THE IMPACT OF THE COVID-19 PANDEMIC ON EMS PRACTITIONERS IN THE WESTERN CAPE: STRATEGIES TO ENHANCE WELLNESS

by

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DECLARATION

I, Radomir Cermak, declare that the content presented in this thesis is my own work (except where I have attributed it to others). I confirm that neither the entirety of this work nor any segment of it has been previously submitted to obtain another degree at this or any other academic institution. I authorise the University to reproduce, for the purpose of research, either the whole or any portion of the contents in any manner whatsoever.

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Abstract

This research study aimed to explore the psycho-social impact of stress endured by frontline emergency medical services practitioners during the COVID-19 pandemic and to develop a framework for enhancing their wellness during healthcare crises of the same or similar nature. Prior to the pandemic, emergency medical services practitioners faced high occupational stress within their work environment, which was characterised by exposure to traumatic scenes and high-stress conditions. The COVID-19 crisis added unique pressures, including increased mortality rates, higher exposure to the virus, and lack of resources, emphasising the need for improved wellness strategies.

Conducted as a qualitative design, using an instrumental case study at the Western Cape Government Emergency Medical Services, Khayelitsha base, Cape Town, this research delved into the experiences of emergency medical care practitioners during the pandemic, the psycho-social effects the pandemic had on these providers, the coping strategies employed during the crisis and the wellness-enhancing aspects within the context of a health crisis, such as the COVID-19 pandemic. The study data was obtained using one-on-one interviews with a sample of thirty emergency medical care providers and focus group interviews with nine managers from the Western Cape Government Emergency Medical Services, Khayelitsha base, Cape Town, who were operational during the pandemic. The samples included both staff who became infected with COVID-19 but recovered and those who did not contract COVID-19. The qualitative data was analysed using thematic analysis to identify key themes and patterns in the participants' responses.

The findings propose a structural framework for bolstering the wellness of emergency medical services practitioners within four wellness contexts of spirituality, family, work, and community, with suggested interventions in each context. The findings highlight the importance of recognising and addressing the mental and social toll that emergency medical care work during the COVID-19 pandemic had on emergency medical services practitioners, as well as the need for ongoing preparation, support and resilience-building in high-stress situations, such as the COVID-19 pandemic. The proposed framework may provide a basis for further implementation of specific psycho-social interventions within the emergency medical services work environment and inform policy development in this regard.

DEDICATION

This thesis is dedicated to my mother, Jirina and late father, Radomir, who sadly passed away towards the end of my PhD journey and who would have been proud to see me succeed. You will forever remain in my heart and fond memories. I would also like to dedicate this thesis to the brave, passionate and hard-working Western Cape Government Emergency Medical Services staff, who continue to deliver care at the forefront of our healthcare system even after the hardship of the COVID-19 pandemic.

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LIST OF ABBREVIATIONS

The list contains only those abbreviations considered essential. Throughout the thesis, full terms have been utilised. Additional explanations are provided in the text where necessary.

COVID-19	Coronavirus Disease
EMC	Emergency Medical Care
EMS	Emergency Medical Services
HPCSA	Health Professions Council of South Africa
HCW	Healthcare worker
PPE	Personal protective equipment
PTSD	Post-traumatic stress disorder
SARS-CoV-2	Severe acute respiratory syndrome coronavirus 2
WHO	World Health Organization

CHAPTER 1: INTRODUCTION TO THE STUDY

1.1 Introduction

South African history reflects a painful landscape, with many people having faced the onslaught of apartheid, the HIV/AIDS pandemic, which toppled family life in its wake, and other social ills birthed through serial collective trauma.[1] The COVID-19 virus arrived at the doorsteps of the African continent, creating debilitating effects on its already weak and fragile health system.[2] The social, economic and health challenges that were birthed by the pandemic tested the tenacity of individuals, families and communities alike. Moreover, the COVID-19 pandemic exacerbated the vulnerability of the African health system and health service delivery, with the casualties being primarily its patients and healthcare workers.

This study focuses on healthcare workers, primarily Emergency Medical Services (EMS) practitioners, who were caught in the grips of a somewhat insidious and rapidly escalating virus that was threatening the lives of all. Globally and in South Africa, healthcare workers caring for COVID-19 patients encountered deep levels of physical exhaustion, as a greater number of people succumbed to the virus as well as mental strain due to deaths of patients, family members and colleagues, stigma and the sheer powerlessness of working against a virus for which there was no cure. In a developing country like South Africa, bereft of health care resources, the acute realities of working with little human resources and protective equipment became more acute. The focus of this inquiry was to understand how EMS practitioners encountered the pandemic in the Western Cape, the ramifications of working within this environment, its effects on their physical and mental well-being and what strategies were critical to strengthening their wellness.

In the milieu of what can be described as the most turbulent pandemic, healthcare professionals, including doctors, nurses and paramedics, emerged as the backbone of the fight against the virus, working tirelessly under tumultuous and often hazardous conditions. The sheer scale and intensity of the pandemic led to a surge in the number of infected patients, requiring these healthcare workers to function in high-risk environments without personal protection equipment (PPE). This placed these professionals in a precarious position, not only compelling them to endure the physical demands of increased workloads but also deep levels of psychological and emotional stress. According to Chersich et al.[3], healthcare workers who were caring for COVID-

19 patients endured significant psychological strain and physical fatigue and suffered from isolation, social discrimination, and the distressing effects of witnessing the loss of patients and colleagues. Moreover, the risk of infection amongst these professionals was alarmingly high. Ayton et al.[4] reported that by the end of December 2020, at least 1.6 million healthcare workers (HCWs) had contracted the virus. These grim statistics exemplify the severe risks faced by these individuals in their line of duty.

In 2021, the World Health Organisation[5] revealed that approximately 180,000 medical professionals succumbed to COVID-19 in that year alone. These staggering figures still, however, underestimated the true magnitude of the pandemic's toll on healthcare workers, as suggested by Pillay et al.[6] The potential underestimation of this number of deaths points to a broader issue of the pandemic's impact, which may have far-reaching and yet unquantified implications for the global healthcare workforce. Those healthcare workers who contracted the virus and are enduring long COVID symptoms add further gloom to the health and wellness of this sector of front-line workers. As the pandemic progressed, emerging research and anecdotal evidence on COVID-19' 'long hauliers' depicted a grim health prognosis for survivors, who would have to grapple with the debilitating effects of myocarditis, hyper-coagulopathy, and chronic respiratory impairments.[7] More alarming were the instances of suicide amongst healthcare workers, particularly EMS personnel, attributable to the pandemic.[8] Rossi et al.[9] argued that there were also heightened risks of mental health crises amongst frontline health workers, with reports indicating that paramedics had experienced overwhelming stress and feelings of abandonment.

It is within this context that this study sought to focus on a neglected yet critical group of EMS practitioners within the broader cohort of healthcare workers. This inquiry was important because, as frontline responders, EMS practitioners faced unique challenges during the COVID-19 pandemic. They were frequently the first point of contact for COVID-19 patients, being responsible for their initial assessment and transport from their homes to healthcare facilities.[10] This role elevated their risk of exposure to the virus. The nature of their work required swift adaptation to new protocols and procedures to safeguard their safety and that of their patients, inadvertently increasing their workload and stress.

This research study then aimed to delve deeper into the myriad challenges faced by EMS practitioners during the COVID-19 pandemic, with a focus on understanding the full extent of its impact on their physical and mental well-being, as well as the long-

term consequences for the healthcare sector. Through this inquiry, the study sought to contribute to a more comprehensive understanding of the pandemic's effects on EMS practitioners, offering insights into the challenges and struggles that affected their wellness. Additionally, this research study sought to explore what wellness interventions could serve to restore and nurture the well-being of EMS practitioners who had transitioned through the most challenging times of the pandemic.

Despite having to confront a myriad of adversity, EMS practitioners continued to play a pivotal role in the healthcare system, providing essential care and support during the most critical moments of the pandemic. Their contribution has been instrumental in managing the crisis, often acting as the first point of medical contact for many patients. This study aimed to explore the specific impact of the COVID-19 pandemic on EMS practitioners, examining the challenges they faced, the adaptations they made, and the broader implications of their experiences during this global health crisis.

While there is a considerable body of literature examining the effect of COVID-19 on healthcare workers (HCWs), particularly those working within healthcare facilities, there exists a notable gap in research regarding its impact on pre-hospital emergency medical services personnel, especially in the context of developing regions. A critical assessment by Mould-Millman et al.[11] highlighted the relative scarcity of Emergency Medical Services (EMS) systems in over half of the African continent. This assessment underscored the inadequacies of these systems in meeting the acute care needs of the population. This concern becomes even more pressing within the context of a rapidly evolving pandemic. The current study seeks to address this gap by focusing on the experiences of EMS practitioners, especially in regions where EMS systems are already under-resourced, specifically in South Africa and the Western Cape. By exploring the unique challenges faced by EMS practitioners during the COVID-19 pandemic, the study endeavours to provide insights into the resilience and adaptability of EMS practitioners who faced unprecedented healthcare demands while also shedding light on the critical need for strengthening their physical and mental wellness.

This research endeavoured to conduct a comprehensive exploration of the specific effects exerted by the COVID-19 pandemic on EMS practitioners, with a focus on the multifaceted nature of their experiences. This includes an examination of the challenges encountered, the coping strategies employed, and the enduring consequences of their involvement at the forefront of the pandemic. Central to this

study is the provision of evidence-based recommendations aimed at enhancing the prevention, protection, and promotion of EMS practitioners' wellness.

2. Background

Emergency Medical Services (EMS) were operational at the forefront of the pandemic and were often described as the 'far forward front lines'.[12] However, the extent of infections, lost work time, long-term clinical manifestations, and fatalities among EMS practitioners has not been adequately documented or analysed. Scholarly investigations, including those by Bandyopadhyay et al.[13], sought to quantify the mortality rate among EMS workers due to COVID-19, aiming to clarify the extent of losses within this cohort and to compare their risk profiles with those of other healthcare and emergency service professionals. Internationally studies have revealed that EMS personnel faced a markedly higher risk of COVID-19-related fatalities compared to other healthcare workers, with estimates suggesting that the death rate among EMS staff was approximately threefold higher than that of nurses and fivefold higher than that of physicians, underscoring the severe consequences of their frontline roles.[12] Undeniably, this affected their wellness in a multi-faceted way.

During the pandemic, EMS practitioners had to endure hazardous conditions due to limited personal protective equipment (PPE) and administer treatment in home settings and at trauma sites, where maintaining safe distances from patients was frequently both unfeasible and, at most times, almost impossible.[10] The physical demands of their duties, which included lifting and moving patients, increased the likelihood of mask leaks and elevated respiratory exertion, exacerbating their risk of exposure to the virus. The sustained shortages of PPE not only placed EMS practitioners at a heightened risk but also endangered their patients, colleagues, and families.[14] This increased risk profile is aligned with pre-pandemic findings that positioned EMS workers at a higher risk of injuries and fatalities compared to other professions. Sepkowitz and Eisenberg[15] highlighted that EMS professionals faced occupational fatality rates comparable to those of police and firefighters, significantly exceeding the rates experienced by other allied healthcare workers.

It is against this backdrop that The United Nations[16], in its Policy Brief on COVID-19 and the Need for Action on Mental Health, urgently called for measures to address mental health emergencies arising from the pandemic, emphasizing, in particular, the profound impact on frontline healthcare workers including paramedics. This brief

underscored the critical need for targeted interventions to support the wellness of those at the forefront of the COVID-19 response.

The high transmission rate of the COVID-19 pandemic posed significant challenges to global healthcare systems, particularly in low—and middle-income countries (LMICs). Compared to high-income countries (HICs), LMICs were already grappling with overburdened healthcare systems, limited resources, and inadequate reporting mechanisms.[17] EMS personnel, playing a crucial role in managing and caring for ill and injured patients in pre-hospital settings, found themselves at the forefront of combating COVID-19. However, despite their critical contribution to health outcomes, EMS has remained a relatively neglected area of research.[11]

South Africa, as a developing country, found itself in the midst of unprecedented challenges, having to deal with the highest number of cumulative COVID-19 cases among Southern African countries with no available vaccine and no crisis response plan in place.[18] In fact, the national response to the pandemic was metaphorically described as "sailing a ship while building it."[19] This analogy captures the unpreparedness and reactive nature of the response to the new virus. HCWs, especially in countries like South Africa, faced the dual challenges of a high burden of disease and workforce shortages, exacerbated by the migration of paramedics from LMICs to developed countries. The pandemic exemplified the critical need for intensive care beds and specialists, presenting a significant concern for resource-limited countries. Consequently, countries like South Africa became highly vulnerable to the pandemic's impact, highlighting the need for a renewed focus on public health capacities in LMICs.

In an exploratory study on the effects of COVID-19, Mbunge[18] reported that the South African health system struggled with shortages of personal protective equipment (PPE), increased mortality rates, mental health issues, substance abuse, and a resurgence of non-communicable diseases. These challenges, coupled with overworked HCWs and an ineffective support system, severely undermined healthcare delivery and threatened the well-being of South African HCWs. Nearly a year into the pandemic, South Africa recorded 6,364 HCW admissions due to COVID-19 infections.[20] During the first two years of the pandemic, 2020 and 2021, excess deaths were estimated at 292.3 per 100,000 population.[21] By January 2023, South Africa had experienced 341,123 excess deaths, with 85%–95% attributable to COVID-19 and the remainder primarily due to overwhelmed health services.[22] Whilst

these statistics capture a grim scenario, they likely underrepresent the true impact of COVID-19 in South Africa.

Given the global impact of the COVID-19 pandemic, it is unsurprising then that a substantial body of research has emerged on its effect on HCWs. However, there is a notable gap in knowledge regarding the impact on and the aftermath of LMICs, particularly in marginalised settings. Furthermore, no study has specifically investigated the effects of COVID-19 on EMS practitioners in South Africa. This study aimed to explore the psychosocial effects of the pandemic on EMS practitioners in Khayelitsha district, Western Cape, providing critical insight into the challenges faced by EMS practitioners in one of South Africa's most heavily populated townships.

1.2 Emergency Medical Services in its context in South Africa

Emergency Medical Services (EMS) has been defined as "a comprehensive system that provides personnel, facilities, and equipment for the effective, coordinated, and timely delivery of health and safety services to victims of sudden illness or injury".[23(p.320)] EMS aims to deliver prompt care to patients facing unexpected and life-threatening emergencies, thereby reducing unnecessary deaths and long-term morbidities. EMS care and transport presents distinct challenges due to the nature of the setting, including enclosed spaces during transport, the need for rapid medical decision-making and interventions with limited information, and variability in patient acuity and jurisdictional healthcare resources. Additionally, EMS practitioners are frequently exposed to traumatic events and work in areas riddled with high crime and violence, all of which profoundly impact their physical and mental well-being.[24]

Mould-Millman[11] noted that EMS systems are present in only one-third of African countries. In South Africa, EMS is regulated under the National Health Act, with the healthcare structure managed and implemented at the provincial level. Here, prehospital emergency care is provided across the country, reflecting an evolution from basic ambulance transport services to sophisticated systems staffed by professionally trained medical personnel who administer treatment and stabilisation on the scene before transporting patients to appropriate medical facilities.[23] However, service distribution remains inequitable, with marginalised areas being underserved. Tiwari et al.[25] emphasized that emergency care is crucial in addressing factors associated with preventable mortality, such as delays in seeking care, access to health facilities, and the provision of adequate care at these facilities.

Historically, South African EMS educational systems were based on three-tiered short-course qualifications, which have since been discontinued.[26] Following the implementation of the National Emergency Education and Training (NECET) policy, SA now offers formal EMC qualifications through a three-tiered system accredited by the Council on Higher Education. The entry-level qualification is the Emergency Care Assistant (ECA), followed by the Emergency Care Technician (ECT) and the Emergency Care Practitioner (ECP). While ECTs and ECPs, holding Diploma and Bachelor's Degree qualifications, respectively, are licensed for independent practice, ECAs operate under supervised practice. These qualifications and practices are governed by the Health Professions Council of South Africa (HPCSA), a national registration board.[26]

1.3 Emergency medical care practice in the Western Cape: contextual overview and service provision

The Western Cape is characterised by a high prevalence of communities that suffer the burden of high unemployment and poverty, limited healthcare access, and elevated rates of violence and crime, all of which coalesce into a challenging landscape for Emergency Medical Services (EMS) personnel. In recent years, there has been a notable increase in violent attacks against ambulances within the region.[27] The Western Cape Government EMS, with an allocation of 258 ambulances, has been tasked with addressing an emergency caseload of approximately 558,723 calls annually.[28] However, the region's EMS faces significant operational challenges, including the daily unavailability of an average of 14 vehicles due to the prolonged ill health of staff, including conditions such as post-traumatic stress disorder.

Further complicating the situation, approximately 13% of priority emergency incidents occur within areas designated as 'red zones' by EMS, where the risk of violence is particularly high. This situation imposes an additional burden on the EMS system, as ambulances are required to wait for an escort from the South African Police Service before attending to patients in these zones. Consequently, the availability of ambulances for deployment in other areas is substantially diminished.[27] This context underscores the complex challenges faced by EMS personnel in the Western Cape, navigating not only the demands of their emergency medical roles but also the broader socio-economic and security issues inherent in the region. This becomes even more complicated when EMS practitioners have to navigate this terrain whilst

endeavouring to offer services to COVID-19 patients and deal with community ostracism and anger whenever ambulances enter their spaces.

In the Western Cape, the burden of disease was exacerbated by the COVID-19 pandemic and inevitably eroded the wellness of EMS practitioners as they grappled with a wide array of health emergencies and safety issues. The National Department of Health identified cardiovascular diseases, diabetes, hypertension, strokes, and respiratory diseases as primary health concerns in the region.[29] These conditions, particularly respiratory diseases, became even more pronounced during the pandemic, placing additional strain on Emergency Medical Services (EMS). Moreover, the high rates of violence in the Western Cape, where injury-related mortality rates for men and women far exceed the global average, added to the already challenging environment for EMS practitioners.[30] Substance abuse, mainly involving alcohol and drugs, contributed substantially to crime, violence, and road traffic accidents, further complicating the emergency scenarios faced by EMS practitioners.[29,31] Undeniably, the loss of jobs spurred by the closure of businesses increased levels of alcohol use and violence due to the frustrations associated with the same. This, in turn, created further health emergency callouts.

Other research studies identified that complications during maternity, such as issues during delivery, hypertension, and obstetric haemorrhage, were also prominent causes of maternal deaths, with a notable 34% being preventable.[32] This revelation underscored the need for robust EMS and the critical role of EMS practitioners, particularly in the challenging context of the COVID-19 pandemic. The pandemic added significant strain to healthcare resources and shifted attention away from other vital health areas, thereby emphasising the importance of EMS in addressing preventable maternal health complications amidst a global health crisis.

Child mortality under the age of five, primarily due to malnutrition, diarrheal diseases, and respiratory infections, presented other salient health challenges.[29] The pandemic likely exacerbated these issues, as acutely ill children with co-morbidities required comprehensive emergency care, which consequently placed additional demands on EMS. These issues inadvertently increased the stress and workload on EMS practitioners, who were already grappling with the direct effects of COVID-19. The cumulative effect of these diverse health challenges, along with the direct risks associated with the pandemic, then creates a compelling picture related to the profound impact of COVID-19 on the wellness of EMS practitioners in the Western Cape and illuminates the urgent need for effective support and intervention strategies

to safeguard the overall wellness of EMS practitioners at the height of the pandemic and even after its huge waves have dissipated.

1.4 Psychological challenges encountered by emergency medical services practitioners prior to the pandemic

In South Africa, EMS practitioners have historically been exposed to a high frequency of traumatic incidents, compounded by extended work shifts and a notable deficiency in social support essential for psychosocial well-being. The biopsychosocial model, first conceptualised by Engel[33] posited that a person's medical condition requires consideration not only of their biological factors or physical factors but a deeper consideration of the psychological and social elements.[34] Prior to the COVID-19 pandemic, EMS personnel in South Africa were already experiencing elevated stress levels due to their exposure to horrific scenes related to violence and accidents, as well as the immense pressure associated with life-saving responsibilities and incidents involving children or colleagues.[35]

Minnie et al.[36] argued that the nature of this high-stress work environment was often the cause of post-traumatic stress disorder (PTSD) among EMS personnel. This high prevalence of PTSD was attributed to exposure to traumatic events such as motor vehicle accidents, criminal violence (including murders, rapes, and assaults), suicide cases, and illnesses exacerbated by extreme poverty.[37] Additionally, occupational stress amongst EMS personnel was found to be exacerbated by a lack of job resources. Naudé and Rothmann [38] reported that EMS personnel in Gauteng Province experienced stress due to emotional exhaustion and depersonalisation, which was prevalent amongst these workers, potentially due to severe resource shortages.

