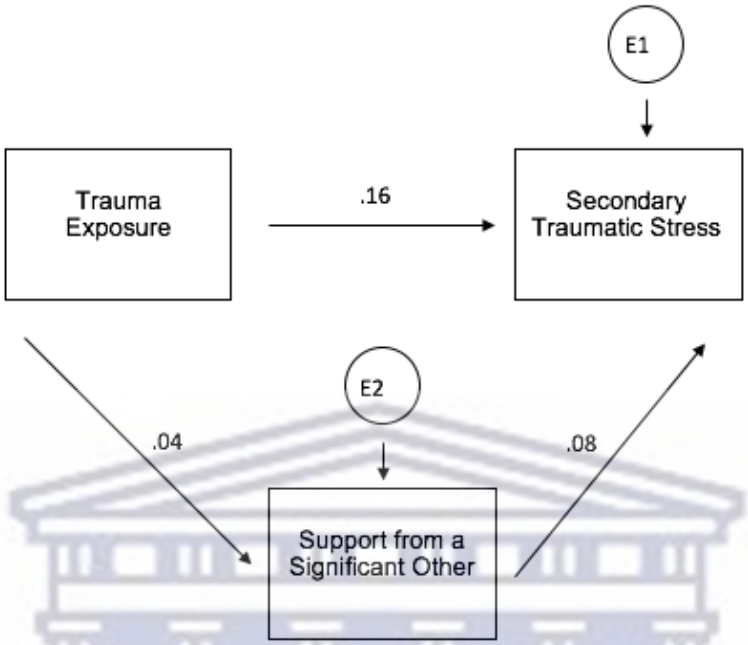


Figure 6

Role of Friends Support in the Exposure to Traumatic Events-STS Relationship

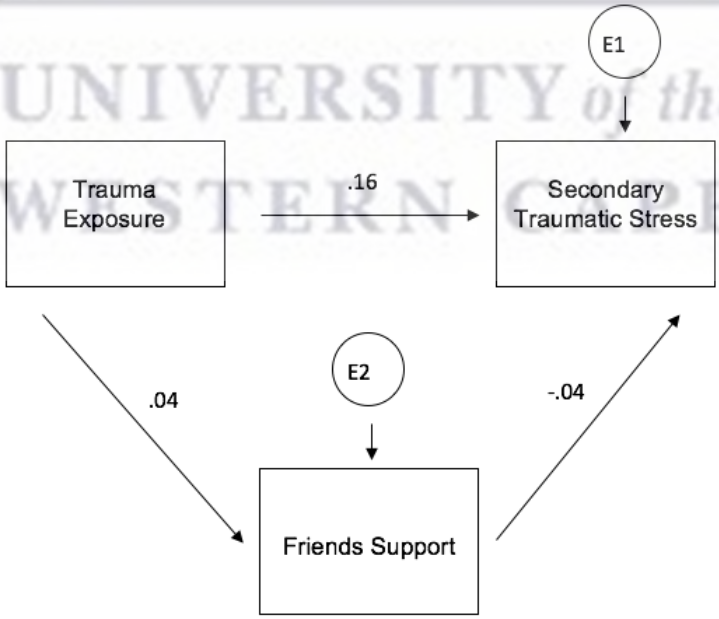


Table 4 represents the relationship between trauma exposure and STS and the mediating role of social support.

Table 4

Relationship between Trauma Exposure and STS: The Role of Social Support

Variable	Beta	*SE*	95% CI	β	*p*
Direct Effects					
Trauma Exposure → STS	.175	0.06	[0.050, 0.271]	.162	.008
Trauma Exposure → Total Support	.124	0.05	[-0.055, 0.158]	.053	.372
Total Support → STS	.008	0.05	[-0.090, 0.121]	.017	.740
Trauma Exposure → Significant other	.036	0.05	[-0.056, 0.141]	.040	.428
Significant other → STS	.095	0.063	[-0.044, 0.210]	.078	.174
Trauma Exposure → Family Support	.055	0.055	[-0.053, 0.166]	.056	.338
Family Support → STS	.008	0.056	[-0.109, 0.111]	.008	.903
Trauma Exposure → Friend Support	.033	0.054	[-0.077, 0.141]	.035	.547
Friend Support → STS	-.045	0.073	[-0.180, 0.094]	-.038	.614
Indirect Effects					
Trauma Exposure → Total Support → STS	.001	0.004	[-0.003, 0.011]	.001	.481

Trauma Exposure → Sig. Other → STS	.003	0.006	[-0.004, 0.024]	.003	.289
Trauma Exposure → Family Support → STS	.000	0.004	[-0.007, 0.013]	.000	.710
Trauma Exposure → Friend Support → STS	-.001	0.005	[-0.024, 0.004]	-.001	.458

The association between trauma exposure and STS was statistically significant (β = .162, 95% CI [0.050, 0.271]) in a positive direction. The positive association suggests that high scores on exposure to trauma are associated with high scores on STS. Therefore, exposure to trauma is a risk factor for STS.

As Table 4 depicts, social support did not significantly mediate the relationship between trauma exposure and STS as none of the indirect effects were significant. The relationship between trauma exposure and STS with support from a significant other as a potential mediator was not significant (β = .003, 95% CI [-0.004, 0.024]). Similarly, family support did not significantly mediate the relationship between trauma exposure and STS (β = .000, 95% CI [-0.007, 0.013]). Furthermore, the associations between trauma exposure and STS with friend support as a mediator (β = -.001, 95% CI [-0.024, 0.004]) was not significant. These results suggest that the perceived adequacy of social support was not a mediating factor in the exposure to trauma and STS relationship among frontline MHCPs in South Africa.

Demographic Factors, Work-related Factors, and STS, Burnout, Compassion Satisfaction, and Vicarious PTG

The third objective of Phase One aimed to assess the relationship between demographic factors and work-related factors with STS, burnout, work satisfaction, and vicarious PTG. Factors assessed included gender, religious identification, access to supervision, and the participant's ability to turn to their supervisor when they need support.

Gender Difference

A *t* test for independent groups was applied to determine the gender difference across the variables. The analysis revealed a significant gender difference in terms of STS ($t = 2.12$, $p = .035$, 95% CI [0.13, 3.49]). Participants who identified as female displayed higher levels of STS than their male counterparts, indicating that identifying as a male is associated with lower levels of STS among trauma workers. As can be seen in Table 5 below, there was no statistically significant gender difference in terms of compassion satisfaction, burnout, PTG, appreciation, new possibilities, spirituality, relating to others, personal strength, or trauma exposure.

Table 5

Gender Differences

Variable	Gender	*M*	*SD*	*t* value	*p*	95% CI
Compassion Satisfaction	Female	38.37	4.82	0.278	.781	[-1.11, 1.48]
	Male	38.19	4.80			
Burnout	Female	20.17	5.32	0.145	.884	[-1.33, 1.55]
	Male	20.06	5.54			

STS	Female	20.78	6.38	2.12	.035	[0.13, 3.49]
	Male	18.97	5.80			
PTG	Female	31.21	10.53	-0.039	.969	[-2.87, 2.76]
	Male	31.26	10.33			
Appreciation	Female	6.09	2.27	0.325	.746	[-0.51, 0.72]
	Male	5.99	2.33			
New Possibilities	Female	5.68	2.60	-0.203	.839	[-0.79, 0.63]
	Male	5.75	2.74			
Spiritual	Female	5.92	2.77	-0.316	.752	[-0.86, 0.62]
	Male	6.04	2.70			
Relating to Others	Female	6.76	2.32	-0.212	.832	[-0.69, 0.56]
	Male	6.82	2.38			
Personal Strength	Female	6.76	2.51	0.301	.764	[-0.57, 0.77]
	Male	6.66	2.39			
Trauma Exposure	Female	7.17	5.77	-0.587	.557	[-.2.03, 1.10]
	Male	7.6	6.01			

Religious Difference

Participants who identified as religious were compared with those who did not identify as religious. The results are summarised in Table 6 below.

Table 6

Religious Differences

Variable	Religious	*M*	*SD*	*t* value	*p*	95% CI
Compassion Satisfaction	No	37.74	5.28	-1.43	.153	[-.2.04, 0.322]
	Yes	38.60	4.61			
Burnout	No	21.33	5.64	2.58	.010	[0.40, 3.01]
	Yes	19.63	5.15			
STS	No	21.09	6.01	1.25	.214	[-0.57, 2.51]
	Yes	20.12	6.34			
PTG	No	27.66	9.13	-3.94	.000	[-7.09, -2.35]
	Yes	32.38	10.67			
Appreciation	No	5.91	2.12	-.51	.611	[-0.71, 0.42]
	Yes	6.06	2.37			
New Possibilities	No	5.07	2.46	-2.51	.013	[-1.46, -0.18]
	Yes	5.88	2.65			
Spiritual	No	4.05	2.00	-9.45	.000	[-3.15, -2.06]
	Yes	6.65	2.66			
Relating to Others	No	6.36	2.32	-1.79	.075	[-1.09, 0.05]

	Yes	6.88	2.33			
Personal Strength	No	6.27	2.26	-2.05	.042	[-1.24, -.02]
	Yes	6.91	2.54			
Trauma Exposure	No	7.90	5.92	1.08	.279	[-0.64, 2.21]
	Yes	7.11	5.74			

The *t* test for independent groups revealed that there was a significant difference in burnout scores between participants who were religious and those who were not ($t = 2.58$, $p = .010$, 95% CI [0.40, 3.01]). Participants who were not religious had higher burnout scores, while participants who were religious presented with lower burnout scores.

In terms of PTG, the results indicate a significant difference between religious participants and those who are not religious ($t = -3.94$, $p < .001$, 95% CI [-7.09, -2.35]). Participants who identified as religious reported higher levels of PTG. Therefore, religious participants experienced higher levels of perceived growth following trauma exposure in comparison to trauma workers who were not religious.

A significant difference was found between religious and non-religious participants on the new possibilities subscale variable ($t = -2.5$, $p = .013$, 95% CI [-1.46, -0.18]). Participants who identified as religious scored higher on the new possibilities subscale of the PTGI–SF. This indicates that trauma workers who were religious were more inclined to recognise and embrace new possibilities in their lives following trauma exposure.

A significant difference was found between religious and non-religious participants on the spirituality variable ($t = -9.45$, $p > .001$, 95% CI [-3.15, -2.06]). Participants who

identified as religious presented with higher spirituality scores, suggesting that religious participants experienced a greater spiritual connection when working with trauma survivors.

Religious difference was significant on the personal strength variable (t = -2.05 p = .042, 95% CI [-1.24, -0.02]). Participants who identified as religious displayed higher scores on the personal strength subscale of the PTGI–SF, indicating that they experienced higher levels of growth in relation to inner personal strength.

Religious difference was not significant on the variables compassion satisfaction, STS, appreciation, relating to others, and trauma exposure.

Access to a Supervisor

Participants who had access to a supervisor were compared to those who did not have access to a supervisor. The results of the t test for independent groups is summarised in Table 7 below.

Table 7

Access to a Supervisor

Variable	Supervisor	*M*	*SD*	*t* value	*p*	95 % CI
Compassion Satisfaction	No	38.57	4.87	0.399	.690	[-1.20, 1.82]
	Yes	38.26	4.81			
Burnout	No	20.26	5.82	0.112	.911	[-1.59, 1.78]
	Yes	20.17	5.30			
STS	No	18.98	5.75	-1.689	.093	[-3.64, 0.28]
	Yes	20.66	6.35			

PTG	No	32.54	10.71	1.050	.295	[-1.54, 5.06]
	Yes	30.78	10.50			
Appreciation	No	6.13	2.54	0.364	.716	[-0.59, 0.86]
	Yes	6.00	2.28			
New Possibilities	No	6.09	2.89	1.188	.236	[-0.32, 1.32]
	Yes	5.60	2.58			
Spiritual	No	6.54	2.47	1.696	.091	[-0.12, 1.60]
	Yes	5.80	2.79			
Relating to Others	No	7.00	2.32	0.835	.404	[-0.42, 1.05]
	Yes	6.69	2.36			
Personal Strength	No	6.78	2.49	0.187	.852	[-0.71, 0.85]
	Yes	6.71	2.49			
Trauma Exposure	No	5.41	6.08	-2.356	.019	[-3.97, -0.36]
	Yes	7.58	5.71			

Participants who had access to a supervisor differed significantly on exposure to trauma in comparison to those who did not have access to a supervisor (t = -2.356, p = .019, 95% CI [-3.97, -0.36]). Those who had access to a supervisor had more exposure to trauma.

The other variables assessed in terms of difference in access to a supervisor had no statistical significance. No significant differences were found in terms of compassion satisfaction, burnout, STS, or PTG between participants who had access to a supervisor and those who did not.

Ability to Turn to a Supervisor

Table 8 below presents the difference between participants who felt that they could turn to their supervisor, and those who felt that they could not. Participants who felt that they could turn to their supervisor did not differ significantly from those who felt that they could not turn to their supervisor in relation to compassion satisfaction, burnout, STS, or PTG. Therefore, the results show that a participant's ability to turn to their supervisor did not present as a significant risk or protective factor in terms of these variables.

Table 8

Ability to Turn to Supervisor

Variable	Supervisor Access	*M*	*SD*	*t* value	*p*	95% CI
Compassion Satisfaction	No	37.27	6.85	-0.743	.465	[-4.19, 1.98]
	Yes	38.38	4.56			
Burnout	No	22.50	8.50	1.455	.160	[-1.13, 6.48]
	Yes	19.83	4.97			

STS	No	22.86	10.51	1.164	.257	[-2.06, 7.35]
	Yes	20.22	5.82			
PTG	No	32.41	13.37	0.580	.567	[-4.35, 7.73]
	Yes	30.71	10.50			
Appreciation	No	5.95	2.38	-0.045	.964	[-1.03, 0.98]
	Yes	5.98	2.30			
New Possibilities	No	6.05	3.47	0.604	.552	[-1.11, 2.02]
	Yes	5.59	2.57			
Spiritual	No	6.14	3.31	0.508	.612	[-0.91, 1.55]
	Yes	5.82	2.78			
Relating to Others	No	7.00	2.86	0.648	.518	[-0.70, 1.39]
	Yes	6.66	2.36			
Personal Strength	No	7.27	2.83	1.074	.284	[-0.50, 1.70]
	Yes	6.67	2.49			
Trauma Exposure	No	5.68	6.01	-1.511	.132	[-4.44, 0.58]

	Yes	7.61	5.74

Professionally Qualified versus Unqualified Trauma Workers

A *t* test for independent groups was applied to compare professionally qualified participants to participants without a professional qualification. The two groups were compared in terms of compassion satisfaction, burnout, STS, and PTG. The results are presented in Table 9 below.

Table 9

Professionally Qualified vs. Unqualified

Variable	Education	*M*	*SD*	*t* value	*p*	95% CI
Compassion Satisfaction	Unqualified	39.15	3.69	2.141	.034	[0.09, 2.16]
	Professionally Qualified	38.02	5.10			
Burnout	Unqualified	20.04	4.93	-0.277	.782	[-1.55, 1.17]
	Professionally Qualified	20.23	5.50			
STS	Unqualified	20.13	5.97	-0.506	.613	[-2.00, 1.18]
	Professionally Qualified	20.53	6.39			
PTG	Unqualified					
	Professionally Qualified					
Appreciation	Unqualified	6.21	2.26	0.836	.404	[-0.34, 0.84]
	Professionally Qualified	5.96	2.33			

New Possibilities	Unqualified	6.45	2.79	3.107	.002	[0.38, 1.69]
	Professionally Qualified	5.41	2.53			
Spiritual	Unqualified	6.79	2.68	3.287	.001	[0.46, 1.84]
	Professionally Qualified	5.64	2.73			
Relating to Others	Unqualified	7.49	2.07	3.601	.000	[0.45, 1.55]
	Professionally Qualified	6.49	2.39			
Personal Strength	Unqualified	7.31	2.45	2.447	.015	[0.15, 1.40]
	Professionally Qualified	6.53	2.47			
Trauma Exposure	Unqualified	5.03	5.26	-4.096	.000	[-4.42, -1.55]
	Professionally Qualified	8.01	5.79			

Table 9 illustrates that participants without a professional qualification experienced significantly higher levels of compassion satisfaction in comparison to their professionally qualified counterparts ($t = 2.141$, $p = .034$, 95% CI [0.09, 2.16]). Specifically, it was found that lay counsellors experienced a greater sense of fulfilment, growth, and satisfaction from their work with trauma survivors.

In terms of the new possibilities variable, qualified and unqualified participants differed significantly ($t = 3.107$, $p = .002$, 95% CI [0.38, 1.69]), with unqualified participants experiencing higher scores for the new possibilities variable. Lay counsellors were found to experience a greater sense of new possibilities and opportunities in their lives as a result of their trauma work in comparison to their professionally qualified counterparts.

Similarly, qualified and unqualified participants differed significantly on spiritual change (t = 3.287, p =.001, 95% CI [0.46, 1.84]), with unqualified participants scoring higher on spiritual change than qualified participants. Unqualified participants, therefore, experienced a greater spiritual connection following trauma work in comparison to qualified trauma workers.

In terms of relating to others, unqualified participants experienced significantly higher levels of perceived growth in relation to relating to others as a result of trauma exposure than qualified trauma workers (t = 3.601, p < .001, 95% CI [0.45, 1.55]). Similarly, qualified participants and unqualified participants differed significantly on the personal strengths variable (t = 2.447, p = .015, 95% CI [0.15, 1.40]). Furthermore, unqualified participants experienced higher levels of growth in terms of inner strength as a result of trauma exposure in comparison to professionally qualified participants.

In terms of trauma exposure, qualified participants and unqualified participants differed significantly on levels of trauma exposure (t = -4.096, p < .001, 95% CI [-4.42, -1.55]), with qualified participants reporting higher levels of exposure to trauma.

Differences Between Registered Counsellors, Psychologists, and Lay Counsellors

Registered counsellors, psychologists, and lay counsellors were compared in relation to work-related factors, PTG, and exposure to trauma. To do this, ANOVA with Scheffé's post-hoc test was performed. The results are presented in Table 10 and discussed below.

Table 10

Difference Between Registered Counsellors, Psychologists, and Lay counsellors

Variable	Category	*M*	*SD*	*F* value	*p*
	Lay Counsellors	39.41	5.23	2.85	.059

Compassion Satisfaction	Registered Counsellors	38.94	4.14		
	Psychologists	37.76	5.10		
Burnout	Lay Counsellors	18.59	5.39	2.32	.100
	Registered Counsellors	19.69	5.18		
	Psychologists	20.69	5.43		
STS	Lay counsellors	19.50	6.72	0.56	.569
	Registered Counsellors	20.15	6.36		
	Psychologists	20.72	6.19		
Appreciation	Lay Counsellors	6.14	2.34	2.11	.123
	Registered Counsellors	6.35	2.17		
	Psychologists	5.80	2.39		
New Possibilities	Lay Counsellors	6.55	2.91	11.46	.000
	Registered Counsellors	6.42	2.65		
	Psychologists	5.08	2.43		
Spiritual	Lay Counsellors	6.64	2.97	6.19	.002
	Registered Counsellors	6.50	2.72		
	Psychologists	5.46	2.69		
	Lay Counsellors	7.41	2.13	5.07	.007

Relating to Others	Registered Counsellors	7.16	2.21		
	Psychologists	6.38	2.41		
Personal Strength	Lay Counsellors	7.27	2.33	9.15	.000
	Registered Counsellors	7.40	2.34		
	Psychologists	6.22	2.49		
Trauma Exposure	Lay Counsellors	5.32	5.21	12.27	.000
	Registered Counsellors	5.55	5.31		
	Psychologists	8.63	5.84		

In relation to exposure to trauma, the overall *F* test indicated that the three groups differed significantly ($F(2, 322) = 12.27$, $p < .001$). The results indicate that, in comparison to psychologists, lay counsellors (*M* difference = -3.31, $p = .034$) and registered counsellors (*M* difference = -3.07, $p < .001$) had less exposure to trauma.

The three groups differed significantly in terms of new possibilities ($F(2, 322) = 11.46$, $p < .001$). The multiple comparison test indicated that, in comparison to psychologist, lay counsellors (*M* difference = 1.47, $p = .039$) and registered counsellors (*M* difference = 1.34, $p < .001$) had a higher perception of new possibilities and opportunities as an area of growth following trauma work.

The groups differed significantly on the spiritual change factor ($F(2, 322) = 6.19$, $p = .002$). Registered counsellors (*M* difference = 1.04, $p = .005$) scored significantly higher than psychologists on spiritual change, indicating that registered counsellors experienced more spiritual growth and connection in response to trauma work in comparison to psychologists.

The analysis further found that the three groups differed significantly on the personal strength variable ($F(2, 322) = 9.15$, $p < .001$). Registered counsellors (M difference = 1.18, $p < .001$) scored significantly higher than psychologists, suggesting higher levels of growth in terms of perceived personal strength following trauma exposure amongst registered counsellors in comparison to psychologists.

Relationship between Demographic Variables and Work-related Factors

The relationship between demographic variables measured on a continuous scale and work-related factors were assessed using Pearson's product moment correlations. The variables included age, number of dependents, how long the participants had worked in their setting, how long they had worked with trauma survivors, and their caseload of trauma survivors. The results are presented in Table 11 and discussed below.

Table 11

Relationship Between Demographic Variables and Work-related Factors

	Age	Dependents	Time in setting	Time with survivors	No. of survivors
Compassion Satisfaction	.07	.10	.05	.06	-.03
Burnout	-.21**	-.15*	-.14*	-.11*	.14*
STS	-.14*	-.04	-.12*	-.06	.14*
Appreciation	-.11	.06	-.09	-.07	.02
New Possibilities	-.03	.09	-.08	-.08	.00
Spiritual	.01	.17**	-.04	-.06	-.05

Relating to Others	.02	.15**	-.01	.01	-.02
Personal Strength	-.12*	.05	-.19	-.11*	.03
Trauma Exposure	.02	-.04	.05	.149**	.07

*p <. 0.05, **p < 0.01

Age of Participants

The analysis considered the relationship between age and STS, burnout, compassion satisfaction, and PTG. As indicated in Table 11, there was a statistically significant negative correlation between age and burnout (r = -.21, n = 322, p < 0.01). This suggests that the higher the participants' age, the lower their levels of burnout. Similarly, a significant negative correlation between STS and age was found (r = -.14, n = 322, p = .01). The negative relationship between age and burnout indicates that older trauma workers reported lower levels of STS.

There was a significant negative correlation between personal strength and age (r = -.12, p = .04). This suggests that participants with a higher age experienced a lower perception of growth in terms of personal strength, while their younger colleagues experienced an increased perception of personal strength following trauma exposure.

There was no statistically significant relationship between age and compassion satisfaction as well as the remaining PTG factors (i.e., appreciation, new possibilities, spiritual change, and relating to others).

Number of Dependents

The negative correlation between the number of dependents and burnout (r = -.15, n = 287, p = 0.01) suggests that MHCPs with more dependents had lower levels of burnout.

The significant positive correlation between spiritual change and dependents (r = .17, n = 287, p = 0.005) reflects that those participants with more dependents experienced greater spiritual growth through trauma work.

The number of dependents was positively correlated with relating to others (r = .15, n = 287, p = 0.009), indicating that participants with more dependents experienced an increased sense of relating to others following trauma exposure.

Compassion satisfaction, STS, appreciation, new possibilities, and personal strength did not have a significant relationship with the number of dependents MHCPs had.

Length of Time Working in a Setting

The analysis considered the relationship between the length of time trauma workers had worked in their setting, and burnout, compassion satisfaction, STS, and PTG.

A significant negative correlation was found between burnout and the length of time the participants had worked in the setting (r = -.14, n = 325, p = .01). This indicates that MHCPs who had worked longer in their work setting experienced lower levels of burnout.

Similarly, there was a negative correlation between the time worked in a setting and STS (r = -.12, n = 325, p = .03), indicating that participants who had worked for longer periods of time in their setting experienced lower levels of STS.

The other variables (i.e., compassion satisfaction, appreciation, new possibilities, spirituality, relating to others, and personal strength) did not have a significant relationship with the amount of time the participants had worked in a setting.

Length of Time Working with Trauma Survivors

The length of time the participants had worked in the field of trauma had a significant negative correlation with burnout (r = -.11, n = 325, p = .05), indicating that participants who had longer careers in the field of trauma had lower levels of burnout.

There was a negative correlation between how long participants had worked with trauma survivors and personal strength (r = -.11, n = 325, p = .05), indicating that, as the timespan of a career in trauma work increases, the trauma worker's perceived personal strength derived from their work decreases over time.

Caseload of Trauma Survivors

The relationship between the number of trauma survivors seen by the participants and STS, burnout, compassion satisfaction, and PTG was computed. As indicated in Table 11, participants' caseload of trauma survivors had a significant positive correlation with both burnout (r = .14, n = 304, p = .02) and STS (r = .14, n = 304, p = .02). Therefore, a greater caseload of trauma survivors was associated with higher levels of burnout and STS. In addition, their caseload was not significantly associated with any of the other factors assessed.

Chapter Six: Phase Two Analysis and Results

Chapter Six presents the results of Phase Two of the study, the qualitative analysis component, which aimed to explore the lived experiences of working with trauma survivors. This qualitative component of the study focused on the experiences of twenty MHCPs who work with trauma in South Africa. The analysis revealed four superordinate themes: shattered assumptions, the psychological impact of trauma, personal growth and transformation, and coping strategies for working with trauma. Table 12 provides an overview of the emerging superordinate and subordinate themes.

Table 12

Summary of Superordinate and Subordinate Themes

Superordinate Themes	Subordinate Themes
Shattered Assumptions	a. Loss of optimism b. Loss of trust and safety in the world c. Vulnerability to sexual assault d. Loss of trust in men
The Psychological Impact of Trauma	a. Hopelessness, helplessness, and despair b. Burnout and emotional exhaustion c. Counter-factual rumination d. Triggering of personal trauma e. Vicarious traumatisation
Personal Growth and Transformation	a. Restoration of hope b. Personal healing and growth

	c. Increased sense of gratitude d. Enhanced sense of empathy and compassion e. Spiritual growth
Coping Strategies for Working with Trauma	a. Professional coping strategies b. Personal coping strategies

Despite the separate presentation of the themes in this section, the themes are superimposed upon each other and are linked.