With the onset of the COVID-19 pandemic, the situation for EMS practitioners in South Africa likely intensified, potentially pushing them towards the brink of physical and emotional exhaustion. This exacerbation of already challenging conditions highlighted the urgent need to address the psychosocial well-being of EMS personnel, especially considering the additional stressors birthed by the pandemic. The pandemic, therefore, necessitated a rigorous interrogation of the strategies required to support the wellness of EMS workers, who are vital to the healthcare system's response to both everyday emergencies and pandemic-related health crises. Consequently, the present study was designed to investigate the stressors encountered by EMS practitioners during the acute and prolonged phases of the COVID-19 pandemic. This

research aimed to identify and highlight both new and ongoing stressors that may have been caused by the pandemic and which consequently impacted the wellness of EMS practitioners. The COVID-19 pandemic provided a new and unique context within which to understand the specific challenges faced by EMS practitioners during this global health crisis and to explore how these stressors affected the overall mental and physical well-being of EMS practitioners. Understanding these stressors was crucial to developing effective strategies and interventions to support the resilience and health of EMS workers in the face of such unprecedented challenges.

1.5 Wellness

The terms wellness and well-being are used interchangeably in the literature. A scholarly examination of health, wellness, and well-being within the health domain has elucidated their inherent complexity and reflects the significance of proactive behaviours and informed choices in achieving optimal health outcomes.[39] A holistic approach to wellness reflects comprehensive strategies that integrate behaviours and conscious decision-making, emphasising personal agency in nurturing a healthier, more satisfying professional life for EMS practitioners. The theoretical construct of wellness is multifaceted, encompassing individual perceptions and cultural differences, thereby presenting challenges in its precise definition.[40,41] The ongoing scholarly debate about the distinct definitions of health, wellness, and well-being involves a nuanced understanding of these terms, often used interchangeably in academic and practical contexts. These terms collectively represent the different dimensions of human development and experience from both intrinsic and extrinsic perspectives.[42]

Historically, Hettler[43] unpacked the notion of wellness, arguing that it encompasses physical, emotional, spiritual, and social dimensions. He added that wellness goes beyond the mere absence of disease. This holistic view is particularly relevant for EMS practitioners, given that the complex demands of their profession carry with it physical, emotional and psychological effects. Wellness, therefore, can be described as a dynamic and evolutionary journey marked by change and growth and is characterised by an integrated balance across the physical, social, emotional, occupational, spiritual, and intellectual realms.[43] Myers, Sweeney, and Witmer[44] elaborated further upon this holistic view with the Indivisible Self Model, advocating

an integrative perspective of wellness and arguing that each of its components is interrelated.

In the realm of EMS practitioner's wellness, the concept of well-being often connotes a general state of balance. Wellness, however, is distinguished by its requirement for an active and continuous engagement in a lifestyle that fosters health across the multifaceted dimensions of one's existence. This distinction is particularly pertinent in relation to EMS practitioners, whose professional and personal journey may have been profoundly influenced by the COVID-19 pandemic.

This study is guided by the definition of health provided by the World Health Organization. Their definition states that "health is a state of complete physical, social, and mental well-being and not merely the absence of disease or infirmity."[45] This definition is predicated on a .holistic perspective of health and encapsulates the emergence of the term "wellness" as a more comprehensive and inclusive concept. Such an approach, as noted by Miller and Foster[42], goes beyond the traditional understandings of health to encompass a broader spectrum of factors influencing an individual's overall state of well-being. This holistic view of wellness is crucial to EMS practitioners, given the multifarious challenges posed by their profession, especially during the turbulent public health crisis such as the COVID-19 pandemic. The focus on a holistic approach to wellness acknowledges that the bio-psycho-social aspects of a person are inextricably intertwined. As such, approaches to wellness must consider the complexities of the same in an effort to integrate holistic strategies to wellness that focus on physical health, psychological resilience and social and spiritual support networks.

1.5.1 Research Problem

Health professionals, including EMS practitioners, face enduring and pervasive levels of stress due to the nature of their work as pre-hospital healthcare professionals. This persistent exposure to stress and other health hazards can harm and cumulatively erode their physical and mental well-being, thereby compromising their wellness. It is not surprising, then, that many EMS practitioners present with stress-related psychological and physical disorders such as burnout, compassion fatigue, post-traumatic stress disorder (PTSD), coronary disease, alcohol abuse, and even suicide. Under normal circumstances, stress may be caused by events related to daily operational duties such as unsuccessful resuscitation, traumatic fatalities, and the

provision of emergency care under the public gaze. Additionally, the effect of poor working conditions and employment-related stress has been previously linked to poor wellness.[46] Particularly in South Africa, EMS practitioners' stress is compounded by the ever-present threat of physical violence and verbal abuse during operational shifts. All these factors can have a negative impact on the wellness of EMS practitioners and often lead to a premature exit from careers in health professions. The emergence of the COVID-19 pandemic, however and its rapid spread throughout the world in 2020 and across South Africa brought a unique set of working conditions that placed an additional burden on the wellness of EMS practitioners.[47–52]

In the aftermath of the COVID-19 pandemic, a plethora of research studies have sprouted within the literature, with a focus on healthcare workers, particularly doctors and nurses.[50–54] Very few studies, however, have specifically addressed EMS as systems or emergency medical care workers as part of their research inquiries; however, the majority emanated from international research.[55–59] One study, located in KwaZulu-Natal, South Africa, explored the psychological impact of COVID-19 on public-sector doctors and nurses and their perceptions of employer psychological support through a quantitative analysis.[60] Another study in Gauteng Province, South Africa, investigated factors affecting motivation among employees of a single private EMS provider, focusing specifically on emergency operations centre personnel.[61] To date, only one phenomenological study has explored the experiences of emergency care workers in the Western Cape Province of South Africa during the COVID-19 pandemic.[62] This study involved both EMS practitioners from private services and medical staff from the hospital emergency department. Herein lies the research gap, as no other study has focused on how the psycho-social well-being of EMS practitioners was affected during the pandemic. Moreover, no other prior enquiry has explored what aspects should guide a framework for enhancing EMS staff wellness in the South African context. Wellness, strongly promulgated by recent scholarly literature, is becoming an essential strategy for maintaining the psycho-social well-being of EMS staff amidst the stress of past and future pandemics. In the absence of a framework for interventions towards building resilient EMS practitioners, exploratory research is necessary to understand the complexities and multi-dimensional issues confronting EMS practitioners in South Africa within the context of the COVID-19 pandemic in preparation for possible future subsequent COVID-19 waves or health crises of a similar nature. Such a framework may inform human resource recruitment policies, wellness policies and procedures, and staff wellness support programs.

1.6 Research aim

To explore the psycho-social impact of stress faced by EMS practitioners, as frontline workers, during the COVID-19 pandemic and to propose a framework for enhancing the wellness of EMS practitioners within the context of the pandemic and future resurgences.

The objectives of the study were to:

1. Understand how EMS practitioners experienced the COVID-19 pandemic.
2. Explore the psycho-social effects of COVID-19 on EMS practitioners.
3. Inquire about how EMS practitioners coped with personal and work-related factors linked to COVID-19.
4. Explore psycho-social aspects that enhance EMS practitioner's wellness within the context of the COVID-19 work environment.
5. Propose a wellness-enhancing framework for EMS practitioners who are transitioning through a pandemic.

1.7 Theoretical framework for the study

A theoretical framework is "any empirical or quasi-empirical theory of social or psychological processes that can be applied to understanding a phenomenon".[63] This framework represents the application of theory within a research study, encapsulating the researcher's core values and offering an insightful perspective on the assimilation of new knowledge. This knowledge synthesis involves integrating existing research and understandings of complex phenomena and facilitates a structured, systematic approach to the research process.[64]

In the context of this study, the Wheel of Wellness model, proposed by Myers, Sweeny and Witmer[44] was chosen as the guiding theoretical framework. This model provides a comprehensive lens to understand the multifaceted nature of wellness, which encompasses physical, mental, emotional, and occupational dimensions pertinent to EMS practitioners' well-being. The application of this model in the current research allows for a holistic exploration of the factors influencing EMS practitioner wellness, acknowledging the intricate interplay between various wellness dimensions in the challenging context of emergency medical services.

1.7.1 The Wheel of Wellness Model

The Wheel of Wellness (WoW) is a representation of one of the main models of holistic wellness, which is grounded in the concepts of Individual Psychology.[44] Adler[65] was a major proponent in the field of positive psychology, particularly individual psychology. Myers et al.[44] defined wellness as "a way of life oriented toward optimal health and well-being in which body, mind and spirit are integrated by the individual to live more fully within the human and natural community." Ideally, it is the optimum state of health and well-being that each individual is capable of achieving."

Viewed within the context of this definition, the wellness of EMS personnel must be seen in a holistic sense, where the body, mind and spirit are seen as indivisible entities. This holistic conceptualisation of wellness provides the opportunity to understand that when the functioning of one aspect of an individual, in this case, the EMS practitioner, is affected, then other aspects become affected as well. Consequently, wellness and well-being become threatened. Based on this model, the COVID-19 pandemic may have significantly affected the physical and mental health of EMS practitioners, thereby affecting their pursuit of health.

The WoW model is conceptualised as the pursuit of certain life tasks influenced by specific life forces, which in turn are affected by global events. Through life tasks, an individual strives to achieve the highest potential of wellness in all its various dimensions. The model posits that changes that occur in one of the life tasks, life forces or global events will bring about changes in any of the other dimensions of wellness. In the WoW model, the five life tasks are depicted as a wheel with spikes that are interrelated and interconnected. The five tasks embedded within the model are spirituality, work and leisure, friendship, love and self-direction. The self-direction life task is further divided into 12 personal attributes, which entail a sense of worth, sense of control, realistic beliefs, emotional awareness and coping, problem-solving and creativity, sense of humour, nutrition, exercise, self-care, stress management, and gender identity.[44,66]

Moreover, the life forces influencing life tasks specifically entail family, community, media, education, religion, business or industry and government, which are, in turn, influenced by global events and issues such as war, global health crisis, poverty, overpopulation, and economic exploitation.[44,66] Consequently, it can be understood that the EMS practitioner, within the context of this study, is influenced and affected

by community, spirituality, work, and family during the COVID-19 pandemic. These wellness contexts also exerted influence over EMS practitioners' positive wellness traits, collectively termed self-direction within the WoW model.

Spirituality rests at the centre of the wheel, which indicates its central role in facilitating the EMS practitioner's well-being.[44] Within the context of the WoW model, spirituality differs from religion. According to Myers et al.[44] , spirituality is the recognition of a higher being or power that goes beyond the physical aspects of life and provides a profound feeling of completeness or connection to the universe. The proponents of the model also noted that spirituality involves beliefs that promote the improvement of life, respect for human dignity and rights, and a sense of reverence for life. Religiosity, on the other hand, is a more specific term that pertains to beliefs and behaviours within organised institutions and is a subset of the broader idea of spirituality.[44]

The COVID-19 pandemic posed unparalleled anxiety, distress, and anguish for healthcare practitioners, with EMS practitioners being those with the most intimate contact with patients. Functioning within an overburdened health system made them vulnerable to elevated risks of infection and emotional strain resulting from patients' suffering and mortality. Moreover, they had to function in under-resourced and demanding environments. Within this context, spirituality can be seen as a substantial source of psychological resilience that can provide the EMS practitioner who is confronting their mortality with a sense of hope, meaning and purpose despite facing adversity.

Furthermore, spirituality can offer a myriad of coping strategies that can help the EMS practitioner to deal with death and suffering. This was critical within an environment where the number of deaths was rising exponentially, and many people had become gravely ill.[67] What is more, by fostering a sense of community and support amongst those who hold similar beliefs, isolation and distress can be mitigated. Neely and Minford[68], who are proponents of spiritually based activities, emphasised the importance of personal beliefs in maintaining the motivation and commitment of healthcare professionals.

The pandemic accentuated the importance of community and social support in healthcare settings. Spirituality often functions within communal contexts, providing a support system for healthcare workers. This communal aspect of spirituality can be a source of emotional and psychological support for EMS practitioners, helping them to manage stress and prevent burnout. During the pandemic, EMS practitioners

frequently had to face challenging ethical decisions concerning resource allocation and triaging. In these situations, an EMS practitioner's spirituality could be valuable in terms of helping to cope with the severe illness of patients, demise of patients, colleagues and loved ones, and providing strength and hope to continue with a level of care for patients despite knowing they themselves could become infected. More importantly, spirituality could be a source of strength, giving them the ability to be compassionate and empathic whilst dealing with high levels of personal fear. Shih et al.[69], in fact, described how spirituality can inform ethical decision-making in healthcare.

Religion, as an aspect of spirituality, can also serve as a source of peace, hope, values, meaning and social harmony.[66] With lockdown restrictions, social distancing and isolation during the initial infection waves, access to religious practices in varied community settings was denied. Hence, the wellness life force for those EMS practitioners who relied on faith and religion as critical intrinsic motivators was reduced.[70] This, however, does not diminish the crucial role it plays in dealing with trauma and recovering from physical ill health and that of loved significant ones.

Within the current theoretical framework, self-direction refers to the act of individuals managing, controlling, and guiding themselves in their everyday tasks and in the pursuit of their long-term objectives. It denotes a state of mindfulness and determination when approaching fundamental responsibilities in life.[44] Within the WoW model, the life task of self-direction comprises twelve positive personality traits, namely sense of worth, sense of control, realistic beliefs, emotional awareness and coping, problem-solving and creativity, sense of humour, nutrition, exercise, self-care, stress management, gender identity and cultural identity. Myers et al.[44] found that persons who possess a strong sense of self-direction have superior coping mechanisms and experience greater job satisfaction. Therefore, enforcing healthy traits of EMS practitioners through appropriate self-direction tasks is vital to enhancing their overall wellness amidst a health crisis such as the COVID-19 pandemic.

Work and leisure as a life task are regarded as a key ingredient to the overall well-being of an individual by providing economic, psychological, and social purposes and benefits. A positive approach to work leads to improvement in job satisfaction and other aspects of wellness.[66,71] In contrast, unemployment can result in psychological and economic struggle, hence raising the risk of mental disorder, suicide, physical sickness, and social ills, all of which collectively have a negative impact on an individual's well-being [66,71]

COVID-19's devastating impact on the global and South African economy increased unemployment rates and decreased career prospects in communities already burdened by poor social-economic climate. EMS practitioners faced the dual threat of the virus's health risks and economic stress due to the job insecurity of their family members, income inadequacy, and underemployment. These challenges prolonged risk perceptions and resource depletion among EMS practitioners, which then impacted their safety-related behaviours and overall well-being.[72] EMS practitioners often become sole family income providers, leaving them with no choice but to remain in the EMS profession despite their fear, extreme working environments, and exhaustion. This predicament was reflected in the decline of EMS practitioners' overall wellness.

The family influences an individual's well-being. Healthy family relationships are regarded as those in which family members are committed to each other's well-being and happiness, have an appreciation for each other, are able to communicate well with each other and dedicate time to communicating with each other, spending quality time with family members, having good spiritual wellness and a good ability to cope with stress.[66,71] Family relationships have been severely affected as a result of the pandemic, mainly due to stigma, discrimination and isolation, with reports of social stigmatisation and ostracism by family members.[73] (Accessing family support was complex for EMS practitioners, as they often self-isolated to protect their loved ones and struggled to manage the demands of work and family life. Stress and fatigue resulting from overtime work caused further deterioration in family relationships.[74,75]

The community was also considered a salient life force by Witmer and Sweeney[71], who argued that it is a social institution that influences an individual's well-being. They discussed aspects, such as industrialisation and urbanisation, that may erode a feeling of community. During the pandemic, EMS practitioners were confronted by fear and anxiety from family, friends, and community members who viewed them as potential carriers of the virus.[76] Social rejection and stigma were also found to be part of experiences post-recovery from COVID-19 among healthcare workers, including EMS practitioners. Survivors of COVID-19 reported negative changes in the demeanour of their family and neighbours.[77] Additionally, part of the tensions between EMS practitioners and the public was the perceived disregard for social distancing rules by the community members.[78]

Industry can promote wellness by developing working environments that support and cultivate health, resulting in employees who are more productive, creative,

cooperative, competent, and devoted.[66,71] Witmer and Sweeney[71] emphasised that because the industry has begun to recognise this association between health and productivity, organisations have implemented Employee Assistance Programs and other wellness efforts to promote employee wellness.

The novel nature of the SARS-CoV-2 virus and its rapid spread across the globe caught a majority of health systems, including emergency medical services (EMS), by surprise, leaving them unprepared for the same. Particularly in low-income countries such as South Africa, EMS organisations, as part of healthcare response, were unable to cope with the high call rates, soaring demand for personal protection equipment and the associated psycho-social challenges of its healthcare workforce. This lack of preparedness left many EMS practitioners feeling unsupported, leading to low job satisfaction, frustration, and high attrition from the field. The government's role in this crisis highlights the broader impact of policy on health systems, as discriminatory practices can undermine the development of citizens.[66] Witmer and Sweeny[71] argued that government policies influence people's attitudes and behaviour. Governments are also able to positively influence the development of citizens' health if they create policies with prevention and wellness in mind.[71]

In line with the WHO and worldwide response to the COVID-19 pandemic, South African authorities implemented physical distancing, self-isolation, closure of non-essential services, schools, travelling restrictions and recursive national lockdowns to mitigate the impact of COVID-19. These measures led to mental health problems and a rise in substance abuse. Schools and universities were temporarily closed, affecting learning and economic opportunities. Gender-based violence cases also increased during the pandemic. Moreover, COVID-19 caused socio-economic crises, including business implications and increased social unrest. Reduced physical activity levels and lifestyle changes further contributed to weight gain and health risks.[18]

The global event of the COVID-19 pandemic, therefore, had profound, far-reaching implications for wellness. Its impact extended beyond physical health, ushering in a new era of heightened awareness regarding overall well-being and wellness and the impact on family, community and society. EMS practitioners around the world have had to grapple not only with the direct health risks of the virus but also the mental and emotional toll of social isolation, economic uncertainty, and disruptions to daily life. The pandemic has stressed the interconnectedness of global health and wellness, emphasising the importance of public health measures, vaccination efforts, and mental health support systems, particularly for frontline healthcare workers, such as

EMS practitioners. In this context, EMS practitioners had to adapt and prioritise their wellness holistically, recognising that the physical, mental, and social dimensions of health are all intertwined in the face of this unprecedented global challenge.

1.8 Overview of research methodology

In this study, the researcher utilised qualitative research methodology. Data were collected by means of one-on-one interviews and focus group interviews and analysed using Braun and Clarke's thematic analysis approach.[79] The qualitative approach in this study was chosen to explore a previously neglected area of research in the South African context by allowing deep investigation of EMS practitioners' individual meanings to better understand their personal experiences, which shape their wellness and well-being and the complexities of the variables of the COVID-19 pandemic at the Khayelitsha EMS base. A qualitative design was deemed to be most appropriate, given that the issues within the study have been unexplored, and the subject has never been studied with a particular group of people.[80] In this context, no prior qualitative inquiry focused on psycho-social wellness was undertaken with EMS practitioners in the Western Cape.

The study was guided by an instrumental case study design. An instrumental case study provides insight into an issue and refines theory.[64] The instrumental case was selected to advance a deeper understanding of the object of interest. It is relevant when the study intends to gain insight and understanding of a certain situation or phenomenon.[64,81] Furthermore, the instrumental case may or may not be seen as a typical case.[64,81] In this study, the case chosen were EMS practitioners and managers working within the context of the COVID-19 pandemic at the Khayelitsha EMS base. The research design of this study is further detailed in Chapter 3.

1.9 Outline of chapters

Chapter 1 introduced the topic under study and provided a contextual background to the study by outlining the South African healthcare landscape and the role of EMS within the broader health system. The Chapter introduces the background to this study together with the specific aim and objectives, detailing the research paradigm chosen in this research. The chapter also outlines the theoretical framework that guided this

study and provides a broad conceptualisation of wellness, health, and wellbeing. Lastly, it provided a brief overview of the research methodology guiding this study and ended with a brief outline of each chapter of this thesis.

Chapter 2 presents a literature review on the role of EMS practitioners and the psychological and social impact of COVID-19 on healthcare workers, including EMS practitioners, globally and in South Africa. The Chapter also reviews studies on the coping strategies deployed by healthcare workers and EMS practitioners worldwide and in South Africa.

Chapter 3 describes the research design, methodology, and data analysis procedures used in the study, including the rationale for using the chosen design.

Chapter 4 presents the study's findings, which are further supported by relevant literature. Verbatim quotes from the participants are included to formulate a more in-depth understanding and interpretation of the data.

Chapter 5 provides the conclusions that emanated from the findings, together with recommendations and the limitations of the study.

Chapter 6, the final chapter, consolidates the study findings by proposing a structural framework to enhance the wellness of EMS practitioners who are transitioning through a pandemic.

1.10 Conclusion

This introductory chapter painted the contextual background and conceptual overview of this study, outlining the research problem, aim, study objectives and research design. The Chapter that follows presents a review of relevant literature pertaining to COVID-19 and its psycho-social impact on EMS practitioners within the global and local South African context. In addition, the Chapter delved deeper into relevant studies on coping strategies employed by HCWs and EMS practitioners during the pandemic. It further included an exploration of existing and future wellness-enhancing practices and programs within the context of the guiding theoretical framework. Chapter two, which follows, details the literature reviewed for the study.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

Chapter One provided an introductory context to the COVID-19 pandemic and its particular impact on EMS practitioners' mental and physical well-being. Chapter two, the literature review, begins by elucidating the historical development of emergency medical care (EMC) as a profession and the current role of EMS practitioners within the health context in South Africa. The review that follows provides a critical examination of scholarly research on the experiences and challenges that frontline healthcare staff encountered. Literature related to the varied psychological and social aspects of the COVID-19 pandemic and its impact on healthcare workers and EMS practitioners is then presented. The chapter then concludes by examining the coping mechanisms employed by healthcare workers at the forefront of the pandemic and synergises this with existing literature pertaining to recommended wellness-enhancing strategies for healthcare professionals.

2.2 The role of emergency medical services practitioners

The role of emergency medical services (EMS) in South Africa has undergone a significant transformation over the last decade. Initially, EMS practitioners primarily functioned as transporters of the sick and injured to hospitals. However, this role evolved and led to the development of a self-regulated profession with a clearly defined scope of practice. This scope encompasses a spectrum of care, ranging from basic to advanced life support assessment and intervention procedures.[82] Bowles et al.[83] categorised contemporary paramedic work into four dimensions. These dimensions include clinical care, which involves direct patient care, encompassing both emergency and non-emergency situations. It includes assessment, treatment, and the transportation of ill patients. The second dimension entails operational tasks, which include the maintenance of equipment and vehicles, ensuring readiness for an emergency response, and other logistical responsibilities. The third dimension covers aspects such as continuous professional development, maintaining certifications, and adhering to professional standards and ethics. Lastly, paramedic work involves participating in community health promotion, public education, and other activities that connect paramedics with the communities they serve.[83]

In the current health landscape, South African EMS practitioners possess the ability to assess and provide care both on-scene and during transport. Their expertise spans diverse patient groups, from neonates to adults, addressing a wide array of medical emergencies. Despite professional advancements within this sector, the nature of paramedic work in South Africa has become increasingly complex, posing both physical and emotional challenges. Kriek[84] highlighted the growing dangers and emotional toll associated with this profession, which is exacerbated by ongoing exposure to human suffering and traumatic events. Ward et al.[21] further emphasised the intrinsic presence of traumatic stressors in emergency services, highlighting the potential for early career burnout.

The autonomy and independence experienced by South African EMS practitioners, while highly recognised compared to international standards, are birthed by the challenges linked to health settings characteristic of middle-income countries. These include extreme and unpredictable emergency scenarios, such as dealing with gunshot victims, suicides, or anaphylactic reactions.[84] As Kriek[84] lamented, the EMS environment in South Africa is plagued by a high level of physical and verbal violence levelled against practitioners by the public. This situation has led to the establishment of "red zones" in certain areas, which map out regions with a heightened risk of violence against EMS crews.[84]

Organisational stress is a primary characteristic of EMS practitioner's work in South Africa. Studies, such as those conducted by Ward[21], found that stressors include irregular sleep patterns, shift work, alternating phases of inactivity and intense work. Other scholars like Sparrius[85] and MacFarlane[82] notably highlighted that the challenges faced by EMS practitioners include inadequately equipped ambulances, poor road conditions, and the need to cover long travel distances under such hazardous conditions. MacFarlane[82] noted the disjuncture in working conditions between those employed by the private sector and those in the public EMS sector. Those in the public health space are plagued by staffing shortages, poorly maintained equipment, and vehicles due to fiscal constraints.

2.3 Challenges faced by healthcare workers during COVID-19

Even before the COVID-19 pandemic, a high prevalence of depression, anxiety, and workplace burnout was documented among health and human service workers. The COVID-19 pandemic has impacted the wellness of healthcare professionals (HCPs),

including that of EMS practitioners, across the globe and has introduced unique challenges to their personal and professional lives, which has created a significant psychological burden for them.[55,57]

2.3.1 Uniquely stressful environment

Healthcare workers, including EMS practitioners, have experienced a change in their working environment in the form of new and unique stressors birthed by the COVID-19 pandemic. A number of international studies have highlighted the multitude of severe physical and mental stressors healthcare workers encountered during the pandemic. This included the risk of infection, stigma, discrimination, work overload, sleep deprivation and trauma. [86–90]

Baldwin and George[91] reported that health professionals who were fighting the pandemic on the front lines likened their experience to being in a war zone. This qualitative study included nineteen qualified health professionals, including doctors, nurses and paramedics, who attended to COVID-19 patients admitted to hospital during March and May 2020. These participants in their study felt as though they were facing an alien world that was fraught with fear and uncertainty due to the rapid spread of the COVID-19 virus. The participants also shared feelings of enduring disappointment, frustration, and anger due to having insufficient personal protective equipment. The lack of the same made them feel that they were ‘going into a war without a weapon'.

Similar findings were made in a study by Willis et al.[89], based on a national survey of 9518 Australian healthcare workers. Their study reported that with the COVID-19 pandemic, the workplace became unpredictable and highly disrupted with rapid changes to traditional processes. According to these researchers, many health workers felt unprepared, particularly when they were redeployed to other areas of healthcare with little orientation. [89] Similarly, Rigotti et al.[72], conducted a rapid review of COVID-19-related literature with a focus on psychosocial impact and coping mechanisms within the workplace and concluded that the increase in infection rates led to heightened workload and emotional demands suffered by frontline healthcare workers.

Drawing on data from an online survey carried out in May 2000 among frontline healthcare workers in India, Suryavanshi et al.[92] identified four main categories of work-related stressors. This included, namely, work environment issues, work pressure, concerns related to the epidemic itself, and family-related worries. Notably,

work environment issues were found to be most strongly associated with an increased risk for depression and anxiety. These findings are consistent with those reported in a qualitative study also conducted in India by Sengupta et al.[93], who interviewed 20 participants from four different hospitals. These authors identified five constructs for workplace problems. This included resource availability, financial concerns, perceived managerial ineffectiveness, contradictory guidelines, and occupational stress.

The perception of managerial ineffectiveness further emerged as a significant concern in the literature.[72,91,93,94] Concerns related to the same encompassed increased work pressure, poor coordination, lack of visibility and preparedness, management apathy, and inadequate communication.[93] These factors created substantial strain for healthcare workers, thereby exacerbating the stress and anxiety experienced during the pandemic. The increased workload combined with social distancing norms significantly disrupted both their professional responsibilities and the personal lives of healthcare workers.[93]

Moreover, the COVID-19 pandemic heightened the vulnerability of EMS practitioners as they faced increased ethical dilemmas and psychological strain due to their frontline role. This role included decisions about treating patients at the risk of them personally contracting COVID-19. Furthermore, EMS practitioners struggled with poor resource allocation in under-resourced settings and faced the risk of moral injury to themselves by questioning their treatment decisions. [95,96]

Couarraze et al.[97] also acknowledged the considerable stress caused by the COVID-19 pandemic, particularly among healthcare professionals who have had to maintain or increase their professional workload in the face of health crises. The findings of the international online questionnaire survey used in their study revealed that stress had been particularly high among paramedical staff who provided symptomatic treatments and supportive care to patients.[97] Similar conclusions were found in a mixed methods study with Australian paramedics using an online survey, where common workplace challenges included issues such as problems with communication, lack of support from management, and feelings of being unsafe and unprotected at work.[98] This led to major occupational uncertainty and upheaval during the pandemic, which negatively impacted their emotional, social, and physical well-being.[98] The same authors posited that paramedics faced increased risk and workplace stress during the pandemic due to a fear of contracting the virus, increased workloads, insufficient resources, and rapidly changing information.

2.3.2 Conflicting guidelines and protocols

One of the salient issues impacting frontline healthcare workers and EMS practitioners, which was highlighted in the literature, was the rapidly changing and often conflicting guidelines and protocols that made the work of health workers confusing and overwhelming.[89] The systematic review by Chigwedere et al. [99] revealed that constantly changing infection protocols and documentation had an impact on reduced self-efficacy and contributed to increased levels of stress among healthcare workers in China. This notion was echoed by Howarth et al.[87], who found that the continuous and rapid changes in work practices and clinical guidelines, often differing between ambulance services and other healthcare settings, left paramedics stressed and exhausted.

Paramedics also experienced a communication overload due to the high volume and frequency of new information, leading to added psychological distress and confusion within their work environment.[78,87,98] Although social media and online technology were deployed as the main platform for communication during the pandemic, Howarth et al.[87] asserted that the transition to modern methodologies of communication, although important, can often create misinformation as they do not allow opportunities for feedback due to their linear nature. In their online survey of 95 paramedics in Australia, Petrie et al.[98] discovered that constantly changing information was a significant contributor to paramedic stress. Moreover, the paramedics in their study reported inconsistencies between the information received from their own organisation and other health services. Additionally, Sousa et al.[100], through their multinational survey in America, found that 43% of healthcare workers in Latin America had a low level of knowledge regarding COVID-19, which was associated with the type of training and information sources, indicating a crucial improvement area.

Furthermore, the emotional responses to these changes were significant. Many health workers felt frustrated and exhausted due to the numerous changes and lack of clear directives, which collectively had an emotional impact on them due to the constant clash between over-communication and a lack of information.[89] Sengupta et al.[93] also highlighted the challenge associated with inconsistent healthcare guidelines and the lack of standardised protocols for COVID-19 testing, which created uncertainty and hindered effective responses to the pandemic. This discrepancy between theoretical

guidelines and practical experience in healthcare settings consequently compounded the challenges faced by paramedics and healthcare workers.[89,93]

2.3.3 Workplace safety concerns

In addition to inaccurate and often overwhelming information, healthcare professionals were concerned about the increased risk posed by their workplace due to the pandemic. This was in relation to working conditions and a lack of access to appropriate personal protective equipment.[89]

2.3.3.1 Risk of infection

An online survey-based study conducted by Shahzad et al.[57] between March and May 2020 offered valuable insights into frontline paramedics specifically. Their research investigated the impact of COVID-19 on paramedics working in isolation wards and clinics in Pakistan, with a particular focus on their perceptions regarding the risk of self-infection. The findings made by Shahzad et al.[57] revealed noteworthy correlations. The perceived threat of COVID-19 contagion among paramedics was found to be positively associated with psychological distress, which manifested as heightened levels of anxiety, depression, and emotional exhaustion. This psychological burden, in turn, was linked to an increase in agonistic behaviour, underscoring the profound impact of the working environment during the pandemic on the perceived risks of paramedics.

2.3.3.2 Personal protective equipment

The elevated psychological burden of frontline healthcare professionals, including EMS practitioners, was further compounded by the global scarcity and poor quality of personal protective equipment (PPE)[4,87]. The lack of PPE has been attributed to multiple factors. The PPE experience during the COVID-19 pandemic was explored by Ayton[4], who carried out an online survey aimed at healthcare professionals, including paramedics across Australia, using both qualitative and quantitative data collection methods and analysis. The authors reported that the key reasons for the shortage of PPE were lack of supplier availability and workplace rationing, followed

by delivery delays, high costs, the workplace not supplying PPE and the denial of PPE based on a low perception of risk or inappropriateness by management.[4]

Furthermore, Ayton et al.[4] found that the challenges with PPE faced by healthcare workers in Australia included issues such as not having enough PPE available, having to reuse or extend the use of PPE, and difficulties in accessing the appropriate types of PPE. Subsequently, the lack of sufficient PPE was a significant concern for the healthcare workers, impacting their ability to work safely and effectively during the pandemic.

Similarly, Sharma et al. [101] conducted a large-scale study between April and May 2020 using an online survey to determine the impact of COVID-19 and the perceptions of intensive care unit (ICU) healthcare providers regarding resource availability in the United States. Their study data, based on 1651 respondents from 50 states, showed that insufficient access to PPE was the strongest factor associated with perceptions of inadequate safety in the workplace and perceived health risk to the ICU healthcare providers and their families. Kaslow et al.[102] drew on the findings of Sharma et al.[101] study to comment on the key role of PPE in maintaining the psychological well-being of healthcare providers by serving as a psychological anchor of safety. In the same vein, Kaslow et al.[102] posited that healthcare managers had different perceptions of PPE sufficiency and quality to that of the operational healthcare staff. Moreover, the authors opined that the PPE-induced stress and burnout had deeper roots in the need for healthcare staff to have a sense of trust with their managers and organisations.

The shortage of PPE shortage has severe psychological, physical, behavioural, and systemic consequences. Access to adequate PPE is undeniably necessary for a sense of safety and security amongst health care professionals and hence affects their emotional well-being. Therefore, insufficient PPE not only increases physical risk but also acts as a symbol of safety and care from the healthcare organization, thereby significantly influencing the mental health of staff and trust in the organisation.[102] In support of this claim, a study by Bajo et al.[103] found that healthcare professionals with access to PPE reported lower states of anxiety, less traumatic intensity, and increased well-being levels. These findings emphasized that the role of PPE's role extends beyond physical health protection and is significantly influential in maintaining mental health among high-risk groups like healthcare professionals.[103] Similar conclusions were derived in other studies amongst frontline EMS staff, which found a correlation between having adequate personal protective equipment and the positive mental health status of EMS workers.[88,104] Workers who reported having had

adequate PPE during the pandemic, therefore, had better psychological health, which reflects the importance of protective measures in maintaining workers' mental health during high-risk periods.[88,104]

The global shortage of PPE, however, led to its re-use and attempts to extend the shelf-life of PPE by frontline healthcare providers outside of the manufacturer's recommendations. Ayton et al.[4] reported that 87% of nurses in the United States were re-using masks or respirators, and 27% reported exposure to COVID-19 patients without wearing any PPE. The same study further revealed that a variety of methods were used to extend the life of PPE, such as wearing items longer than recommended (30%), reusing single-use disposable items (25%), disinfecting items with liquid cleaner (21%), washing (15%), air drying, (6%) and using sunshine (4%).[4] The recommendations made by Ayton et al.[4] cohered with those made by Hughes et al.[105], who warned that the reuse of PPE presented an unresolved global occupational healthcare worker hazard due to the COVID-19 pandemic. Indeed, one of the key findings from a study by Herawati et al.[106] suggested the existence of a significant relationship between the level of adherence to using PPE and the incidence of COVID-19 among health workers. These researchers documented insightful statistics, which reflect that 44.2% of healthcare workers were found to be non-compliant in using PPE.[106] This non-compliance was considered to be due to several factors, such as the lack of awareness, improper perception of PPE usage, and discomfort in constant PPE usage.[106] They suggested that PPE compliance considerably defined whether a healthcare worker would contract the virus, thereby pointing out a significant need for proper training and availability of PPE for healthcare workers.[106]

Other researchers drew attention to the systemic consequences of inadequate PPE.[4,107] In this regard, Cohen and Rodgers[108] claimed that illness among healthcare workers due to inadequate PPE decreased the supply and quality of healthcare and that sick healthcare workers became vectors for further viral spread. Furthermore, ill healthcare practitioners increased the demand for healthcare while reducing the system's capacity to provide adequate care.[108]

Other research studies have also shown the ill effects of a shortage of PPE and its extended use on the physical aspect of wellness. A study by Galanis et al.[109] identified multiple adverse reactions experienced by healthcare workers, including dermatitis, allergy, atopy, and rash, amongst other issues, due to wearing PPE for extensive periods during the pandemic. The study reflected a significant prevalence of physical

health problems due to PPE use among healthcare workers. According to Swaminathan et al.[14], the enhanced use of PPE also has been found to significantly impact the physical well-being of healthcare professionals in the UK. The adverse effects included physical exhaustion, headaches, skin changes, breathlessness, and adverse effects on vision. Around 70.8% of respondents in this study reported exhaustion, while over 61% reported headaches.[14] Swaminathan et al.[14], therefore, concluded that such effects could be attributed to the extended periods of time that these professionals were required to wear PPEs, which necessitated the formulation of effective strategies to alleviate these physical burdens.

2.3.4 Change in team dynamics among healthcare workers

The COVID-19 pandemic dramatically altered the dynamics within healthcare teams, particularly among EMS practitioners and other frontline healthcare providers. These changes were multifaceted in nature and reflected both positive and negative shifts in team cohesion, communication, and overall workplace environment.

Shahzad et al.[57] explored the psychological strain caused by the rapid rise in COVID-19 cases. The virus was not just a personal burden for paramedics but also led to increased agonistic behaviour within teams. Such behaviour, characterised by conflict and competitiveness, likely stemmed from the high levels of stress and uncertainty prevalent during the pandemic's peak.[57] This development posed a significant challenge to the efficiency and well-being of healthcare teams.[57]

Alongside the psychological strain, new barriers to teamwork emerged during the pandemic. As Shahzad et al.[57] noted that the impact of the pandemic led to a change in team dynamics, marked by improved cohesion on the one hand but hampered by a high workload and the constraints imposed by PPE on the other. The need for PPE, while critical for safety, introduced a physical barrier that impeded effective communication and created a sense of distance among team members.[57]

Despite these challenges, Baldwin and George[91] reported a substantial sense of camaraderie among healthcare professionals. This camaraderie emerged from the shared experience of battling an unprecedented crisis, which strengthened bonds and fostered a sense of unity and cohesion among staff members.[91] Additionally, Rees et al.[78] highlighted the sense of solidarity within the paramedic profession during the COVID-19 crisis. Despite facing immense challenges, paramedics reported a strong

sense of unity when working together against the pandemic. However, this was juxtaposed with tensions in their relationship with the public, particularly due to the perception that society members were not adhering to social distancing rules and other preventive measures. [78]

2.3.5 Public perceptions and interactions

A review of the literature also revealed additional dynamics between the EMS staff and the communities they served during the pandemic. The public mood and attitude towards frontline healthcare workers had a marked impact on the wellness of healthcare workers, including paramedics, during their duties.[75] Rees et al.[78] highlighted the fear among paramedics of being forgotten by the public after the pandemic. The researchers predicted a return to longstanding issues such as prolonged hospital delays, inappropriate ambulance use, and aggression, thus raising concerns about societal obligations towards paramedics and how the healthcare system rewards and values its frontline healthcare staff.[78]

In India, an increase in violence and hostility from the public against healthcare workers was observed.[88,110] The violence ranged from verbal abuse to physical assault, particularly from patients under the influence of substances or suffering from mental disorders, adding to the stress and challenges encountered by paramedics. [88,110] This rise in violence was attributed to the fear, anxiety, and misinformation that was circulating about the virus. In response to the surge in violence, the Indian government issued an order making violence against healthcare workers a non-bailable offence, punishable by imprisonment.[110] Moreover, healthcare workers faced societal challenges like fear and stigmatisation due to infectious diseases, which resulted in instances where healthcare professionals were alienated from community settings due to the perceived risk of infection transmission.[93]

In contrast to the negative perceptions and behaviour towards paramedics and healthcare workers in general, paramedics also recognised the visible public support being offered to healthcare workers, such as gifts and public clapping. However, many felt embarrassed and did not embrace the 'hero' status that the public and the media accorded them during this period. Instead, they felt they were professionals carrying out their duties instead of heroes.[78] Rigotti et al. [72] claimed that public appreciation for healthcare workers surged during the pandemic, leading to 2021 being designated as the International Year of Health and Care Workers. However, the escalating levels of

pressure and demands being brought to bear on healthcare workers highlighted critical societal concerns about providing frontline healthcare staff with the necessary resources to maintain their health and continue their vital work.