Shattered Assumptions

All participants in the study reported that working with trauma survivors precipitated alterations in their subjective experiences and appraisals of the world and other people. Participants reported a loss of trust and safety in the world, which elicited a sense of vulnerability to sexual abuse for female participants. Female participants further reported experiencing an increased mistrust towards men, which impacted on their parenting practices.

Loss of Optimism: "The way I see the world has changed"

Participants reported that trauma work had shattered their pre-existing assumptions of the world and led to their recognition of the incongruity between their previous beliefs and their current worldview. Several participants spoke of their loss of optimism as a result of their work, with many attributing their loss of optimism to the exposure to the "evil", "horrors", and "ugly" aspects of the world which was in marked contrast to their own personal experiences. This is demonstrated in Participant 18's comment below:

> The way I see the world has changed, I was quite optimistic and had a very positive world view, and thought the world is beautiful, and it is, it is all those things but

> definitely, my world view has changed. I was quite an optimist and I believed in there being more love and caring in the world than there was, I don't know what you would call it, evil or hurt. And I think that really opened my eyes and my mind up to the horrors that happen, even in our country, or even on our continent and Africa, and just what these individuals have had to endure. It really opened my mind to the hurt there is in this world, like it's quite shocking, and that doesn't really leave you.

Several participants articulated the permanence of their altered world view and loss of optimism. For example, in discussing her exposure to the traumatic material of the MHCSUs she worked with, Participant 1 reported that this impact "could not be undone":

> It has impacted my life and how I understand the world and how I see people. You learn that the world is not what you thought it was. So sometimes learning different things about the world, through your patients, and their life journeys, it shifts your outlook of the world, you have a different lived experience based on their lived experiences. While you obviously take on the measures for support, you can't then unlearn something that you now know differently…That experience now almost becomes part of your beliefs and your ideology and stuff. The things that I obviously wasn't exposed to before in the world that I now am. It opened my eyes to an ugly world.

Experiencing a loss of optimism following vicarious trauma exposure was associated with a more realistic perspective of the world by several participants. Participant 10 engaged in a meaning-making process during the interview in relation to her altered world view. Initially, she referred to having a more "pessimistic world view". However, as she continued to discuss the shift, she reflected that her loss of optimism may reflect a more realistic world view because it now incorporates the painful realities in the world:

> I definitely have a more pessimistic view on the world, and on other people, and I believe we don't know who other people are, and that we have to be more careful. It certainly has changed the way I view the world; I definitely have a more pessimistic view. Maybe it's a more realistic view, before I did trauma work maybe we are kind of unaware and protected. And the work environment actually just opens our eyes to what is really going on in the world and what people are really going through. So maybe it's not pessimistic, maybe it's just realistic, because I'm not a pessimist. So I made myself sound like a pessimist, I think I'm just more realistic, and just very aware.

Loss of Trust and Safety in the World: "It's made me more distrustful and cynical"

Participants reported that vicarious trauma exposure shattered their prior assumptions about others being trustworthy and well-meaning.

Participant 15 described a shattered internal representation of others as trustworthy: "I suppose on some level it does make me think about the world a little bit differently and I think it's made me more distrusting and careful, cynical". She made sense of her shattered assumptions about trust in relation to someone (i.e., her husband) who is not exposed to trauma narratives, as can be seen in the following extract:

> I think it does sometimes change behaviour in the sense of being more vigilant, more careful. I think I think about things that, for instance, I don't think my husband would think about. I'm trying to think of an example (pause) I just think you've got some awareness of how strategic somebody can be, and some of those things wouldn't cross his mind.

In addition to challenging their trust in others, vicarious trauma exposure shattered previous internal representations of trauma workers' personal safety in the world and the safety of their loved ones. For example, as explained by Participant 17: "It's changed the way I live in this country to such an extent that I'm immigrating. So yes, it has, it's changed it significantly. My family's personal safety has been rocked to the core." Of significance was the angry tone that accompanied participants' descriptions of no longer feeling safe, with an underlying sense of it being taken away from them. For many, the anger was accompanied by a sense of loss and sadness.

Vulnerability to Sexual Assault: "It could easily have been me"

Female participants reported that working with sexual trauma survivors increased their sense of vulnerability to sexual assault. For example, Participant 2 commented: "To think that if not for the grace of God, you know, it could easily have been me". Participant 2 also explained:

> I found that with trauma such as sexual assault, I feel, because I'm a woman, it hits close to home. Unlike a car hijacking, and a break in, a mob justice, and that kind of trauma, I feel that is not targeted. I feel with hijacking it's a very random kind of thing, and anybody can be a victim of it. But I feel sexual assault, for me, I feel it's very personal for me because I'm a woman, I'm a woman raising a girl child. So I process them very differently. I find that most of what I carry with me or what I think about, what I remember, and I take to my therapy is the sexual trauma. The other stuff, it sits with me for a day or two, but I move on quickly from it.

Loss of Trust in Men: "I don't trust many men"

Participants' sense of vulnerability to sexual assault was interlaced with fear and a loss of trust in men. Many female participants reported that working with female sexual

assault survivors altered their appraisals of men and that they had become more cautious and guarded towards men. As explained by Participant 6:

> I'm always guarded when I see a man, I have questions. I don't really respond to random greetings because I don't know what the intention is and sometimes people genuinely just want to strike a conversation, but because of the things that we are exposed to and the things that I hear on a regular basis, I am very vigilant.

A similar sentiment was expressed by Participant 18, who described that she no longer trusts men and no longer feels safe around men:

> I think it has also changed my beliefs about being a woman in the world. I have always felt quite confident and empowered, and I do in some spaces but then in general now I don't trust many men. I don't feel safe in crowds of men, I just feel like women are a lot more vulnerable and we don't have the same rights. I would say my beliefs have changed on that because I did believe in more of our empowerment because I did believe that we were getting there more so, and it still just feel like it is more of a fight.

Related to their mistrust towards men, participants reported changes in their approach to parenting. Participants experienced a strong sense of fear that their children would experience sexual abuse, which elicited a restrictive, hypervigilant, and extra cautious response to their children's safety, particularly their daughters. As Participant 4 explained:

> I deal with a lot of people who are working through childhood sexual abuse, so when you come home to your children, you are now hyper-alert. So, you would, literally, especially if you're raising a daughter, you would be constantly watching over your

child. It's almost like you could accuse anyone, even though there's no reason to believe otherwise. I would definitely hold some of that internally.

The desperation to keep their children safe from sexual abuse and their profound sense of fear were apparent for participants who were parents. Participants reported that the only way they felt that they could protect their children from sexual abuse was to be hypervigilant when it came to their children's safety. However, being hypervigilant and more restrictive of their children resulted in an internal struggle, as participants acknowledged that these strategies served a protective function, but they may not constitute a "healthy" approach to parenting. This internal struggle is illustrated in the following extract from Participant 6:

I'm a mother of a three-year-old girl. I find that, um, I think I'm very protective, very protective. Whenever I'm out with her, I always make sure that my eye is on her, and I don't think that's a healthy way of letting a child be. The other day I was thinking about the fact that she's going to start preschool creche in September, and what keeps going through my mind is, okay, I went there, I saw the creche, we were introduced to all the teachers, and, but I don't know who else is going to come. I don't know these people, and I'm going to have to leave my child with them with everything that I hear. Recently, we heard of the rape of a six-year-old at a primary school, and I thought to myself, the parents of that child thought their child was safe when she was going to school. Yes, and the parents of that child weren't privileged to the information that I hear on a daily basis. And so yeah, that, it puts me not at ease, I'm anxious about it, but I know she has to go to creche. Yeah, so the trust element also is significantly impacted.

Despite concerns that being overprotective may not be a healthy approach to parenting, participants' fear of what could happen to their children if they are not hypervigilant and extra cautious took precedence.

The Psychological Impact of Trauma Work

The psychological impact of trauma work was a salient theme identified in the study. All participants reflected on the emotional impact of trauma work and reported feelings of hopelessness, helplessness, and despair. Their appraisals were reflective of symptoms of burnout, such as emotional exhaustion, fatigue, and various physical symptoms. Participants also reported experiences of relational disengagement, which they associated with feeling emotionally depleted by trauma work. Several participants reported feeling profoundly distressed and overwhelmed by cases that triggered their own personal traumatic experiences. Furthermore, the psychological impact of trauma work included appraisals of vicarious traumatisation, which comprised intrusive reexperiencing, hypervigilance, and physiological hyperarousal.

Hopelessness, Helplessness and Despair: "I feel there isn't much I can do"

Most participants relayed experiences of hopelessness and helplessness elicited by trauma work. Participants discussed appraisals of doubting their effectiveness in their capacity as trauma workers and were often left believing that their work is not "enough". This can be seen in Participant 6's account below:

> As a therapist, I feel there isn't much I can do. Yes, I sit, and we talk about the trauma, and we process the trauma but sometimes it feels like I'm not doing anything. Most times I feel helpless, it leaves me feeling helpless, it leaves me feeling hopeless because, as a therapist, I feel there isn't much I can do.

For some participants, feelings of helplessness were associated with a sense of betrayal for not being able to support the MHCSUs they work with sufficiently, as is evident in the description below from Participant 1:

> You know, there's this, how can I put it (pause) like a sense of betrayal, sometimes that does come up, you know, like, feeling like you can't support people in the way they need to be supported and that you're not there for them. And that's that kind of reflecting on yourself as in terms of like, what are you even doing?

Most participants reported experiencing despair and sadness in relation to the traumatic experiences they heard from the MHCSUs they worked with. Participant 5, like many participants, recounted crying in response to someone's traumatic material:

> I've definitely had experiences of kind of like crying after a session, even during a session and just feeling very, very emotionally moved by a situation and by maybe even feelings of helplessness, and despair, on behalf of the patients, I think that definitely comes through.

Burnout and Emotional Exhaustion: "My body told me I couldn't cope"

Several participants described experiences characteristic of burnout including fatigue, headaches, nausea, and bodily aches, and they discussed the negative impact of exhaustion and fatigue on the other areas of their lives. In discussing the impact trauma work has on his life, Participant 8 explained how the ensuing fatigue impacted him:

> I would say it has impacted me a lot in a negative way, you know, if you had a taxing day and you feel like okay, I wish I could go to the gym, or get to my hobby and sometimes you're just so tired and fatigued. You do the opposite of being very active and very productive. So, I think in that way, it really impacts me.

Several participants in the study reported physiological symptoms associated with trauma work, which were indicative of burnout and emotional exhaustion. Physical pains were frequently described by participants as embodying their emotional exhaustion. This is demonstrated in the follow extract from Participant 20:

> Physical aches and pains, definitely. After a session, maybe that night having a headache or feeling nauseous or some physical stuff. I would notice a massive toll on my body. The most notable one is when I'd spent a day when I worked in an NGO, and we would do, it was called open disclosure, where women and girls would come in and they would disclose their sexual abuse stories, often for the first time. Often, they would come with a family member. So, it was incredibly emotionally heavy, so lots and lots of trauma stories. That night I got home, and this was before I'd qualified, so I was still working as a volunteer, and I actually dislocated my shoulder that night, not doing anything, no heavy lifting, I actually had a turned and dislocated my shoulder. At the time, I realised it was the burden of the weight of all those stories.

Participant 14 expressed a similar sentiment of feeling like she was unable to cope and the associated physiological experience:

> My body told me I couldn't cope. I think I took on too many cases in the first couple of years of private practice, far too many. And then I had to go into hospital because I had neck problems, and they wanted to operate, but I didn't want a neck operation. I felt that I had to moderate the amount of people that I see. Then later on, I knew it, because 10 years ago, I then thought I had my neck problem again, but it turned out to be hip, and I had to have a hip replacement and six months later, another one. Now, I

do know that there were other factors involved, but I saw it as holding too much, mothering too much, having bodily symptoms.

Many participants described a sense of disengagement from their personal relationships which they attributed to fatigue and emotional exhaustion. Participant 4 discussed disengaging from her family members and receiving feedback from her husband that she comes across as "cold":

> So, my mother would talk to me, and she would go on and on, and I'd go blank face, you know, I'm so drained, I can't listen. So, it's almost like you come across as cold, to your family. So, in a few arguments with my significant other, he has said to me, you know for a therapist you can be very cold, you know. I think getting paid to talk for a living, when you need to talk in your own personal time you run out of words. Yeah, so the communication has been affected, I get snappy and short.

Counter-factual Rumination: "You so wish you could be there to protect them"

Several participants reflected on imagining alternative outcomes (i.e., counter-factual rumination) for child trauma victims. Counter-factual rumination was particularly related to appraisals of the child trauma survivor's vulnerability. Participants' appraisals of counter-factual rumination were accompanied by feelings of helplessness. Participant 7 explained that some of his most difficult cases had involved child sexual trauma survivors as he would imagine alternative outcomes where he could have protected the child:

> I think that's the thing that sort of also stays with you is that you so wish you could be there to protect them because, I definitely would have done that as a father, I would have made sure, if there was something happening with my daughter. So maybe it's a bit of that personal, I wouldn't say personal touch to it, but something to that extent,

> my own desires as a father, where I would have loved to have been there to protect them. And then feeling like you can't and coming back to that feeling of helplessness. Yeah, with my older females that I tend to work with, I don't have that same sense.

Triggering of Personal Trauma: "I didn't feel in control of myself"

Several participants reported that some of the traumatic narratives of the MHCSUs they worked with had triggered their own personal traumatic experiences. Their reflections depict their experiences as profoundly distressing and overwhelming. An example of a personal lived experience being triggered during a session was mentioned by Participant 18, who had lost a family member through suicide:

> I didn't feel in control of myself in the session with the patient. I had never had a client tell me they wanted to commit suicide by jumping off a building, and I have a family member who committed suicide that way, and it was the first time that it was ever brought to the space… And she did bring up jumping off a building and it was quite gruesome and what she imagined it would be and I did have a bit of a PTSD or anxiety reaction, an adverse reaction in the sense of my chest got very tight, even getting tight thinking about it now, and my stomach felt tight and funny and almost like felt quite shaky within myself. I was quite mindful of it, and I was saying to myself, just breathe and remember, this is your client's space.

Participant 18's experience reflects the emotional intensity that accompanied the triggering of her own trauma, and the ensuing loss of control she experienced during the session.

Several participants discussed avoiding cases that resembled their own personal trauma or avoiding trauma cases altogether. For example, Participant 17's mother was raped and murdered and, following this, she was unable to see any trauma cases for 10 years:

> I went through some dreadful trauma myself about 12 years ago, and then I couldn't see anybody that had experienced trauma. I am just now slowly, in the last two years, I've been able to see people that have been traumatised, but for quite some time, I wasn't able to. So, I used to refer any hint of trauma onto my colleagues... One was one was a person whose mother had been raped and murdered, that was really, really very difficult to process with her, and the reason it was so difficult for me is personal experience of that.

Vicarious Traumatisation: "Hearing the atrocities… it can be very hard to… sit in your own person"

Participants' reflections relayed the effects of vicarious trauma, which included intrusive re-experiencing of MHCSUs traumatic experiences, constantly assessing potential threat (i.e., hypervigilance), and physiological hyperarousal.

Intrusive Re-experiencing. All participants mentioned intrusive re-experiencing of the traumatic experiences of the MHCSUs that they worked with. This intrusive re-experiencing took the form of intrusive thoughts, flashbacks, and nightmares. Several participants reported forming a mental image of the trauma their MHCSUs spoke of during sessions, which reoccurred as flashbacks. This experience for many participants is reflected in Participant 18's account:

> It did happen quite often, the intrusive thoughts or almost like flashbacks, which would obviously, because you weren't there, you don't know what it looks like, but it's more like that vicarious trauma where you almost imagine it in your mind while the client is explaining it. And then you would have flashbacks of that image that you've made in your mind.

Many participants reported experiencing intrusive thoughts about their own personal safety and their family's safety. For example, Participant 10 explained:

> I definitely have intrusive thoughts. If I give an example, a lot of it is related to my family and my kids. So then I think, if I know somebody in my family is depressed, I think, wow, like, am I checking in on them? Are they okay? Or if I have spoken to a parent who has lost a child, then my thought is wow, what would it feel like to have to lose a child and I've got a child and what if I lost my kids and, you know, so definitely intrusive thoughts. If I am walking somewhere at night, not that I would here, but I would immediately be uncomfortable with the situation. Or don't drink too much, just be careful. So, it comes back unconsciously, or sometimes more deliberate and conscious, intrusive thoughts when I'm thinking of the kids. Or sometimes just when I'm out and it will just kind of hit me like, oh, just one drink or don't go to the bathroom alone, you know?

Several participants reported nightmares related to the traumatic experiences they listened to during sessions with MHCSUs. In addition, they reported dreams about these traumatic experiences happening to themselves or to their loved ones. These dreams were attributed to their fear of experiencing the same thing. This experience is illustrated in the following reflection from Participant 4

> Nightmares when it came to intense sexual trauma, so in session some of the things would come out, but I would see my mother, so the scenario playing out with my mother or someone I know. So, it was almost like I was so afraid something would happen to my mom that I married my own fear, with what happened to my client.

Hypervigilance. Several participants described experiencing a heightened sensitivity to threat, which was accompanied by constant hypervigilance. Participant 8 spoke of the hypervigilance she experienced following her work with trauma related to violent crimes:

> I would say one of the symptoms that mostly affects me is hyperarousal and paranoia, especially when you work with violent crimes, you know, if you drive around or even if you go to a retail store or things, you are immediately in that hypervigilance state. So, that's kind of something that doesn't go away, you're in that sort of fight or flight mode.

Similarly, Participant 2 described experiencing hypervigilance following her work with several trauma cases related to crime, where her hypervigilance was related to constantly checking her car:

> I remember at one stage I had lots of exposure to crime, and somebody being held at gunpoint and so on. And I remember a few days checking the car and the back seats and all of that, so I do think it does impact on your behaviour.

Several participants discussed experiencing hypervigilance to threat and the ways in which they restricted their activities because of this. For example, Participant 3 reflected on how she restricted her use of ATMs (i.e., automated teller machines) after she saw several clients who had experienced hijackings that included ATM theft:

> I don't think I've used ATMs as much then to be honest. Now to think about it, it's probably just my own anxieties following this. I'll go to the ATM, but first walk into a bunch of shops so that, if I am being followed, like some of my clients, there is reasonable doubt that I don't have that much money on me left.

Some participants reported avoiding being in public spaces alone as a response to working with cases that involved sexual trauma, with many expressing concerns about their own vulnerability. Participant 12 described a significant change in her activities before and after trauma work:

> I am quite fearful; I don't, I don't go anywhere. Or, yeah, I don't really go to public places alone, unless it's something secure like a mall, so this has to do with the sexual traumas. Yes, so it's like I was describing about not going to places that aren't malls. When I started dating my now husband, there was a few times that he suggested that it was a nice evening and he said let's take a walk, and I lived in a nice suburb, and I said no, I, like I don't go for walks at night, and he was sort of surprised. He grew up in a quiet little town, and he is a tall, big man, and is trained in martial arts. So, I think that he couldn't understand why I didn't feel safe enough if he was with me to go out and my fears were sort of twofold; one that something might happen to me and two, that he might be attacked. Yeah. Definitely when I was younger, I would still go out on my own at night, but like to meet up with friends, and then I'd be driving home alone, and that's not something that I really do anymore.

Physiological Hyperarousal. Participants appraisals were associated with physiological hyperarousal in response to their cases that involved trauma narratives. The description from Participant 20 below reflects her experience of physiological hyperarousal:

> A client that lived quite close to me and she got hijacked or a smash and grab, I suppose, on a road that I travelled frequently, she came to the robot, and there were quite a few cars, and she was wedged in, and then the smash and grab happened. And then when I pull up and feel wedged in, I found myself having a physical response,

and then being able to be like, okay, but this didn't happen to me, you know, grounding myself, it could happen to me, but it didn't, it hasn't.

Some of the experiences of participants suggest that physiological hyperarousal also impacted on their intimacy with their partners. Participant 18 reported that working with sexual trauma cases had impacted her intimacy with her partner. She also reflected on a similar experience that her supervisor had shared with her:

> With the sexual traumas our sexual relationship sometimes changes, that is something I have to work on within myself, but it spills over into our relationship. It does impact my relationships as I do sometimes feel alone, or like people don't understand, they are not aware of what is in my mind. Thinking about relationships, it makes me think of an example that a supervisor gave me, when I was saying that I was struggling with my sexual self and being sexually active with my partner. She told me a story that it is normal that it impacts you that way, because she got home one day and was in the kitchen preparing food, and her husband came up from behind her and gave her a hug, and she completely jumped and flinched and pushed him away, and obviously he was quite shocked, and it was because of who she was working with. You are quite aware of what your clients have been through.

Personal Growth and Transformation

Despite the difficulties associated with trauma work, all participants discussed experiences of personal growth and transformation as a result of working with trauma survivors. Their appraisals were reflective of a restored sense of hope, personal healing and growth, increased gratitude, enhanced empathy and compassion, and spiritual growth.

Restoration of Hope: "They take you to their own hope in the world"

While some participants reported appraisals of hopelessness following trauma work, they also discussed the restoration of hope from witnessing the people they work with recover from their traumatic experiences. This is reflected in this account from Participant 20: "To journey with someone and go into those deep dark places, the most painful places, they are also the clients that take you to their light, they take you to their own hope in the world".

Similarly, Participant 3 reflected on witnessing the people she worked with heal from their traumatic experiences and reclaim their lives, which generated a sense of hope for her:

> I think just watching people regain their lives back is really hopeful. And I think that's the appeal for the work, not the gore, but the after. So, like those abduction cases when they could sleep again, that was awesome. And just helping them re-relate with their families after these things that happened. All kinds of violation trauma survivors, releasing that shame is really beautiful. Just watching them live their lives. So, I think the beauty of doing trauma work is watching people getting their lives back.

Related to this, many participants discussed a sense of hope for their own personal healing process, as illustrated by Participant 18:

> It gives me hope for myself and my own trauma journey, that my clients have been able to do that, so I can too. I did speak to how it has brought up identifications I didn't recognise within myself, so then I have been able to work on those for me, and that has been so beneficial to my own process as well.

Personal Healing and Growth: "I wouldn't have healed my trauma"

Several participants reported that working with trauma survivors contributed to their own healing process given that trauma work had allowed them to process their own traumatic

experiences. In addition, participants reported that they had gained personal insight, enriching their self-awareness and allowing them to recognise their own underlying emotions.

Participant 18 reported that trauma work elicited her own experience of trauma, which allowed her to recognise and heal her own traumatic experiences. Through identifying with the trauma narratives she worked with, she was able to process her own trauma in supervision:

> It's impacted the way I've processed my own trauma, and the way I have acknowledged trauma. It's quite weird to say, but I think I've healed through some of my client's trauma. Because they would almost have a process themselves or come to almost conclusions themselves, and it would make me think a lot about my own trauma, or sometimes I would identify, obviously working in supervision and everything, I wouldn't bring that to their space, but I think that's what's impacted me with working with trauma.

A similar sentiment was expressed by Participant 20, whose somatic responses to trauma narratives allowed her to recognise and process her own traumatic experiences. She expressed gratitude, as she felt she would not have healed from her own traumatic experiences if she had not worked with trauma survivors:

> In my own personal space, realising some of my own deep, deeply hidden traumas from my childhood. So, then kind of going through my own exploration and figuring out what happened to me, and how it happened, and then really starting to link dots between my own body's responses to things, going on my own journey, my own healing journey. I don't think I would have done that without the work. I'm so grateful every day because I wouldn't have healed my trauma if I hadn't worked with trauma survivors. So, you know, I think they are the bravest bunch of people on this planet.

In addition to processing their own personal traumatic experiences, many participants discussed gaining self-awareness and personal insight. This can be seen in the reflection from Participant 9:

> I'm an addict myself and working with trauma survivors has helped me to overcome my addiction in many ways. Addiction is often rooted in feelings of isolation, past traumas yourself. And working with those survivors has really helped me to understand myself better, helped me overcome my own addictions, my own issues. Also helping to deal with trauma experiences better myself. For example, when working at the trauma centre, I was shot at four times, and ever since that it had happened I learnt something new about myself and trauma responses, and through support realising how I can overcome this.

Participant 1 discussed a specific case that elicited a strong somatic response for her in session. Through processing her response in supervision, she gained insight into her own emotional experiences of living in a different country to her family members:

> It just brought an awareness of how deep my feelings of being disconnected from family members was, so it triggered a lot of stuff for me. I think that it has forced me to reflect on myself a lot, in ways that I think typically would have avoided, asking very very very hard questions, like why do you feel like this? Why, you know. It has given me a deeper level of self-awareness. It has also helped me to not want to run from what is hard, even emotions, you can sit with very difficult things and not die, you can survive, you can.

Increased Sense of Gratitude: "I started to value a lot, not taking things for granted"

Several participants reported that working with trauma survivors increased their gratitude and appreciation for their own lives and for their loved ones. Participant 13 described experiencing gratitude and appreciation for her family members and the ways in which certain cases highlighted how fortunate she is:

> I feel blessed, I feel blessed to be surrounded by the people around me, the kind of family that I have. Because at the hands of my family, I realise how blessed I am, you know, when you get to hear the things that people do to their daughters, to their spouses and all of that, and realising that, you know, in terms of trauma, not just normal stresses, of course (laugh). Ja, in terms of trauma, it makes me feel even closer to my family actually... For instance, that client that I was in telling you about, she's been trying to mend the relationship with her mother, but then the mother is just rejecting her over and over again. So, realising what I have, yes I do have challenges with my mom here and there you know, but there's nothing out of the ordinary, I realised how she's been doing a really good job. Ja, so it leads to a sense of appreciation on my side.

Several participants reflected on how they no longer take certain aspects of their lives for granted and how they now value what they have in their lives. As Participant 4 explained:

> When you see someone who goes through something difficult, it is like you go through something difficult with them because I try put myself in their shoes. I started to value life, value people around me, value my resources or blessings. I started to value a lot, not taking things for granted.