2.3.6 Influence on call patterns within emergency medical services

The pandemic's broader psychological impact and public fears of hospital visits, together with strict governmental response measures, have led to changes in the nature and frequency of calls that EMS across the globe responded to.[111,112] Comparing the period before and during the COVID-19 outbreak, significant changes in the patterns of emergency calls were noted. Jaffe et al.[111] observed an increase in emergency calls in Israel for mental or psychiatric reasons and calls where patients or families were denied transport to the hospital. Likewise, Laukkanen et al.[112] concluded that there was an increase in the proportion of non-transported patients during EMS missions during the pandemic period in Finland, indicating a possible shift in the public's approach to emergency healthcare. Additionally, the study observed changes in the distribution of EMS mission codes, with increases in dispatches for specific emergencies like dyspnoea, chest pain, and mental health issues. Similarly, Siberian et al. [56] and Prezant et al.[113] asserted that the COVID-19 outbreak led to a significant increase in EMS calls and dispatches, with more complaints related to COVID-19 symptoms rather than trauma and motor vehicle accidents, which were likely due to quarantine measures. EMS response efficiency improved despite the increased workload.[56]

In addition, a Turkish study also found altered EMS utilisation patterns. Despite an overall increase in EMS use, there was a notable decrease in the use of EMS for time-sensitive diseases, such as acute myocardial infarction and stroke, likely due to anxiety about virus transmission. According to the researchers, this shift potentially led to increased mortality rates from these conditions.[114] The authors claimed that people turned to EMS for information and assistance due to fear and uncertainty surrounding the pandemic.[114].

In contrast, a study in the Western Cape, South Africa, found that the COVID-19 pandemic led to an observable decline in the average call-out rate within the local operational area[115]. Despite the challenges posed by the pandemic, EMS organisations were able to adapt to the changing call patterns and call frequency by expanding personnel hours, enhancing call-centre resources, implementing COVID-19 training and utilizing volunteers during the pandemic period.[56,115]

2.3.7 Staff attrition

The added pressure of changing working conditions due to the COVID-19 pandemic had inevitable consequences on frontline healthcare staff attrition. The pandemic highlighted a global shortage of paramedical staff, which consequently affected their well-being due to the increased risks and demands placed on this small group.[88]

Paramedical staff, including nurses, therefore, experienced increased burnout, psychological distress, moral injury and institutional betrayal during the pandemic.[88,116] This led to some leaving the profession, exacerbating recruitment challenges and potentially causing closures of critical care units.[88,95,116] The potential future workforce crisis in the paramedic profession was also evident in a study by Roberts et al.[55] who registered that a considerable proportion of respondents were seriously considering quitting (27.4%) or looking for a new job with a different employer (28.5%) within the next 12 months.[55]

Similar challenges were experienced in other allied health professions. Some nurses who were first assigned to COVID-19 units in Turkey expressed feelings of alienation from their profession. Their experiences during the pandemic led them to question their commitment to the profession, with some considering retirement or departure as soon as possible.[94]

2.3.8 Psychological impact

High levels of psychological stress experienced by frontline healthcare workers, including EMS practitioners, have been highlighted in both previous pandemics, such as SARS and during the recent COVID-19 pandemic.[117] During the COVID-19 pandemic, the negative mental health impact has been further exacerbated by the risk of infection, increased workload and personal demands.[50,72,117–119] Unfortunately, adverse mental health sequelae have also been observed to be long-lasting, even after the pandemic.[99,120] Moreover, the mental health impact can have a long-term effect on the healthcare system as a whole. The inadequate mental health of healthcare workers may compound the whole healthcare system's problems by leading to lower compliance with safety practices and staff reductions due to increased infection rates, distress, or resignations, thus creating a vicious cycle.[97,121]

The impact of COVID-19 on mental wellness has often manifested itself in the form of specific symptoms and consequences of psychological stress, such as anxiety, depression, and suicidal tendencies. In many instances, the healthcare staff suffered PTSD and burnout.

2.3.9 Anxiety and depression

A common theme across multiple studies was the high prevalence of anxiety and depression among healthcare workers. Khanal et al.[122] found an increased incidence of anxiety, depression, and insomnia in health professionals during the pandemic's early stages. Similarly, Bajo et al.[103] reported that healthcare professionals in Spain experienced high levels of anxiety and trauma intensity. This finding was corroborated by Celmece and Menekay [123], who noted significant stress, anxiety, and burnout levels among healthcare workers, which adversely affected their quality of life.

Karasu et al.[124] revealed severe and moderate levels of anxiety among healthcare workers. Baldwin and George[91] highlighted the physical and mental toll of the pandemic on professionals, with increased stress, anxiety, lack of sleep, and a war zone-like working environment. Gordon, Magbee, and Yoder's[125] study on ICU nurses further emphasised the psychological and physical exhaustion faced by nurses due to high-risk exposure to the virus.

In the Canadian context, Wagner et al.[59] found that paramedics reported significantly higher mental health challenges compared to firefighters, underscoring the unique risks faced by paramedics. This aligns with the findings made by Dong et al.[126], whose study revealed that approximately one-third of healthcare workers in China experienced anxiety, depression, and stress, particularly in the early stages of the pandemic.

The psychological impact on healthcare workers, including EMS practitioners, varied over time. Dong et al.[126] claimed that the prevalence of anxiety and depression was notably higher in the pandemic's early phase compared to later stages. This suggests the dynamic nature of psychological effects, potentially influenced by factors such as adaptation to the pandemic, evolving treatment protocols, and changes in the intensity of the crisis.

Teo et al.[127] aimed to determine the prevalence of anxiety, depression and job burnout among healthcare workers across Indonesia, Malaysia, Philippines, Singapore, Thailand, and Vietnam during the pandemic. In their study, 1,381 health workers, including EMS practitioners, responded to the self-reported online survey. Their data showed a significant prevalence of job burnout, followed by anxiety and depression, with the highest rates reported in Singapore and the lowest in Vietnam. The researchers suggested a correlation between the results and the different infection rates across the countries, as Singapore was dealing with the delta wave. At the same time, Vietnam recorded stable levels of infection. In addition, the researchers noted lower rates of psychological distress in healthcare workers than in previous international COVID-19-related studies. This finding was attributed to low infection rates in Southeast Asia countries and the resilience of the healthcare systems and healthcare workers of those countries.

Moreover, Shaukat et al.[128], in their literature review, included studies which further confirmed the high prevalence of anxiety and depression in Chinese healthcare workers. Shaukat et al. drew particular attention to a quantitative study by Huang et al.[129], with data from 230 Chinese healthcare workers. In their study, overall anxiety was reported at 44% and depression at 50%. Interestingly, the results revealed higher rates of anxiety than in male healthcare workers. Therefore, these findings further highlighted the mental health impact on healthcare workers during the pandemic.

Similar findings were reported from Africa, where a high prevalence of mental health disorders among healthcare workers was found during the pandemic. This included anxiety, depression, stress, PTSD, insomnia, and burnout, although the intensity and prevalence varied across different countries.[2,130–132] Likewise, South African frontline healthcare workers reported a range of mental health issues, including depression, anxiety, traumatic stress symptoms, demoralisation, sleep difficulties, poor functioning, and increased irritability. These conditions were directly associated with their experiences during the pandemic. In South Africa, the pandemic's effects were more pronounced due to pre-existing inequalities, poverty, and an ailing mental health care system.[133]

Some studies found that symptoms of anxiety may progress to emotional changes in healthcare workers over time. For instance, this transition from anxiety to anger was observed by Yıldırım, Aydoğan, and Bulut[94] among nurses during the pandemic. This shift was attributed to unmet expectations, perceived injustices, and experiences of selfish and insensitive behaviours. Shahzad et al.[57] reported similar findings, with

agonistic behaviour amongst frontline paramedics, including aggression and avoidance, that was influenced by anxiety, depression, and emotional exhaustion.

2.3.9.1 Global prevalence

Smallwood and Willis[134] and Htay et al.[118] reported alarmingly high rates of anxiety and depression amongst healthcare workers, with about 20-25% experiencing these conditions. Fteropoulli, Kalavana, Yiallourou, et al.[120] found that 69.9% of healthcare professionals reported some level of anxiety, while 66.9% reported experiencing depression. Roberts et al.[55] further found elevated depression and anxiety scores amongst rural community staff, indicative of a widespread issue.

Martínez-Caballero et al.[104] study on Emergency Medical Services (EMS) workers in Spain reported that 65.6% experienced symptoms of anxiety, which was a significant increase from pre-pandemic levels. Grover et al.[135] noted that younger workers, women, frontline healthcare workers, and those with preexisting health conditions were more susceptible to psychological morbidity.

In China, Wong et al.[51] reported high rates of distress (70%), depression (50%), anxiety (45%), and insomnia (34%), with frontline and emergency care workers being most at risk. Xiao et al.[136], Que et al.[137], and Spoorthy et al.[50] further highlighted the extensive prevalence of depression, anxiety, insomnia, and distress among healthcare workers in China. In India, a substantial proportion of healthcare providers reported symptoms of mental health issues, with notable prevalences of depression and anxiety.[50]

2.4.2 Stress experienced by emergency medical services practitioners during the COVID-19 Pandemic

Kosydar-Bochenek et al.[138] differentiated between chronic and traumatic stress experienced by paramedics. Chronic stress is related to daily work demands such as overwork, poor work organisation, and unpredictable shifts. Traumatic stress, on the other hand, arises from life-threatening situations encountered on the job, including dealing with severe injuries, death, and the responsibility for human life.[138] Frequent exposure to dying patients, particularly children, and the necessity to make difficult

decisions under pressure contribute significantly to the traumatic stress experienced by paramedics.[138]

Almaghrabi et al.[139] and Wu et al.[140] highlighted the elevated psychological stress levels amongst medical staff during the pandemic, with those in front-line positions experiencing more tremendous stress than others. Wu et al.[140] pointed to an "exposure effect," where those working in high-exposure areas, such as Wuhan, China, experienced more intense psychological stress. Several factors have been identified as significant contributors to this heightened stress, including fear for personal safety, concern for family members, and increased exposure to the virus.

The COVID-19 pandemic has led to a notable prevalence of psychological distress and burnout among healthcare workers, as reported by Menon et al.[141] and Rarastanti et al.[90] In India, Menon et al.[141] collected data from 967 healthcare workers from 12 cities in 10 states. In their findings, 52.9% of healthcare workers surveyed were at risk of psychological distress. Factors contributing to this distress included long working hours, higher income, and involvement in specific activities like screening and contact tracing. Furthermore, Rarastanti et al.[90] claimed that work stress had a profound effect on healthcare workers' work burnout at an Indonesian hospital. Spychała et al.[75] reported that in their study, 11% of paramedics experienced very high stress, 38.4% felt high stress and 32% perceived moderate stress due to the ongoing pandemic and the epidemiological situation. Additionally, the data showed that high to moderate stress was experienced mainly by older paramedics, while those with longer professional experience self-reported lower stress levels. [75]

2.4.3 Post-traumatic stress disorder among frontline healthcare professionals and emergency medical services practitioners

The prevalence of PTSD among healthcare professionals during the COVID-19 pandemic was notably high, especially for those working in high-risk environments like COVID-19, with more prolonged and severe responses to chronic trauma exposure.[138] Saladino et al.[142] highlighted that exposure to high-risk situations, emotional distress, anxiety, and isolation significantly contributed to the development of PTSD. This was further compounded by factors such as constant exposure to the virus, fear of contagion, feelings of abandonment by institutions, and personal factors like having children and pre-existing mental health conditions.

In the context of EMS workers, a study in Spain revealed that 30.9% of respondents demonstrated symptoms of PTSD due to the high risks and mental health effects of the pandemic.[142] Furthermore, a positive, albeit low, correlation was found between work experience and PTSD scores among EMS professionals, indicating the impact of prolonged exposure to traumatic events.[142] Australian paramedics reported experiencing mental health symptoms such as burnout, anxiety, and notably higher rates of PTSD and depersonalisation symptoms compared to other healthcare workers.[98] High virus exposure, perceived health threats, social isolation, and inadequate organizational support were identified as key factors exacerbating these mental health issues.[98]

Paramedics' high risk of developing PTSD was attributed to their constant exposure to traumatic events.[138] This exposure can lead to the accumulation of stressful experiences, increasing the likelihood of severe posttraumatic disorders. Meta-analyses have shown that the incidence of PTSD among paramedics is about 10%, higher than in other emergency service professions.[138] One of the critical factors that can lead to the development of PTSD is the concept of moral injury, which is defined as a significant psychological response arising from events that violate one's moral code.[96] Moral injury has been prevalent among healthcare workers during the pandemic.[95,96] because such injuries arise from intense working environments and are exacerbated by the pandemic's challenges, including ethical dilemmas faced by paramedics. More specifically, Xue et al.[116] derived potentially morally injurious events based on their scoping review of international studies. These events related to the transmission risk, inability to work with COVID-19 patients directly, perception of providing poor care to COVID-19 patients, lack of resources such as adequate PPE, perceived lack of support from the employer and stigma and discrimination. [116] These events evoked feelings of guilt, sorrow, anxiety and lack of control in the healthcare providers, which added stress burden on their already weakened well-being.

2.3.10 Emotional exhaustion and burnout

The high prevalence of pandemic-related occupational stress has been further demonstrated by the presence of emotional exhaustion as a component of burnout among frontline healthcare workers.55,143 In this regard, Maunder et al.144 concluded that emotional exhaustion varied across occupational roles, with the highest levels among nurses and the lowest in non-clinical roles. In addition, Barello

et al.[143] found a possible correlation between female gender and higher levels of emotional exhaustion.

Burnout, characterized by exhaustion and a decreased sense of accomplishment, was detected among healthcare workers globally during the COVID-19 pandemic, primarily due to high workloads, continual exposure to psychosocial stressors and direct exposure to the treatment of COVID-19 patients.[117,123,144,145] Burnout can have a variety of causative factors such as mental health outcomes, work settings, and perceived readiness for the COVID-19 pandemic. Research findings from a study by Ulfa et al.[117] indicated a significant correlation between total burnout scores and mental health outcomes, such as anxiety and depression among healthcare workers during the COVID-19 pandemic.

Fteropoulli, Kalavana, Yiallourou, et al.[120] opined that the work setting played a crucial role in determining psychosocial outcomes. Those working in inpatient wards and intensive care units experienced an increased workload and subsequent burnout. Organisational weaknesses, such as inadequate workplace preparation, were associated with multiple psychological outcomes, including reduced quality of life.[120] Depression and occupational burnout emerged as key predictors of poorer quality of life among healthcare professionals. Afulani et al.[146] also found a significant association between lower perceived preparedness for the COVID-19 pandemic among healthcare workers in Ghana and increased levels of stress and burnout, highlighting the psychological impact of readiness. Rarastanti et al.[90] posited that work stress, defined as a physical and mental response to disruptive changes in the work environment, can lead to depression and burnout syndrome, characterised by emotional exhaustion and a feeling of saturation due to increased job demands.

Burnout has also been noted to have a detrimental impact on the positive functioning of healthcare workers, including paramedics. Lyu et al.[74] discovered that job burnout is considered a significant factor affecting the positive functioning of healthcare workers during the COVID-19 crisis. Job burnout, particularly emotional exhaustion, appeared to negatively influence both resilience and post-traumatic growth. Interestingly, while job burnout generally undermines the positive effect of post-traumatic growth on resilience, Luy et al.[74] asserted that the relationship between post-traumatic growth and resilience becomes more pronounced among individuals with high emotional exhaustion. Another significant finding emerging from research undertaken by Maunder et al.[144] was the prominent link between burnout, psychological distress, and self-efficacy. This research suggested that self-efficacy is

modifiable through training in relevant tasks, role-modelling, and possibly organisational leadership. Hence, increasing self-efficacy could be a protective factor against the psychological impact of the pandemic and, therefore, be an essential consideration for future intervention strategies.[144]

Burnout among medical staff has significant implications related to the health system's response, not only to the current pandemic but also to future outbreaks.[147] Ulfa et al.[117] warned that it was essential to develop interventions that focus on improving the well-being of health workers to mitigate these adverse outcomes because burnout syndrome can negatively change behaviour in response to long-term stress and work pressure, creating a roadblock to performance improvement, effectiveness, and organisational output.

2.3.11 Risk factors for mental health disorders in healthcare workers

Although the literature has documented the risks related to wellness on healthcare workers, including paramedics and society at large, the severity of such risks was not found to be equal across specific health occupations, workplace settings, gender and demographics.[124,134,135,137,148]

A study by Martinez-Lopez et al.[104] revealed a significant relationship between the risk of emotional exhaustion and the professional category. Notably, physicians and nurses were found to be at a higher risk for emotional exhaustion, which underscores the psychological implications of these particularly demanding roles during a health crisis.[149] Other international studies have corroborated the findings of increased vulnerability to stress-related symptoms and possible mental disorders among female nurses.[121–123,126]

Alnazly et al.[150] pointed out that different groups of healthcare workers in Africa, including nurses, doctors, and pharmacists, experienced varied levels of psychological distress, indicating that the impact of the pandemic was not uniform across different professions within the healthcare sector. Kounou et al.[151] reported that women and nurses in Africa showed higher levels of anxiety and depression compared to their male counterparts. Khajuria et al.[152] arrived at a similar conclusion by identifying that factors such as being female, being a nurse, working in the UK and USA, and caring for a COVID-19-positive patient who subsequently died were linked with higher depressive symptoms among healthcare workers. In addition to the factors

identified by Khajuria et al. [152], Shreffler et al.[39] determined that younger healthcare workers were most vulnerable to mental health disorders.

Research has also highlighted paramedics as a high-risk group for occupation-related adverse mental health effects of the pandemic. Paramedics are a high-risk group for mental health problems, with significantly higher rates of depression, anxiety, PTSD, and suicidality compared to the general population due to the nature of their job, which involves regular exposure to human suffering and death, as well as through the unpredictability of their work and poor work-life balance, that contributed to these issues.[95,153,154]

Couarraze et al.[97] compared the stress levels during the pandemic between paramedics and medical doctors and found that it was significantly higher in the paramedic group. According to Couarraze et al.[97], being at the forefront of patient care, paramedical staff had a pivotal role during the health crisis that might have contributed to their high level of stress. Wagner et al.[59] agreed by suggesting that direct exposure to the virus is a significant stressor contributing to the mental health burden among these professionals. In the same study, Wagner et al. [59] found that contrary to expectations, younger public safety professionals reported more mental health symptoms compared to their older counterparts. This suggested that age may be inversely related to the vulnerability of experiencing mental health challenges in the context of the pandemic, which correlated with the findings of Shreffler et al.[39]

Similarly to studies in nursing, the female gender was found to be associated with higher symptoms of mental health disorders among Canadian paramedics as compared to their male counterparts.[59] Pradeepan and Chipra[88] posited that female paramedical staff in India experienced higher levels of work-related stress, especially during lockdowns, due to the additional burden of managing both professional and family responsibilities. Furthermore, Maunder et al.[144] emphasized that healthcare workers who have children or elders at home face a greater rate of emotional exhaustion over time. Conversely, an international research survey carried out by Htay et al.[118] found that healthcare workers living with family and friends and those with more than ten years of experience showed a lower risk of depression. In addition, women were less likely to experience depression compared to men.

Furthermore, Barbari et al.[155] explored the impact of ethnicity on stress levels among paramedics in Qatar. The research focused on three ethnic groups, namely Arabian, South Asian, and Southeast Asian. The study found that overall stress levels had

increased during the pandemic for all groups. However, stress levels were comparatively lower in the Southeast Asian subgroup.[155] Common coping strategies, such as social activities, decreased during the pandemic, while an increase in smoking, alcohol, and drug use was noted among the Arabian subgroup.[155]

2.4 Social impact

Healthcare workers, particularly EMS practitioners, faced a myriad of social challenges during the pandemic.[156] The COVID-19 pandemic has imposed unparalleled challenges on healthcare workers, not only in their professional sphere but also in their personal and social lives. The COVID-19 pandemic-related wellness research has uncovered several factors that exacerbated the impact of COVID-19 on the mental health of frontline healthcare workers.

2.4.1 Social media

In the era of social media and real-time, 24-hour television and online news coverage, information, and health crisis management can become a double-edged sword of awareness and misinformation.[139] Wong et al.[51] argued that the COVID-19 pandemic was notable for being the first to arise in an area of extensive digital integration, which has resulted in healthcare professionals being inundated with unfiltered clinical data, leading to heightened feelings of anxiety and hopelessness.

Additionally, adverse information and feedback can add to the psychological burden, as shown in a Chinese study. This found that attention to negative or neutral information about the pandemic, receiving negative feedback from families and friends involved in front-line work, and reluctance to join front-line work were significant factors contributing to psychological problems among healthcare workers.[137] Moreover, a lack of COVID-19-related information, outbreak management training, and constantly changing infection control measures contributed to increased stress levels, decreased self-efficacy, and lesser resilience among healthcare workers.[99]

2.4.2 Quarantine and social isolation

However, other factors, such as quarantine and self-isolation, have been linked with PTSD and depression in healthcare workers. Chigwedere et al.[99] stressed the need for robust emotional and psychological support measures during quarantine stages based on their study. They found that quarantining and the risk of dying from the disease were mentioned as significant contributors to depressive and post-traumatic stress symptoms among healthcare workers. Emotional isolation and loneliness experienced during quarantine intensified these symptoms.[99] Correspondingly, in a separate study, the requirement to self-isolate was found to be predictive of increased mental health symptoms among public safety professionals, particularly paramedics; the length of self-isolation also showed a positive relationship with mental health symptom severity.[59]

2.4.3 Work impact

Teo et al.[127] distinguished key factors associated with the increased odds of anxiety and job burnout among healthcare workers who were working longer hours than usual, perceiving high job risk, and PPE. Additionally, working night shifts was linked with a higher risk of depression.[127] Similarly, Nehra et al.[157] claimed that a significant number of participants experienced several negative emotions. Moreover, hindrances such as a lack of adequate safety equipment, increasing workload, and fear of being infected with COVID-19 and unwittingly spreading it were poignant contributors to their emotional distress. However, the findings also shed light on the resilience and determination of the healthcare workers, as participants reported feelings of optimism and pride associated with their work.[157] Work-related categories of stressors, such as work pressure, concerns related to the epidemic itself, and family-related worries, were also found to have a profound impact on the mental wellness of healthcare workers in India.[92] According to Suryavanshi et al. [92] , work environment issues were strongly associated with an increased risk of depression and anxiety.

The job type and religion also seemed to play a role in anxiety prevalence among healthcare workers. Buniaian et al.[158], in their research, found that job type and degree of faith (religiosity) had significantly influenced the anxiety levels of healthcare providers. According to these researchers, nurses exhibited the highest anxiety levels due to their intensive patient interaction, whereas lesser interaction with patients resulted in reduced anxiety levels for administrative staff. Healthcare providers with a

high degree of faith also seemed more successful in coping with the pandemic-related anxiety.[158] In addition, Gordon et al.[125] asserted that there was a shift in ICU nurses' roles during the pandemic, as they often had to act as surrogates for isolated COVID-19 patients' families and strive to maintain human comforting connections despite the challenges associated with their use of masks and personal protection equipment. These nurses also bore witness to patients' complicated recoveries or deaths, which contributed to their emotional stress.[125]

In China, the professional title of healthcare workers was correlated with their psychological stress, anxiety, and depression levels, suggesting that job responsibilities and experiences influence their psychological well-being.[136,137,140] Wu et al.[140] added that in addition to occupation, geographical location was a significant factor in relation to stress levels, with medical staff in Wuhan showing more severe stress responses than those outside Wuhan.

2.4.4 Economic impact

In some studies, financial and economic issues emerged as a significant burden for healthcare personnel. Fear of infection, unauthorised absence leading to pay cuts, and job losses were significant concerns. Private practice and revenue generation were severely affected due to COVID-19 regulations, leading to economic distress among healthcare workers.[51,72,93]

Correspondingly, Rigotti et al.[72] held that COVID-19's devastating impact on the global economy increased unemployment rates and decreased career prospects. Their study pointed out that workers faced a dual threat of the virus's health risks and economic stress due to job insecurity, income inadequacy, and underemployment. These challenges prolonged risk perceptions and resource depletion among workers, which then impacted their safety-related attitudes/behaviours and overall well-being. However, the outcomes varied depending on individual, organisational, and societal factors. Wong et al.[51], on the other hand, alluded to the paradox of doctors' and nurses' income reductions during COVID-19 due to lower visits to emergency centres, which added financial pressure on healthcare workers.

2.4.5 Family and fear of infection

A fear of becoming infected and infecting family members was highlighted as a critical stressor globally, even amongst African and South African healthcare workers.[86,159,160] Moreover, according to Kwaghe et al.[161] the psychological strain of separation from family was significant for health workers. Fear of transmitting the disease caused healthcare workers to distance themselves from their families, leading to increased emotional and psychological distress. Among the healthcare workers surveyed in a study from Latin America, fears and concerns were commonly expressed. Interestingly, the participants in this study were more anxious about infecting their family members rather than contracting the infection themselves. Moreover, 60% of the respondents were worried about not providing adequate patient care, primarily due to a lack of staff, PPE, work overload, and ethical dilemmas.[100]

Similarly, a South African study identified common anxieties among health workers related to COVID-19. These included fears of infection at work, infecting household members, and the challenges of managing COVID-19 both personally and professionally. Specifically, 84% worried about infecting household members, and 78% were concerned about getting infected at work.[162] The inability to maintain social distancing in ambulances and close contact with symptomatic patients heightened these concerns among paramedics, thereby contributing to their increased stress and isolation.[87]

In the South African context, Bhagwan and Rowkith[156] shed light on the experiences of emergency medical care students. Their findings resonate with the broader themes identified in international studies, namely, the fear of infecting family members and the consequent isolation due to working in high-risk environments. These findings were crucial in understanding the global impact of the pandemic on healthcare workers, as they added a regional dimension to the discussion.

Within the context of family responsibility, healthcare workers were forced to juggle their intensified professional duties with familial responsibilities amid the pandemic.[163] Alajmi et al.[76] further illuminated this challenge, noting that many healthcare workers experienced strained marital and familial relationships. These strains were attributed to communication barriers arising from excessive workloads and limited leisure time, hindering their ability to maintain robust family ties and engage in social interactions. This finding exposed the dual burden shouldered by healthcare workers as they navigated their roles as both healthcare providers and family members.

A significant social repercussion of the pandemic was the fear and anxiety amongst families of healthcare workers. Alajmi et al.[76] reported that families often feared contracting the virus from their healthcare worker members, leading to tension and panic within households. This fear sometimes resulted in healthcare workers being coerced into isolating within their homes, exacerbating their sense of isolation and altering family dynamics. These findings are echoed in the work of Barello et al.[143], who observed similar anxieties during previous influenza pandemics, indicating a recurring pattern of familial fear and stigmatization during health crises.

The complexity of accessing social support for healthcare workers is a critical theme that is embedded within the literature. The need for self-isolation to protect loved ones has often led to a compromised support system. Healthcare workers have struggled to balance the demands of work and family life, with their unique experiences during the pandemic leading to a lack of understanding from their support networks. This gap in support could potentially have long-term adverse effects on their mental well-being.

The studies also highlighted societal stigma as a significant consequence of the pandemic. Barello et al.[143] emphasized that healthcare workers often faced societal stigma and fear due to their direct exposure to the virus, altering their social interactions and fostering a sense of isolation. This stigma extended beyond the professional realm, affecting their social identity and community relationships.

2.4.6 Stigma and ostracism

In the context of the COVID-19 pandemic, the issue of stigmatization, particularly towards patients, their families, and healthcare workers, has emerged as a significant concern within the academic literature. Dubey et al.[164] (Dubey et al., 2020) and Chew et al.[165] have highlighted the prevalence of stigmatization during the COVID-19 pandemic, noting its impact on patients, their families, and healthcare workers. Chew et al.[165] reported that COVID-19 patients and their families in Malaysia faced isolation and emotional labelling, thereby leading to social ostracism. This stigma was further exacerbated by healthcare workers' attitudes and public response, contributing to adverse mental health outcomes. These findings align with those of Kumar and Nayar[77], who emphasised the psychological toll of stigma, including anxiety and PTSD symptoms among healthcare workers.

The stigmatisation of healthcare workers has been a prominent theme, with studies indicating that a significant proportion of healthcare workers encountered stigma.[77,166] Simeone et al.[167] provided a nuanced understanding of this phenomenon, detailing how nurses in Italy experienced stigma both within their professional environment and in their personal lives. This stigma not only led to feelings of isolation but also compounded the stress and anxiety associated with the pandemic.

Gkinopoulos and Galanaki[168] and Amir[73] discussed the role of social stigmatisation in fostering ostracism. The stigmatisation of survivors, often perceived as a threat, led to profound social rejection and labelling, even extending to their families. This societal response, characterized by fear and misinformation, not only alienated individuals but also impeded public health efforts by discouraging open disclosure of one's COVID-19 status.[165]

Stigmatisation had far-reaching consequences on mental and social health. Studies 'such as those by Khalid et al.[169] and Simeone et al.[167] underscored the psychological implications of stigma, linking it to increased stress, anxiety, and long-term mental health issues. Socially, stigma affected interpersonal relations and work harmony, as highlighted by Zhang et al.[170] and Gordon et al.[125] in their studies on intensive care unit nurses.

The stigma associated with COVID-19 created barriers to seeking treatment and hindered public health efforts.[77,171] Chew et al.[165] noted that patients often withheld their COVID-19 status to avoid discrimination, impacting tracing and containment efforts. Several strategies have been proposed to mitigate stigma by Kumar and Nayar[77], who suggested the crucial role of accurate information and support from community leaders and public mental health officials. Educational interventions, as emphasised by Chew et al.[165], and the involvement of religious leaders for emotional and spiritual support were also seen as practical measures.

2.5 Physical impact

The stress of working during the COVID-19 pandemic not only had a negative impact on the mental dimension of healthcare workers and EMS practitioners' wellness but also manifested as physical symptoms. A common symptom which presented itself amongst healthcare workers was sleep disturbance. In a qualitative study done by Yildirim et al.,[94], in Turkey, considerable disturbances in nurses' sleep patterns were

reported due to intense workloads and long shifts during the pandemic. These findings stressed the importance of providing adequate rest periods for healthcare workers during health crises, as lack of sleep can negatively impact their health and work performance.

Insomnia also manifested among paramedics during the pandemic. A significant increase in sleeping difficulties was reported among Spanish EMS workers during the COVID-19 pandemic. Specifically, 60.9% of the respondents experienced some level of insomnia. Martínez-Caballero et al. [104] and Pradeepan and Chitra[88] asserted that long working hours and the demand for care during the pandemic led to a high prevalence of insomnia (35%-38%) among paramedical staff in India. This was due to an increased workload and reduced leisure and sleeping hours.

Shaukat et al.[128] reviews included ten studies, of which five assessed mental health impacts and five assessed physical health impacts on healthcare workers. The review found that healthcare workers experienced various physical and mental health consequences due to the COVID-19 pandemic. Common physical symptoms included fever, cough, and weakness, with prolonged use of personal protective equipment leading to skin damage.

2.6 Coping mechanisms

A study by Jameel Al Barbari et al.[155] revealed how ethnicity influences coping strategies among paramedics. This research showed a universal increase in stress levels amongst paramedics during the pandemic, transcending ethnic boundaries. However, it also uncovered variations in coping strategies across different ethnic groups. The decline in activities like visiting cinemas and engaging in team sports due to pandemic restrictions suggested a disruption of communal coping mechanisms, which are integral in many cultures. The significant decrease in religious rituals as a coping mechanism among South Asian and Southeast Asian groups contrasted with the increase in substance use among Arabian staff, which affirmed the pandemic's profound impact on traditional and culturally ingrained coping methods.

In a study by Oyat et al.[131] in sub-Saharan Africa, a contrasting perspective, which emphasised the critical role of community and social support, was provided. This study highlighted how healthcare workers in this region relied heavily on their community networks, including family and assistance from strangers. The findings

illustrated the strong sense of community interdependence, which played a central role in managing the psychological effects of the pandemic. This communal approach to coping is particularly noteworthy, as it demonstrates the value of collective resilience in the face of global health crises.

The concept of post-traumatic growth was explored in studies undertaken by Feingold et al.[172] and Lyu et al.[74]. This offered an optimistic perspective on the psychological outcomes of the pandemic. These studies suggested that despite facing significant challenges and trauma, a considerable proportion of healthcare workers experienced positive psychological changes that were characterized by spiritual growth and improved interpersonal relationships. The relationship between resilience and post-traumatic growth is particularly intriguing, as it suggests a symbiotic dynamic where each fosters the other.

While post-traumatic growth presents a positive outcome, the presence of secondary traumatic stress (STS) among healthcare workers, as reported by Newland et al.[173] and Kosydar-Bochenek et al.[138], cannot be overlooked. This coexistence highlighted the complexity of psychological responses in healthcare settings, where professionals are continually exposed to stress and trauma. The literature suggested that post-traumatic growth can coexist with STS, indicating a nuanced interplay between stress and growth.

The resilience and optimism displayed by healthcare workers was observed in studies by Magner et al.[96] and Ardebili et al.[174] as a vital aspect of coping strategies. Despite the anxieties and pressures of the pandemic, many healthcare professionals adapted and maintained a sense of self-confidence and optimism. This fluctuating trajectory of optimism and post-traumatic growth, as observed in various stages of the pandemic, underscores the importance of maintaining a positive outlook in the face of adversity.

The diversity of coping strategies adopted by healthcare workers is evident in the findings of Martinez-Lopez et al.[104] and Spychała et al.[75]. These studies revealed a spectrum of coping mechanisms, ranging from avoidance strategies to adaptive behaviours like physical activities. The correlation between specific coping strategies and psychological outcomes emphasizes the need for promoting effective coping mechanisms that support mental health and well-being.

The role of organizations in supporting their employees' resilience is crucial, as highlighted by Albott et al.[175] and Rigotti et al.[72]. Supportive leadership, clear communication, and a positive workplace culture are instrumental in fostering a

resilient workforce. Saladino et al.[142] and Hofmeyer and Taylor[176] emphasized the necessity of self-care and effective coping strategies, advocating for a healthy lifestyle and avoiding harmful practices.

In addition, factors such as shift work, secondary traumatic stress, competence, and the tolerance of negative emotions significantly impact resilience among healthcare workers. Austin et al.[154] observed that part-time EMS professionals exhibit higher resilience compared to their full-time counterparts, suggesting the importance of adequate recovery time and work-life balance in resilience building.

2.7 Wellness enhancing interventions

The progression of the COVID-19 pandemic significantly intensified the challenges faced by EMS practitioners, requiring critical wellness-enhancing interventions targeted at this population of frontline healthcare providers. As detailed in the literature reviewed, the COVID-19 pandemic exacerbated many issues for EMS practitioners, spurring up new mental health difficulties arising from illness, death and dying, grief and loss, solitude, and safety issues against a backdrop of a lack of PPE, human rights issues and ethical dilemmas as they tried to offer the best possible care to patients afflicted by the virus. Given these growing issues, greater emphasis needs to be placed on wellness for EMS practitioners in order to maintain functional health and well-being and for longevity in the profession. The Global Wellness Institute[177] defines wellness as “the active pursuit of activities, choices, and lifestyles that lead to a state of holistic health”, indicating that it is more than just physical health and incorporates various dimensions that should work synchronously. These dimensions included familial, professional, mental, emotional, spiritual, social, and environmental aspects, which seamlessly connect to the broader context where the COVID-19 pandemic necessitated the re-evaluation of wellness strategies, particularly for EMS practitioners who were at the forefront of this crisis.

Similarly, Dixon[178] advocated for a paradigm shift in the understanding of self-wellness, proposing a transition from a self-focused approach to one that was more holistic and collectively oriented. This shift is particularly relevant for EMS practitioners, who often share the same social and environmental contexts as their patients. Such shared experiences form into 'conscientisation', which may lead to a better understanding of how much they are also impacted by the same systems and structures that impact the well-being of these individuals in counselling contexts[179].

This also means that the burden of sustaining one's wellness does not rest solely with the individual. Still, rather, it is a more collective and collaborative effort that involves various entities such as EMS managers, directors, colleagues, peers, policymakers, allies, supervisors, and community leaders.

Considering the above, anxiety amongst healthcare workers during the pandemic emerged from several sources, as follows:[4,62,87–89,180]

- Access to appropriate personal protective equipment.
- Exposure to COVID-19 at work and taking the infection home to the family.
- Lack of rapid access to testing if they develop COVID-19 symptoms and fear of transmitting infection at work.
- Uncertainty whether the EMC organisation would take care of their personal and family needs if they contracted the virus
- Support for other personal and family needs, such as food and transport, as work hours and demands increased.

Undeniably, the mental well-being of EMS practitioners was affected, catalysing the need to introduce wellness-enhancing interventions within a healthcare context. As the pandemic evolved, scholarly research yielded fresh insights into a myriad of holistic interventions that could support the psychosocial well-being of healthcare professionals.

Scholars such as Fukuti et al.[121] urged that the mental health of healthcare workers be prioritised, saying that they are the sustenance of healthcare systems, especially in the midst of health crises such as the COVID-19 pandemic. Magner et al.[96] supported this by emphasizing the imperative of learning from experiences of the pandemic, implementing changes informed by these lessons, and exploring ways to sustain these adaptations in the future. Other studies, such as those by Magner et al.[96], further asserted that healthcare workers prefer local departmental support or more informal interventions over formal psychological assistance.

In contrast to Magner et al.[96], Fukuti et al.[121] advocated for a multi-level approach to the implementation of wellness measures, saying that it should integrate governmental, institutional, and individual levels. This comprehensive approach was proposed in recognition of the multifaceted and complex nature of the stressors faced by healthcare workers during the pandemic, which suggested that a holistic model of wellness is crucial.[181] This reorientation towards a more comprehensive support

system emerged from a recognition of the multitude of diverse mental health issues that coalesced together during the pandemic.

Before providing a succinct overview of some of the wellness-enhancing interventions that can be included, specific strategies that can enable the recovery and reconstruction of EMS practitioners during and after the intense COVID-19 waves can be considered as follows:

- *Mental Health Support and Relief*: In the wake of the pandemic, EMS practitioners require comprehensive mental health support and relief, encompassing both practical and emotional aspects. This support should be tailored to address specific needs arising from their experiences, including bereavement and coping with illness. Such targeted assistance is crucial in facilitating their recovery and aiding in the reconstruction of their professional and personal lives post-pandemic.

- *Emotional and Practical Support for EMS practitioners*: In the aftermath of the pandemic, it is essential to provide EMS practitioners with recovery support that is both emotional and practical. This support should include opportunities for reflection and learning aimed at recognising and addressing the trauma and emotional distress EMS practitioners have experienced. Such interventions are critical in acknowledging their unique challenges and facilitating a comprehensive recovery process.

- *Reconstruction a New Normal at Ambulance Bases:* In the phase of reconstruction following the pandemic, there is a significant shift from learning to action at ambulance bases. This involves brainstorming and actively considering the implementation of better practices and services, informed by the experiences and challenges faced during the COVID-19 crisis. This process is pivotal in establishing a new normal, one that is more resilient and better equipped to handle future healthcare emergencies.

- *Implementing Rituals of Reflection and Remembrance:* It is crucial to implement rituals of reflection and remembrance within paramedic communities. These rituals serve as a support mechanism for the ongoing and collective grief and trauma experienced by EMS practitioners, particularly related to the loss of loved ones and colleagues. Such practices provide a structured way to acknowledge and process these profound losses, fostering a sense of community and shared healing. Working with communities to support local resilience and enable their recovery from the effects of the virus.

- *Prioritizing Ongoing Self-Care for Well-being:* Post pandemics it is vital for EMS practitioners to engage in ongoing self-care practices. These practices should encompass physical, emotional, and mental well-being, along with self-compassion. This comprehensive approach to self-care is essential for EMS practitioners to maintain their health and resilience in the face of the demanding nature of their work, especially after the intense challenges posed by the pandemic.