Some participants shared their relief and subsequent gratitude that they themselves had not experienced what their clients had endured. As Participant 10 reflected: “It's helped me to be grateful, grateful that I have not had to experience something like that before”.

Enhanced Sense of Empathy and Compassion: “I'm just a lot more gentle with people”

Many participants reported an enhanced sense of empathy, which they attributed to trauma work. They described gaining an awareness of other people’s pain, which was accompanied by an enhanced sense of empathy and gentleness towards others. This is reflected in an account from Participant 10, who discussed being mindful that people have endured painful experiences in their past that others may not be aware of:

> It definitely makes you more aware of yourself and of others, in both a good and in a harmful way. So, I think in a good way, just that you understand that you don't always know what's behind a person's smile, you know, or you don't always know what somebody has experienced. I think I'm just a lot more gentle with people, you know, because you don't know. And so many trauma survivors don’t share their trauma until many years later, and you just don't know what people are going through or what they have been through. So, I think in my nature I am more gentle and more empathic, and all of that, but I think I'm even more so in listening to the trauma cases.

In discussing her enhanced empathy for others following trauma work, Participant 5 discussed being more tolerant and understanding of people’s behavioural presentations as stemming from past painful experiences:

> Yeah, I think again, recognising people, as all having faced some other traumas, it's definitely made me maybe kinder, I don't know if that's the right words to use, but maybe just gentle or more kind of tolerant of behaviours and actions that seem really perplexing, and just understanding that this is some sort of strategy to try and maybe

> avoid intolerable thoughts and feelings, and come out in really horrible ways. And it's not an excuse for behaviour but it's an explanation that can kind of make us a little bit more, more tolerant and more understanding. So, I think that it's helped me to kind of be a kinder, more empathetic person.

A similar sentiment was reflected by Participant 7, who discussed an increased sense of empathy towards perpetrators of sexual offences. He described that working in a correctional facility helped him realise that often perpetrators of sexual abuse were once victims of sexual abuse themselves:

> You know, I think eventually you just come to the realisation that they are those people as a result of their own traumas, those who become the perpetrators. Right after I graduated, I worked in correctional services, and one of my focus areas over there were the sexual offenders, and actually I did sexual offenders programmes with the offenders. I worked with a couple of serial rapists and so on. So, that gives you a different perspective there also, you know, working from that perspective. I think I wouldn't say that really changed certain of my beliefs, it's just that initially you, you are angry at the sexual offender or perpetrator. But then you realize that person has also got a history of sexual abuse, and, you know, that whole cycle is just perpetrated, and perpetrator, and it just goes on and goes on.

Spiritual Growth: "Helps you to realise there is definitely a God"

Some participants felt that trauma work enhanced their spirituality. For Participant 9, working with trauma and witnessing people overcome their traumatic experiences contributed towards religious growth:

> It made me more religious (laugh); it's definitely made me more religious. I think seeing people overcome difficult situations, helps you to realise there is definitely a God up there who is greater. It doesn't matter what people go through, there is something up there. It's definitely made me more religious.

Similarly, Participant 1 reflected that trauma work has enhanced her religious and spiritual beliefs. Witnessing peoples' faith, despite their painful experiences, and the strength that they derived from their faith, resulted in her own religious growth:

> If anything, it strengthened them [religious beliefs] a lot. I feel like if you're only just living for what is here, then why not give up because, I mean, you see so much that horrible, and it's so easy to then not have something bigger to lean on. And then also, also from my patients' work, or life, sorry, you'll hear someone say something really, really sad, like really sad, like really sad when you are there and then you are like okay, the silence here will do what it needs to. And then the client will say but God knows, and God will carry me through this. And you're listening to that, and you are like What! But this person has found the sense of hope in something that they can't see, and I think that their hope is even bigger, because the things that they've seen have done so much to them. And, I mean, that's really reinforced even my own level of spirituality, because a person can find hope, and really hope like, really, and this is what is holding them. Because when you look at the situation, you're also just like I also don't know what's holding you, you know, but they're able to then find a sense of comfort in that. And it's more than just words, you can feel it even in their voice, that it holds them (pause), it does really hold them.

Several participants reported that trauma work strengthened their religion, as it served a supportive function through the difficulties associated with trauma work. For example,

Participant 12 discussed surrendering her sense of powerlessness about a child trauma survivor to God in prayer:

> I remember driving home and thinking why?! Like, this is so so unfair, and having a little fight in my head with God. And what ultimately happened that same day, I ended up then getting onto my prayer mat and just crying and asking God to sort of look after this little one.

Coping Strategies for Working with Trauma

Participants reported various strategies that they used to cope with trauma work, which included professional coping strategies and personal coping strategies.

Professional Coping Strategies

Participants reported the value of accessing support in the form of collegial support and peer supervision, personal psychotherapy, and formal supervision. They further reported on the benefits of continuously learning and increasing their knowledge about trauma and working with trauma. These professional coping strategies offered a means to debrief and process traumatic case material.

Collegial Support and Peer Supervision: "Talking to colleagues helps, I don't feel alone". Participants discussed the benefits of peer supervision and engaging with colleagues about trauma cases. Their accounts were reflective of feeling understood by colleagues who could relate to their experiences and offer guidance. As Participant 18 explained:

> Besides the therapy space and the supervision space, definitely just having colleagues. So, almost like some peer supervision or having colleagues that I can just run through either cases or what I'm feeling, or what is difficult. So, just having that support from colleagues, because I think they can really relate, or they also would have maybe had a similar case or give some guidance.

Participant 3 reported that collegial support offered a means of debriefing for her:

> I've got a group of friends who are also mental health professionals and when we come across devastating situations that are really difficult to wrap your mind around, we manage to find time to chat about it, and that's really helpful. I think the thing is talking, there needs to be like making sense of it, in some kind of way, and these are not very easy to make sense of.

For Participant 13, sharing challenging cases with peers allowed her to not only debrief and process difficult emotions, but also made her feel less alone:

> I think debriefing and talking with colleagues, I think that helps a lot, because now you get to essentially do that which you're helping your clients to do, you're venting out all these emotions that you're experiencing at that point in time. So yeah, debriefing with colleagues is mainly what I do. Talking to colleagues, that helps me a lot. I don't feel alone.

Formal Supervision: "Someone who can help me navigate the feelings". Many participants reported that accessing formal supervision was a central supportive resource for trauma work. In particular, their accounts reflected the value of discussing trauma cases and processing the emotions elicited by these cases. As described by Participant 20: "I take them [trauma cases] to supervision and peer supervision, just sometimes talking about them in a safe space, someone who can help me navigate the feelings, is probably the first and most helpful thing I do".

Personal Psychotherapy: "Therapy is a huge one, you can't not be in therapy". Many participants discussed using personal psychotherapy as a coping strategy. Personal psychotherapy allowed trauma workers to discuss the impact trauma work had on them and to

recognise their own personal triggers. This can be seen in Participant 8's reflection: "I go for therapy myself, that's also very useful, because your own history of trauma does affect you, and things you work with triggers back those kinds of things. That's also very helpful".

Continuous Professional Learning: "It keeps me feeling positive and feeling like I'm moving ahead". Several participants reported feeling empowered by engaging in continuous professional learning and informal development activities related to trauma work. Learning was facilitated by courses, reading journal articles, listening to podcasts, or watching videos related to trauma therapy. For many participants, these activities were reported to assist them in coping with the sense of powerlessness they often experience from trauma work. The benefit of continuous professional learning is described by Participant 5:

> Doing conscious processing of it myself through continuing to learn about trauma, I find that to be really, really helpful. I am always listening to podcasts and reading things and watching things and continually trying to synthesise and I will do it in a very intentional way. I will be listening to a podcast and set aside this time to learn about this topic and then I'll find, as I'm listening or watching, there'll be lots of thoughts and images of patients coming up, and then I will find myself kind of thinking oh yes like that makes sense, and just kind of being able to categorise and synthesise that information in context of my patients I've found that to be so so helpful and it keeps me feeling positive and feeling like I'm moving ahead.

Participants reported that, in conducting research on topics related to trauma, they were able to process and make sense of challenging cases. For example, Participant 20 discussed doing research on the psychology of the abuser in an effort to process the anger these cases elicited for her:

> I think I also do quite a lot of research and try and read and expose myself quite a lot to the psychology of the abuser, you know, really understanding what is it about that person doing that. I have got my own trauma story, and I've gone and done my work, so it ignites probably a part of me that gets angry. It's just really working through that in a conscious way, acknowledging and taking it to supervision.

Personal Coping Strategies

Participants discussed a range of personal strategies that helped them cope with trauma work. These included promoting their self-awareness and self-insight, self-care activities, appraisals of trauma work as "a calling", and reaching out to loved ones.

Self-awareness and Self-insight: "Coping is knowing myself and what my limits are". Several participants reported the protective function of self-awareness and self-insight. Their appraisals were reflective of the importance of knowing themselves and how much they could emotionally tolerate and diversifying and adjusting their exposure to trauma cases accordingly. Participant 14 discussed being aware of her emotional capacity and adjusting her case load accordingly: "Coping is knowing myself and what my limits are. I felt that I had to moderate the amount of people that I see".

Participants reported diversifying their caseload by taking on different types of cases in addition to trauma work. Participant 17 felt that taking on different types of cases was helpful in moderating their exposure to traumatic material:

> What helps me to help people who've suffered trauma is the fact that I integrate with other kinds of therapy. It's like that old saying that you should never have more than two borderlines in your caseload, if possible, at a time. And, for me, I think it's difficult to have more than three or four people that have suffered trauma at a time. So, I think that's, you know, that's kind of how I'm able to cope with that.

Self-care Activities: "I'll do whatever it takes to get that trauma out, because I know what it does". All participants discussed the importance of engaging in self-care activities outside of work as a coping mechanism for trauma work. Participants reported that hobbies and leisure activities created distance between themselves and their work, which allowed them to recuperate and rest. This is captured in an account from Participant 15:

> I think, generally, trying to sort of look after myself, trying to distance myself from our work at certain times, over holidays or weekends. I think we know that we need to socialise and to exercise and to have other interests. Yeah. So, I don't think there's any one specific thing but that I do try and sort of shut down from our work.

Participant 18 reported finding it difficult to be present in activities outside of work. In an effort to address her difficulties, she discussed making a conscious effort to "switch off" from work and described activities and hobbies that have been helpful:

> I have been working on ways to try and help myself switch off and relax, and definitely family helps and friends and supervision. Yes, and self-care, definitely self-care. Having that me time, doing those activities that I really do enjoy, and help me relax. So, whether it's like colouring or reading or yeah, going for a walk, going to certain special places like the beach or nature, things like that, having things to look forward to. Yeah, so definitely all those self-care, music, meditation.

Participants referred to the need to process and release the physical and emotional impact of trauma narratives. Many participants discussed exercise as a means to process and release pent up emotion. For example, Participant 17 explained: "I might spin [exercise on a bicycle] or I'll put the music on and dance. I'll do whatever it takes to get that trauma out because I know what it does. I try to expunge it at all costs".

Meditation was frequently discussed as a coping mechanism. While some participants discussed engaging in brief guided meditation directly after seeing a trauma client, others discussed daily meditation. As reflected in the account from Participant 1, mindfulness assisted participants in being present and grounded:

> Meditating has helped me a whole lot, this year I've done a lot of meditation, so I meditate almost every day, intentionally, a kind of like a sense of grounding. So, that has helped me cope a lot. Because of, especially the self in the work, meditation has helped me a lot in terms of like grounding the self.

Appraising Trauma Work as "a Calling": "I feel called to be in this field". Participants discussed that trauma work resonated with them because they appraise trauma work as a calling; a belief that sustained them. This is demonstrated by Participant 13:

> What motivates me to remain in this field is that I feel called to be in this field, you know, I don't feel misplaced. Even when I go through my worst day, even when I feel like maybe, sometimes, I failed on a particular case, but the fact that I got into this field feeling that I am called to be here, you know. So, I understand that there will be challenges. So, as I go through those challenges, I still remember that this is what I believe I'm called to do, so that is what keeps me going.

Participant 8 described feeling motivated and encouraged by her appraisal of trauma work as a calling:

> I personally feel that the work I do is, is not an occupation or job, to me it's a calling. So, in that, it's a different perspective, it's more. This is what I can do, and try and hone your skills, you try and learn more to be as effective as possible in the situations that you deal with.

Similarly, Participant 12 reported feeling motivated to continue with trauma work despite the associated challenges as she felt chosen by God to pursue a career that helps others:

> I feel like I have it easy, so if God has chosen me to be the person to help somebody else get through their trauma, it is a very small ask compared to being the person who is going through the trauma. Part of why I chose this career is because I knew that I wanted a job that allowed me to do good as part of my job, to help people.

Reaching out to Loved Ones: "Having my family and friends who are quite aware of the work that I do and how it can be quite heavy". Several participants discussed the importance of support from their loved ones. Participants reported that spending time with their family and friends helped them cope with the difficulties associated with trauma work. In addition, participants discussed communicating with their significant others when they had a difficult day as a means of gaining support. This is reflected in Participant 12's account:

> I think more of a relational resource, sharing with my husband some of these experiences. It is being able to tell my husband that I have had a really rough day, this is the reason why, and this is why I am probably not going to be myself, so that creates a space for me to internally process and feel whatever I need to feel.

Participants discussed the value of their loved ones understanding the difficulties associated with trauma work and supporting them accordingly. As explained by Participant 18:

> Definitely just having my family and friends who are very supportive, and who are quite aware of the work that I do in the sense of how it can be quite heavy at times or

hard to hold, and then they just know what I need in those times, or they're just there for me. Also my partner is very supportive.

Chapter Seven: Phase Three Analysis and Results

This chapter presents the results of Phase Three of the study, which aimed to implement and evaluate the effectiveness of the COVID Coach application in reducing STS and increasing resilience among South African MHCPs. To do this, the Solomon Four Group Design was applied (Solomon & Lessac, 1968).

In addition, this phase aimed to explore the usability of the COVID Coach application by means of a quantitative and qualitative post-experimental inquiry. The quantitative post-experimental inquiry of the usability of the application employed the System Usability Scale (SUS), which was captured and analysed using SPSS-27. The mean score of the SUS was used to assess the usability of the COVID Coach application. The qualitative component of the post-experimental inquiry involved conducting online interviews with seven participants who were part of the intervention groups (i.e., Groups 1 and 3) to determine the participants' experiences of using the COVID Coach application. The qualitative interviews were transcribed, and thematic analysis was applied.

The results from the SUS analysis and the emerging subthemes and themes are presented in this chapter.

The Solomon Four Group Design

The Solomon Four Group Design (Solomon & Lessac, 1968) was implemented, which involved four groups, two of which received the intervention and two of which were control groups to reduce the impact of confounding variables (LavanyaKumari, 2013). The design entailed the following:

Group 1: Pre-test; Intervention; Post-test

Group 2: Pre-test; No intervention; Post-test

Group 3: No pre-test; Intervention; Post-test

Group 4: No pre-test; No intervention; Post-test

Both Groups 1 and 2 completed the pre-test, which included the ProQOL, CD-RISC-10, and the PTGS-SF. Groups 1 and 3 received the COVID Coach application intervention. All four groups received the post-test, which included the ProQOL, CD-RISC-10, and the PTGS-SF.

The Solomon Four Group Design controls for the various threats to the validity of an experimental intervention. As discussed in the methodology section, this includes the effects of history, maturation, regression towards the mean, and testing bias of the pre-test. In addition, this design allows the researcher to statistically test design requirements.

The data was captured and analysed using SPSS-27. The Solomon Four Group Design was analysed by computing a 2x2 factorial analysis on the post-test scores, with the first factor being "with the intervention" versus "no intervention", and the second factor being "pre-test" versus "no pre-test" (Rosenthal & Rosnow, 1991). To determine the effectiveness of the COVID Coach application, Groups 1 and 3 were compared to Groups 2 and 4.

To establish the effects of pre-testing, a 2x2 factorial design, using MANOVA, was applied to compare Groups 3 and 4. To determine whether there were differences between the groups before the intervention, Hotelling's T^2 was used to compare Groups 1 and 2 in relation to the pre-test measures (i.e., ProQOL, CD-RISC-10 and PTGS). The post-test scores from Groups 1 and 3 were compared using Hotelling's T^2 to determine if the pre-testing sensitised participants to the intervention treatment, as both groups received the intervention and only differed on whether they were pre-tested or not. MANOVA was applied to determine the effect of pre-testing on post-test scores, and the interaction between pre-testing and the intervention. The effect of the mobile phone intervention (i.e., the COVID Coach application) was compared to no intervention. Groups 1 and 2 were compared in terms of pre-test and post-test scores on the primary outcome measures using ANOVA.

Design Requirements of the Solomon Four Group Design

The following design requirements were tested:

1) random assignment, which determined whether the groups differed before the intervention;
2) the effect of pre-testing on treatment, which assessed whether receiving the pre-test may have sensitised participants to the nature of the mobile application intervention;
3) the effect of pre-testing on post-test scores, which assessed whether participants may have recalled their answers to the pre-test and merely replicated their responses on the post-test questionnaire; and
4) the interaction between pretesting and treatment.

The design requirements are discussed and represented in the section below.

Random Assignment. Random assignment investigates existing differences in pre-test scores. To investigate randomisation, MANOVA was used to compare the pre-scores of Groups 1 and Group. The results are presented in Table 13.

Table 13

Testing for Randomisation: Group 1 and Group 2

(Hotelling's $T^2 = 0.568$, $p = .520$)

Variable	Groups	*M*	*SD*	*F* value	*p*
Burnout	Group 1	24.43	8.54	0.008	.932
	Group 2	24.14	1.77		
STS	Group 1	28.29	4.68	0.277	.608

	Group 2	27.14	3.34		
Compassion	Group 1	37.43	10.69	0.405	.537
Satisfaction	Group 2	40.29	5.19		
Resilience	Group 1	28.00	8.74	0.142	.713
	Group 2	29.43	4.96		
PTG	Group 1	26.43	6.02	4.97	.046
	Group 2	33.57	5.97		

As displayed in Table 13, Group 1 had a higher mean on burnout and STS, while Group 2 had a higher mean on compassion satisfaction, resilience, and PTG.

The test of overall differences used Hotelling's T^2 to compare groups simultaneously on all the variables. Hotelling's T^2 was not significant (Hotelling's $T^2 = 0.568$, $p = .520$), which indicates that there were no statistically significant overall differences between the pre-tested groups. The results demonstrate that random assignment was attained.

The Effect of Pre-testing on Treatment. To investigate if the pre-test questionnaires sensitised participants to the nature of the intervention, the post-test scores of the two intervention groups (i.e., Groups 1 and 3) were compared. Group 1 was compared to Group 3 since Group 3 did not receive a pre-intervention measurement.

The results in Table 14 below show that Group 1 had a higher mean on burnout and STS, while Group 3 had a higher mean on compassion satisfaction, resilience, and PTG.

Table 14

Effects of Pre-testing on Treatment: Group 1 and Group 3

(Hotelling's $T^2 = 0.898$, $p = .456$)

Variable	Groups	*M*	*SD*	*F* value	*p*
Burnout	Group 1	23.67	5.01	0.842	.380
	Group 3	21.00	5.06		
STS	Group 1	22.50	7.29	0.439	.523
	Group 3	20.17	4.62		
	Group 1	36.67	13.72	1.621	.232
Compassion Satisfaction	Group 3	44.00	3.29		
Resilience	Group 1	25.33	13.05	0.797	.393
	Group 3	30.33	4.23		
PTG	Group 1	21.83	13.26	0.534	.482
	Group 3	26.83	10.26		

The test of overall differences indicates that Hotelling's T^2 was not significant (Hotelling's $T^2 = 0.898$, $p = .456$), which suggests that there were no statistically significant overall differences between Groups 1 and 3. The results suggest that the pre-test did not sensitise the participants to the nature of the treatment, given that none of the individual variables were significant in terms of group differences.

The Effect of Pre-testing on Post-test Scores. To assess the impact of pre-testing on post-test scores, the post-test scores of the groups who received the pre-test (i.e., Groups 1 and 2) were compared to the post-test scores of the groups that did not receive the pre-test (i.e., Groups 3 and 4). MANOVA was used to compare the post-test scores of Groups 1 and 2 (i.e., participants who received a pre-test) to the post-test scores of Groups 3 and 4 (i.e., participants who did not receive a pre-test). The difference between the post-test results for

Groups 1 and 2 were compared to the difference between the post-test results of Groups 3 and 4. If the difference between the post-test scores for Groups 3 and 4 varied significantly from the difference between the post-test scores of Groups 1 and 2, this would indicate that the pre-test had a carry-over effect on the post-test (i.e., participants recalling how they had responded to the pre-test and carrying that response over to the post-test). The effects of pre-testing on the post-test scores are represented in Table 15 below.

Hotelling's T^2 was used to compare groups simultaneously on various measures. The results indicate that Hotelling's T^2 was not significant for the effect of pre-testing on post-test scores (Hotelling's $T^2 = 0.474$, $p = .184$). Therefore, the pre-test did not influence the post-test results.

Table 15

Effects of Pre-testing on Post-test Scores

(Hotelling's $T^2 = 0.474$, $p = 184$)

Variable	Groups	*M*	*SD*
Burnout	Group 1 & 2	24.92	5.85
	Group 3 & 4	22.46	6.08
STS	Group 1 & 2	24.77	6.85
	Group 3 & 4	20.92	6.46
Compassion Satisfaction	Group 1 & 2	37.54	9.35
	Group 3 & 4	43.15	3.83
Resilience	Group 1 & 2	25.23	9.67
	Group 3 & 4	29.77	4.32
PTG	Group 1 & 2	26.77	12.36
	Group 3 & 4	30.92	10.49

Exploring the Treatment Effect. To assess the effectiveness of the intervention, the two experimental groups (i.e., Groups 1 and 3) were compared to the two control groups (i.e., Groups 2 and 4). Hotelling's T^2 was applied to determine the treatment effect. The post-test results of the participants who received the COVID Coach mobile application intervention (i.e., Groups 1 and 3) were compared to those who did not (i.e., Groups 2 and 4). The difference between the intervention groups and the control groups were not statistically significant (Hotelling's $T^2 = 0.314$, $p = .230$). As such, overall, the participants who received the intervention did not differ from those who did not receive the intervention.

ANOVA was applied for each dependent measure and there were no significant differences between the groups on any of the dependent variables. The results are displayed in Table 16 below. The 2x2 factorial design showed no significant interaction between the treatment and pre-testing (Hotelling's $T^2 = 0.16$, $p = .992$).

Table 16

Treatment Effect for Each Dependent Measure

(Hotelling's $T^2 = 0.16$, $p = .992$)

Variable	*F* value	*p*	Treatment	*M*	*SD*
Burnout	1.114	.303	Yes	22.33	5.00
			No	24.86	6.67
STS	1.123	.301	Yes	21.33	5.94
			No	24.14	7.44
Compassion Satisfaction	0.000	.994	Yes	40.33	10.25
			No	40.36	4.58
Resilience	0.041	.842	Yes	27.83	9.61
			No	27.21	5.96

PTG	3.704	.067	Yes	24.33	11.60
			No	32.71	10.12

The Interaction Between Pre-testing and Treatment. The interaction between pre-testing and treatment was assessed. The results are presented in Table 17.

Table 17

Interaction Between Pre-testing and Treatment

(Hotelling's T^2= 0.016, p = .992)

Test	*F* value	*p*
Pretested	0.424	.049
Interaction between pre-test and treatment	0.016	.992

Hotelling's T^2 was not significant for the interaction between pre-testing and treatment (Hotelling's T^2 = 0.016, p = .992), meaning that there was no interaction between the pre-test and treatment. that the results indicate, therefore, that all design requirements were met.

Quantitative Post-experimental Inquiry of the Application's Usability

The SUS was used to assess the usability of the COVID Coach application. The odd-numbered SUS questions reflect positive appraisals, and the even-numbered questions reflect negative appraisals of the system. The positively worded items were scored by deducting one from the scale position, while the score contribution of the negatively worded items was recorded as five minus the scale position (Kaya et al., 2019). The total SUS score was obtained by multiplying the sum of the items scores by 2.5 (Kaya et al., 2019). The SUS scores per item are presented in Table 18.

Table 18

System Usability Scores of the COVID Coach Application

Item	Strongly Agree	Agree	Neither Agree / Disagree	Disagree	Strongly Disagree
	n (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)
1. I think that I would use this system frequently	1 (8.3)	4 (33.3)	3 (25)	3 (25)	1 (8.3)
2. I found the system unnecessarily complex	0	1 (8.3)	4 (33.3)	4 (33.3)	3 (25)
3. I thought the system was easy to use	4 (33.3)	6 (50)	2 (16.7)	0	0
4. I think that I would need the support of a technical person to be able to use this system	1 (8.3)	1 (8.3)	2 (16.7)	2 (16.7)	6 (50)
5. I found the various functions in this system were well integrated	4 (33.3)	3 (25)	4 (33.3)	1 (8.3)	0
6. I thought there was too much inconsistency in this system	0	1 (8.3)	2 (16.7)	6 (50)	3 (25)
7. I would imagine that most people would learn to use this system very quickly	3 (25)	6 (50)	3 (25)	0	0

8. I found the system very cumbersome to use	1 (8.3)	0	4 (33.3)	4 (33.3)	3 (25)
9. I felt very confident using the system	7 (58.3)	2 (16.7)	3 (25)	0	0
10. I needed to learn a lot of things before I could get going with this system	1 (8.3)	0	2 (16.7)	3 (25)	6 (50)

Despite mostly positive appraisals of the application, only 41.6% of the participants indicated that they would frequently use the COVID Coach application. As indicated in Table 18, 8.3% of the participants found the application unnecessarily complex, with 16.6% indicating that they would need the support of a technical person to use the COVID Coach application. However, 83.3% of participants responded that COVID Coach application was easy to use ("Strongly Agree" and "Agree"), while the remainder gave a neutral response ("Neither Agree/Disagree"). The majority of the participants felt that the COVID Coach application would be easy to learn, with 75% responding positively ("Strongly Agree" and "Agree"). Similarly, 75% felt confident using the application, while the remainder gave a neutral response ("Neither Agree/Disagree"). The mean (*M*) SUS score for the COVID Coach application was 71.88, as indicated in Table 19 below. The SUS scores were interpreted in terms of the cutoff of 68.

Table 19

Summary Statistics of the SUS

						Percentiles		
n	*M*	Median (*m*)	*SD*	Minimum	Maximum	25	50	75
12	71.88	75	15.04	40	95	68.13	75	79.38

Table 20 below represents the distribution of the SUS results in terms of the cutoff. Interpretation guidelines suggest that SUS scores above 68 are considered above average, while a score below 68 reflects below average usability (Sauro & Lewis, 2016). The SUS results obtained suggest that the COVID Coach application has an overall above average usability. However, two participants' scores would suggest below average usability.

Table 20

Distribution of the SUS in Terms of the Cutoff

	Frequency	Percentage
Below Average	2	18.2
Above Average	9	81.8
Total	11	100

Note: One respondent's data was removed owing to lack of engagement with the questionnaire

Qualitative Post-experimental Inquiry of the Application's Usability

The qualitative post-experimental inquiry included semi-structured interviews with participants from the intervention groups (i.e., Groups 1 and 3), with the aim of exploring participants' experiences of using the COVID Coach application. Seven participants were randomly selected and were asked the following questions:

1) What was your overall experience of using the COVID Coach application?
2) What aspects of the application did you experience as useful?
3) What aspects of the COVID Coach application did you experience as challenging?
4) In what ways was the COVID Coach application beneficial in promoting your well-being?
5) Would you use the COVID Coach application longer term in your life?

The interviews were conducted online, audio recorded, and transcribed verbatim. Thematic analysis was applied, and two overarching themes emerged, which included positive appraisals and negative appraisals of the COVID Coach application. The qualitative data yielded important considerations for future applications. The emerging superordinate themes and subordinate themes are presented in Table 21.

Table 21

Summary of Superordinate and Subordinate Themes

Superordinate Themes	Subordinate Themes
Positive Appraisals	a. Easy to use and appealing design. b. Promotion of well-being. c. Recognition of mental health challenges. d. Reminder to self-care. e. An extensive library of tools. f. A long-term resource.

Negative Appraisals	a. The application was overwhelming. b. Lack of cultural applicability. c. A general dislike of applications. d. Time constraints.

Positive Appraisals of the COVID Coach Application

Participants expressed several positive experiences related to using the COVID Coach application. These positive experiences included the application being easy to use and appealing, feeling that the application promoted their own well-being, the application alerting participants to their own mental health challenges, the application reminding participants to self-care, the application having an extensive library of tools, and many participants indicating that they would continue to use the application long-term.

Easy to use and the Appealing Design: "Engaging with the app was easy and pleasant". Most participants reported that the COVID Coach application was easy to use. For example, Participant 5 commented that they were: "surprised by how easy it was to use, you don't need to be very technically savvy to find out how it works".

Several participants praised the design of the application, with Participant 2 stating: "I thought it was really, really well put together, and I liked the look and the feel of it". In addition, the presentation of the categories contributed to the usability of the application. As Participant 5 comments "It is nicely boxed into specific areas".

Similarly, Participant 2 explained that the categories presented by the application made accessing the available resources easy: "The information is all there, you don't have to go to various websites, you click on the button, one or two clicks, and you are into the feature that you want or the tools. It is easy to find, it is there".

Promotion of Well-being: "I had those 15 minutes of almost having a therapist". Most participants described the COVID Coach application as beneficial for their own well-being. Their appraisals were reflective of the support for the "carer" that is offered by the application.

Participants reported typically being in a role where they support others and that the application allowed them to receive support themselves. This is illustrated in the response from Participant 1: "This time I am not the one giving the content, I am receiving and engaging with the content, so that was actually nice, and I think it promoted my wellbeing". Participant 5 also reflected on the application as a supportive resource: "I had those 15 minutes of almost having a therapist with me taking me through an experience that grounded me".

Participants appraisals demonstrate that the COVID Coach application fulfilled the role of promoting their own well-being through the relaxation that the application facilitated. An example of this benefit is represented in the response from Participant 6: "I think it is a nice way to switch off from where you are and take a different look at yourself. It was a nice break". Similarly, Participant 5 reported that the relaxation facilitated through the use of the COVID Coach application had a lasting effect:

> I enjoyed almost like having a therapist on call, where you only have 10 or 15 minutes to spare. You can close the door, get yourself a cup of coffee or tea, and actually have a moment, it is almost like a mini break. The app helped me to slow down, and it seems to have had some kind of a generalised effect. So, after doing that, it's not just doing it and off you go, but after I tended to talk slower, I tended to walk slower. So, it definitely had some kind of an impact for a while after I used the app; it definitely helped me to slow down. I felt, first of all, I did something for myself and, second of

> all, I really felt more relaxed, I literally felt as I am breathing deeper, I am talking slower, I feel more grounded in what I am doing.

Recognition of Mental Health Challenges: "I didn't really realise how tense I actually was". The application served to alert participants to the mental health difficulties they may be experiencing. For example, Participant 5 reported gaining insight into her mood and recognising the extent of her anxiety: "I didn't really realise how tense I actually was. If you did not know that you were not doing so well, the app will let you know that these are actually symptoms that you are not coping".

Reminder to Self-care: "Having an app like this that just reminds you that you are also important". Several participants reported that the application was beneficial in serving as a reminder to engage in self-care practices. This is demonstrated in the response from Participant 3: "I think from a place of nudging things that I already know are beneficial for my wellbeing, it is more of a reminder".

Participant 4 expressed a similar appraisal of being reminded that her well-being was important:

> Having an app like this that just reminds you that you are also important and how you feel is also important, kind of like revising you know. I found that quite useful. There is a whole lot which I will continue to use.

An Extensive Library of Tools: "It is quite a detailed app, there is a lot of resources to work with". Several participants reported that the COVID Coach application offers a vast array of resources and an extensive tool library. For example, Participant 2 explained: "It is quite a detailed app, there is a lot of things and useful resources that one can use and look up". Similarly, Participant 7 described that the application "really covers a wealth of information".

The pre-recorded audio recordings and the Mood Check tool were functions and tools that participants reported as the most useful. Specifically, participants highlighted the usefulness of the deep breathing exercises, the body scan, and the mindfulness recordings. The ease at which these recordings facilitated relaxation was appealing to participants, as seen in the response from Participant 1:

> I loved the idea of, when you try to destress, there was a button where you could actually listen to sounds and to recordings, I found that that engages my senses. Because I may be having a day, where I don't feel like reading, and I would rather listen to instructions. So, I think that is something that helped me.

In addition, the pre-recorded audio clips were reported as useful tools for those with time constraints. As Participant 5 explains:

> I did enjoy those self-help things, like the visualisation, or the muscle relaxation, the body scan, because I don't have a lot of time, but where I could sit for 10 or 15 minutes, or 7 or 8 minutes and someone could take me through a deep breathing exercise or a grounding experience.

The Mood Check tool was highlighted as useful and reported as a frequently used tool on the application. As Participant 2 commented:

> I mostly worked with tracking the anxiety and the mood and well-being, because it gives you a nice graph, so you can see how things have been progressing, whether your mood has gotten worse, and whether your anxiety has gone up.

The visual presentation of the data presented in the Mood Check section was reported as a useful tool to track and monitor well-being, anxiety, mood, and PTSD symptoms over time.

The psychoeducation presented in the Learn section of the COVID Coach application was experiences as informative and useful. As Participant 2 explained: "I think that feature of the Learn, there is good information, that is very good, and I found that very helpful".

A Long-term Resource: "I would definitely use it throughout the year". Feedback from participants demonstrated that the COVID Coach application was regarded as a useful long-term resource, with some participants reporting that they would continue using the application. Participant 4 described that she would continue to use the application as the nature of her work necessitates self-care:

> There is a whole lot which I will continue to use. With the kind of work that we are doing, you do need some reminders, you do need to check in with yourself as well, because we are constantly nursing other people's feelings, and sometimes you just forget to take care yourself, and that can be draining. So, definitely, I think it will continue to be relevant in my future.

Negative Appraisals of the COVID Coach Application

Participants reported negative appraisals of the application, which included: feeling that the application was overwhelming, that the application was not culturally applicable, some participants disliking applications in general, and time constraints that effected participants being able to use the application frequently.

The Application was Overwhelming: "I would open it and think I don't know what to engage with". Negative appraisals from participants related to feeling overwhelmed

by the amount of information presented by the COVID Coach application. As described by Participant 7:

> I liked having access to the app, and it was good to use it. I just find it sometimes cumbersome to navigate my way around it. I think it is the wealth of information you need to navigate and find your way; it is just a lot to take in, although very helpful, I think it is an extremely valuable tool to have.

The experience of Participant 3 reflects a similar sentiment of being overwhelmed by the options presented by the COVID Coach application and not knowing which tools to utilise:

> There is a lot here, which is really great, but I wonder if for someone who is quite anxious, it might also be too much. Like, you would sort of send through the nudge to say engage, and I would open it and think I don't know what to engage with.

However, some participants reported that engaging with the application over time would allow the application to become easier to navigate. For example, Participant 7 explained: "If I had the time to use it more, it would obviously make much more sense, and be more insightful and meaningful to me."

Lack of Cultural Applicability: "The things in there are based on the American culture". Several participants reported that some of the resources were American, which they believed were not culturally applicable to them. For example, Participant 7 commented: "Lots of the things in there are based on the American culture, and language; that is the only negative".

A General Dislike of Applications: "I don't spend a lot of time on my phone". Some participants spoke about their personal preference for not using mobile phone

applications as a reason for not using the COVID Coach application as a long-term resource. This is highlighted in the response from Participant 3:

> I think short term, because I don't spend a lot of time on my phone, I don't rely on digital stuff. I still have my little morning notebook, and I write down all my stuff in the notebook, and I write those goals in the book at the beginning of the week. So, for me personally, I am not a digitally minded person.

Time Constraints: "The biggest challenge here is me not having time for it". Some participants reported not having enough time to use the COVID Coach application frequently, which limited the benefit that they derived from the application. As Participant 7 explained: "I think the demands of my life in general just far exceeds what I could make use of. If I had the time to use it more, it would be more insightful and meaningful to me.

Similarly, Participant 3 suggested that the integration of resources that require less engagement time would facilitate increased engagement with the application: "I did not really have time. So, I was looking through some of the resources and they were quite lengthy, like 15 to 10 minutes. Whereas I think what I would have preferred is shorter things".

Chapter Eight: Phase One Discussion

Phase One aimed to investigate the prevalence of STS and identify the risk and protective factors amongst professional and non-professional MHCPs who work with survivors of traumatic events. In this chapter, the key findings are discussed and interpreted in relation to existing literature. Furthermore, the theory of Professional Quality of Life (Stamm, 2010) and the Refined Trauma Model for Trauma Workers in South Africa (MacRitchie & Leibowitz, 2010) are used to interpret the findings.

Secondary Traumatic Stress (STS): Protective and Risk Factors

The study found that STS was prevalent among MHCPs working with trauma. More than a quarter of the sample (33%) reported moderate levels of STS, while the majority of the sample reported low symptom levels (67%). These findings lend support to international research in this area. For example, a systematic review of 71 studies found that the majority of health care providers (e.g., nurses, physicians, social workers, and counsellors) reported moderate levels of STS (Cavanagh et al., 2020). Similarly, a more recent systematic review reported that, on average, psychologists present with mild to moderate levels of STS (Pellegrini et al., 2022).

Furthermore, the findings from this study are consistent with previous South African studies. For example, Padmanabhanunni's (2020a) study with lay trauma counsellors reported that 21.1% of the sample presented with low STS levels, while 20.4% of the sample presented with high levels of STS. Similarly, Peltzer et al. (2014) found that 51.5% of the lay counsellors in their study presented with STS symptomatology. Masson and Moodley (2020) reported that STS among South African social workers in the police force was a concern, with the majority of participants presenting with moderate levels of STS. The majority of South African research has focussed on other categories of health care service providers, such

as nurses (cf. Maila et al., 2020; Mashego et al., 2016), social workers (cf. MacRitchie & Leibowitz, 2010), and police officers (cf. Cronje & Vilakazi, 2020). Therefore, the present study contributes important findings to the literature on the effects of working with trauma in South Africa.

The current study found that various factors predicted STS in the sample of MHCPs, which included access to supervision, working in private practice, social support, vicarious trauma, and gender.

Supervision as a Protective Factor for STS

The comparatively lower levels of STS in the current study could be explained by the supportive resources that the participants in this study had access to. For example, the majority of participants (85.3%) reported that they had access to support from a supervisor. Clinical supervision entails consulting with a senior colleague in the same category of service about the treatment approach and treatment plan for a MHCSU (Johnson, 2019). The supervisory function entails ongoing discussions, monitoring, and guidance of the therapeutic process and the MHCSU's response to it (Johnson, 2019). Furthermore, the supervisory process serves to assist the MHCP in coping with the emotional demands of the work, and often presents a debriefing space for the MHCP (Johnson, 2019; Ogińska-Bulik et al., 2021).

Supervision protects against STS as it can reduce stress levels, given that it provides a space for emotions to be processed and can prevent the formation of distorted cognitive schemas (Ogińska-Bulik et al., 2021). Related to this, the Refined Trauma Model of Trauma Workers in South Africa posits that STS symptomology intensifies when exposure to trauma is unacknowledged or unresolved (MacRitchie & Leibowitz, 2010). Similarly, Figley (1995) posits that an accumulation of unprocessed trauma leads to STS. Research conducted during the COVID-19 pandemic found that supervision mitigated STS amongst health care workers during the COVID-19 pandemic (cf. Blanco-Donoso et al., 2020). Therefore, given that

supervision facilitates the processing of trauma exposure and protects against STS, access to supervision may explain the lower level of STS presented by the majority of participants in this study.

Private Practice as a Protective Factor for STS

Almost half (48.5%) of the participants in this study worked in private practice, which may offer a further explanation for the lower levels of STS. There is a growing body of research that suggests that MHCPs who work in independent practice present with lower levels of STS in comparison to those who work in institutional or organisational settings (cf. Maurya, 2021; Singh et al., 2020). This is attributed to the increased demands and a general lack of autonomy associated with working in institutional or organisational settings (Lakioti et al., 2020; Laverdière & Ogrodniczuk, 2019).

Private practice affords MHCPs more control over their resources. For example, an increase in working hours has been linked to an increase in STS (Diehm et al., 2019). Private practice allows MHCPs to manage their own working hours, thereby reducing the risk of STS. Furthermore, private practice facilitates a MHCP's agency over the cases that they choose to work with as well as their caseload. This typically means that MHCPs working in private practice can ensure that they limit the number of cases they take on that involve people in crisis and/or in need of intensive treatment (Maurya, 2021). Therefore, working in a private practice may protect against STS amongst MHCPs in South Africa, and could account for the comparatively lower levels of STS amongst participants in this study.

Within the context of the COVID-19 pandemic, working in private practice could have reduced exposure to COVID-19 in comparison to working in a hospital setting. Many medical aid companies announced that they would cover telehealth services during the pandemic and, as such, many MHCPs migrated to an online mode of delivery for mental health care services, thereby reducing their risk of exposure to the virus (Barker & Barker,

2022). Stefanatou et al. (2022) reports that the fear of contracting COVID-19 had a detrimental impact on health care workers' mental health and predicted higher levels of STS. Therefore, as found in Békés and Aafjes-van Doorn's (2020) study, many MHCPs had a positive attitude towards online psychotherapy during the COVID-19 pandemic given that it reduced their exposure to the virus. Therefore, the findings from this current study demonstrates that the reduced exposure to COVID-19 offered through online sessions may have been a protective factor during the COVID-19 pandemic for this sample. While no studies have examined the impact of online therapy on STS, one can speculate that online therapy may offer protection from STS, which is a possible area for future studies to explore.

Social Support as a Protective Factor for STS

In this study social support did not emerge as a protective factor in the association between trauma exposure and STS amongst the MHCPs in the sample. This was an unexpected finding and deviates from existing research that found that social support reduces the negative impact of vicarious traumatic exposure through alleviating feelings of isolation and preventing the dehumanisation of health care providers (cf. Manning-Jones et al., 2016; Olaniyan et al., 2020; Scott et al., 2021).

However, this finding from the current study is consistent with a South African study that found that positive appraisals of social support were associated with higher STS levels among lay trauma counsellors (Padmanabhanunni, 2020c). Padmanabhanunni (2020c) theorises that, while social support was positively appraised, participants in the study may not have engaged their support systems in an effort to protect their family and friends from the harsh realities of their work. Similarly, this explanation may account for the current study's finding.

A further explanation for social support not serving as a protective factor against STS in this current study is that co-worker support was not explored. Existing research typically

considers co-worker support to form part of the trauma worker's social support structure, as co-workers typically work alongside each other in a similar role. The benefits of co-worker support are well recognised in the literature and in the principles of trauma-informed care (Brend & Collin-Vézina, 2022). Previous studies have found that the benefits of co-worker support surpassed supervisory support as well as support from family and friends amongst MHCPs (Follette et al., 1994; Townsend & Campbell, 2009). Co-worker support normalises and reduces the negative effects of vicarious trauma exposure, corrects distorted viewpoints, assists with objectivity of clinical perceptions, provides the opportunity to express emotions that cannot be expressed in front of MHCSUs, and creates a space for sharing beneficial resources (Manning-Jones et al., 2016). As such, co-worker support is proposed to be one of the most influential forms of social support among health care providers (Manning-Jones et al., 2016).

The MDSPSS used in this current study assessed the perceived adequacy of social support from family, friends, and significant others, but it did not assess co-worker support. It may be that the participants in this study did not benefit from the various forms of social support as many were in private practice and, therefore, co-worker support may be limited. In addition, the COVID-19 pandemic may have added to the feelings of isolation for the MHCPs in the study (Jaklevic, 2021).

Vicarious Trauma as Risk Factor for STS

The current study found that increased exposure to vicarious trauma was associated with higher levels of STS. This finding is consistent with existing studies that suggest that MHCPs who are exposed to higher levels of trauma are more inclined to develop STS (Baird & Kracen, 2006; Diehm et al., 2019; Figley, 1995). For example, exposure to vicarious trauma was found to increase the likelihood of developing STS in a metanalysis amongst helping professionals (Baird & Kracen, 2006). Similarly, a more recent study conducted with

Australian psychologists found that STS was positively correlated with vicarious exposure to trauma (Diehm et al., 2019).

Existing studies have reported higher scores on the LEC are consistent with higher STS scores (cf. Chachula, 2021; Tosone et al., 2011; Yazıcı & Özdemir, 2022). However, these studies evaluated MHCPs' personal exposure to trauma, while the current study adapted the LEC to reflect MHCPs' vicarious exposure to trauma through their work. Respondents in this current study were asked if they had been exposed to any of the 16 possible traumatic experiences through their work with MHCSUs in the past month. The findings align with existing research that report an association between vicarious trauma exposure and changes in the MHCP's view of themselves, the world, and others, as well as an increase in STS symptoms that mirror the symptoms of PTSD (Baird & Kracen, 2006; Sutton et al., 2022).

In the current study, psychologists presented with higher levels of exposure to trauma in comparison to lay trauma counsellors. These results were unexpected and contrary to existing South African research (cf. Booysen & Kagee, 2022) that has found that lay counsellors are usually frontline trauma responders because they typically work in disadvantaged community settings where exposure to traumatic experiences are more prevalent, due to high crime rates, gang violence, poverty, and inadequate policing. As a result, existing research has found that lay counsellors are more overwhelmed by the volume and complexity of the trauma narratives that they are exposed to in comparison to other MHCPs in South Africa (Booysen & Kagee, 2022).

A potential explanation for psychologists reporting higher levels of exposure to trauma in this current study is that in South African lay counsellors are usually unpaid volunteers who work on a part-time basis. Their working hours are, therefore, more than likely less than those of psychologists, which could mean that their exposure to trauma work would be less as they may not volunteer on a daily basis. Furthermore, lay counsellors may

have worked for a shorter duration in the field in comparison to the psychologists in this study who have made psychology their career choice, and a shorter time in the field is likely associated with less trauma exposure overtime.

Gender as a Risk Factor for STS

Female participants in this study presented with higher levels of STS, which is consistent with existing research (cf. Baum, 2016; Chung, 2020; Kalaitzaki et al., 2022). Baum (2016) conducted a systematic review of published findings on gender differences in the susceptibility to STS among trauma workers. The conclusion reached was that research findings repeatedly cite females as being more susceptible to STS.

One possible explanation for the increased susceptibility to STS for female MHCPs is that females may be more inclined than their male counterparts to report experiences of emotional distress (Baum, 2016). The second explanation offered is attributed to gender differences in fear structures, which may alter variations in susceptibility to trauma, with females reporting higher levels of fear (Baum, 2016). The influence of fear structures on the susceptibility to STS would align with the Professional Quality of Life theory's definition of STS as a negative "feeling driven by fear and work-related trauma" (Stamm, 2010, p.8). A third explanation offered is that females experience higher levels of empathy, as evidenced by self-report measures and laboratory studies, and higher empathy leads them to experience trauma symptoms as if it were their own (Baum, 2016).

The above findings are supported by the Refined Trauma Model of Trauma Workers in South Africa that the higher the trauma worker's empathy is, the more susceptible they are to developing STS (MacRitchie & Leibowitz, 2010). Empathy facilitates the transference of traumatic content from the primary to the secondary victim and, therefore, makes the empath more prone to developing STS (MacRitchie & Leibowitz, 2010). Therefore, higher levels of

empathy amongst female MHCPs may result in them being more susceptible to STS (Baum, 2016).

An additional consideration for the higher STS levels amongst female MHCPs is that previous personal traumatic experiences place trauma workers at an increased risk of STS (MacRitchie & Leibowitz, 2010). Given that women in South Africa are at an increased risk of exposure to trauma (Padmanabhanunni, 2020a), the female MHCPs in this study may have had personal traumatic experiences, which could have increased their susceptibility to STS. However, this is purely speculative since personal trauma exposure was not assessed in the current study. Furthermore, female MHCPs may identify with female MHCSUs who have experienced trauma, making them more susceptible to STS. As found in a recent South African study, all female psychologists in the sample identified with female MHCSUs who had survived a sexual trauma, with all participants reporting heightened safety concerns and a feeling of being more vulnerable (Padmanabhanunni & Gqomfa, 2022).

The increased susceptibility of female MHCPs to STS does not mean that male MHCPs are immune to the emotional distress associated with vicarious trauma (Baum, 2016). Drawing on three studies, Baum (2016) argues that vicarious traumatisation may manifest differently among males and females, such as strained interpersonal relations, symptoms of depression, hostility, anxiety, and phobias. Future studies may benefit from considering the way in which STS may manifest differently for MHCPs of different genders.

Predictors of Post-traumatic Growth (PTG)

The current study found that vicarious PTG is associated with working with trauma survivors. This finding is consistent with existing research that has found that various factors predict PTG in health care providers. Specifically, the current study found that factors such as STS, level of exposure to trauma, family support, religion, qualification, and the number of dependents a MHCP had were predictors of PTG for participants.

Secondary Traumatic Stress (STS) and Post-traumatic Growth (PTG)

It was found in the current study that higher STS scores predict higher PTG scores, which is consistent with existing studies (cf. Cleary et al., 2023; Kautz et al., 2022; Kimhi et al., 2010; Linley & Joseph, 2006; Manning-Jones et al., 2016).

A longitudinal study conducted with trauma responders during 9/11, the attack on the World Trade Centre in 2001, found that responders with higher levels of STS had more favourable PTG trajectories (Kautz et al. 2022). Similarly, a study conducted with various health care providers (i.e., social workers, psychologists, nurses, counsellors, and doctors) found that higher levels of STS significantly predicted higher levels of vicarious PTG (Manning-Jones et al., 2016). This association was also found in a study conducted with health care providers during the COVID-19 pandemic (Finstad et al., 2021), which aligns with the current study that also took place during the COVID-19 pandemic.

A possible explanation for the association between STS and PTG is that the intrusion symptoms accompanying STS facilitates the cognitive processing that leads to adversarial growth (Cleary et al., 2023; O'Sullivan & Whelan, 2011; Tominaga et al., 2020). Adversarial growth is a term used to describe positive growth following adversity and, therefore, trauma exposure could serve as a catalyst for growth. More specifically, the rumination symptomatology associated with STS forms part of a meaning making process that facilitates PTG among trauma workers (Kautz et al., 2022; Tominaga et al., 2020). The severity of the traumatic event challenges the trauma worker's worldview, which is a process that is central to PTG (Kautz et al., 2022). Therefore, trauma workers may develop an enhanced sense of appreciation, an enhanced sense of self, as well as spiritual growth as a result of trauma exposure (O'Sullivan & Whelan, 2011). The current study provides further support that, despite the difficulties associated with STS symptoms, STS can assist the MHCP in processing the trauma narrative, thereby facilitating PTG.

Another feasible interpretation of this finding is that exposure to cases that increase the likelihood of STS increases the probability that MHCPs will witness the process of healing and growth of the MHCSUs that they work with and, therefore, experience vicarious PTG. Furthermore, witnessing a MHCSU's healing may enhance the MHCP's perception of their own effectiveness as a MHCP, which could contribute towards their own PGT.

An additional consideration is that the trauma workers' empathy may predispose them to both STS and PTG. The Professional Quality of Life theory recognises that a MHCP's empathy could lead them to developing symptoms associated with STS, as well as feelings of fulfilment and personal growth (Stamm, 2010).

Therefore, while STS and PTG appear to be opposite constructs, the findings from the current study and previous research indicates that trauma workers can experience both simultaneously. This finding from the current study provides important insight given that indications of vicarious traumatisation can mask the need for STS support (Manning-Jones et al., 2016). In other words, PTG may not always be associated with well-being since MHCPs can present as thriving even though they are experiencing challenges associated with trauma exposure (Gonzalez-Mendez et al., 2020). This is an important consideration for employers and managers in the mental health care space.