- *Emphasis on Spiritually Based Care*: There is a significant need to provide spiritually-based care to EMS practitioners. This form of care recognises the importance of spiritual well-being as a vital component of overall health. It is designed to support EMS practitioners in finding meaning, comfort, and strength in their spiritual beliefs and practices, contributing to their holistic recovery and resilience in the post-pandemic landscape.[182,183]

Professional responsibilities and use of expertise will include:

- Self-care and attention to personal and professional well-being.
- Maintaining professional integrity and professional standards during service delivery.
- Enabling patients, both children and adults, to access the resources and health care required to ensure their health and well-being.
- The provision of accurate information
- Enabling access to health care services
- Helping those in a situation of food poverty by linking them to appropriate resources
- Initiation of outreach efforts and establishment of new, safe forms of communication through digital platforms

Identifying, responding to and ensuring the provision of emergency health care for people most at risk in the communities being served, especially those:

- most vulnerable and impoverished or poorly housed
- least able to access health care services,
- most at risk of harm from others at home
- living with physical or mental challenges or underlying health conditions
- Providing support and care for informal family and friend carers
- Mobilising, connecting people and providing information about community,

universal and secondary services and resources
- Supporting families and those who experienced bereavement and loss due to COVID-19

Promoting human rights throughout by:

- active advocacy with heath care managers and leaders,
- enabling people to voice their own needs and views,

The pandemic has reshaped the landscape of emergency medical care, expanding the roles and responsibilities of EMS practitioners. From ensuring their own well-being to advocating for the rights and needs of the communities they serve, EMS practitioners have been at the forefront of the healthcare response. Their contributions highlight the need for continued support, policy development, and research to enhance the effectiveness and sustainability of emergency medical services in crisis situations. While the details mentioned above suggest certain wellness interventions and strategies to support the same, the sub-sections that follow highlight some of them in detail.

2.7.1 Mental health hotlines and counselling interventions

Amongst the most widely used strategies to help patients and the general population cope with stress is the use of mental health hotlines, which are ‘emergency lines’ where people can talk with a mental health professional using a telephone number and an Internet browser.[184] Ribeiro et al.[184] concluded that the development of this hotline aims to bridge a gap in a moment when people are facing struggles and are coping with stressful conditions such as isolation, closed churches and deaths. The introduction of such a similar hotline can assist EMS practitioners even beyond the height of the pandemic as part of an approach to building wellness.

In response to the COVID-19 crisis, resources have been developed to assist managers. For instance, the REACT Mental Health Conversation Training, as outlined by Akhanemhe et al.[185], is a one-hour course designed to enhance active listening skills, thereby improving the confidence of participants in identifying and supporting staff with potential mental health issues. Blake et al.[147] also designed a guide to assist managers in offering appropriate support to their teams. Furthermore, their research

underscored the importance of recognition and communication from healthcare leaders and managers as a simple yet effective wellness intervention.

Chersich et al.[3] suggested that leaders and public figures engage in frequent, clear communication with staff, acknowledging their dedication and sacrifices while presenting accessible support resources. Magner et al.[96] noted that personalised expressions of gratitude, such as a simple 'thank you', can significantly contribute to the psychological recovery of healthcare staff. Thus, the current health crisis uncovered the need for emotionally intelligent, proactive, and responsive leadership in healthcare settings.[95]

2.7.2 Adequate personal protective equipment

The COVID-19 pandemic has exposed the severe lack of preparedness of healthcare systems to protect their healthcare workers' physical and mental well-being. During the initial waves of the pandemic, lack of personal protective equipment (PPE) was one of the main contributing factors of healthcare workers' poor mental health.[139,186] Kaslow et al.[102] asserted that access to adequate PPE is crucial for the emotional well-being of healthcare professionals. Insufficient PPE not only increases physical risk but also acts as a symbol of safety and care from the healthcare organisation, significantly influencing mental health and trust in the institution.[102] Therefore, an adequate supply of suitable PPE should be part of preparedness plans for future pandemics of a similar nature.[3,89] Chersich et al.[3] pointed out that African countries need to seek international cooperation to secure PPEs, as the bulk of PPE supplies are allocated primarily to high-income countries during times of shortage. Gordon, Magbee and Yoder[125] added that national and local governments need to consider budgetary support for healthcare organisations during future disasters and pandemics to provide necessary PPE supplies.

Together with sufficient stockpile, guidelines and protocols on the correct use of PPE must be available to healthcare staff.[109] Such guidelines and protocols must be accompanied by adequate training.[4] Although good quality PPE was a vital protective barrier against SARS-CoV-2, prolonged use of PPE, such as face masks and gloves, resulted in physical symptoms such as skin reactions, causing severe discomfort to healthcare providers.[109,187] Therefore, scholars such as Galanis et al.[109] and Swaminathan et al.[14] advised several precautions to alleviate the adverse effects of

PPE use. They emphasised provisions like regular breaks, shorter shifts, adequate ventilation within the workspace, and sufficient hydration for PPE users. Furthermore, some studies stressed the importance of fit testing of PPE, which should become mandatory.[4,14] Correctly fitting PPE can reduce the physical and mental well-being of healthcare workers who are required to use it. [14]

2.7.3 Information and training

The lack of clear information amidst what was a novel pandemic had a profound negative impact on healthcare workers' wellbeing, sparking fears, anxieties and uncertainty surrounding COVID-19 infection risk and appropriate protective measures. Arising from this research identified the need for accurate information as a key wellness intervention for frontline healthcare workers. Scholars argued that efforts should be made to provide frontline EMS practitioners with frequently revised and updated guidelines and protocols to minimise their risk of unnecessary exposure to the virus.[160] These guidelines and protocols should be compiled as part of a collaborative effort amongst specialised mental health experts and health crisis teams. The sources and evidence supporting such information should be made available to EMS practitioners so that they can make informed decisions in novel situations.[95,188] In addition, writers have advocated that education and training interventions regarding psychosocial issues should be made available to both managers and EMS practitioners alike.[188]

2.7.4 Leadership and management

Recent scholarly inquiries have further pointed out the pivotal role that health leadership and managerial staff played in nurturing a motivated and resilient healthcare workforce amidst the psychosocial pressures of the COVID-19 pandemic.[70,95] Mahlangu et al.[70(p.10)] wrote about the crucial function of hospital managers in fostering staff motivation and resilience and argued for a “team-focused healthcare leadership that promotes a positive working environment”.

However, the efficacy of such leadership is contingent upon equipping managers with the necessary training to support the mental health needs of their staff effectively during a pandemic, transforming them into “psychologically savvy” managers.[70,96]

Magner et al.[96] opined that managers empowered with knowledge in mental health care are better positioned to safeguard their team members' well-being, mainly through meaningful, compassionate conversations and early recognition of mental health issues. They asserted that such interactions should be individualised, face-to-face, and encompass open discussions about impactful events, predicated on a foundation of trust.[96]

2.7.5 Self-care for emergency medical services practitioners

The pandemic affected many EMS practitioners' sense of safety and connection with others, thereby challenging them to become more intentional and proactive about their self-wellness. Embracing self-wellness demands that EMS practitioners have the capability to promote preventive wellness interventions that encourage intentional lifestyle changes around nutrition, exercise, social interaction, and stress management.[189] A holistic approach to wellness requires that paramedics improve their emotional connections with others, practice self-compassion mindfulness practices, integrate family and social support and utilise their spirituality.[178,190] All of these aforementioned factors are fundamental components of emotional/holistic health. With greater attention given to a holistic approach to self-wellness, EMS practitioners can nurture self-awareness to change their lifestyles in a way that enhances their lives. Self-care can involve activities or rituals that bring comfort, such as walks, meditation or hobbies. However, three other important components involve seeking out social connections, accepting vulnerability, and advocating for change.[191]

2.7.6 Mind-body activities

Mind-body modalities have shown immense promise in terms of promoting the well-being and wellness of healthcare providers. The term mind-body modality is defined as "a health practice that combines mental focus, controlled breathing and body movements to help relax the body and mind"[192]. This approach entails self-care activities such as meditation, yoga, and mindfulness. Based on its affordability and ease of implementation, these self-care activities have become increasingly popular as strategies that can alleviate stress and burnout and build the individual and team resilience of healthcare professionals.[192] Wong et al.[51] argued that such activities can also help people overcome feelings of social isolation, anxiety and loneliness.

Although mind-body modalities, such as yoga and meditation, may appear at a surface level to be easy to implement activities, their implementation within specific healthcare environments, such as busy ambulance bases, needs to be considered when introducing it to EMS practitioners who often work shifts as well. A quiet space coupled with a knowledgeable instructor is crucial to offering such programs within an emergency care context.

Mindfulness training and practice have shown promising results as a wellness intervention during the COVID-19 pandemic.[193] Chiappetta et al.[194] reported that mindfulness programs had beneficial results, as they led to a reduction in stress, burnout, anxiety, and depression among healthcare workers who had used these modalities. This conclusion was reached following a comprehensive examination of fifty-eight articles, encompassing 13 clinical trials, 11 randomised clinical trials, 12 systematic reviews, seven narrative reviews, and 15 observational studies. Cohen et al.'s[108] further found that many of the studies they reviewed used mindfulness-based interventions that showed lower levels of burnout, perceived stress, and anxiety but also led to enhanced resiliency.

In a much earlier study, Goodman and Schorling[195] investigated the impact of a mindfulness-based stress reduction course on healthcare providers. This study, done at the University of Virginia School of Medicine, sought to determine whether a course using mindfulness could reduce burnout and improve mental health among a varied group of healthcare professionals, such as physicians, nurses, psychologists, and social workers. Their workshop included a variety of mindfulness techniques and aimed to equip participants with tools for managing stress and improving their general well-being in a demanding healthcare workplace. They concluded from their research that mindfulness-based stress reduction sessions resulted in a significant improvement in mental well-being and led to lowered rates of burnout across a diverse group of health workers.[195]

Kinman et al.[196] also conducted a review of research on specific wellness interventions. The focus was on various relaxation techniques, which were prominent in 25 of the individually focused intervention studies reviewed by Kinman et al.[196]. Mindfulness-based exercises were the most consistently implemented across 20 studies. These MBE interventions included in-person educational sessions as a core component. Other relaxation techniques mentioned in the paper included meditation, yoga, acupuncture, and the use of massage chairs.[196]

Hooper et al.[197] also conducted a systematic review examining early interventions for frontline responders to mitigate the psychological impact of COVID-19. It included an analysis of twelve studies that described six psychological intervention programs. These programs were assessed for effectiveness, content applicability, and feasibility for rapid implementation in healthcare settings. The review found that although the evidence was limited, specific programs like Psychological First Aid, Eye Movement Desensitization and Reprocessing, and Trauma Risk Management had demonstrated some efficacy across multiple studies.[197]

Other studies have reported on the benefits of meditation. A study by Nestor et al.[198] examined the effectiveness of the Transcendental Meditation (TM) technique in improving the mental health and well-being of healthcare providers during the COVID-19 pandemic. The study investigated the impact of TM on reducing symptoms of stress burnout and improving overall wellness among healthcare workers. Their research included healthcare professionals from three South Florida hospitals who practised TM. This was compared with a control group following their usual lifestyle. The researchers found that the TM technique rapidly and dramatically reduced symptoms of healthcare provider burnout, insomnia, and psychological distress. It also improved overall well-being. Thus, yoga techniques proved an effective tool for rapidly improving the mental health and overall physical well-being of healthcare providers, particularly in the challenging context of the COVID-19 pandemic.[198]

Yoga-based breathing activities were also reported to show benefits amongst a cohort of healthcare practitioners.[199] In this study, healthcare practitioners accessed yoga-based breathing exercises and meditation via a video, using such techniques as “Simha Kriya,” which had to be practised for four weeks. Of the 69 participants who provided data between weeks 1 and 4, 77% perceived the intervention to be helpful. Yoga- and music-based interventions were found to be the most effective in improving outcomes related to depression and anxiety. However, Kwon and Lee[192] argued that self-compassion-based interventions did not reveal significant effects on stress, depression, and anxiety.[192] Mind-body interventions, therefore, seemed to be showing promising results to buffer the psychological stress experienced by EMS practitioners during a pandemic.

2.7.7 Mental health support

Mind-body activities can also be combined with mobile phone applications, video conferencing, and video and audio files to bridge the challenge of distance and where social distancing measures related to COVID-19 are implemented.[200] Encouraging results have also emerged in the literature regarding the use of telehealth and telemedicine as platforms for support interventions for monitoring mental health, counselling, and the psycho-education of healthcare professionals via telephone and online video conferencing platforms such as Zoom or Microsoft Teams.[136,200] Such interventions can be managed by qualified mental health experts, who can be part of the health care team in an EMS context.[201] (Moreira et al. 2021).

Mobile health is one of the technologies that can also lessen the workload of healthcare personnel. During the pandemic, this technology was used to issue alerts and appointment reminders, facilitate online psychological self-help intervention systems, provide online psychological education, and offer online psychological counselling services.[200] Mobile applications such as Headspace can also be utilised to train in mindfulness.[51] The Zoom platform can also be used for online social support for healthcare staff, as in the case of virtual hang-out initiatives at an urban university medical centre, which used this platform to conduct scheduled video-conferencing meetings and educational sessions with emergency medical physicians to promote their wellness.[202]

2.7.8 Exercise

Physical exercise has been lauded for its ability to improve and maintain physical and mental health, as well as improve the quality of life.[203,204] Research during the pandemic found that exercise can help people maintain and improve their mental health during the pandemic.[142]

Physical activities at home, such as yoga, dancing to music, exercise and games, and other home-based exercises have been beneficial in treating a wide range of mental health symptoms and enhancing mood, social and emotional health.[205,206] Yoga, as an ancient activity concentrating on both body and mind, has been found to be particularly beneficial in enhancing mental well-being through both psychological reappraisal and autonomic stress-coping behaviours. According to Wang and Szabo[207] (2020), almost all forms of yoga can help with stress management.

Exergames, which are exercises based on video games, attract the younger population to exercise at home, while the internet may further enable social engagement with friends remotely.[208] A physical exercise program should be evidence-based, self-sustaining, practicable, acceptable, and suitable, with no reliance on remote or in-person supervision.[209] However, when compared to self-directed exercise, supervised health care is more likely to promote exercise, lowering self-reported depression symptoms.[201]

2.7.9 Social support interventions

The COVID-19 pandemic showed that tapping into social support as a coping mechanism became extremely limited, especially during stages of lockdown and social distancing restrictions. Therefore, online forums and telehealth have become increasingly popular in the wake of COVID-19 as a logical substitute for regular face-to-face social interactions.[95]

The role of social support in mitigating burnout and facilitating post-traumatic growth was identified by Feingold et al.[172]. Similarly, Shahzad et al.[57] found that perceived social support can moderate the relationship between stressors and mental health outcomes among paramedics. These findings emphasised the importance of a support network, not just for immediate stress relief but also for long-term mental resilience.

One strategy within the social support domain that proved efficient during the pandemic was the use of peer support interventions. A study by Richman et al.[202] found that the biggest need during times of uncertainty is the need for peer support as a form of social support. Mellins et al.[210] reported on a successful peer support programme, which was developed at a large urban medical centre to support the emotional well-being and professional resilience of healthcare workers during the COVID-19 pandemic. It describes the implementation of peer support in three formats, namely peer support groups, one-on-one sessions, and virtually presented talks, which were able to accommodate a larger audience. The program aimed to address various mental health challenges, including stress, anxiety, trauma, grief, and anger, among healthcare workers during this crisis. The authors stressed the importance of organisational support in such interventions due to sustainability concerns.[210]

In contrast, Magner et al.[96] suggested a system of pairing staff together on a shift, who can continually check on each other, as an example of a simple peer support intervention. According to these authors, this type of intervention can also serve as an early warning mechanism to identify signs of a worsening psychological state, allowing for early referral for professional assistance. Peer support interventions can also enhance a sense of cohesion and community, which improves team resilience. Therefore, it is beneficial to provide peer support training to healthcare professionals. Further examples cited in the literature are the TRiM (Trauma Risk Management), peer support program and the RISE (Resilience In Stressful Events) peer support program. The TriM program is an approach to managing and mitigating psychological risks associated with exposure to traumatic events. It is based on the principles of peer support and early intervention. The program's peer-led nature makes it a unique and valuable tool for organisations dealing with high-stress environments.[211](Jones et al., 2017). The RISE (Resilience in Stressful Events) program is also a peer support initiative designed to help healthcare workers cope with the emotional and psychological stressors that are inherent in their profession. Developed at the Johns Hopkins Hospital, the RISE program is aimed at providing confidential and compassionate support to employees who have experienced stressful, patient-related events.[212] These programs form essential points of consideration for inclusion in an EMS context.

2.7.10 Spiritually based interventions

Prior research suggests that people who engage in positive religious coping strategies to deal with catastrophic life events can transform their circumstances more positively and maintain a sense of control by believing that a divine purpose is at work.[213] People with low dispositional hope who drew on religious/spiritual resources to cope with stressors during the strict stay-at-home lockdowns reported higher levels of well-being because they used a spiritual perspective with regard to their circumstances or surrendered their set of pandemic-related challenges to the sacred in a way that supported their well-being. Religious resources such as prayer and support from religious leaders have been found to facilitate the coping responses of religious individuals.[213] The way people respond to stressors by drawing from religion or their relation to the sacred has been conceptualised as religious coping.[214] Positive religious coping rests on a secure relationship with the sacred, a benevolent view of the universe, and a sense of spiritual connectedness with others. Positive religious

coping methods have generally been associated with improved well-being and individual growth amid life stressors and, hence, are deserving as part of a comprehensive approach to paramedic wellness.

Spirituality is integral to the quality of life, health, and well-being of both the general population and those affected by illnesses.[67] The relationship with the transcendent or sacred has a strong influence on people's beliefs, attitudes, emotions, and behaviour. Research has demonstrated that families rely on their spirituality for emotional, mental, and physical well-being.[215] Spiritual practices have been recognised as a powerful coping mechanism for dealing with life-changing and traumatic events.[67]

Koening's[67] support of spiritually based interventions is relevant for healthcare professionals who have to confront the stress of working under health crises such as the COVID-19 pandemic conditions, both personally and vicariously, through their patients. The ability to draw upon spiritual resources can, therefore, offer significant resilience in pandemic contexts.[216] This supports spiritually based activities within a holistic framework on wellness, which includes prayer, meditation, reading spiritual literature, listening to spiritual music and receiving support from spiritual leaders.[216]

2.8 Research gap

The literature review in this study has highlighted a significant body of knowledge concerning the wellness of healthcare workers, particularly during the COVID-19 pandemic. Numerous studies have explored the psychological, social, and physical challenges faced by healthcare professionals, including the strategies they employed to cope with these stressors. However, there remains a crucial gap in the literature concerning the specific experiences and wellness needs of Emergency Medical Services (EMS) practitioners.

Much of the existing research has concentrated on hospital-based healthcare workers such as doctors and nurses, leaving a notable scarcity of studies that specifically address the unique challenges faced by EMS practitioners. These professionals operate in a high-pressure environment characterised by rapid decision-making, frequent exposure to trauma, and limited resources, particularly in under-resourced regions like South Africa. The gap lies in the lack of targeted research that delves into the psycho-social impact of pandemics on this group and identifies wellness interventions tailored to their specific needs.

Moreover, most existing studies have been conducted in high-income countries with well-established healthcare systems. There is limited research focusing on EMS practitioners in low- and middle-income countries, where the healthcare infrastructure is often strained, and resources are limited. This study sought to address this gap by focusing on EMS practitioners in the Western Cape of South Africa, providing insights that are contextually relevant to regions facing similar challenges.

Additionally, while various wellness interventions have been proposed in the literature, there is a gap in the development of a comprehensive framework that integrates these interventions in a way that is specifically designed for EMS practitioners. This study contributes to the literature by proposing such a framework, which is grounded in the lived experiences of EMS practitioners during the COVID-19 pandemic.

By addressing these gaps, this study not only adds to the existing body of knowledge but also provides practical recommendations that can inform policy and practice. The identification and exploration of these gaps are critical to ensuring that EMS practitioners receive the support they need to maintain their well-being in the face of future health crises.