Exposure to Trauma and Post-traumatic Growth (PTG)

The current study found that lower levels of exposure to trauma lead to greater levels of PTG for MHCPs in the sample, while higher levels of exposure to trauma were associated with lower levels of PTG. In general, the negative relationship found in this current study is inconsistent with previous research. For example, a study conducted with therapists working during the COVID-19 pandemic found that PTG was predicted by high levels of exposure to vicarious trauma (Aafjes-van Doorn et al., 2022). A similar study conducted with social

workers found that higher levels of vicarious exposure to trauma were associated with higher levels of vicarious PTG (Weiss-Dagan et al., 2022).

It must be noted, however, that the findings in existing research is also inconsistent. For example, one study found that a higher number of calls fielded by telephonic counsellors was associated with lower levels of vicarious PTG (O'Sullivan &Whelan, 2011). These researchers acknowledge that their findings are incongruent with the literature and attribute the negative relationship between trauma exposure and PTG to factors that were not considered in the study, such as the content of sessions (O'Sullivan &Whelan, 2011).

The finding that higher levels of PTG is predicted by lower levels of trauma exposure can further be elucidated by research conducted by Kautz et al. (2022). The researchers report that trauma exposure across a lifetime may be associated with increasing distress levels, which makes meaning-making cognitions more difficult, thereby decreasing the probability of PTG (Kautz et al., 2022). In other words, trauma exposure across a lifetime, and the subsequent higher exposure levels, is associated with increased distress. Therefore, higher levels of trauma exposure are associated with lower levels of PTG.

The finding that lower levels of trauma exposure predict higher levels of PTG can be understood from the perspective of a longitudinal study that reported a curvilinear relationship between STS and PTG, where moderate levels, and not extreme levels of STS, predict PTG (Kautz et al., 2022). A dynamic relationship between STS and PTG seems to exist where, initially, higher levels of PTG are associated with lower levels of STS at succeeding time points, with subsequent higher PTG scores as STS scores increase (Kautz et al., 2022). This suggests that higher STS scores predict PTG scores up until a point; thereafter, the exposure to trauma may be more harmful than beneficial for the MHCP.

Professional Qualification and Post-traumatic Growth (PTG)

The findings from this current study sheds light on the experiences of PTG amongst professionally qualified MHCPs (i.e., psychologists and registered counsellors) and unqualified MHCPs (i.e., lay counsellors). Overall, the findings demonstrate that the lay counsellors in the sample experienced greater work satisfaction and spiritual connection from their work with trauma survivors in comparison to professionally qualified participants. Furthermore, lay counsellors were found to experience higher levels of PTG in relation to inner strength, new possibilities and opportunities, and fulfilment from trauma work in comparison to the psychologists who participated in the research.

While existing research suggests that lay counsellors experience adverse effects related to trauma work (cf. Ager et al., 2012; Peltzer et al., 2014), there is an increasing acknowledgment that trauma work does not impact all lay counsellors negatively. Many lay counsellors attain a great sense of fulfilment and satisfaction from contributing to the good of their communities and helping others (Padmanabhanunni, 2020c). It is possible that lay counsellors experience more growth associated with trauma work because they often serve under-resourced communities where trauma is rife and, therefore, believe that they are contributing to a great need. As Padmanabhanunni (2020a) argues, lay counsellors in South Africa often work in communities with pervasive resource constraints, which may contribute towards the acknowledgment of their work as important and meaningful and enhance their PTG.

In a South African study, Ortlepp and Friedman (2002) found that lay trauma counsellors reported high levels of personal growth because participants viewed trauma counselling as necessary in the context of South Africa. As such, they found being in a position to help trauma survivors rewarding and fulfilling. Therefore, lay counsellors may derive greater satisfaction, fulfilment, and growth from their work since they believe that they

are contributing towards the field of trauma, which is significantly under-resourced in South Africa.

An additional interpretation of this finding is that the resolution of previous personal trauma may motivate lay counsellors to engage in a role focused on supporting others through a similar experience (Padmanabhanunni, 2020c). In other words, lay counsellors' own personal experiences of trauma may explain the higher levels of personal fulfilment and satisfaction derived from trauma work. This is supported by a study that found that volunteer counsellors who chose trauma work because of their own history of personal trauma were more likely to experience positive changes as a result of the work (Jenkins et al. 2011). However, this interpretation of the current study's finding is speculative since MHPCs' personal trauma exposure was not explored in the current study.

Family Support and Post-traumatic Growth (PTG)

The Refined Trauma Model of Trauma Workers in South Africa suggests that MHCPs who experience more support from their loved ones are likely to have more favourable outcomes following trauma exposure (Stamm, 2010). In the current study, it was found that family support predicts higher PTG scores and is a protective factor against trauma work. This finding is consistent with a South African study that found that positive appraisals of a supportive family environment predicted higher levels of compassion satisfaction among lay counsellors (Padmanabhanunni, 2020c). Similarly, a longitudinal study (i.e., twelve years) conducted with 9/11 trauma responders found that family support was significantly associated with higher PTG scores (Kautz et al., 2022).

An explanation for the relationship between PTG and family support is that sharing with a significant other, after a difficult day at work, has been reported in previous research as helpful, since sharing meant that trauma workers felt known by their partners on an intimate and personal level (Muehlhausen, 2021). Similarly, family support can mitigate

feelings of isolation and allows MHCPs to talk about and process trauma exposure and adopt new outlooks, which supports the process of PTG (Manning-Jones et al., 2016). Therefore, social support, specifically family support, reduces the negative impact of vicarious trauma exposure and increases the potential positive impact of such an experience (Kautz et al., 2022; Manning-Jones et al., 2016).

Number of Dependents and Post-traumatic Growth (PTG)

The current study found that the MHCPs in the sample who had more dependents experienced greater growth through trauma work as well as an increased sense of relating to others following vicarious trauma exposure. While little is known about the role of dependents among trauma MHCPs, this finding is inconsistent with a study conducted with oncology nurses, where findings showed that a greater number of dependents predicted higher levels of emotional exhaustion as participants described caring for their dependents as a "second daily shift" (Jarrad & Hammad, 2020, p. 5).

A possible explanation for the positive implication of more dependents in the current study could be attributed to an increased experience of perceived support and interpersonal relationships associated with more dependents. Interpersonal relationships provide a buffer against STS and predict higher levels of PTG among MHCPs (Lakioti et al., 2020; Tominaga et al., 2020).

This finding may also be explained by a sense of purpose derived from having more dependents. MHCPs who believe that their life has purpose and meaning and see their work as worthwhile present with higher levels of PTG (Lakioti et al., 2020). It is possible that having dependents gives MHCPs a sense of purpose and meaning in life, which in turn is a protective factor for the psychological distress associated with trauma work (Itzick et al., 2018; Lakioti et al., 2020). Experiencing life as meaningful has been associated with a greater sense of fulfilment and satisfaction derived from work and can, therefore, explain the

association between the number of dependents and the level of PTG experienced by MHCPs in this study.

Religion and Post-traumatic Growth (PTG)

The current study found that participants who reported subscribing to a religion experienced higher levels of perceived growth following trauma exposure in comparison to trauma workers who were not religious. This finding is consistent with existing research that has found that religiosity serves as a protective factor for health care workers when dealing with the difficulties associated with trauma work (cf. Gribben et al., 2019; Hinderer et al., 2014; Muehlhausen, 2021).

Participants in the current study who identified as religious scored higher on the 'New Possibilities' subscale of the PTGI–SF. This finding is consistent with the findings from a study conducted with health care workers in Greece during the COVID-19 pandemic, that examined STS and vicarious PTG, where religiosity predicted higher scores on the 'New Possibilities' subscale (Kalaitzaki et al., 2022). Therefore, trauma workers who are religious are more inclined to recognise and embrace new possibilities in their lives following trauma exposure, which facilitates PTG.

Participants in the current study who identified as religious also displayed higher scores on the 'Personal Strength' subscale of the PTGI-SF, which is consistent with Kalaitzaki et al.'s (2022) finding that 'Personal Strength' was predicted by religiosity. Related to this, this finding corresponds with trauma literature that indicates that religiosity aids in personal strength and resilience, given that religion has been found to be a common coping mechanism for trauma exposure (Raghavan & Sandanapitchai, 2019). Prayer has been documented as a specific coping mechanism when dealing with difficult cases and one that assists MHCPs in providing continuous compassionate care to MHCSUs (Muehlhausen, 2021). Existing studies have also found that those with religious beliefs tend to rely on God

during difficult times and, therefore, tend to feel less isolated and alone (Tedeschi & Moore, 2021).

In addition to the above, participants in the current study spoke about their work being 'a calling', which is consistent with existing research that suggests that religiosity is associated with MHCPs experiencing their work as 'a calling', thereby contributing to a sense of purpose and meaning (Muehlhausen, 2021).

In summary, this chapter discusses the main findings of the survey of MHCPs and compares and contrasts these findings to the existing literature. The findings of Phase One, including the prevalence of STS among MHCPs, vicarious trauma exposure and female gender as risk factors for STS, supervision as a protective factor against STS, and family support and religiosity as predictors of PTG lend support to the existing literature. In contrast to the literature, the study found that lower levels of trauma exposure led to higher levels of PTG and perceived social support did not protect against STS. Possible explanations for the findings have been articulated in this chapter.

Chapter Nine: Phase Two Discussion

Phase Two of this research aimed to explore the lived experiences of working with trauma survivors amongst a group of MHCPs. The analysis revealed four superordinate themes: shattered assumptions, the psychological impact of trauma work, personal growth and transformation, and coping strategies for working with trauma. In this chapter, the key findings from Phase Two are discussed and interpreted in relation to existing literature.

Shattered Assumptions and the Psychological Impact of Trauma Work

The current study found that many of the participants' experiences mirror PTSD symptomatology, including intrusive re-experiencing of traumatic experiences they heard during sessions (e.g., intrusive thoughts, flashbacks, and nightmares), hypersensitivity to threat, hypervigilance, and changes in cognition and mood (APA, 2023). These experiences are consistent with South African and international studies that report the presentation of PTSD symptomatology amongst vicariously traumatised health care workers (cf. Kindermann et al., 2020; Orru et al., 2021; Sui & Padmanabhanunni, 2016).

McCann and Pearlman (1990) first defined the term 'vicarious traumatisation' as the negative alterations in the trauma worker's perception of self, others, and the world. Simply, exposure to vicarious trauma can shatter MHCPs' previously held assumptions of the self, others, and the world. The findings from this study confirm that vicarious trauma exposure challenges the MHCP's assumptive worldview, as the participants' accounts describe alterations in their subjective experiences and appraisals of the world, the self, and others following vicarious trauma exposure. In the same way that traumatic experiences can shatter a trauma survivor's assumptions about the self, others, and the world, so can vicarious trauma exposure shatter the trauma worker's appraisals, inner experiences, and worldview (MacRitchie & Leibowitz, 2010; McCann & Pearlman, 1990; McNeillie & Rose, 2021).

More specifically, in this study, appraisals of shattered assumptions related to a loss of optimism and a loss of trust and safety.

Loss of Optimism, Trust, and Feelings of Safety

Participants' loss of optimism following trauma work and their ensuing pessimistic worldview is reminiscent of the pessimistic worldview that accompanies PTSD symptomology (Ferrajão, 2021). The literature on trauma acknowledges that a loss of optimism and a pessimistic worldview extends to vicarious traumatisation. For example, a systematic literature review cited cynicism and a loss of optimism as a prominent alteration in a trauma worker's worldview: "it shatters people's view of the world as being safe, predictable and caring through witnessing the cruelty of mankind" (McNeillie & Rose, 2021, p. 426). Similarly, in this current study, participants attributed their loss of optimism to their exposure to the "evil" in the world.

Pearlman and Saakvitne's (1995) conceptualisation of vicarious trauma is rooted in the constructivist self-development theory, where the primary proposition is that individuals form complex cognitive structures that are used to interpret experiences. Vicarious trauma exposure can alter a person's cognitive schemata about the self and the world. Simply, vicarious trauma exposure can alter a trauma worker's cognitive schemata of their identity and inner beliefs (Pearlman & Saakvitne, 1995). The impact of this is determined by the nature of the trauma narratives that they are exposed to as well as the trauma worker's personal needs and existing schemata (Masson & Graham, 2022). The shattered assumptions reported by participants in the current study can be understood as alterations to the MHCPs cognitive schemata that occur as a result of the cumulative effect of trauma work, profoundly altering their psyche (Masson & Graham, 2022).

Participants in the current study experienced their heightened pessimism about the world and other people's intentions as permanent alterations to their worldview. This finding

is supported by McNeillie and Rose's (2021) systematic review that found that trauma workers feel that their beliefs are forever changed and can never be altered back to their former state. Similarly, the Refined Trauma Model of Trauma Workers in South Africa considers these cognitive disruptions to persist long after the work with the trauma survivor has ended (MacRitchie & Leibowitz, 2010). Furthermore, these alterations have been reported as permanent changes in the cognitive schemata amongst a sample of South African counsellors (Ortlepp & Friedman, 2002).

Vicarious trauma exposure shatters previously held beliefs about safety and is accompanied by an intensified sense of danger in the world and a mistrust of others (McCann & Pearlman, 1990; McNeillie & Rose, 2021; Stamm, 2010). The current study found that participants' prior assumptions about being safe in the world were shattered as a result of vicarious trauma exposure. This finding is consistent with existing research where South African MHCPs report a loss of their sense of safety following vicarious exposure to the cruelty inflicted by humans, which was also associated with a mistrust of others (Ortlepp & Friedman, 2002; Sui & Padmanabhanunni, 2016).

Female participants in the current study reported that working with sexual trauma survivors increased their mistrust towards men and their feelings of vulnerability to sexual assault. There was a strong identification with the vulnerability of the female MHCSUs that they worked with, with thoughts that it could have been them or could happen to them because they are female. This finding corresponds to a South African study exploring the experiences of female psychologists who work with survivors of sexual violence, which found that female psychologists experienced altered worldviews, including a significant increase in feeling vulnerable to sexual assault (Padmanabhanunni & Gqomfa, 2022). Padmanabhanunni and Gqomfa (2022) attribute this altered belief about the self and others to disruptions in the cognitive schemata through the female psychologists identifying with their

female clients. Similarly, an earlier study conducted by Sui and Padmanabhanunni (2016) found that South African female psychologists, who provided care to rape survivors, experienced disruptions in the cognitive schema associated with the world being safe and, as a result, experienced a heightened fear related to their own vulnerability to sexual assault.

Feelings of Hopelessness and Helplessness

Hopelessness and helplessness are associated with PTSD and are prominent responses experienced by MHCPs working with trauma (Bartoskova, 2017; McCann & Pearlman, 1990; McNeillie & Rose, 2021; Stamm, 2010). Participants in the current study described experiences of hopelessness and helplessness associated with vicarious trauma exposure. . These experiences of hopelessness and helplessness meant that participants also experienced doubt related to their effectiveness as trauma workers, with many participants feeling that they are not able to do "enough" to help the MHCSUs that they worked with.

This finding is consistent with a study conducted with trauma MHCPs in Scotland that found that vicarious trauma exposure was associated with hopelessness and helplessness, which were linked to self-doubt and feelings of incompetence (Bartoskova, 2017). This self-doubt and feelings of incompetence, hopelessness, and helplessness is also related to feelings that therapy cannot change what the trauma survivor has endured as well as therapeutic progress being a slow process (McNeillie & Rose, 2021).

These feelings of hopelessness and helplessness also relate to feelings of not being able to make a meaningful change in society due to the persistent high rates of trauma in South Africa (Sui & Padmanabhanunni, 2016). For example, research has found that South African psychologists working with sexual violence survivors experience helplessness and hopelessness because sexual violence is an ongoing pervasive phenomenon, and they felt that there was nothing they could do to stop the ongoing abuse (Padmanabhanunni & Gqomfa, 2022).

The current study was conducted during the COVID-19 pandemic, which likely contributed to the feelings of hopelessness and helplessness experienced by the participants. A recent study found that the COVID-19 pandemic was associated with elevated rates of hopelessness and helplessness among health care providers (Brown-Cotten, 2022). Brown-Cotton (2022) argues that the impact of vicarious traumatisation together with the COVID-19 pandemic contributed towards a vicious cycle of increased feelings of inadequacy amongst the health care workers in their study. A similar study explored the contributing factors to feelings of hopelessness among health care workers during the COVID-19 pandemic (Hacimusalar et al., 2020). The findings indicate that working longer hours, decreased income, and living with high-risk individuals (i.e., those with a heightened vulnerability to COVID-19) was significantly associated with higher levels of hopelessness.

A study conducted by Jue and Ha (2022) with art therapists found that the helplessness experienced by the participants in relation to the COVID-19 pandemic was associated with lowered mindfulness and increased rumination (i.e., of the past and future), which resulted in increased feelings of hopelessness. In addition, the fear of contracting COVID-19 was associated with helplessness (Jue & Ha, 2022). The participants in the study had to manage their own fear of COVID-19 and the associated health concerns and process their own losses, which more than likely contributed to their feelings of hopelessness and helplessness (Jue & Ha, 2022).

The increased feelings of helplessness during the COVID-19 pandemic could further be understood in relation to the self-doubt experienced by many MHCPs, particularly with the sudden transition from in-person therapy to virtual platforms, which many MHCPs felt unprepared and ill-equipped for (Aafjes-van Doorn et al., 2022; Naidoo & Cartwright, 2022).

The helplessness experienced by participants in the current study and previous research can also be understood from the perspective of post-traumatic countertransference in

the therapeutic relationship. Countertransference refers to the conscious and unconscious responses and feelings in response to a MHCSU's trauma narrative and is a common response when working with trauma survivors (Neumann & Gamble, 1995; Tarshis & Baird, 2019). A countertransference response to trauma work tends to present as a strong need to not fail the MHCSU, insecurity about one's professional ability, and feelings of inadequacy (Neumann & Gamble, 1995; Tarshis & Baird, 2019). Neumann and Gamble (1995) argue that vicarious traumatisation has a strong association with countertransference responses among trauma MHCPs. However, they go on to say that supervision and collegial support are important aspects for managing countertransference.

Experiences of Burnout

The participants in the current study reported symptoms that are consistent with burnout, such as fatigue, headaches, nausea, and bodily aches. These somatic experiences are well recognised in existing literature as manifestations of burnout (Bhagwagar, 2022; Maslach & Jackson, 1981; Pirelli, 2020). Many participants also described disengagement from their personal relationships, which they attributed to fatigue and emotional exhaustion (i.e., symptoms of burnout). This finding is consistent with existing research that found that the consequences of burnout for MHCPs may include disengagement and disconnecting from others (Figley, 2013; Pirelli, 2020; Stamm, 2010; Temitope & Williams, 2015).

The literature has long maintained that burnout is a consequence of consistent exposure to vicarious trauma amongst MHCPs (Cieslak et al., 2014; Stamm, 2010). In the South African context, studies have found that burnout is a common experience among MHCPs who work with trauma (Padmanabhanunni, 2020a; Peltzer et al., 2014). A study conducted in Italy with health care providers found that the COVID-19 pandemic was no exception, with the findings showing that health care workers who were exposed to trauma presented with high levels of burnout (Ghio et al., 2021).

Burnout is often related to organisational factors associated with the working environment (Stamm, 2010). The experiences of burnout in the current study may be related to factors within the working environment. For example, Pirelli (2020) found that MHCPs in private practice were at an increased risk of burnout due to a lack of support from co-workers. Most participants in the current study were in private practice and, therefore, it is plausible that this may, at least to some extent, account for the burnout symptoms reported.

Several participants in the current study reflected on imagining alternative outcomes (i.e., counter-factual rumination) for the MHCSUs that they worked with. Counter-factual rumination is central component of PTSD and is defined as thoughts pertaining to hypothetically preferred alternatives to past experiences following negative experiences, such as "what might have been" (Kennedy et al., 2020, p. 322). In this study, counter-factual rumination was particularly related to appraisals of a child trauma survivor's vulnerability and the MHCPs imagining that they could have protected the child if they had been there.

Personal Growth and Transformation

Despite the difficulties associated with trauma work, the current study found that trauma work was a transformative experience for participants. The participants' experiences were reminiscent of vicarious PTG and included the restoration of hope, personal healing, increased gratitude, enhanced empathy, and spiritual growth. While the existing literature emphasises the lack of literature in this field owing to it being a recent field of study, the experiences of personal growth and transformation in the current study are consistent with emerging research. Internationally, Manning-Jones et al. (2015) conducted a systematic review on vicarious PTG and, from the 28 reviewed articles reviewed, it was evident that health care providers who were exposed to vicarious trauma also experience growth and transformation through working with trauma survivors. More recently, a South African study

found that lay counsellors experienced trauma work as rewarding, which is suggestive of vicarious PTG (Sui & Padmanabhanunni, 2016).

In the current study, participants reflected on the restoration of hope for their own lives as well as for the work that they do, which was related to witnessing the resilience, healing, and growth of the MHCSUs they worked with. This is affirmed by Manning-Jones et al.'s (2015) study, where witnessing the resilience of MHCSUs was associated with the realisation that the work MHCPs do is valuable, which also contributed to their feelings of competence in the workplace. Manning-Jones et al. (2015) also report that spiritual growth for MHCPs was associated with witnessing spirituality as a powerful healing tool for MHCSUs. Similarly, in the current study, participants reported that observing MHCSUs rely on their faith as a way of coping and making sense of their trauma inspired them to do the same, resulting in their own spiritual growth.

A recent study conducted with counsellors during the COVID-19 pandemic reported that the stress associated with vicarious trauma exposure was related to rumination and a process of searching for meaning, which also promoted vicarious PTG (Lai et al., 2021). Similarly, a study conducted with trauma counsellors found that a process of meaning making, specifically during supervision, facilitated vicarious PTG for the participants (Deaton et al., 2021). In the current study, most participants indicated they were in supervision, which may provide insight into the experiences of PTG amongst the sample.

Coping Strategies for Working with Trauma

Participants in the current study reported using a range of professional and personal coping strategies to manage the difficulties associated with trauma work.

Professional Coping Strategies

The professional coping strategies used by the MHCPs in the current study included supervision and continuous professional development.

Supervision. Supervision, as a professional coping strategy employed by MHCPs in the current study, assisted with debriefing and the processing of traumatic case. This supervision included accessing collegial support, peer supervision, personal psychotherapy, and formal supervision. In addition to processing trauma exposure and associated emotions, these strategies also allowed participants to feel understood by their colleagues and/or supervisors.

The benefits of supervisory practices for trauma workers as well as MHCSU outcomes have been consistently acknowledged in the literature (cf. Ashley-Binge & Cousins, 2020; McCarty et al., 2023; Sommer, 2008; Taylor & Furlonger, 2011). In providing a space to process and reflect on their responses to the trauma narratives they are exposed to, supervision has proven to aid in the development of a MHCP's self-awareness, can protect the MHCP from the adverse implications of trauma work, and could prevent vicarious traumatisation (Ashley-Binge & Cousins, 2020). A recent South African study found that individual and/or peer supervision was a fundamental coping strategy associated with trauma work because it assists the MHCP with emotional coping (Padmanabhanunni & Gqomfa, 2022). It was also found that supervision facilitated the reflection and processing of trauma content, especially in a context rife with trauma and crime (Padmanabhanunni & Gqomfa, 2022).

Within the South African context, Padmanabhanunni and Gqomfa (2022) advocate for trauma-informed supervision that includes an awareness of vicarious-trauma appraisals (e.g. trauma-workers guilt and blame towards the self), responses to vicarious trauma (e.g. hypervigilance), and the active promotion of self-care strategies. Trauma-informed supervision should include the supervisor being sensitive to the MHCP's response to trauma narratives, symptoms of STS, strong feelings associated with trauma narratives, and the incorporation of discussions around the difficulties evoked by vicarious trauma exposure

(Ashley-Binge & Cousins, 2020; Sommer, 2008). It is suggested that an awareness of vicarious traumatisation and monitoring associated symptomology adds to the quality of supervision and can protect against vicarious traumatisation (Ashley-Binge & Cousins, 2020). The participants' experiences of supervisory support in the current study support a trauma-informed supervisory approach in South Africa.

Continuous Professional Development. MHCPs in the current study reported the benefits of professional development through continuously learning about trauma. Learning was facilitated by courses, reading journal articles, listening to podcasts, or watching videos related to trauma therapy. Continuous professional development was not only experienced as empowering but also mitigated feelings of powerlessness associated with trauma work.

This finding is consistent with existing research that has found that professional development appears to prevent vicarious traumatisation and increases role confidence, thereby reducing feelings of inadequacy (cf. Ashley-Binge & Cousins, 2020; Sommer, 2008; Sutton et al., 2022). The literature suggests that professional development should be ongoing in order to not only protect MHCPs against vicarious traumatisation but also empower MHCPs (Sutton et al., 2022).

Findings from this current study may provide information to mental health care employers and/or organisations on the benefits of continuous training to support and protect their members of staff.

Personal Coping Strategies

Personal coping strategies employed by MHCPs in the current study included modulating their trauma caseloads, self-care activities, and engaging in personal interests. The benefits of these coping strategies have been well-documented in the literature (cf. Padmanabhanunni & Gqomfa, 2022; Sommer, 2008; Sutton et al., 2022).

Participants in the current study also highlighted the benefit of engaging support from their loved ones and feeling that their significant other understands the difficulties associated with trauma work. The benefits of social support have been highlighted in existing empirical research, such as the ways in which social support can protect against the negative impacts of vicarious traumatic exposure and can alleviate feelings of isolation among health care providers (Manning-Jones et al., 2016; Olaniyan, et al., 2020; Scott et al., 2021).

It is noteworthy that social support did not emerge as a protective factor in the association between trauma exposure and STS in Phase One of the study but was identified as a significant coping mechanism by participants in Phase Two. It is possible that, in this sample, social support did not prevent STS but rather assisted the MHCPs in coping with the vicarious traumatisation. Further research could explore the nuances of different support structures and their benefits for MHCPs.