2.9 Conclusion

This chapter provided a comprehensive review of recently published research studies related to the COVID-19 pandemic and its impact on healthcare practitioners, including EMS practitioners. More specifically, the review revealed drastic changes in the working environment of frontline healthcare workers, including EMS practitioners, with multifaceted challenges brought on by the pandemic, which were discussed in this chapter. These challenges appeared both at individual, community and organisational levels. With these changes, severe impact on healthcare professionals' mental and physical health emerged from recent global and local research literature, leading to a high prevalence of mental health disorders such as anxiety, depression and PTSD. Furthermore, the chapter delved into the social impact of the pandemic on healthcare workers, their families and loved ones, further discussing and highlighting social issues such as stigmatisation, family fears and the influence of social media during the peaks of the pandemic. As part of the healthcare workers' coping mechanisms, the chapter alluded to the importance of resilience and the strength of social support, particularly in a family context. The chapter concluded with key wellness-enhancing interventions recommended and emphasised by both

international and local COVID-19-related scholarly literature based on lessons learned from previous health crises and the COVID-19 pandemic. The next chapter discusses the research methodology used in this study.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

While the preceding chapter presented a review of recent scholarly literature pertaining to the COVID-19 pandemic's impact on frontline healthcare workers, including EMS practitioners, this chapter describes the research methodology, the design, the research paradigm of this study and integral components essential for understanding a comprehensive study. Additionally, it delineates the methods and procedures employed for data collection, accompanied by a description of the measures implemented to ascertain the trustworthiness and ethical considerations of the research process, data collection and analysis.

3.2 Research Design

The research design has been defined as a strategic blueprint for a study, outlining the systematic stages of a research project. It incorporates decisions related to the study population, data collection methods, and analysis procedures.[217,218] This section provides a detailed plan encompassing strategies for successfully recruiting a representative sample, a description of the study setting, a choice of data collection tools and methods, and an approach to data analysis. Subsequent sections of this chapter further detail the research design.

3.2.1 Qualitative research methodology

The selection of the research methodology hinges upon the researcher's epistemological standpoint and the nature of the research question. It could be either a quantitative, qualitative or mixed-method approach.[217] For the purposes of this study and to effectively address the objectives of a study, a qualitative research approach was adopted as the guiding research methodology.

Qualitative research methodology is concerned with an understanding of the individual meanings that participants attach to a social or human problem.[217] The research process is typically inductive, whereby results are obtained from detailed raw data by ascribing meaning to the data and generating broader themes by the researcher, who then makes interpretations of the meaning of the data. In a qualitative research design, the subjective interpretation of the researcher is central to the exploration of reality from the perspective of an insider.[217] Therefore, the qualitative approach also includes remarks by the researcher about their role and the specific type of qualitative strategy being used. [217]

Given the study's objectives, qualitative research methodology was deemed best suited to address the aim of this study. The aim was to understand and explore the meanings that individual EMS practitioners ascribed to their experiences as frontline workers facing the COVID-19 pandemic. The qualitative data that emerged from this study allowed for a rich, in-depth analysis and interpretation of how EMS practitioners' wellness was affected in the context of the COVID-19 pandemic. This analysis formed a basis for the development of appropriate wellness strategies and interventions for EMS practitioners.

Beyond the general characteristics of qualitative research design, most research authors have classified five specific qualitative inquiry types: narrative, phenomenology, ethnography, and case study.[64,217] For this study, the researcher applied an instrumental case study approach as classified by Stake[219] in Baxter and Jack[64].

3.2.2 Research paradigm

The selection of the social constructivism paradigm for this study aligns itself with the theoretical underpinnings of case study design as described by Baxter and Jac.[64] This approach was supported by scholars like Stake[219] and Yin[218], who view truth as relative and dependent on one's perspective, emphasising the subjective human creation of meaning while acknowledging a dynamic tension between subject and object.

Social constructivism, which is rooted in the works of Berger and Luekmann[220] and Lincoln and Guba[221], acknowledges that reality is shaped by human experiences and social contexts. This perspective was particularly relevant to this study, as it allowed for an in-depth exploration of the participants' perspectives and experiences in a particular

and dynamic context, the height of the COVID-19 pandemic in Khayelitsha and practitioner experiences at the forefront of the same.

Social constructivists believe that individuals develop subjective meanings based on their experiences, with these meanings being varied and multiple. This paradigm leads the researcher to seek the complexity of views rather than narrowing them into a few categories. For this study, exploring the diverse and complex experiences of EMS practitioners during the pandemic and the wellness interventions they used was crucial to understanding their unique experiences and constructing a relevant wellness framework based on their suggestions. This paradigm further emphasises understanding the specific contexts in which people live and work within its historical and cultural settings.

Within the framework of social constructivism, it is posited that individuals actively seek to comprehend the world in which they live and work, thereby constructing subjective meanings from their experiences.[217] Utilising this theoretical lens, the researcher endeavoured to interpret the intricacies of the participants' experiences during the COVID-19 pandemic. This interpretive process facilitated a deeper understanding of the psychosocial dimensions involved. Consequently, this necessitated the researcher's engagement and conduction of interviews with participants within their authentic environments, predominantly at the EMS ambulance bases in Khayelitsha.[222]

Moreover, the social constructivist paradigm was employed to comprehend experiences from the varied perspectives of distinct participant groups, including practitioners who tested positive for COVID-19 and those who did not. This included managers as well. Data was collected using two methods: one-on-one in-depth interviews and focus group discussions. Within the ambit of social constructivism, these qualitative data collection methods are beneficial in exploring participants' subjective interpretations of their experiences amidst the pandemic.

In adhering to the principles of social constructivism, the researcher frequently adopted an inductive approach, wherein themes gradually emerged from interpreting the data.[217] By applying the social constructivist paradigm, the researcher collected meaningful and contextually pertinent data gathered from the experiences of seasoned EMS practitioners. These practitioners were those who had accrued several years of

experience within the Western Cape Government EMS departments and were actively engaged in treating and transporting critically ill patients from marginalised communities in the Khayelitsha District.

3.2.3 Case study design

The research problem centred on the psycho-social impact of the pandemic on EMS practitioners, which consequently demanded an in-depth understanding of the complex social phenomena within a specified context, prompted the use of a case study-based approach. As argued by Baškarada[223], case studies are exceptionally well-suited for providing extensive descriptions of such complex phenomena. Their suitability stems from the ability of case studies to capture the intrinsic complexities of entities, including social units and organizations, within the defined boundaries of time, event, and place. This approach aligned with the study's aim, as it involved exploring the experiences of EMS practitioners at a specific EMS base during a critical period of the pandemic.

Baškarada[223] highlighted the advantages of case study research in providing an intensive study of a single unit, thereby enabling a deeper, holistic view of the research problem. This approach was relevant to this study, as it allowed for a detailed examination of the specific challenges and experiences faced by EMS practitioners in Khayelitsha. The richness of data obtained using this approach facilitated a comprehensive understanding of the psycho-social impact of the COVID-19 pandemic related to occupational and personal stress, which served to inform the development of the wellness framework.

According to Baxter and Jack[64], case study designs are advantageous for developing theories, evaluating programs, and formulating interventions. This study aimed not only to explore the effects of the pandemic on EMS practitioners but also to develop a framework for enhancing wellness. Therefore, the case study design was relevant and contained the necessary flexibility and rigour to explore the psycho-social effects of the pandemic on EMS practitioners and the potential interventions within the unique context of the EMS base situated in Khayelitsha.

As defined by Stake[219] and Yin[218], cases are bounded by time and activity. This study focussed on a specific EMS base in Khayelitsha during the COVID-19 pandemic, which

exemplified a bounded system ideal for a case study. This boundary provided a clear frame for examining the experiences of EMS practitioners within a specific geographical and context.

3.2.3.1 Instrumental case study design

The choice of an instrumental case study design for this research was grounded in its ability to provide a deeper insight into a given phenomenon.[64,81] Instrumental case studies differ from intrinsic case studies, where the interest lies in the case itself. In an instrumental case study, the focus is on understanding something other than the case, thereby providing insight into an issue.[224]

The main objective of the current study was to explore the psycho-social impact of stress experienced by EMS practitioners in Khayelitsha, Cape Town, during the COVID-19 pandemic and propose a framework for enhancing their wellness. This aim aligned with the instrumental case study's purpose of gaining understanding and insight into specific situations or phenomena. In the current study, the EMS base in Khayelitsha served as a critical site for investigation, not because of an intrinsic interest in the base itself, but because of its role in understanding a broader issue, the wellness of EMS practitioners amid a global health crisis.

This study did not aim to build a general theory but to provide more in-depth insights into a specific situation, namely the psycho-social impact and wellness needs of EMS practitioners during and after the COVID-19 pandemic. As Baxter and Jack[64] suggested instrumental case studies are particularly relevant in scenarios where outcomes are not clear-cut or singular. This study further focused on a context where the EMS practitioners' experiences are complex and multifaceted, reflecting a diverse array of psycho-social effects that could emerge and more significant wellness needs.

Furthermore, as Ridder[225] noted, instrumental case studies provide insights into a research issue rather than focusing on the case itself. This study explored the EMS base and its given context, its practitioner experiences, and their coping mechanisms during the pandemic, which collectively provided valuable insights into the broader issue of paramedic wellness in crisis situations. This design, therefore, was most relevant to

advancing an understanding of the psycho-social effects of the pandemic on frontline workers in a highly specific yet globally relevant context.

The instrumental case study methodology was selected for its appropriateness in exploring the nuanced and complex realities of the COVID-19 pandemic and how it affected the wellness of the EMS practitioners in their personal, family, work and community contexts. This approach allowed for a thorough and focused investigation into the phenomenon, with the potential to inform the development of wellness strategies for EMS practitioners in similar crisis situations.

3.2.3.2 Case definition

Casey and Houghton[81] highlighted the importance of identifying a 'case' in case study design as a specific phenomenon or entity intrinsically bounded by time, event, and place. In case study research, the 'case' represents the unit of analysis and is central to the focus and scope of the research. It should be specific and may include various entities such as individuals, social units, or organisations.

For this study, the 'case' included a specific EMS base in Khayelitsha, Cape Town and focussed on the practitioners working therein. This aligns itself with the definition provided by Casey and Houghton[81] above, as it encapsulated a specific social unit (EMS practitioners) within a well-defined temporal (during the COVID-19 pandemic) and spatial (Khayelitsha, Cape Town) boundary. This specificity aided in concentrating the study's focus on a particular phenomenon: the psycho-social impact of the COVID-19 pandemic on frontline workers during a global health crisis.

The EMS practitioners in Khayelitsha represented a critical group experiencing unique stressors during the pandemic as they worked at the forefront of the pandemic. This made it a pertinent case for exploring the psycho-social effects of such stress within this context. Khayelitsha, being a specific locale within Cape Town, provided a unique context, both culturally and socio-economically, which further influenced the context within which EMS practitioners worked and the types of patients encountered. Khayelitsha is an informal Black township approximately 30km east of Cape Town with an estimated population of 1 million. The township was founded in the early 1980s as a product of forced removal

under apartheid rules (Figure 1).[226] Khayelitsha is marked by widespread poverty, high rates of HIV/AIDS, prevalent violent crime and informal economy. This area is occupied mainly by informal settlements; however, it also features areas of new government housing and infrastructure. Khayelitsha is additionally burdened by insufficient delivery of services and infrastructure. Moreover, it has become a central location for a large number of refugees, exacerbating its socio-economic problems.[226]

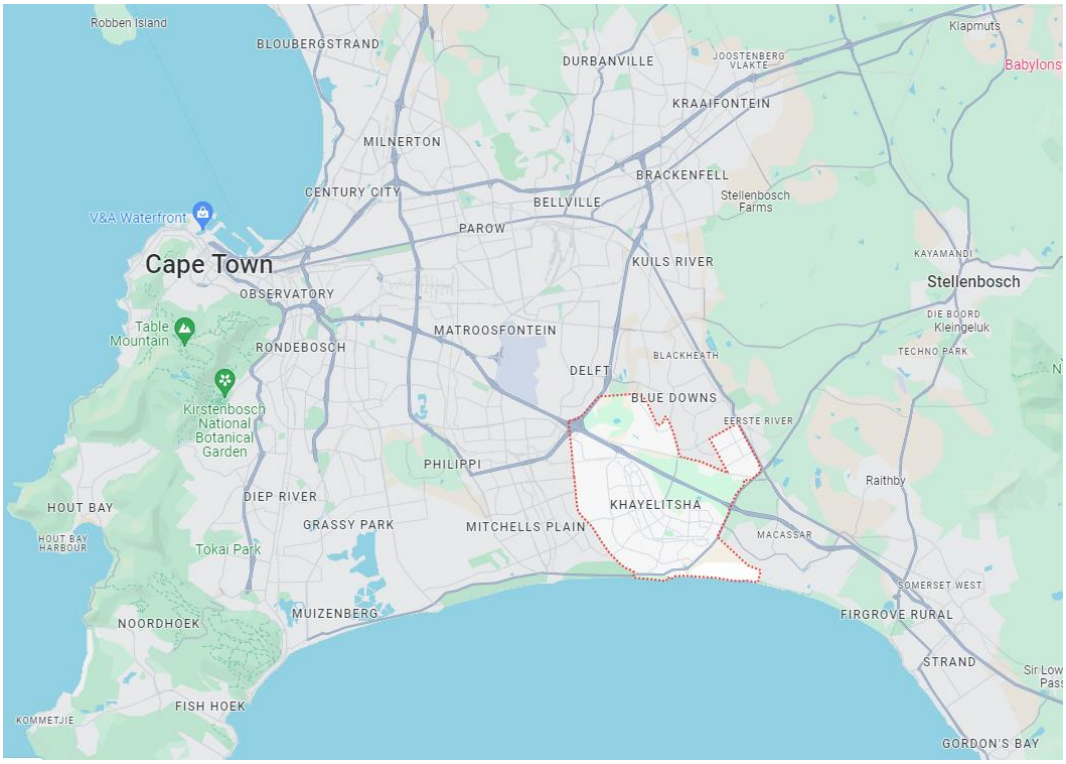

Figure 1 Khayelitsha District[227]

The COVID-19 pandemic, particularly the initial waves, presented a distinct period where frontline workers faced unprecedented challenges. A focus on this time frame allowed for an in-depth exploration of the effects that the virus had on this specific group of healthcare practitioners. Focusing on a specific group within a bounded context allowed for a deeper, more detailed exploration of the psycho-social effects of the pandemic on EMS

practitioners. The selection of EMS practitioners in Khayelitsha during the COVID-19 pandemic, as the case for this study, was therefore justified based on the specificity, relevance, and potential depth and scope of the inquiry it offered. This choice aligned with the conceptualisation of a 'case' in case study research and allowed for a focused, in-depth exploration of the psycho-social effects of the pandemic on frontline workers, ultimately contributing to the development of an emerging wellness framework to guide EMS.

The Khayelitsha EMS base is part of four Cape Town operational EMS districts that provide emergency services to the Khayelitsha, Somerset West, Strand, and Gordons Bay areas. The base comprises approximately 150 staff members, including Basic, Intermediate, and Advanced Life Support EMS practitioners.

3.2.4 Study assumptions

In conducting this study, several assumptions were made to guide the research process and ensure the validity of the findings. These assumptions include:

- Honesty and Accuracy of Participants' Responses: It was assumed that the participants in the study would provide honest and accurate responses during the interviews and focus group discussions.

- Representativeness of the Sample: The study assumed that the selected sample of EMS practitioners from the Khayelitsha base in the Western Cape would be representative of the broader population of EMS practitioners in similar settings. This assumption was necessary to generalise the findings and develop a framework that could be applicable to other EMS practitioners working under similar conditions.

- Relevance of Existing Theoretical Frameworks: The study assumed that existing theoretical frameworks related to wellness and psycho-social support would be relevant and applicable to the context of EMS practitioners during the COVID-19 pandemic. This assumption guided the selection of the Wheel of Wellness model as the theoretical foundation for the study.

The sub-section that follows encompasses a detailed discussion regarding the sampling strategy used for this study.

3.2.5 Sampling strategy

Sampling strategy considerations are an integral part of the qualitative research process. In contrast to quantitative sampling, which is based on the statistical probability of selection, qualitative sampling uses non-probability sampling methods to seek richness and depth of data rather than representativeness.[228] In this research study, purposive sampling was used to recruit participants, as per the stipulated inclusion criteria. Purposive sampling is used to select participants who can provide rich descriptions of a given problem or issue. In this type of sampling, the judgment of the individual researcher is central to selecting study sample elements with the most characteristic, representative, or typical attributes of the population that best serve the purpose of the study.[229,230]

Permission was obtained from the Western Cape Department of Health Research Unit (Annexure A) and the Director of EMS (Annexure B) to conduct the study and gain access to the research site. This was done once ethical clearance was received from the UCT Human Research Ethics Committee (Annexure C).

The recruitment of participants followed a site-based approach, as described by Arcury and Quandt.[231] The inclusion and exclusion criteria were specified in accordance with the characteristics of the sample during the first step of the recruitment process. The second step involved generating a list of sites.[231] Sites can be places, organisations, or services used by members of the population of interest. Given the single instrumental case study design of this research, the samples were recruited at a single site, specifically the Western Cape Government Emergency Medical Services Khayelitsha ambulance base. The researcher approached the District Manager, as the “gatekeeper” of the site, and obtained permission to access the staff as potential participants. During the fourth step, the researcher requested each shift leader (line supervisor) to address the staff on each shift and obtain names of staff who were willing to participate in the study. The researcher then contacted each participant individually and proceeded to set up a time at the convenience of the participant and the respective shift manager in order not to disrupt the EMS operations. All interviews were conducted at the Khayelitsha EMS base.

3.2.5.1 Samples

A sample is defined as a smaller, manageable subset of a larger study population. In qualitative research, samples are often small but are subject to intensive study, yielding a substantial volume of information.[232] Purposeful sampling is unique to qualitative research. The researcher recruited participants who had substantive work experience at the height of the COVID-19 pandemic. The participants were also purposefully selected from the EMS Khayelitsha base, which was identified as the case [232].

The researcher recruited three samples who were regarded as principal sources of informants. The first sample consisted of fifteen EMS practitioners who treated or transported COVID-19 cases during the initial peak of the pandemic. The second sample included fifteen EMS practitioners who contracted the infection because of their work duties and had fully recovered since the initial peak of the pandemic. The third sample comprised nine EMS practitioners employed in managerial roles at the Khayelitsha EMS base during the pandemic. The purpose of the fourth sample was to support, validate and make further recommendations regarding the wellness framework that had been developed from the data and literature review. This sample involved five purposefully selected members who were part of a validation panel that was set up to validate the data. This was also necessary to support the framework that emerged from the data that had been analysed.

3.2.5.1.1 Inclusion and exclusion criteria

The inclusion and exclusion criteria for each of the samples were as follows:

3.2.5.1.1.1 Sample 1

Sample 1 comprised EMS practitioners involved in the care, treatment, and or transport of confirmed COVID-19 patients. The inclusion criteria were as follows:

- EMS practitioners who were involved in the treatment and transport of suspected or confirmed COVID-19 patients during the pandemic.

- Individuals employed by the Western Cape Government Emergency Medical Services.
- EMS practitioners working at the Khayelitsha, Eastern Division, EMS base.
- Practitioners registered in any of the Basic Life Support (BLS), Intermediate Life Support (ILS), or Advanced Life Support (ALS) categories as per the Health Professions Council of South Africa (HPCSA).
- Practitioners who expressed willingness to participate in the study.
- Practitioners who were fully operational and actively deployed in emergency care duties.

The exclusion criteria for Sample 1 were as follows:

- EMS practitioners who were deployed to other non-operational duties during the pandemic.
- EMS practitioners who were infected with COVID-19 and returned to work post-recovery
- EMS practitioners who transferred from Khayelitsha EMS base to another metropole EMS base.

3.2.5.1.1.2 Sample 2

Sample 2 encompassed EMS practitioners who had recovered from a COVID-19 infection.

The inclusion criteria were as follows:

- EMS practitioners who had contracted COVID-19 during stage 5 of the lockdown and subsequently returned to normal operational duty.
- Practitioners employed by the Western Cape Government Emergency Medical Services (EMS).
- Personnel working at the Khayelitsha, Eastern Division EMS base.
- Practitioners registered in any of the Basic Life Support (BLS), Intermediate Life Support (ILS), or Advanced Life Support (ALS) categories with the Health Professions Council of South Africa (HPCSA).

- Practitioners who expressed a willingness to participate in the study.
- EMS practitioners who were fully operational and actively engaged in emergency care duties.

The exclusion criteria for Sample 2 were as follows:

- EMS practitioners who did not resume normal operation duty post-recovery from COVID-19
- EMS practitioners who transferred from Khayelitsha EMS base to another metropole EMS base.