In summary, this chapter discusses the main findings of the qualitative interviews in Phase Two. The findings of this chapter confirm that vicarious trauma exposure is associated with vicarious traumatisation, burnout, a loss of trust and sense of safety, feelings of hopelessness and helplessness, and challenges a MHCPs assumptive worldview. The finding that trauma work was a transformative experience associated with PTG among the MHCPs contributes to the scarce but emerging literature in this field. The clinical implications of these findings have been discussed in this chapter.

Chapter Ten: Phase Three Discussion

Phase Three of the current study involved a randomised control trial to assess the effectiveness of a mHealth application (i.e., the COVID Coach application) in reducing STS and increasing resilience amongst MHCPs. In addition, this phase explored the usability of the COVID Coach application by means of a quantitative inquiry, using the System Usability Scale (SUS), and a qualitative post-experimental inquiry. Overall, the current study found that the results of participants who received the COVID Coach intervention did not differ significantly from the results of those who did not receive the intervention.

The SUS results obtained suggest that the COVID Coach application has an overall "above average" usability rating, with the majority of participants finding the COVID Coach application easy to use (83.3% of the participants) and easy to learn (75% of the participants).

A positive experience of the COVID Coach application was further reflected in the qualitative interviews, with participants reporting that the application was easy to use, supported their wellbeing, and offered an extensive collection of useful tools. In this chapter, the key findings from Phase Three are discussed and interpreted in relation to existing literature.

Effectiveness of the COVID Coach Application in Reducing STS

The evidence base for the efficacy of mHealth interventions in the treatment of STS is lacking, with the bulk of research in this area focusing on PTSD (Willis et al., 2020).

The current study found that the COVID Coach mHealth application was not effective in reducing STS amongst the MHCPs in the current sample. This is contrary to a study conducted among 117 emergency dispatchers who used the PTSD Coach application for one month (Willis et al., 2020). The COVID Coach application is based on the model of the PTSD Coach application. The most frequent emergency calls received by participants in the

study included motor vehicle accidents, suicides, fires, natural disasters, and armed robberies (Willis et al., 2020). Findings from the study demonstrate that using the PTSD Coach predicted a significant decrease in symptomatology associated with STS, depression, alcohol use, and anxiety (Willis et al., 2020). The efficacy of the intervention was evident in the gradual decrease in symptomatology across time and participants in the study found the PTSD Coach application was acceptable and useful (Willis et al., 2020). Similarly, in a study conducted in Sweden, the PTSD Coach application demonstrated clinically significant improvements in PTSD and depressive symptoms of trauma survivors after three months of use (Hensler et al., 2022). The current study's finding that the COVID Coach application was not effective in reducing STS is, however, consistent with the findings of several similar studies (cf. Jones, 2021; van Der Meer et al., 2020; Wickersham et al., 2019) and suggest that while mobile applications like COVID Coach may offer some form of support or resource allocation, they may not be sufficient as standalone interventions.

The lack of effect in reducing STS was found in a randomised control trial of a mHealth application (i.e., Support Coach, the Dutch version of the PTSD Coach application) with health care providers (i.e., nurses, physicians, and paramedics) in the Netherlands who had experienced one or more PTSD symptoms (van Der Meer et al., 2020). The Support Coach application was used by the intervention group and the control group received no intervention. Online self-report measures were used to measure trauma symptomatology, negative cognitions, resilience, and social support before and after the intervention. There was no significant difference in post-traumatic stress symptoms and social support after one month of engaging with the Support Coach (van Der Meer et al., 2020).

van Der Meer and colleagues (2020) postulate that the reduced effectiveness of the application was attributable to the initial low levels of trauma symptomatology among the sample of health care providers, leaving less room for symptom reduction. The feedback

from participants was that the application was useful in offering psychoeducation about PTSD but not effective in assisting with managing trauma symptoms. The researchers further found that the variation among participants in using the application was significant, where participants with lower resilience and more trauma symptoms used the application more frequently and used more tools offered by the application (van Der Meer et al., 2020). It is noted that the attrition rate in their study poses a threat to the validity of the results (van Der Meer et al., 2020). However, despite the lack of significant effectiveness in treating trauma symptoms in the sample, participants rated the Support Coach application as useful, with the majority indicating that they would recommend the application to others (van Der Meer et al., 2020).

An eight-week study that applied the PTSD Coach intervention to a sample of social work students found that, using the application, did not significantly reduce participants' distress and trauma symptoms (Jones, 2021). Furthermore, participants' knowledge of vicarious trauma did not increase, nor did their knowledge of self-care practices. The qualitative data collected in the study showed that participants who used the application reported on the usefulness of the tools offered by the application (Jones, 2021). Jones (2021) theorises that the application was not effective because the majority of the participants did not make time to use the application due to busy schedules and time constraints.

A randomised control study conducted with health care providers in Spain during the COVID-19 pandemic applied a mHealth application intervention,) PsyCovidApp, that focuses on mindfulness and CBT (Fiol-DeRoque et al., 2021). Participants were randomly assigned to the control group or the mHealth intervention group. The intervention group used the PsyCovidApp for two weeks, while the control group received a document containing information about health care providers' mental health during a pandemic.

Findings from the study indicate that no significant differences were found after the intervention on any of the outcome variables (i.e., PTSD, depression, anxiety, self-efficacy, and insomnia). Furthermore, the mHealth intervention did not yield significant improvements in the study outcomes in the intervention group when compared to the control group (Fiol-DeRoque et al., 2021). The researchers offer two explanations for the abovementioned findings (Fiol-DeRoque et al., 2021). First, that the application was not effective among the health care providers in the short term and, secondly, that mHealth interventions alone are not sufficient to produce significant changes given the vast array of challenges that health care providers face. A subgroup analysis revealed that only participants who were receiving additional mental health support (e.g., psychotherapy or psychotropic medication) experienced significant improvements following the mHealth intervention. Fiol-DeRoque et al. (2021) suggest that participants who were receiving additional mental health support were likely more motivated to utilise the application, and that motivation is a key factor in change observed by interventions. It is, therefore, recommended that mHealth applications are used in conjunction with other evidence-based treatments (Fiol-DeRoque et al., 2021).

The findings from the current study are consistent with existing literature that has explored the use and effectiveness of mHealth applications in the treatment of PTSD.

A study was conducted to explore the effectiveness of the PTSD Coach application in treating PTSD symptoms among a sample of people who presented at the emergency department following a motor vehicle accident (Pacella-LaBarbara et al., 2020). The study considered the feasibility, acceptability, and benefits of acute trauma survivors engaging with the PTSD Coach application. The study reported that, while 76% of participants who used the application described the application as moderately to extremely helpful, the engagement with the application was low. Furthermore, the study reported a lack of overall effect on trauma symptomatology, and the participants in the intervention group did not differ

significantly when compared to the control group (Pacella-LaBarbara et al., 2020). The researchers reported low levels of engagement and long-term use of the application among the sample, noting low adaption and attrition rates. These findings were attributed to a lack of time, a lack of interest, and a lack of motivation among participants (Pacella-LaBarbara et al., 2020).

Wickersham et al. (2019) conducted a systematic review to determine the efficacy of mHealth applications in treating PTSD. The effectiveness of mHealth applications in reducing trauma symptomatology was inconsistent, with effect sizes generally ranging from weak to moderate. The researchers report that there was no evidence to suggest that the mHealth application users experienced a greater reduction in trauma symptomatology when compared to the control groups (Wickersham et al., 2019). In general, there was insufficient evidence for significant long-term reduction in PTSD symptoms following the usage of application and the researchers conclude that the efficacy of mHealth interventions is "promising but weak" (Wickersham et al., 2019, p. 8). Similarly, a systematic review conducted by Goreis et al. (2020) also explored the efficacy of mHealth applications in treating PTSD symptomatology. and found no difference between the mHealth application intervention groups and the control groups. Although mHealth applications have shown inconsistent clinical effectiveness, studies on user satisfaction indicate that these digital interventions hold considerable potential and are generally well-received (Wickersman et al., 2019).

Mechanisms of Change of mHealth Interventions

The literature on mechanisms of change offers insight into the results of the current study. In other words, the potential contributing factors to the lack of change as a result of the COVID Coach intervention. The definition of mechanisms of change is the processes or mechanisms that are causally responsible for effective treatment and lead to symptom

reduction (Schumm et al., 2022; Steubl et al., 2021). Understanding the mechanisms of change aids in the efficacy of interventions and minimising non-response to treatments (Schumm et al., 2022). The mechanisms of change of trauma interventions, STS interventions, and digital interventions include human support, guided interventions, frequency of engagement, additional mental health support and motivation, and cognitive restructuring, and reminders to use the mHealth intervention.

Human Support and Guided Interventions

Literature on mechanisms of change suggest that the efficacy of digital interventions is not solely reliant on online aspects (Domhardt et al., 2019). Human support is argued to be an important digital intervention component in treating mental health conditions, including PTSD (Domhardt et al., 2019; Ebert et al., 2018; Steubl et al., 2021). In the current study, human support included weekly emails to ask participants if they had any questions and reminders to continue utilising the application.

Digital interventions accompanied by human support has been shown to predict better treatment outcomes and significantly better adherence rates for mental health interventions than interventions without human support (Domhardt et al., 2019; Ebert et al., 2018). For example, a meta-analysis and systematic review found that adherence to therapy is central to the effectiveness of internet and mHealth interventions in treating PTSD (Steubl et al., 2021).

Human support includes pairing a digital intervention with feedback and guidance on tasks from a psychologist or health care worker, usually weekly, and includes explaining tools on the application, ensuring application users understand the purpose of the tools, and encouraging participants to engage with the mHealth intervention (Ebert et al., 2018). The human support communication can be conducted via video or telephone calls or email correspondence (Ebert et al., 2018). Human support has been highlighted as an important aspect of an intervention, serving as a corrective interpersonal experience in digital

interventions aimed at PTSD (Steubl et al., 2021). Particularly, it is theorised to serve as a corrective experience for interpersonal traumatic experiences, which place the trauma survivor at risk of developing PTSD (Steubl et al., 2021).

Previous research has demonstrated the benefits of human support in the form of guided interventions as a mechanism of change in digital interventions. For example, a systematic review considered randomised control trials of digital interventions for anxiety disorders to better understand the mechanisms responsible for therapeutic change (Domhardt et al., 2019). The study found that guided digital interventions were significantly more effective than a completely unguided intervention on the same digital intervention (Domhardt et al., 2019).

Studies have shown that guided interventions lead to more completed modules (Domhardt et al., 2019; Ebert et al., 2018), as well as lower attrition rates and greater symptom reduction of mental health conditions (Ebert et al., 2018). In addition, it has been found that personal support assists with the lack of personal contact usually associated with mHealth interventions and can result in users engaging more frequently and more effectively with the application (Olff, 2015). For example, a South African pilot study conducted with trauma survivors found that personal support increased an application user's motivation to use the PTSD Coach application (Bröcker et al., 2022). Evidence also indicates that, as the degree of human support increases, the efficacy of a digital intervention in treating mental health difficulties increases (Ebert et al., 2018). For example, scheduled guidance (e.g., a weekly telephonic guidance session) was found to be more effective than on demand guidance (Ebert et al., 2018).

In interviews with the MHCPs in the current study, some voiced feeling overwhelmed by the number of tools offered by the COVID Coach application and being unsure which tools to use. It is possible that the limited human support in the present mHealth intervention

contributed to lower engagement with the COVID Coach application. This finding is consistent with existing studies that have found that interpersonal activity has been associated with beneficial mHealth intervention outcomes. However, mHealth interventions, like the PTSD Coach application, lacks interpersonal interactivity (Goreis et al., 2020). Furthermore, it is argued that the PTSD Coach application may not be effective as a stand-alone treatment for this reason (Pacella-LaBarbara et al., 2020).

Frequency of Engagement

A mechanism of change frequently cited in the literature is the frequency of engagement with the digital intervention, where the daily use of mHealth interventions has been associated with the effectiveness of a digital intervention (Goreis et al., 2020). The current study did not assess the frequency of use among the sample of MHCPs. However, in follow-up interviews, participants explained that their engagement with the COVID Coach application was limited due to time constraints. Therefore, the reduced efficacy of the COVID Coach application could be associated with participants not engaging with the application on a daily basis.

The possibility of low engagement as an explanation for the lack of effectiveness of the COVID Coach application in the current study is consistent with previous studies that have reported low engagement rates with mHealth interventions. For example, two studies exploring the effectiveness of the PTSD Coach application with trauma survivors have found that the longitudinal engagement with the mHealth application was low, with more engagement in the first week and then a drastic decline thereafter (Owen et al., 2015; Pacella-LaBarbara et al., 2020). Similarly, the COVID Coach application has displayed low levels of uptake and usage, with one study conducted with veterans in the USA reporting that the uptake and usage was only 3.3% among eligible participants (Jaworski et al., 2022).

Motivation and Additional Mental Health Support

Motivation is a central mechanism of change for mental health improvements related to mHealth interventions among health care providers (Fiol-DeRoque et al., 2021). Simply, it is argued that health care providers with increased levels of motivation are more likely to act to acquire healthy coping mechanisms (Fiol-DeRoque et al., 2021).

Within the context of their research with health care providers, Fiol-DeRoque et al. (2021) found that health care providers with additional mental health support (e.g., psychotherapy or psychotropic medication) benefited more from the mHealth intervention. Their explanation for this finding is that health care workers who do not have additional support are less likely to take action to make changes in their life and are, therefore, less motivated to utilise the application. They conclude that health care workers are more likely to benefit from mHealth interventions if they are utilised in conjunction with other evidence-based interventions that increase levels of motivation (Fiol-DeRoque et al., 2021).

It is possible that low levels of motivation may explain the lack of effectiveness of the COVID Coach intervention observed in the current study.

Post-traumatic Cognitive Restructuring

The modification of post-traumatic cognitive content is a prominent and well recognised mechanism of change in working with traumatised populations (Schumm et al., 2022). Dysfunctional thoughts are central to the development and continuation of PTSD and, therefore, the modification of these dysfunctional thoughts is a central mechanism of change in treating trauma symptomatology (Schumm et al., 2022).

Dysfunctional trauma-related thoughts predict PTSD symptom severity (Schumm et al., 2022). Given this, changing dysfunctional appraisals related to the trauma, the self, and the world mediates a change in trauma symptomatology (Schnyder et al., 2015). A new perspective on dysfunctional appraisals develops through learning to differentiate between

the past trauma and the current moment (Schnyder et al., 2015). For example, a trauma survivor identifying the triggers of intrusive re-experiencing and the related emotions and recognising that these are not threatening in the present moment and does not necessarily apply to their life as it currently is (Schnyder et al., 2015). A comprehensive literature review analysing 65 studies confirms that reducing the negative thoughts associated with PTSD significantly predicts the degree of PTSD symptom reduction and offers strong evidence for the simultaneous decrease in negative post-trauma cognitions and trauma symptomatology (Brown et al., 2019).

Among health care providers, cognitive restructuring has been useful in treating the cognitive alteration that occurs due to vicarious trauma exposure (Pollock et al., 2020). Cognitive alterations associated with trauma exposure among MHCPs presenting with STS usually includes alterations in trust towards others, an increased sense of vulnerability, and a heightened feeling of helplessness (Bercier & Maynard, 2015). For this reason, mHealth applications that apply cognitive restructuring and the processing of emotions and beliefs that are associated with the trauma are effective (Bercier & Maynard, 2015).

During interviews, the MHCPs in the current study reported a loss of optimism, a loss of trust and safety in the world, and increased feelings of vulnerability, which they related to their work with trauma survivors. These thoughts and feelings are characteristic of trauma symptomology and, as such, modifying the thoughts associated with trauma and intrusive re-experiencing would be an important mechanism of change in treating the trauma symptomatology. However, while the COVID Coach application used in this study has a tool called “Change your perspective”, which draws on CBT to modify dysfunctional thoughts, the application does not focus on modifying thoughts associated with trauma and intrusive re-experiencing. This may offer an explanation as to why the COVID Coach application was not effective in treating or reducing the STS that the MHCPs in this study presented with. STS In

other words, the lack of cognitive restructuring for cognitions associated with trauma is a mechanism of change that is lacking from the COVID Coach intervention and, therefore, it is probable that the mHealth application may not be useful in targeting symptoms associated with STS, thereby being ineffective in reducing STS levels.

Regular Reminders

A final mechanism of change in digital interventions is regular reminders to engage with the application, which increases the usage of the application (Ebert et al., 2018).

In the current study, weekly reminders were sent to all participants via email and the participants were asked to set daily reminders on the application. and. However, studies have found that sending regular reminders as a strategy to increase the usage and, therefore, the effectiveness of the mHealth application is more effective when participants are prompted to engage with specific tools or content that is relevant to what they are currently experiencing (Ebert et al., 2018).

The COVID Coach reminders can only be set for four of the tools offered by the application and, therefore, it is possible that the available reminders may not have been for the specific tools the participants needed at the time.

Effectiveness of the COVID Coach Application in Enhancing PTG and Resilience

The current study found that the COVID Coach intervention did not significantly increase resilience and PTG among the intervention groups of MHCPs. This finding is noteworthy since one of the goals of the COVID Coach application is to increase and build resilience (National Centre for PTSD, 2022). An analysis of the available research reveals that the effectiveness of mHealth applications in increasing resilience and PTG after trauma exposure is inconsistent.

A randomised controlled trial conducted with National Health Service (NHS) frontline health care providers during the COVID-19 pandemic investigated the effectiveness

of two digital interventions, an existing digital intervention (i.e., the My Possible Self application) and a new digital intervention (i.e., the Staff Wellbeing Project application) (De Kock et al., 2021). The four-week study compared an intervention group to a control group on outcomes that included anxiety, depression, mental well-being, resilience, and gratitude (De Kock et al., 2021). Findings show that the Staff Wellbeing Project application yielded a slight increase in resilience post-intervention, while the My Possible Self application predicted a decrease in resilience post-intervention (De Kock et al., 2021). Although the researchers did not provide an explanation for these findings, the varying effectiveness of such digital interventions underscores the inconsistent performance of mHealth applications in enhancing resilience after exposure to trauma.

A comprehensive systematic review assessed the effectiveness of resilience enhancing interventions among health care providers (Kunzler et al., 2020). The study included 44 studies across 36 countries that had applied randomised control trials with the aim of investigating the effectiveness of various interventions for improving resilience and PTG among nurses, doctors, hospital staff, social workers, and psychologists (N = 6 892). The studies reviewed included 19 studies that combined mindfulness and CBT, two studies that entailed a resilience intervention for elementary school children (i.e., ERASE: Enhancing Resiliency Among Students Experiencing Stress), and 23 studies that included an unspecified resilience training (Kunzler et al., 2020). Most interventions in the reviewed studies included psychoeducation and the format of the interventions were either face-to-face or digital interventions (only three studies were found). No differences were observed based on the format of delivery of the intervention (Kunzler et al., 2020). Kunzler et al. (2020) report that there is conflicting evidence on the effectiveness of interventions in fostering resilience and PTG among health care providers. Overall, the findings of their study present uncertain evidence regarding the potential benefits of resilience and PTG interventions for stabilising

and enhancing the mental health of health care providers. The very low certainty evidence is attributed to limitations in the methodology of the research studies, the variation in results across studies, and the small sample sizes of the studies (Kunzler et al., 2020). Beyond the limitations of the reviewed studies, the researchers theorise that the lack of effectiveness of the interventions may be attributed to health care providers being exposed to high levels of stress (Kunzler et al., 2020). Therefore, it is possible that the high demands of the profession mean that a mHealth application alone would be ineffective.

The ineffectiveness of the COVID Coach application in increasing resilience and PTG in the current study is consistent with the findings from a study conducted with a group of oncology nurses that focused on the effectiveness of the Provider Resilience mHealth application, an application aimed at increasing the resilience of health care providers (Jakel et al., 2016). The quasi-experimental study involved two non-randomised groups, an intervention group and a control group, and compared pre-test and post-test scores among the sample of registered nurses. The findings showed no significant difference between the pre-test and post-test scores for the treatment group after six weeks (Jakel et al., 2016). The researchers attribute the lack of change in resilience to a lack of statistical power. In addition, they theorise that the no cell-phone policy at the nurses' place of work may have played a role in the outcome (Jakel et al., 2016).

In contrast, in van der Meer et al.'s (2020) study, the group of health care providers presenting with trauma symptoms that received the mHealth intervention (i.e., Support Coach) displayed a higher increase in resilience scores after the intervention in comparison to the control group. While the researchers attribute the efficacy of the mHealth intervention to the tools that increase resilience, they do not specify which tools beyond recognising that the application normalises the emotions associated with trauma exposure (van der Meer et al., 2020).

Mechanisms of Change for Resilience

Research on resilience and PTG in the aftermath of trauma is still in the exploratory stage and the mechanisms by which an intervention impacts a person's functioning and predicts change remains largely unclear (Burton et al., 2015).

This section draws on literature that highlights various mechanisms of change that predict resilience and PTG in interventions with trauma survivors and those exposed to vicarious trauma through their work. Consideration is given to face-to-face interventions as well as mHealth interventions. These mechanisms of change are utilised to elucidate the ineffectiveness of the COVID Coach application in enhancing resilience and PTG among the MHCPs included in the intervention group of this current study. These mechanisms of change include social support, cognitive restructuring, interventions aimed at specifically addressing trauma, psychoeducation, engagement time, and social and cultural applicability.

Social Support. Social support is an important factor in predicting PTG and resilience. In their systematic review, Burton et al. (2015) note that the mechanisms through which social support produces shifts in PTG and resilience are not sufficiently understood. However, it is evident from research that it is a fundamental part of trauma recovery, with disclosure of a trauma exposure being regarded as an integral part of the trauma recovery process, PTG, and resilience (Burton et al., 2015).

This mechanism of change extends to interventions for MHCPs, where psychosocial support (e.g., peer support, peer supervision, clinical supervision, access to a hotline, or debriefing sessions) is reported as a key aspect for enhancing the effectiveness of resilience interventions following vicarious trauma exposure (Pollock et al., 2020). Social support introduces a sense of safety, connection, and support that would contribute to the effectiveness of an intervention with MHCPs (Pollock et al., 2020).

mHealth applications as a stand-alone resilience intervention post-trauma exposure are less likely to be effective (Sander et al., 2020). It is suggested that mHealth applications should complement other intervention and treatment options, rather than be used as a substitute (Sander et al., 2020). The intervention in the current study did not explicitly include focusing on support systems in combination with the COVID Coach application, as this was not an objective of the study. The COVID Coach application offers contact details for supportive resources (e.g., physician support line, stress and crisis counselling line, and therapy for essential workers) and support groups (e.g., peer-to-peer support groups) for MHCPs. However, the contact details provided are USA-based. Therefore, the mHealth intervention in the current study was, essentially, applied as a stand-alone intervention.

Cognitive Restructuring. The second mechanism of change for resilience and PTG interventions highlighted in the literature is cognitive restructuring and meaning making.

Cognitive reappraisal refers to process where a person reappraises the traumatic experience and assigns meaning to it (Burton et al., 2015). Cognitive reappraisals of the world, the self, and others is consistently cited in the literature as an important mechanism of change (Ang et al., 2022; Burton et al., 2015; Pollock et al., 2020). If a person is unable to make meaning of their experience, their belief systems can be negatively affected, which sustains trauma symptomatology (Burton et al., 2015). Negative appraisals are often treated with CBT interventions that involve the cognitive restructuring of distorted thoughts and beliefs by identifying and challenging distorted thoughts with the aim of modifying a person's view of the trauma, the world, the self, and others (Burton et al., 2015; Pollock et al., 2020).

The reappraisals of distorted and dysfunctional beliefs as fundamental to treating trauma symptomatology and building resilience and PTG and extends to digital interventions. As a metanalytic study reports, resilience in digital intervention groups were significantly

more effective in enhancing resilience when cognitive appraisals were central to the intervention (Ang et al., 2022). In particular, for health care providers, self-efficacy is highlighted as a modifiable cognition that is a central predictor of resilience and PTG, given that it entails a MHCP's beliefs about their own capabilities (Cieslak et al., 2016; Pollock et al., 2020).

A study conducted with health care providers (i.e., doctors, nurses, first responders, social workers, and psychologists) and human service professionals (i.e., police officers, firefighters) exposed to vicarious trauma reported self-efficacy as a central mechanism of change for digital interventions (Cieslak et al., 2016). Participants were randomly assigned to an intervention group (i.e., digital self-efficacy enhancement intervention) or a control group (Cieslak et al., 2016). The digital intervention focussed on improving the health care providers' beliefs related to their work efficacy and their ability to manage stressors effectively. Mediation analysis revealed that the digital self-efficacy enhancing intervention resulted in lower STS and higher PTG through self-efficacy change (Cieslak et al., 2016). This finding is further supported by Pollock et al.'s (2020) study that assessed the facilitators of change in interventions aimed at enhancing the resilience of health care providers during a disease outbreak and the aftermath of a pandemic. The researchers report that a health care provider's confidence in their efficacy is a fundamental aspect of a successful intervention during and after a pandemic (Pollock et al., 2020). The COVID Coach application used in the current study offers a tool titled "Change your Perspective", which offers various positive appraisals about the self, adversity, and self-efficacy. However, the statements incorporated in this tool are generic. For example, "I am able to respond effectively", "I have skills to handle the situation", "These emotions are telling me something they won't hurt me" or "My thoughts are just thoughts; they're not always right, don't believe everything you think". These reappraisals are not tailored to MHCPs, or the distorted thoughts typically associated

with STS and vicarious trauma exposure. It is possible that this reduced the efficacy of the COVID Coach application in modifying the STS cognitions experienced by participants in the study.

Tailored mHealth Interventions. Specifically tailored mHealth interventions are highlighted as a contributing factor for effective interventions. A systematic review reports that mHealth applications that are specifically tailored to PTSD show greater efficacy in improving resilience and PTG (Sander et al., 2020). Specifically, psychoeducation on vicarious trauma, cognitive restructuring of trauma appraisals, and processing the emotions and beliefs associated with the trauma increases the efficacy of the mHealth intervention (Sander et al., 2020). Furthermore, developing applications to increase resilience for specific target groups (e.g., sexual trauma survivors, refugees, and soldiers) impacted by trauma exposure is recommended (Sander et al., 2020).

The COVID Coach application was designed to assist the general public, veterans, and health care providers in coping with stress and mental health difficulties during the COVID-19 pandemic (Jaworski et al., 2021) and, therefore, was not specifically tailored to the sample in the current study. While the mental health focus includes PTSD and the target group includes MHCPs, the COVID Coach application is not tailored as a resilience enhancing intervention for MHCPs exposed to vicarious trauma. This may offer insight into the decreased efficacy of the COVID Coach application in increasing resilience and PTG in the current study.

Psychoeducation. Psychoeducation is a prominent facilitator of change associated with resilience and PTG interventions. This is shown in a systematic review that explored the effectiveness of interventions aimed at increasing resilience among health care providers (Cleary et al., 2018).

The systematic review included 33 studies, of which 15 were single-arm pre-post-designs, 10 included randomised control trials, five used a non-randomised controlled design, and three studies were qualitative studies (Cleary et al., 2018). A significant increase in resilience scores were observed in 11 of the studies, while five studies found a significant difference between the treatment and control groups in resilience levels. The remaining studies did not reflect a significant increase in resilience scores (Cleary et al., 2018). The analysis of the effectiveness of the interventions suggests that interventions that included training and psychoeducation were more effective in increasing resilience levels among health care providers than those that did not include a psychoeducational component. More specifically, resilience interventions yield higher efficacy levels when they facilitate a process where health care providers can understand resilience, identify triggers for compassion fatigue, and enhance self-awareness (Cleary et al., 2018). While the COVID Coach application used in the current study offers a "Learn" section, resilience among health care providers and, specifically, trauma workers is not covered in the tools offered.

Frequency of Engagement. Engagement time with an intervention has been referenced as a mechanism of change for building resilience among health care providers (Cleary et al., 2018). Recent research suggests that the frequency and duration of application usage plays the most significant role in the effectiveness of a mHealth intervention (Cleary et al., 2018, Comtois et al., 2022). Studies with a total intervention engagement time of eight hours or more displayed a higher probability for increasing resilience, across digital and face-to-face interventions (Cleary et al., 2018). This suggests that short engagement with an intervention is ineffective in increasing resilience following vicarious trauma exposure for health care providers.

The current study did not measure participants' duration of engagement with the COVID Coach application. However, one can speculate that participants may not have

engaged with the application for long enough periods of time. Therefore, limited engagement with the application may, in part, offer an explanation for the lack of efficacy in building resilience and PTG among the sample. This finding is also consistent with the qualitative interviews, where participants spoke about time being an obstacle in making use of the full benefits offered by the application.

Social and Cultural Applicability. Socio-cultural background is an additional consideration in terms of mechanisms of change. Cultural factors impact the intervention trajectory in relation to resilience and the development of PTG (Burton et al., 2015). This is demonstrated in research that assessed the facilitators of change in interventions aimed at enhancing the resilience of health care providers during a disease outbreak and the aftermath of a pandemic (Pollock et al., 2020). The review reported that interventions that are culturally adapted to align with the local needs of participants yield more efficacy among health care providers (Pollock et al., 2020). Therefore, tailoring an intervention to the cultural context promotes the effective use of the intervention. In order for an intervention to effective, consideration would need to be given to the language used, culturally accepted community entry, appropriate literacy levels, and cultural norms (Pollock et al., 2020).

The COVID Coach application may have yielded less benefits for the sample in the current study given that the application was developed for the American context and is has not been culturally aligned to the South African context. This is evident in this sample of MHCPs specifically mentioning that the resources offered by the COVID Coach were not culturally suited and only included American resources and contact details.

The Usability of the COVID Coach Application

The COVID Coach application demonstrated good usability in the current study among the sample of MHCPs, with an above average SUS score. Most participants indicated

that the application was easy to use and learn, and they felt confident using it. This finding is consistent with existing research.

A study exploring the usability of mHealth applications in supporting the mental health of essential workers and unemployed individuals during the COVID-19 pandemic, reported above average usability of the COVID Coach application among the sample (Comtois et al., 2022). Similarly, another study exploring the usability of a range of digital mental health tools among essential workers and people unemployed due to the pandemic found that the SUS scores of the digital interventions (which included the COVID Coach application) fell within the acceptable range of usability (Mata-Greve et al., 2021). The COVID Coach application was used by 6.2% of the essential workers in the sample. It should be noted that participants in the study could use any application to cope with stress and the usability rating is, therefore, for all the applications used by the participants (Mata-Greve et al., 2021).

The favourable usability rating of the COVID Coach application in the current study was confirmed qualitatively, with participants reporting that the design was appealing, and the application was easy to use. Participants also commented that the COVID Coach application promoted their wellbeing, alerted them to mental health challenges, served as a reminder to self-care, and offered an extensive library of tools. Many participants indicated that they would use the application as a long-term resource.

The benefits participants in the current study derived from the COVID Coach application appear to align with the tools that they reported as most useful. For example, for participants, the most useful tools offered by the application included the “Mood Check” tool, the guided meditation audio recordings, and deep breathing exercises. The “Mood Check” tool was designed to increase the user’s awareness of their wellbeing, anxiety, mood, and trauma symptomatology. This finding is supported by a study that examined digital tools

among essential workers during the pandemic that found that participants found mindfulness and meditation tools and symptoms tracking tools in mHealth interventions particularly beneficial (Mata-Greve et al., 2021).

Conclusion

Given the favourable quantitative and qualitative reports of the COVID Coach application's usability in the current study, it is noteworthy that participants who used the application did not differ significantly in comparison to those who did not receive the intervention. As discussed, this may indicate that the mechanisms of change and factors outside of the application are responsible for the lack of effectiveness of the intervention in this study.

It is further possible that, while the COVID Coach application offers many benefits to the user, it would yield more benefits for STS and burnout when used in combination with other supportive strategies. As research suggests, mHealth applications yield the most benefit as trauma interventions when used as a treatment support tool (Deady et al., 2023). A blended approach of personal support and mHealth tools allows for treatment outcomes to be amplified and accelerated, and enhances motivation (Deady et al., 2023). Therefore, it is recommended that the COVID Coach application should augment not replace other personal supportive structures, such a personal therapy, peer supervision, and clinical supervision. This aligns with the COVID Coach website that states that the application is not meant to replace the treatment of trauma symptomatology and should be used as a supplement to additional care strategies (US Department of Veteran Affairs, 2022).

In summary, while the participants in the current study who received the COVID Coach intervention did not differ significantly to those who did not receive the intervention, important insights into the use and effectiveness of mHealth interventions for MHCPs have been offered. While the effectiveness of past mHealth applications in treating STS, increasing

resilience and PTG after vicarious trauma exposure is inconsistent, the mechanisms of change discussed in this chapter provide insight into interventions aimed at supporting MHCPs who work with trauma survivors.

Chapter Eleven: Discussion and Conclusion

This study was motivated by the high burden of trauma in South Africa that places frontline MHCPs at risk of burnout and developing STS (Padmanabhanunni, 2020a). MHCPs are on the frontline of trauma work and the accumulation of vicarious trauma exposure has been associated with STS and burnout. STS is a debilitating condition and, if left untreated, may lead to reduced job satisfaction and decreased efficiency in therapeutic services offered (McCarty, 2023; Sui & Padmanabhanunni, 2016). The majority of trauma interventions focus on trauma survivors and not the MHCP working with the survivor. Furthermore, few South African studies have been conducted that investigate STS among trauma workers, particularly in the context of the COVID-19 pandemic. Therefore, this current study makes an important contribution to local and international research in this area.

Digital mental health interventions have the potential to address adverse mental health outcomes in a cost-effective manner (Schueller & Torous, 2020). However, the effectiveness of these interventions has not been comprehensively evaluated against existing evidence-based treatments (Schueller & Torous, 2020). The interventions that have been tested are for mental health disorders, such as depression, PTSD, and anxiety, and focus more on MHCSUs (Huckvale et al., 2020). There is no current research on the efficacy of these interventions for MHCPs in South Africa. Therefore, the current study makes a central contribution to the literature in this regard.

This study makes a significant contribution to the field of research on the use and effectiveness of mHealth interventions for MHCPs and it accomplished this through three interrelated phases. The first phase sought to investigate the prevalence of STS and identify associated risk and protective factors. The second phase aimed to understand the lived experiences of working with trauma survivors for MHCPs. The third phase implemented a randomised control trial and evaluated the effectiveness of an internationally developed

mHealth application (i.e., COVID Coach) that has been designed to support self-care and overall mental health during the pandemic.

This final chapter discusses the major findings of this study as well as the theoretical and clinical implications thereof. Additionally, the limitations of the study are presented, and suggestions are offered for future studies.

Core Findings and Implications for Interventions

The findings of this study confirm that STS is prevalent among MHCPs in South Africa, as more than a quarter of the sample presented with moderate levels of STS. The qualitative lived experiences of the participants further confirm the adverse psychological impact of vicarious trauma exposure, given that participants' accounts were reflective of PTSD and consistent with STS.

Participants' experiences included shattered assumptions about the self, others, and the world, as well as feelings of helplessness, hopelessness, and burnout. These findings are significant as they confirm the impact of the accumulation of vicarious trauma work on MHCPs. These findings indicate that it is crucial for MHCPs to protect themselves against the potential negative implications of vicarious trauma. The importance of this is further supported by the shortage of MHCPs and the high trauma burden in South Africa (Hitge & Van Schalkwyk, 2018; Nguse & Wassenaar, 2021). STS could cause MHCPs to leave the field of trauma work prematurely and/or reduce their efficacy in their roles. It is imperative that organisations and clinical supervisors are aware of these implications in order to offer support to their employees in managing the negative implications of trauma work. MHCPs themselves also need psychoeducation on the possible implications of trauma exposure in order to increase their ability to prevent and manage STS.

The results of this study offer insight into the risk and protective factors associated with vicarious trauma exposure. These results increase our understanding of what places

MHCPs at risk of developing STS and what may protect them from the negative implications associated with vicarious trauma exposure through their work.

This study found that increased exposure to vicarious trauma was associated with higher levels of STS. Furthermore, a higher caseload of trauma survivors placed participants at an increased risk of burnout and STS. The need to moderate a MHCP's trauma caseload is supported by the finding that lower amounts of exposure to trauma were associated with experiences of PTG, while higher levels of trauma exposure were associated with lower levels of PTG.

MHCPs in private practice are able to protect themselves from the implications of vicarious trauma exposure by moderating their trauma caseload where possible, while those within organisational or institutional do not always have this same level of control. These findings have implications for organisations that employ MHCPs as they demonstrate that organisations must consider and actively monitor the allocation of trauma cases. Similarly, clinical supervisors should be cognisant of the implications and risks associated with a high trauma caseload, as this will enable them to guide their supervisees in monitoring their caseload to better protect themselves from the negative implications of trauma work and identify early onset STS. In doing so, the trauma worker will be more likely to experience PTG associated with their work, which could increase the longevity of the trauma workers' careers, reduce turnover in organisations, and enhance the quality of services offered.

The finding that female MHCPs have an increased susceptibility to STS in comparison to their male counterparts presents considerations for MHCPs, organisations, and clinical supervisors. However, organisations, employers, and clinical supervisors should not dismiss the impact of trauma work on male MHCPs due to the lack of STS symptomatology as their distress may manifest differently.

The findings from this study highlight the protective function of supportive structures against the negative implications of vicarious trauma exposure among MHCPs. Family support was found to be a protective factor against trauma work and predicted higher levels of PTG. Importantly, MHCPs' perception of their support structures (i.e., social support, family support, and friend support) had a positive correlation with compassion satisfaction. The qualitative accounts further support that time spent with loved ones and feeling understood by loved ones served as a personal protective factor for trauma work. The implication of this is that engaging support structures can serve as a positive coping mechanism for MHCPs working with trauma. Therefore, it is recommended that MHCPs maintain a healthy work-life balance to sustain a strong social support system in their personal lives.

Accessing collegial support, peer supervision, personal psychotherapy, and formal supervision were revealed as coping strategies for working with trauma. In addition to processing the trauma exposure and associated emotions, these strategies also allowed participants to feel understood by their colleagues or supervisors. This finding highlights the benefits of supervisory practice in relation to trauma work and it is recommended that organisations consider including frequent supervisory support for their employees. MHCPs in private practice are encouraged to seek supervisory support.

Participants in this study also described the benefits of continuous professional development and it is, therefore, recommended that organisations incorporate frequent training sessions related to working with trauma and that MHCPs in private practice continuously seek training in trauma work.

Digital Mental Health Interventions: Moving from Promise to Results

Mental health disorders contribute significantly to the global burden of disease. However, mental health care needs are largely unmet in low-to-middle-income countries,

where almost 90% of people with mental health diagnoses do not receive adequate treatment or follow-up care (Carter et al., 2021). Digital mental health interventions are emerging as valuable interventions in developing contexts such as South Africa. Digital mental health interventions include any mode of delivering a mental health care intervention on an online platform or mobile device. This includes mobile phone applications, online software, text messages, teletherapy, and applications on smartwatches (Carter et al., 2021; Schueller & Torous, 2020).

The barriers to care in low-income settings include a lack of knowledge of mental health disorders, financial constraints, stigma, and limited access to mental health care resources (Carter et al., 2021; Kagee, 2006). Effective digital mental health interventions offer great promise in bridging the mental health gap since they can be used to overcome the barriers that prevent in-person delivery and can make interventions accessible to under-resourced communities (Carter et al., 2021; Teachman et al., 2022). In addition, digital mental health interventions have shown efficacy in symptom reduction and treatment of common mental health disorders, including depression, substance misuse, anxiety, and PTSD (Kaminer et al., 2018).

However, despite their potential and reach in developing contexts characterised by a low ratio of MHCPs to population, very few digital interventions are supported by robust scientific studies that have tested their efficacy in these settings (Fu et al., 2020). Most digital mental health interventions have been developed and tested in higher income countries, which raises questions about the transportability and applicability of these interventions in other settings (Carter et al., 2021). For digital health interventions to be of significant benefit for people in developing contexts such as South Africa, their efficacy needs to be established by means of comprehensive studies, such as randomised control trials.

Randomised control trials form part of evidence-based practice that aligns with the international standards for producing clinical research and has been referred to as the "gold standard" of evidence (Rajasekar & Kumar, 2019, p. 1215). There is a significant evidence-based practice gap in this regard in South Africa (Kagee, 2006; Kaminer et al., 2018). Almost two decades ago, Kagee (2006) highlighted that South African mental health research has failed to base clinical research on empirical findings and this problem continues to persist. The need for evidence-based interventions is particularly important in South Africa. Due to the financial constraints, scarcity of MHCPs, cultural barriers, and stigma that impede the uptake of mental health care, there is a significant need to maximise the likelihood of success in the treatment of mental health disorders (Kagee, 2006; Kaminer et al., 2018).

Digital mental health interventions that are supported by robust evidence have been largely tested on MHCSU populations and not specific cohorts, such as MHCPs (Huckvale et al., 2020). At the time of this research, no studies could be found that evaluated the efficacy of digital mental health interventions among MHCPs in South Africa. Therefore, this study represents an important contribution to the evidence-base in this area.

Lessons Learned and Recommendations for Future Research

To accelerate the implementation of digital evidence-based mental health interventions in developing contexts, there needs to be a body of research and theory informing effective implementation and evaluation processes (Fu et al., 2020). This study has the potential to offer guidelines for future research investigating the efficacy of digital mental health interventions. The existing international literature has highlighted barriers and facilitators in implementing interventions and some of these findings are relevant in the current study and the South African context. The perception of insufficient technological skills and unease with digital platforms are significant obstacles faced when implementing digital mental health interventions (Graham et al., 2020; Ramachandran et al., 2023). It is

possible that this presented a barrier to the implementation of the COVID Coach application in the current study. To overcome this barrier, future studies should consider pairing a digital mental health intervention with human support, such as feedback and guidance on tasks from a MHCP. Digital interventions accompanied by human support predict better treatment outcomes and significantly better adherence rates for mental health interventions than interventions without human support (Domhardt et al., 2019; Ebert et al., 2018).

Personal support may assist those who are not intrinsically motivated to use mHealth applications (Pacella-LaBarbara et al., 2020). Furthermore, personal support can assist in determining if a guided intervention will improve mHealth application engagement levels. A guided intervention could entail guidance on which tools to use, a personalised intervention plan, face-to-face check-ins with participants, and access to social resources. In the current study, a general video was sent to participants demonstrating how to navigate the COVID Coach application and an overview of the tools on offer, followed by weekly reminders and check-ins, and technical support when needed. However, personal support and tailored guidance was not offered beyond this, and participants were only encouraged to use any tools offered by the application. Some participants described the array of tools as overwhelming and, therefore, personal support may reduce these feelings.

Participants in this study reported that they had limited time available to engage with the COVID Coach application. Therefore, personal support may encourage application users to prioritise their own self-care despite time constraints. It has been argued that the PTSD Coach application is not designed to maximise user engagement because users need to engage with the application instead of tailored content being presented to the application user (Pacella-LaBarbara et al., 2020). The COVID Coach application is built on the PTSD Coach model and, therefore, it is possible that it presents a similar barrier to engagement. Conducting a needs assessment and tailoring content to the user's needs and symptom

presentation may be beneficial in promoting engagement with the application (Graham et al., 2020; O'Connor et al., 2016). Tailoring the application to the South African context is also recommended based on the feedback received from participants in the current study.

A common barrier to digital mental health interventions is the preference for conventional face-to-face delivery and MHCPs' resistance to change (Graham et al., 2020). This may have presented a barrier in the current study, particularly in the context of the COVID-19 pandemic where many aspects of life transitioned to digital platforms. During the COVID-19 pandemic, many people report experiencing 'digital fatigue' or 'zoom fatigue' related to the demands of online work and the feelings of depletion experienced from long hours behind a screen (Merchant et al., 2023). MHCPs have reported experiencing significant stress and fatigue in relation to the transition to online service delivery (Aafjes-van Doorn et al., 2022; Goldschmidt et al., 2021). It is possible that the digital intervention delivery presented a barrier in the current study. Therefore, it is recommended that future studies consider blending digital mental health intervention delivery with a face-to face component, such as a social support group (Graham et al., 2020).

Non-adherence and lack of engagement with the full range of tools offered by the intervention is a frequent barrier in digital mental health interventions (Graham et al., 2020; Ramachandran et al., 2023). It is probable that this presented a barrier in the current study, as some participants indicated that time constraints effected their ability to engage fully with the COVID Coach application. Graham et al. (2020) suggest tracking engagement time and monitoring engagement with the intervention. Therefore, future studies could consider defining user compliance from the outset of the intervention, including identifying what outcome is considered optimal engagement and what is considered non-adherence (Graham et al., 2020). Furthermore, including educational resources on the application's demonstrated efficacy could enhance user engagement with the intervention and overcome the barrier of

negative perceptions toward digital mental health interventions that MHCPs may hold (Graham et al., 2020; O'Connor et al., 2016; Ramachandran et al., 2023).

The complexity of digital interventions is a frequently encountered barrier to implementation. Graham et al. (2020) propose offering an educational resource detailing the range of tools offered by the digital mental health intervention to increase the user's knowledge of the various features offered by the application. In the current study, all participants received a video that included guidance on the purpose of the COVID Coach application, how to navigate the application, and a demonstration of the various features available in the different sections of the application. The video also provided an overview of the tools available on the application, where to locate the tools, and a demonstration on how to engage with the tools. In addition, a written guide was provided to all participants, where information and pictures were used to demonstrate the various features and tools offered by the application. These educational resources likely served as facilitators in implementing the digital mental health intervention in the present study and this inclusion is recommended for future studies. Furthermore, weekly reminders were sent to participants to encourage engagement with the COVID Coach application. Text reminders are proposed as facilitators of digital interventions (Graham et al., 2020) and are recommended for future studies.

Technical support is an important facilitator of digital mental health interventions (Graham et al., 2020; Ramachandran et al., 2023). In this study, to support onboarding participants at the beginning of the intervention, all participants were offered assistance with downloading the application and any queries related to acquiring the application were addressed. In addition, continued technical support was offered throughout the intervention and weekly check-ins were sent to participants to find out if they had any questions or concerns. From this, it is speculated that the ongoing technical support and check-ins with participants contributed to the study's 100% participant retention rate.

An important consideration is the concern for confidentiality and data privacy of digital interventions (O'Connor et al., 2016; Ramachandran et al., 2023). Graham et al. (2020) recommend that participants are given information about the privacy and confidentiality of the digital mental health intervention in order to ensure that they are making an informed decision about engaging with the intervention. In this study, to establish trust in the security of personal data, transparent information on the COVID Coach application's data privacy was provided to participants. Participants were informed that the application does not collect any identifying information and does not share their information with any third parties. However, participants were encouraged to activate a password on their device to further safeguard their data and privacy. This transparency may have contributed to establishing trust in the privacy of personal information which could have facilitated engagement with the intervention. Future studies should consider monitoring and managing privacy and confidentiality concerns (Graham et al., 2020).

Limitations of the Present Study

While the findings in this study are valuable, several limitations are acknowledged. The cross-sectional research design used in this study places limitations on drawing inferences about the causality and directionality of relationships between variables. It is possible that there was a bidirectional relationship between variables. In addition, longitudinal research is required to further corroborate the results of this study by determining the onset and course of STS and PTG to accurately confirm causality. Nevertheless, the findings from this study regarding the association between variables correspond to the broader literature. For example, this study found that higher levels of STS were associated with an increased exposure to vicarious trauma (Baird & Kracen, 2006; Diehm et al., 2019; Figley, 1995), female gender (Baum, 2016; Chung, 2020; Kalaitzaki et al., 2022), and higher PTG (Cleary et al., 2023; Kimhi et al., 2010; Linley & Joseph, 2006).

Furthermore, PTG was associated with lower levels of trauma exposure (O'Sullivan & Whelan, 2011), family support (Kautz et al., 2022; Padmanabhanunni, 2020c), and religiosity (Gribben et al., 2019; Hinderer et al., 2014; Muehlhausen, 2021).

The self-report questionnaires employed in Phase One and Three of this study may present a limitation given that self-report questionnaires are prone to social desirability bias and interpretation bias (Linardon et al., 2019). It is also possible that self-reporting may have underestimated the prevalence of certain variables in this study (Caputo, 2017), such as the compassion fatigue, burnout, and STS measures. Self-reporting may have also inflated wellbeing measures in this study (Caputo, 2017), such as the compassion satisfaction and resilience measures. Future studies might consider direct measures for collecting data, such as clinician-rated instruments to determine more accurate prevalence rates (Linardon et al., 2019).

It is probable that stressors other than vicarious trauma exposure as well as the COVID-19 pandemic and its prevention measures could account for the mental health outcomes found in this study. For example, potential personal and organisational factors may have had a confounding impact on the variables. These factors may have been a personal history of trauma exposure, cultural differences, personal health difficulties, other client characteristics, as well as additional work demands and responsibilities. Future studies would be needed to disentangle the possible influence of confounding factors.

Online interviews may have limited the participation of MHCPs in under-resourced settings that do not have access to a suitable electronic device with a stable internet connection. However, face-to-face interviews were not feasible since the current study took place within the context of the COVID-19 pandemic with social distancing restrictions. Online interviews did, however, allow for the inclusion of participants who were

geographically dispersed and provided a convenient and cost-effective means for collecting the qualitative data.

Finally, the majority of participants in this study were female, and this may have a bearing on the generalisability of the findings. However, the female gender tends to be over-represented in the mental health care field. For example, the HPCSA (2017) conducted a national survey of registered psychologists in South Africa and reported that 78.8% of psychologists were female. This aligns with composition of participants in the current study, where 78.2% of participants identified as female.

Conclusion

The underlying premise of the current study is that South African MHCPs are exposed to high rates of vicarious trauma, placing them at risk for STS and burnout. Given the trauma burden in South Africa, exploring STS and interventions for MHCPs is critical.

This study contributes to the body of literature on the experiences of trauma workers pertaining to STS and PTG in South Africa. The findings highlight that South African MHCPs who work with trauma are at risk of developing STS. This study further sheds light on the risk and protective factors that have implications for MHCPs, organisations, training institutions, and clinical supervisors.

This study serves as a seminal contribution to the pressing demand for rigorous, empirically-based examinations of digital mental health interventions, especially with a focus on ameliorating the substantial barriers to mental health care access in South Africa. The extant international and domestic mental health care systems have not adequately alleviated the pervasive mental health burden, as evidenced by the preponderance of unmet mental health needs (Teachman et al., 2022). This highlights the need for innovative modalities, such as digital mental health interventions. However, the efficacious implementation of these digital tools remains hampered by an absence of robust scientific evidence for their efficacy,

particularly in settings characterized by cultural and resource heterogeneity, like South Africa (Teachman et al., 2022). It is noteworthy that most extant digital mental health interventions have been developed and empirically evaluated in high-income nations, resulting in a dearth of evidence-based research in low-resource settings (Carter et al., 2021). Moreover, the bulk of these studies have focused on common mental health disorders among MHCSU, to the exclusion of other population groups in need of mental health care. Therefore, the current study distinguishes itself by making a pivotal and innovative scholarly contribution to this specialized literature.

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Appendix A: Self-report Tools in the COVID Coach Application

Below is a description of the self-report tools available on the COVID Coach Application.

The Warwick-Edinburgh Mental Well-Being Scale (WEMWBS) presents 14 positively worded questions to assess mental wellbeing and positive mental health (Stewart-Brown et al., 2011). For each item, respondents are asked to reflect on how they have been feeling over the past two weeks. The scale has displayed reliability and validity in measuring mental well-being in diverse populations, and has a good content validity and high test-retest reliability (α=.83) (Stewart-Brown et al., 2011).

The Generalised Anxiety Disorder-7 (GAD-7) measures anxiety and symptoms of generalised anxiety disorder. The application presents the respondents with seven items that ask the respondent to reflect on how they have been feeling over the last two weeks. The scale has demonstrated reliability, validity, and internal consistency (α=.89) among general population groups (Löwe et al., 2008).

The Patient Health Questionnaire-9 (PHQ-9) consists of nine items which measure the severity of the respondent's depressive symptoms over the past two weeks (Gilbody et al., 2007). The PHQ-9 scale demonstrated acceptable internal reliability (α=.86) and sound psychometric properties in various settings (Jaworski et al., 2021). Fourteen studies, with a total of 5026 participants, validated the PHQ-9 against Major Depressive Disorder, the results suggest that the scale's sensitivity is 0.80 (95% CI 0.71-0.87); specificity is 0.92 (95% CI 0.88-0.95), the positive likelihood ratio is 10.12 (95% CI 6.52-15.67); and the negative likelihood ratio is 0.22 (0.15 to 0.32) (Gilbody et al., 2007).

The Post Traumatic Stress Disorder Checklist (PCL-5) consists of 20 items which assess symptoms of Post-Traumatic Stress Disorder. The questions ask respondents to reflect

on how they have been feeling over the past month. The scale has shown reliability and validity (Jaworski et al., 2021).

These tracking tools present the application user with a graph of their results to assist in recognising patterns over time (Huang, 2020). Users can set reminders to use the application and record their own personal goals (Huang, 2020). Overall, the application allows users to track their mental health and offers a plethora of tools and coping skills to users (Huang, 2020).

Appendix B: Letter to HPCSA and NGOs

The letter below was sent to the Health Professions Council of South Africa (HPCSA) and NGO's to obtain consent to access the contact details of MHCPs.

UNIVERSITY OF THE WESTERN CAPE
Private Bag X 17, Bellville 7535, South Africa
E-mail: ange.nespola@gmail.com

Dear _____

Request for access of MHCP contact details for research purposes

I am a PhD student at the Department of Psychology at the University of the Western Cape. I am conducting a study based on secondary traumatic stress among MHCPs. The study aims to implement and evaluate the efficacy of a mobile phone application to target secondary traumatic stress and build resilience among MHCPs. The study involves an electronic national survey and interviews with MHCPs who provide services to trauma survivors.

I hereby request permission to access the names and contact details of service providers registered with your professional body. I have attached the following to support my request:

1. Information sheet detailing the nature and aims of the study
2. Ethics Clearance Letter from the university.

If you require any further information, please feel free to contact me.

Sincerely,
Angelic Nespola
Ange.nespola@gmail.com or 0793162340

My supervisor for the above research study is Prof. Anita Padmanabhanunni at the Department of Psychology (UWC), 0219592842, apadmana@uwc.ac.za

Appendix C: Participant Information Sheet

UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

E-mail: ange.nespola@gmail.com

Project Title: The Implementation and Evaluation of a mHealth Intervention to Address Secondary Traumatic Stress among Frontline MHCPs in South Africa

What is this study about?

You are invited to participate in a study conducted by Angelic Nespola, a PhD student at the University of the Western Cape. The aim of the study is to implement and evaluate a smartphone application for addressing secondary traumatic stress among frontline MHCPs. Secondary traumatic stress refers to the changes that occur to mental health workers over time as a result of being exposed to the narratives of trauma survivors. You are invited to participate in the research because your participation may provide the researcher with a better understanding of secondary traumatic stress and the efficacy of the application as an intervention.

The study is made up of separate phases. The first phase entails an online survey of MHCPs who have worked with trauma survivors for a year or longer. The second phase entails qualitative interviews with MHCPs to gain insight into their experience of working with trauma survivors. The third phase involves determining if the smartphone application can be beneficial in targeting secondary traumatic stress and building resilience among MHCPs.

What does my participation entail?

If you agree to participate in Phase 1 of this study, you will be asked to complete five online questionnaires. The questionnaires aim to provide the researcher with information regarding the positive and negative impact of providing psychological support to trauma survivors. You will be requested to provide your email address after the survey. Thereafter, you may be asked to attend an online individual interview (via Zoom or Skype) with the researcher. The interview should last roughly an hour. The interview questions will be sent to you before the interview. The interviews will focus on your experience of providing psychological care to trauma survivors and the types of challenges as well as growth experiences you have had.

The researcher will ask you for permission to record the interview for data analysis. Examples of questions you can expect include:

1. How would you describe your experiences of working with trauma survivors?
2. Has working with trauma survivors impacted your life in any way?
3. Could you share some of the coping strategies you find helpful?
4. Despite the difficulties associated with trauma work, what encourages you and motivates you to continue with this line of work?

You may be invited to participate in Phase 3 of the study. You will be asked to download a free smartphone application and use this application for 4 weeks. You can download the application on iPhone and android devices for free download.

Would my participation in this study be kept confidential?

The researchers undertake to protect your identity and the nature of your contribution. All information that you share in the questionnaires and interview will be kept confidential. Pseudonyms will be assigned to participants to ensure your confidentiality. The data will be securely stored. If we write a report or article about this research project, your identity will be protected.

What are the risks and benefits of this research?

All human interactions and talking about self or others carry some amount of risks. The researcher acknowledges that speaking about secondary traumatic stress may be experienced as distressing or uncomfortable for some participants. The research will nevertheless minimise such risks and act promptly to assist you if you experience any discomfort, psychological or otherwise during the process of your participation in this study. If during the interview you feel distressed, you can share this with the researcher who will stop the interview. Thereafter you will be given the option to continue the interview / stop / reschedule. This document also offers details for counselling should your wellbeing be affected by your participation in the study.

There are no direct benefits to participating in this study. However, the results of the study may assist the researcher in learning more about secondary traumatic stress. The study has practical implications as it aims to assess whether an application is effective in assisting

MHCPs who work with trauma survivors. It is hoped that the outcome of the study will be useful in expanding the knowledge on interventions that enhance resilience among MHCPs. The knowledge may further inform policies and guidelines on the use of the application as an intervention. In addition, the results may give insight into training and supervision for frontline trauma workers.

Do I have to participate in this research and may I withdraw from the study at any time?

Your participation in this study is completely voluntary. If you decide to participate in this study you may decide to withdraw from the study at any time, you will not be penalized in any way.

What if I have questions?

This research is being conducted by Angelic Nespola (Psychology Department) at the University of the Western Cape. If you have any questions about the research study itself, please contact Angelic Nespola at ange.nespola@gmail.com.

Should you have any questions regarding the study and your rights as a research participant or if you wish to report any problems you experienced related to the study please contact:

Prof. Anita Padmanabhanunni (supervising Professor)
University of the Western Cape
apadmana@uwc.ac.za
0219592842

Dr. Maria Florence
Head of Department
University of the Western Cape
mandipatin@uwc.ac.za

Prof. Anthea Rhoda
Dean of the Faculty of Community and Health Science
University of the Western Cape
chs-deansoffice@uwc.ac.za

Biomedical Research Ethics Committee
Research Development
University of the Western Cape
021 959 4111
research-ethics@uwc.ac.za

Details for counselling resources:
FAMSA: 011 975 7106/7 or 021 447 7951; national@famsa.org.za
Life Line: 011 728 1331 or 021 461 1113
SADAG: 0800 456 789 or 011 234 4837

Kind regards,
Angelic Nespola

Appendix D: Participant Informed Consent Form

UNIVERSITY OF THE WESTERN CAPE
Private Bag X 17, Bellville 7535, South Africa
E-mail: ange.nespola@gmail.com

Project Title: The Implementation and Evaluation of a mHealth Intervention to Address Secondary Traumatic Stress among Frontline MHCPs in South Africa

My participation in this study is voluntary and I choose to participate in this study of my own free will. The study has been described to me in a language that I understand and I understand what my participation will involve. My questions about the study have been answered and I understand what my participation will entail. I understand that my identity will not be disclosed and a pseudonym will be assigned to me. Counselling resources are provided on the information sheet should any negative consequences arise. I understand that I have the right to withdraw from the study at any point without giving a reason and without any negative consequences.

Participant's name: _____

Participant's signature: _____

Date: _____

Appendix E: Professional Quality of Life Scale (ProQOL)

When you provide psychological counselling to people, you have direct contact with their lives. As you may have found, your compassion for those you help can affect you in positive and negative ways. Below are some questions about your experiences, both positive and negative, as a MHCP.

Consider each of the following questions about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the *last 30 days*.

1=Never 2=Rarely 3=Sometimes 4=Often 5=Very Often

_____ 1. I am happy.
_____ 2. I am preoccupied with more than one person I provide psychological counselling to.
_____ 3. I get satisfaction from being able to provide psychological counselling to people
_____ 4. I feel connected to others.
_____ 5. I jump or am startled by unexpected sounds.
_____ 6. I feel invigorated after working with those I provide psychological counselling to.
_____ 7. I find it difficult to separate my personal life from my life as a MHCP.
_____ 8. I am not as productive at work because I am losing sleep over traumatic experiences of a person I provide psychological counselling to.
_____ 9. I think that I might have been affected by the traumatic stress of those I provide psychological counselling to.
_____ 10. I feel trapped by my job as a MHCP.
_____ 11. Because of my work, I have felt "on edge" about various things.
_____ 12. I like my work as a MHCP.
_____ 13. I feel depressed because of the traumatic experiences of the people I provide psychological counselling to.
_____ 14. I feel as though I am experiencing the trauma of someone I have provide psychological counselling to
_____ 15. I have beliefs that sustain me.
_____ 16. I am pleased with how I am able to keep up with psychological counselling techniques and protocols.
_____ 17. I am the person I always wanted to be.
_____ 18. My work makes me feel satisfied.
_____ 19. I feel worn out because of my work as a MHCP.
_____ 20. I have happy thoughts and feelings about those I provide psychological counselling to and how I could help them.
_____ 21. I feel overwhelmed because my case load seems endless.
_____ 22. I believe I can make a difference through my work.

_____ 23. I avoid certain activities or situations because they remind me of frightening experiences of the people I provide psychological counselling to
_____ 24. I am proud of what I can do to as a MHCP
_____ 25. As a result of my work I have intrusive, frightening thoughts.
_____ 26. I feel "bogged down" by the system.
_____ 27. I have thoughts that I am a "success" as a MHCP
_____ 28. I can't recall important parts of my work with trauma victims.
_____ 29. I am a very caring person.
_____ 30. I am happy that I chose to do this work.

Appendix F: Post-traumatic Growth Inventory-Short Form (PTGI–SF)

Please rate your responses to each of the ten items listed below using the following scale.

Place a tick in the appropriate column.

0: I did not experience this change as a result of my patients' trauma.

1: I experienced this change to a very small degree as a result of my patients' trauma.

2: I experienced this change to a small degree as a result of my patients' trauma.

3: I experienced this change to a moderate degree as a result of my patients' trauma.

4: I experienced this change to a great degree as a result of my patients' trauma.

5: I experienced this change to a very great degree as a result of my patients' trauma.

	Items						
	I changed my priorities about what is important in						
	I have a greater appreciation for the value of my						
	I am able to do better things with my life.						
	I have a better understanding of spiritual matters.						
	I have a greater sense of closeness with others.						
	I established a new path for my life.						
	I know better that I can handle difficulties.						
	I have a stronger religious faith						
	I discovered that I'm stronger than I thought I						
	I learned a great deal about how wonderful people						

Appendix G: Connor-Davidson Resilience Scale (CD-RISC-10)

Please rate your responses to each of the 10 items listed below using the following scale.

Place a tick to indicate your response.

0: Not true at all.

1: Rarely true.

2: Sometimes true.

3: Often true.

4: True nearly all the time.

	Items					
	I am able to adapt when changes occur					
	I can deal with whatever comes my way.					
	I try to see the humorous side of things when I am					
	Having to cope with stress can make me stronger.					
	I tend to bounce back after illness, injury or other					
	I believe I can achieve my goals, even if there are					
	Under pressure, I stay focused and think clearly.					
	I am not easily discouraged by failure.					
	I think of myself as a strong person when dealing					
	I am able to handle unpleasant or painful feelings					

Appendix H: Life-Events Checklist (LEC)

In your work with survivors of trauma, you may have heard stories about many types of traumatic events. Listed below are a number of difficult or stressful things that MHCPs can hear about through their patients/clients. Please indicate which event you have heard about through your patient.

Events	Heard about it from my	Did not hear about it from
1. Natural disaster (for example, flood,		
2. Fire or explosion		
3. Transportation accident (for example, car		
4. Serious accident at work, home, or during		
5. Exposure to toxic substance (for example,		
6. Physical assault (for example, being attacked,		
7. Assault with a weapon (for example, being		
8.Sexual assault (rape, attempted rape, made to perform any type of sexual act through force or threat of		
9. Other unwanted or uncomfortable sexual		
10.Combat or exposure to a war-zone (in the		
11. Captivity (for example, being kidnapped,		
12. Life-threatening illness or injury		
13. Severe human suffering		
14. Sudden, violent death (for example,		
15. Sudden, unexpected death of someone close		
16. Serious injury, harm, or death you caused to		
17. Any other very stressful event or experience		

Appendix I: Multidimensional Scale of Perceived Social Support (MDSPSS)

Instructions: We are interested in how you feel about the following statements. Read each statement carefully. Indicate how you feel about each statement.

		Very Strongly Disagree	Strongly Disagree	Mildly Disagree	Neutral	Mildly Agree	Strongly Agree	Very Strongly Agree
1.	There is a special person who is around when I am in need.	1	2	3	4	5	6	7
2.	There is a special person with whom I can share joys and sorrows.	1	2	3	4	5	6	7
3.	My family really tries to help me.	1	2	3	4	5	6	7
4.	I get the emotional help & support I need from my family.	1	2	3	4	5	6	7
5.	I have a special person who is a real source of comfort to me.	1	2	3	4	5	6	7
6.	My friends really try to help me.	1	2	3	4	5	6	7
7.	I can count on my friends when things go wrong.	1	2	3	4	5	6	7
8.	I can talk about my problems with my family.	1	2	3	4	5	6	7
9.	I have friends with whom I can share my joys and sorrows.	1	2	3	4	5	6	7
10.	There is a special person in my life who cares about my feelings.	1	2	3	4	5	6	7
11.	My family is willing to help me make decisions.	1	2	3	4	5	6	7
12.	I can talk about my problems with my friend	1	2	3	4	5	6	7

Appendix J: Demographic Questionnaire and Work-related Survey

The following questions were used for an online survey and response boxes were provided.

Please answer the following questions:

1. Please indicate your age.

2. What gender do you identify as?
- Male
- Female
- _____

3. What is the highest degree or level of school you have completed? If currently enrolled, highest degree received:

- Some high school, no matric certificate
- Grade 10
- Matric certificate
- Trade/technical/vocational training
- Bachelor's degree
- Honours degree
- Masters degree
- Doctorate degree
- Other _____ (Short Answer Space)

4. What is your relationship status?

- Single, never married
- Married or in a domestic partnership
- Widowed
- Divorced
- Separated

5. Please indicate how many dependents you have.

6. Are you religious?

- Yes
- No
- _____ (Short Answer Space)

7. Please indicate your registration/work category?

- Registered counsellor
- Clinical Psychologist
- Counselling Psychologist
- Lay Counsellor

8. Please indicate your work setting:

- Private Practice
- Government Clinic
- Private Hospital
- Government Hospital
- NGO
- _____ (Short Answer Space)

9. Please indicate how long you have been working in the above category?

10. For how long you have been working with survivors of trauma?

11. How many trauma survivors do you counsel per month?

12. Which therapeutic/counselling approach do you *mostly* use in your work with trauma survivors?

13. Do you have access to a supervisor who can support you with your work?

14. If Yes, do you feel able to turn to your supervisor when you do need support?

Appendix K: Informed Consent for Audio Recording

UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

E-mail: ange.nespola@gmail.com

Transcription and recording

This study involves recording the individual interviews that form part of Phase 2. The recording is intended to assist in ensuring your experiences and perspectives are accurately captured.

The recordings will be transcribed verbatim. A transcriber may be used to transcribe the recorded interviews. The transcriber will not be aware of the identity of the participant as a pseudonym will be assigned to each participant before the recording is handed to the transcriber. The transcriber will be required to sign a confidentiality agreement. Only the researcher, her supervisor and the transcriber will have access to the recordings and transcripts.

The researcher may use direct quotation from the interview but a pseudonym will accompany the quotation to ensure anonymity. All recorded files and transcripts of the interviews will be stored on a password protected computer. All recorded files and transcripts for the research will be destroyed after the study has been completed.

Participant's name: _____

Participant's signature: _____

Date: _____

Appendix L: Phase Two: Interview Schedule

The questions below are examples questions that will guide the interviews with participants in Phase 2:

1. How would you describe your experiences of working with trauma survivors?
2. Has working with trauma survivors impacted your life in anyway?
3. Are there certain types of trauma cases that are especially difficult for you to work with or to process? What are some of the most challenging cases you have dealt with? What made these cases challenging?
4. How did you cope with these challenging cases?
5. In working with trauma survivors, there can be particular cases that stay with you even after you have stopped working with the survivor. Could you share with me the types of cases that have stayed with you? What do you think it is that made these specific cases stay with you?
6. Often people who work with trauma survivors, experience reactions that resemble symptoms Post-Traumatic Stress Disorder. They can, for example, have distressing and intrusive thoughts, images, and dreams of their patients/trauma.
    - 6.1 Can you share with me the types of adverse or negative reactions you have had as a result of working with trauma survivors?
    - 6.2 Have you been impacted emotionally by doing trauma work?
    - 6.3 Has trauma work changed your beliefs and the way you see yourself, others and the world?
    - 6.4 How has trauma work impacted on your religious or spiritual views?
    - 6.5 Has being exposed to trauma narratives changed your behaviour in anyway?
    - 6.6 Has listening to your client's trauma narratives changed your relationship with friends and family?
    - 6.7 Have you had any intrusive thoughts / flashbacks / dreams about a client's traumatic experience?
7. Could you share some of the coping strategies you find helpful?
8. Have you noticed any positive implications of working with trauma survivors? If yes, could you share these with me?
9. Despite the difficulties associated with trauma work, what encourages you and motivates you to continue with this line of work?

Appendix M: Phase Three: Guide for the COVID Coach Application

COVID COACH APP

APPLICATION GUIDE

DESCRIPTION OF APP

The COVID Coach is a mobile phone application designed to offer tools to support self-care, build resilience, and manage stress.

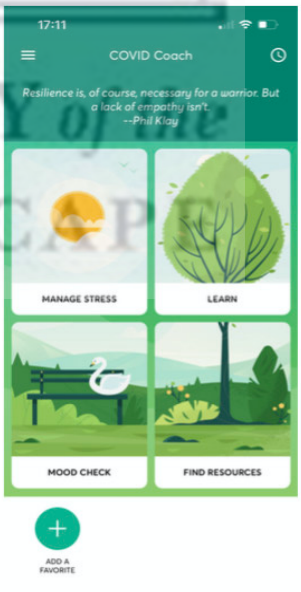
The app was developed by the National Center for PTSD. The app can be used as a mental health care tool to support health care professionals in coping with stress during the pandemic.

HOME SCREEN

The home screen of the app is divided into four sections:

- **Manage Stress** - tools for self-care
- **Learn** - informative topics
- **Mood Check** - trackers for mental health and personal goals
- **Find Resources** - supportive resources

A screen shot of the Home Screen is depicted below.



FREE DOWNLOAD

The COVID Coach application is available for **free download** from your iTunes or Google Play app store. In the Google Play app store you need to search "covidcoach" as one word.

Version 1.6.1

APPLICATION GUIDE P1

COVID COACH

MANAGE STRESS MENU

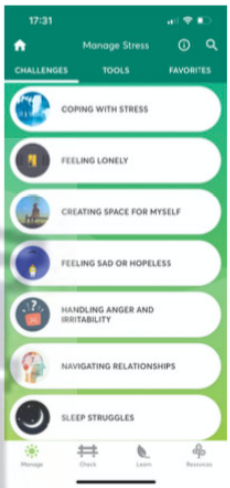
The app includes several tools and resources to manage stress, help enhance resilience and reduce burnout.

The Manage Stress menu is divided into three tabs, namely “Challenges”, "Tools” and "Favourites" as can be seen in the screenshot below. These tabs can be seen at the top of the Manage Stress menu.

THE CHALLENGES TAB

The Challenges tab offers a selection of challenges that you may like help with at the time of using the app. Each challenge has tools to assist with the challenge you select.

- Coping with Stress
- Feeling Lonely
- Creating Space for Myself
- Feeling Sad or Hopeless
- Handling Anger and Irritability
- Navigating Relationships
- Sleep Struggles

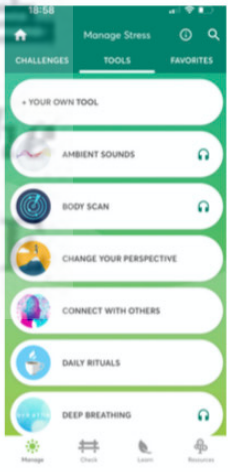


Challenges Tab

THE TOOLS TAB

The Tools tab offers various tools and resources for you to engage with in support of your well being. These include:

- Ambient sounds
- Body scan
- Change your perspective
- Connect with others
- Daily rituals
- Deep breathing
- Finding meaning
- Grounding
- Indoor activities
- Inspiring quotes
- Mindfulness
- Muscle relaxation
- My feelings
- Observe thoughts
- Positive imagery
- Relationship tools
- Rewarding good behaviour
- Schedule worry time
- Seeing my strengths
- Self-compassion
- Showing appreciation
- Sleep tools
- Soothe the senses
- Soothing Audio
- Soothing images
- Thought shifting
- Time out



Tools Tab

THE FAVOURITES TAB

Adding your favourite tools to the Favourites Tab will allow you to access the tool/s from your Home Screen.

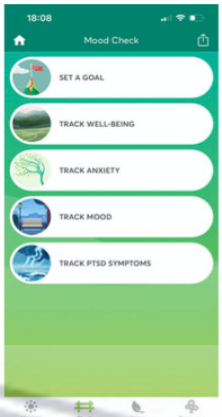
APPLICATION GUIDE P2

COVID COACH

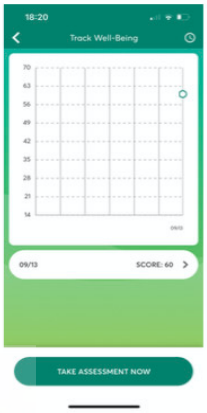
MOOD CHECK

This section offers various trackers to check your mental health and well-being over time, and measure your growth towards your personal goals that you set for yourself.

Your results will be represented on a graph to allow you to track your progress over time.



Mood Check



Graph

LEARN

This section offers information on various topics.

FIND RESOURCES

This sections offers various supportive resources.

*Please note the contact numbers listed are not available in South Africa

Learn

Find Resources

ENABLE REMINDERS

Once you have downloaded the app, please review your reminder settings. To access your reminders select the icon at the top right of your Home Screen (the icon is a clock). Please select daily reminders, as well as the time the app should remind you to use the app.

DATA AND PRIVACY POLICY

The app does not share your identifying data with a third party. To safeguard your data, please consider adding a password to your device to keep your information safe.

TECHNICAL QUERIES

If you have any technical difficulties feel free to contact Angelic via email: ange.nespola@gmail.com or send a WhatsApp message: 079 316 2340

Appendix N: System Usability Scale (SUS)

Please indicate the extent to which you agree with the following items using the scale provided. In the items below, the term "system" refers to the * Provider Resilience app on your mobile phone.

(1) Strongly agree; (2) Agree; (3) Neither agree nor disagree; (4) Disagree; (5) Strongly disagree

	Items					
	I think that I would use this system frequently.					
	I found the system unnecessarily complex.					
	I though the system was easy to use.					
	I think that I would need the support of a					
	I found the various functions in this system were					
	I thought there was too much inconsistency in this					
	I would imagine that most people would learn to					
	I found the system very cumbersome to use.					
	I felt very confident using this system					
	I needed to learn a lot of things before I could get					

Appendix O: UWC Ethical Approval Letter

UNIVERSITY of the WESTERN CAPE

60 YEARS of hope, action & knowledge

13 October 2020

Mrs A Nespola
Psychology
Faculty of Community and Health Sciences

Ethics Reference Number: BM20/8/16

Project Title: The Implementation and Evaluation of a mHealth Intervention to Address Secondary Traumatic Stress among Frontline Mental Health Care Providers in South Africa

Approval Period: 13 October 2020 – 13 October 2023

I hereby certify that the Biomedical Science Research Ethics Committee of the University of the Western Cape approved the scientific methodology and ethics of the above mentioned research project.

Any amendments, extension or other modifications to the protocol must be submitted to the Ethics Committee for approval.

Please remember to submit a progress report annually by 30 November for the duration of the project.

Permission to conduct the study must be submitted to BMREC for record-keeping.

The Committee must be informed of any serious adverse event and/or termination of the study.

Ms Patricia Josias
Research Ethics Committee Officer
University of the Western Cape

Director: Research Development
University of the Western Cape
Private Bag X 17
Bellville 7535
Republic of South Africa
Tel: +27 21 959 4111
Email: research-ethics@uwc.ac.za

NHREC Registration Number: BMREC-130416-050

FROM HOPE TO ACTION THROUGH KNOWLEDGE.

Appendix P: Confirmation of Editorial Review

CONFIRMATION OF EDITORIAL REVIEW

4 September 2023

Natalie Donaldson
6 Melville Road, Plumstead, Cape Town, 7800
Email: natalied@sacap.edu.za
Tel.: 071 593 3690

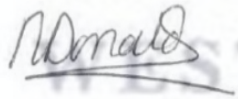
To whom it may concern,

This serves to confirm that Angé Nespola le Roux's Doctoral dissertation titled "*The Implementation and Evaluation of a mHealth Intervention to Address Secondary Traumatic Stress among Frontline Mental Health Care Providers in South Africa*" underwent a full editorial review that was concluded on 3 September 2023.

There were some recommended changes that the candidate was required to make on the dissertation after editing was complete before the final submission for examination. However, editing included: proofreading, editing, checking referencing, and formatting the thesis according to APA 7 guidelines.

Should you have any questions or concerns, please feel free to contact me at natalied@sacap.edu.za.

Kind regards,



Natalie Donaldson