3.2.5.1.1.3 Sample 3

The inclusion criteria for Sample 3, comprising EMS managers, were as follows:

- EMS managers employed by the Western Cape Government Emergency Medical Services (EMS).
- Managers working at the Khayelitsha, Eastern Division EMS base.
- Individuals appointed in managerial positions at district, sub-district, or shift leader management levels.
- EMS managers who expressed a willingness to participate in the study.

The exclusion criteria for this sample were:

- EMS managers not employed by the Western Cape Government Emergency Medical Services (EMS).
- Managers not working at the Khayelitsha, Eastern Division EMS base.
- Individuals not appointed in managerial roles at district, sub-district, or shift leader management levels.
- EMS managers who did not express a willingness to participate in the study.

3.2.5.1.1.4 Sample 4

Sample 4 consisted of members from the validation committee. For the purpose of participating in the validation discussion meeting, one representative from each of the listed directorates was included as follows:

- Western Cape Government (WCG) EMS staff wellness.
- WCG Department of Health, People Development
- WCG Department of Health and Wellness Employee Assistance Programme.
- WCG EMS district managers.
- EMS, Health and Wellness representatives.
- University wellness services.

The exclusion criteria for Sample 4 were as follows:

- Participants who were unwilling to participate in the validation process

3.2.6 Sample size

In general, qualitative studies have sample sizes that are substantially smaller than quantitative studies. As a qualitative study advances, the addition of further participants does not always imply greater information and deeper insight. Hence, in qualitative investigations, frequencies are not essential. In qualitative inquiries, the richness of the data is more important as these studies focus on uncovering meaning rather than establishing broad hypothesis statements.[232] Furthermore, the findings do not need to be generalised towards other populations. Hence, issues of validity, as in quantitative studies, are not relevant in qualitative studies.[217,232]

Data saturation has been defined as the point during data collection when additional data or new participants do not provide new information to the researchers.[80,232] This means that no new themes, insights, or concepts are emerging from the data. This indicates that the data collection likely captured the range of perspectives or experiences relevant to the research question.[218,232] Although the data collection continued until the minimum stipulated sample size for all samples was reached, the researcher focused on developing a scope of relevant conceptual categories for the interviews, saturating these categories, and comprehensively explaining the data.[218]

3.2.7 Pilot study

A pilot study was conducted prior to data collection. This was done with different EMS practitioners at a separate Metropole EMS base. The purpose of this preliminary phase was aligned with Hertzog's[233] description of a pilot study as a small-scale investigation to evaluate various aspects of the research design, including feasibility and the effectiveness of the research instruments. Similarly, Creswell[80] highlighted the importance of a pilot study as a trial run, which is essential for refining the research methodology in preparation for the full-scale study. This pilot study specifically aimed to test the interview guides designed for the three distinct samples involved in the research.

The findings from the pilot study indicated that the interview guides were acceptable in their current form, and no major revisions were necessitated. This outcome suggested that the initial design of the interview guides was robust and well-aligned with the research objectives. This resonated with the principle that a pilot study provides an opportunity to assess and enhance research tools before the commencement of the main study.[229] Only a few minor adjustments were made to the order of the guiding questions after piloting the guides. This refinement, although minor, was based on insights gained during the initial pilot test, which further demonstrated the utility of this preliminary phase in fine-tuning the research instruments. This adjustment corresponded with de Vaus[234] assertion that the pilot study allows for the identification and correction of any flaws or limitations in the research design, thereby enhancing the overall quality and effectiveness of the study.

3.2.8 Data collection

In this study, the researcher collected data through a combination of semi-structured, one-to-one interviews, focus group interviews, and validation committee meetings. The methods of face-to-face interviews and focus group discussions are acknowledged as typical data collection methodologies within the realm of qualitative research.[229] The validation process was conducted through committee meetings, during which the emergent framework was presented and reviewed by a group of experts. These experts

were selected based on their extensive experience and knowledge in Emergency Medical Services and wellness. The purpose of these meetings was to critically assess the framework, provide feedback, and ensure that it accurately reflected the realities and needs of EMS practitioners during the COVID-19 pandemic.

3.2.8.1 Interviews

Interviews are a fundamental data collection tool in case study research.[235] In this study, the primary method for collecting data from Samples 1 and 2 was through semi-structured, one-to-one interviews. These interviews were designed to elicit a comprehensive understanding of the participants' experiences, particularly the stressors faced by EMS practitioners during the pandemic and its effects on their psycho-social well-being.[229] A semi-structured format was chosen for its suitability in exploring complex processes and personal issues, offering the flexibility necessary for a dynamic and responsive interaction between the researcher and interviewees. A set of predetermined questions, as outlined in the interview guide for sample 1 (Annexure D) and sample 2 (Annexure E), directed the line of inquiry while allowing participants the opportunity to introduce new, unanticipated issues.[229]

For both Sample 1 and Sample 2, interviews were conducted face-to-face. This approach was feasible as no pandemic-related social distancing measures were in effect during the data collection period. The interview process began with the researcher thoroughly explaining the study's background, purpose, and objectives to each participant, accompanied by a letter of information (Annexure F). Ensuring participants' understanding of the aim of the study and its objectives was pivotal before proceeding to explain the purpose of written consent. Participants were given time to familiarise themselves with the study information before signing the consent form (Annexure G). This was a prerequisite to starting the interview. Each interview ranged from approximately 45 to 60 minutes in duration. The interviewing process was concluded upon reaching data saturation. Subsequently, the information gathered from the participants was transcribed and analysed by the researcher at a later stage.

3.2.8.2 Focus group interview

Then et al.[236] characterized focus groups as an effective method for acquiring in-depth knowledge about individuals' attitudes, perceptions, beliefs, and opinions on specific topics. The strength of focus groups lies in their ability to create an atmosphere of anonymity, encouraging participants to express their views more openly than they would in individual interviews, where the researcher's influence can be more pronounced.[236] This group setting enables participants to compare their views with others, fostering a rich exploration of individual opinions and perspectives. In this study, focus groups were specifically employed for Sample 3, with the interview schedule (Annexure H) providing the necessary structure for these group discussions.

Before the focus group sessions, the researcher outlined the aim of the study and its objectives, supplying each participant with an information letter (Annexure I). Participants were given the opportunity to ask questions about this letter to ensure full understanding. After addressing any queries, the researcher explained the principle of consent and requested that each participant read and sign the consent form (Annexure G). Additionally, the researcher emphasised the principles of anonymity and the participant's right to withdraw at any time. All managers agreed to participate, as evidenced by their signed consent forms. Each focus group interview lasted approximately 60 minutes. Data from this session were recorded verbatim and later transcribed and analysed by the researcher.

3.2.8.3 Validation Committee

Validation through informant feedback, commonly referred to as member checking, is a crucial process in qualitative research for ensuring the credibility and consistency of interpretations. This practice is widely recognized and advocated in qualitative research literature.[80,218,229] In the current study, the validation committee consisted of selected participants who acted as key informants. Key informants are typically selected based on their expertise in a relevant service area or their influence in decision-making environments. Their selection in this study was strategically aligned with the research aim and questions, focusing on individuals who could offer the most informative and relevant insights with regard to the same. Factors influencing the number of participants included

the nature of the topic, required perspectives, complexity of the problem, research design, and the range and availability of resources.[237] Humphrey-Murto et al.[238] suggested that the size of such groups can vary, depending on the inquiry's purpose and the type of validation needed, with a recommended maximum of twelve members.[237,238]

For this study, committee members were purposefully chosen for their specific expertise, their influence on policy implementation, and their capacity to provide feedback on the validity of the study's findings. A representative from the people management department was included to offer insights into policy formulation and implementation, assessing the relevance of the emerging framework. A member from the wellness division of the Department of Health contributed their expertise based on field experience. An EMS district manager was included to provide an operational context and validate the study findings. Furthermore, an external representative from a local university's wellness services was invited to bring an additional perspective regarding wellness.

The committee was presented with the emerging framework derived from data analysis and interpretation. This presentation was followed by a discussion focused on each of the components of the constructed framework, with the aim of reaching a collective consensus among the members. The validation committee's experience and insight was pivotal in evaluating the findings, offering comments, and providing recommendations for validating the emerging framework.

3.2.9 Data analysis

Data analysis represented a complex and time-intensive phase of the research process in this study, necessitating the researcher to engage in simultaneous analysis and interpretation of the data as the study progressed. As noted by Graue[224], the prompt transcription of data was essential, enabling the researcher to identify discrepancies and similarities while the information remained fresh. This approach facilitated constant comparisons. Therefore, the coding of data was a critical step, employing both descriptive and process codes for the transcriptions.[239]

Additionally, scholars such as Polit and Beck[240] and Schurink et al.[241] posited that qualitative data analysis is a constructionist process. In this process, segments of data

were assembled to form meaningful and conceptual patterns, thereby imbuing the data with significance and understanding. This methodological approach underscored the interpretive nature of qualitative research, where data was not merely collated but actively constructed into coherent narratives and thematic frameworks.

3.2.9.1 Thematic data analysis

In this study, thematic data analysis was employed as a method for analysing qualitative data. This technique involved the initial identification of broad categories or themes.[79,224] Braun and Clarke[79] have emphasised thematic analysis as a method extensively used in social and health sciences research. Braun and Clarke's[79] continued endorsement over the years reflects a consensus on its effectiveness, particularly in offering a robust framework for rigorous data analysis. This framework also facilitates effective communication of findings beyond the confines of academia.[79]

Green and Thorogood[242] recommended thematic analysis as a particularly apt method for qualitative case study research, especially for its utility in identifying generalisations. This form of analysis is crucial in highlighting key aspects of the participants' experiences, making it a valuable tool for understanding and interpreting complex data.[243] The adoption of thematic analysis in Emergency Medical Care studies within South Africa further validates its appropriateness and relevance for the current study.[26,244] This choice not only aligns with the established research methods in the field but also ensures methodological robustness and contextual relevance, crucial for the validity and reliability of the research outcomes.

3.2.9.2 Process of thematic data analysis

The process of thematic data analysis in this study was meticulously undertaken following the completion of verbatim transcriptions of interviews with all participants. This analysis utilised the thematic analysis qualitative approach, as proposed by Braun and Clarke.[79] Both the researcher and the supervisor, with experience in qualitative research, were well-versed in the thematic analysis method. Although Braun and Clarke[79] have posited

that thematic analysis is not intrinsically linear, for this study, the researcher opted for a structured approach. This entailed adhering to the six sequential stages as outlined by Braun and Clarke[79], providing a systematic framework for data analysis. This structured approach facilitated a comprehensive and methodical examination of the data, ensuring that the analysis was both thorough and transparent. Each stage of the process was carefully executed to capture the depth and complexity of the participants' experiences and perspectives, thereby enhancing the rigour and credibility of the research findings.

3.2.9.2.1 Familiarisation with the data

The first step in the thematic analysis process involved familiarization with the data. This foundational phase was critical for gaining an in-depth understanding of the material collected. Data comprised of contributions from EMS practitioners and managers, which were meticulously audio-recorded and transcribed verbatim. The transcription was facilitated using the Microsoft Office 365 transcription feature, ensuring accuracy and efficiency in converting the spoken words into written text.

The researcher began the familiarisation process by diligently listening to the voice recordings multiple times while simultaneously cross-referencing them with the written transcripts. This dual approach allowed for a thorough verification of the transcription accuracy and assisted in gaining an initial understanding of the data's nuances. Following this, the researcher engaged in a detailed reading and re-reading of the transcripts. This immersive engagement with the text was crucial for developing a comprehensive understanding of the data. It enabled the identification of significant points of discussion and provided a broad perspective of the experiences and viewpoints conveyed by the participants. This thorough familiarisation with the data laid the groundwork for the subsequent stages of thematic analysis, ensuring a deep and nuanced understanding of the participants' contributions.

3.2.9.2.2 Coding

In the thematic analysis process, the stage following data familiarisation is coding. This crucial step involves the generation of labels for significant elements within the data which are relevant to the research objectives. In this study, a comprehensive approach to coding was employed, where every item of data received a code. This systematic coding process allowed for the identification and annotation of key segments of the data that were pertinent to the aim and objectives of the study.

Once all data items were coded, the next step involved collating these codes along with their corresponding data extracts. This organization of codes and extracts required careful consideration and analysis to ensure that each code accurately reflected the essence of the data it represented. Following the collation, these codes and data extracts were then meticulously organised into preliminary groups. These groups were based on their relatedness to each other, forming a structured yet evolving framework of themes and sub-themes.

Each of these preliminary groups was labelled, providing a clear and descriptive representation of the underlying patterns and themes emerging from the data. This labelling was an iterative process, allowing for refinement and adjustment as the analysis progressed. Microsoft OneNote was utilised to assist in the coding process, facilitating the organisation of codes into relevant themes. This careful and detailed approach to coding and categorising the data laid a strong foundation for the subsequent stages of thematic analysis, ensuring a coherent and meaningful interpretation of the data in relation to the research objectives.

3.2.9.2.3 Searching for themes

The next stage in the thematic analysis process, as outlined by Braun and Clarke[79] , involved searching for themes. Braun and Clarke[79] described a theme as "a coherent and meaningful pattern in the data relevant to the research question”. In this study, following the comprehensive coding of the data, the researcher embarked on a meticulous search for potential themes within the coded data. This involved a careful examination of the coded segments to identify patterns, similarities, and connections among them.

During this phase, themes that were pertinent to the experiences of EMS practitioners, particularly the psycho-social effects of the pandemic, the coping mechanisms used, and the wellness-enhancing approaches and strategies of EMS practitioners, were identified. The process was not just about pinpointing these themes but also involved constructing coherent data sets that aligned with each theme. This construction was critical to ensuring that each theme represented a distinct and significant aspect of the data directly related to the research questions.

All emerging sub-themes were grouped and categorised according to their specific meanings. This categorisation required a deep engagement with the data and an understanding of the nuances within each theme and sub-theme. The researcher aimed to ensure that these themes accurately encapsulated the key patterns and insights emerging from the data. This stage was fundamental in organising the data in a way that highlighted the most significant and relevant aspects of the EMS practitioners' experiences, providing a solid foundation for the subsequent analysis and interpretation of the findings.

3.2.9.2.4 Reviewing Themes

The phase of reviewing themes was a critical step in the thematic analysis process. In this phase, the researcher undertook a thorough evaluation of the identified themes, assessing their relevance and alignment with both the coded extracts and the overarching research aim. This evaluation, as outlined in the methodology proposed by Braun and Clarke[79], often involved the merging of similar themes into more encompassing, broader categories.

This process required a deep and reflective analysis to ensure that the emerging themes and sub-themes were not only representative of the data but also convincingly and compellingly conveyed the consistent meanings embedded within it. The researcher engaged in a meticulous re-examination of the themes, scrutinising them to discern and clarify emergent patterns. This re-examination was iterative, allowing for the refinement and possible reconfiguration of themes to better capture the essence of the data.

This stage focused on ensuring that the themes were robust, coherent, and adequately represented the participants' experiences and perspectives. It was essential that the themes resonated with the entirety of the data collected, providing a comprehensive and meaningful interpretation relevant to the research objectives. This careful review and refinement of themes were fundamental to the integrity and credibility of the thematic analysis, setting the stage for the final definition and naming of themes in the subsequent phase of the analysis process.

3.2.9.2.5 Defining and naming themes

The stage of defining and naming themes is an integral part of the thematic analysis process, where the researcher focuses on crystallising the essence of each theme. This involves a careful contemplation of the significance and relevance of each theme in relation to the collected data. The researcher's task at this stage was to distil the core idea of each theme and to articulate it in a manner that was both precise and meaningful.

To achieve this, the researcher first summarised the content of each theme. This summary involved encapsulating the key aspects and patterns that each theme represented, ensuring that the essence of the participants' experiences and perspectives was accurately captured. The process of summarisation was essential for gaining a clear understanding of what each theme entailed and how it contributed to the overall narrative of the research findings.

Following the summarisation, the researcher proceeded to assign names to each theme. The naming of themes was a crucial step as it provided a label or a descriptor that encapsulated the theme's essence. The names were chosen to be both descriptive and reflective of the theme's content, ensuring they were intuitive and resonant with the data. These names were then double-checked for their accuracy and suitability, ensuring that they accurately represented the themes and were aligned with the research questions and objectives.

This meticulous process of defining and naming themes is pivotal in thematic analysis as it translates complex and nuanced data into a structured and coherent format. The names of the themes serve as key reference points in the subsequent presentation and

discussion of the research findings, facilitating a clear and meaningful understanding of the data.

3.2.9.2.6 Writing up

In the final stage of the thematic analysis process, the researcher synthesised the analysed narratives and related data extracts, integrating them into a coherent structure. This synthesis was contextualized within the broader scope of existing literature on the impact of COVID-19 on frontline healthcare workers, as suggested by Braun and Clarke.[79] The process involved not only the presentation of the analysed data but also its interpretation within the context of the existing body of knowledge, thereby situating the study within the larger academic discourse.

The data that was analysed played a crucial role in informing the development of an emerging framework aimed at enhancing the wellness of EMS practitioners. This framework was further refined through an in-depth examination of literature covering various pertinent aspects, such as best practices for wellness support and coping mechanisms for EMS practitioners during the pandemic, work environment dynamics, relationships with colleagues, mental health challenges, managerial context challenges, and wellness interventions. This comprehensive approach ensured that the framework was both grounded in the findings of the study and reflective of the wider context and existing research in the field.

An expert validation panel then appraised the draft of this wellness framework, which was instrumental in ensuring the framework's robustness, relevance, and applicability. Following this expert review, the final version of the wellness framework for emergency medical care practitioners was developed, representing a significant outcome of the study.

Having detailed the data analysis process and the methodology employed, the sub-section that follows addresses the study's trustworthiness. This includes a discussion of the strategies implemented to ensure the validity and reliability of the findings. Following this, the chapter delves into the ethical considerations that were adhered to throughout

the research process, highlighting the ethical standards and principles that guided the study.

3.2.10 Trustworthiness

Ensuring trustworthiness is a fundamental aspect of conducting qualitative research, particularly in the context of case studies. Trustworthiness in qualitative research parallels the concepts of validity and reliability found in quantitative research, serving as a measure of the quality and rigour of the research findings. The trustworthiness of a qualitative case study is traditionally assessed using four key criteria: truth value, applicability, consistency, and neutrality. To meet these criteria, the research literature proposes a variety of strategies.

In qualitative research, rigour is often established through general criteria akin to validity and reliability. Yin[218] posits that, as case studies are a form of social research, they should adhere to similar criteria for testing rigour. These include construct validity, internal validity, external validity, and reliability. This approach aligns the methodology of case studies with broader standards of qualitative research. Morse[245] further supported this view, advocating for the use of general tests of validity, reliability, and generalizability in qualitative research. These tests are critical in ensuring that the research findings are not only credible and dependable but also applicable and neutral in various contexts.

In this study, the researcher adhered to these recommendations, applying specific strategies to address each of the trustworthiness criteria. This involved a systematic approach to validating the research design, the data collection methods, and the analysis process. By rigorously applying these strategies, the study aimed to ensure that its findings were robust, transferable to similar contexts, consistent across different scenarios, and free from bias. This commitment to trustworthiness affirms the validity and reliability of the research outcomes, enhancing the study's overall credibility and contribution to the field.

3.2.10.1 Truth value

Truth value, also referred to as credibility, in qualitative research, particularly in case studies, is a measure of how well the findings of the study accurately represent the actual phenomenon being investigated and the extent to which the researcher is confident in the truth of these findings. Achieving credibility requires detailed descriptions, decontextualisation, abstraction, and logical expression.[245,246] These elements are crucial in ensuring that the findings are a true reflection of the participant's experiences and perspectives.

In this study, reflexivity was employed as a key strategy to enhance the credibility of the case study. Reflexivity involves the researcher maintaining a critical awareness of their role and impact throughout the research process. A reflective research journal was maintained throughout the study, serving as a repository for recording personal thoughts, feelings, ideas, and hypotheses that arose from interactions with study participants and from engaging with the transcript data. This practice was instrumental in enabling the researcher to recognise and mitigate personal biases and preconceived assumptions.[246,247]

Additionally, the researcher took meticulous steps to ensure that the data was interpreted accurately and reflected the experiences as lived and perceived by the participants.[248] This involved creating an environment where participants could freely share their experiences of the COVID-19 pandemic without any influence from the researcher. Such an approach was vital to ensuring that participants' responses were both authentic and genuinely reflective of their experiences, thereby enhancing the credibility of the data interpretation.[249] This commitment to capturing and representing the participants' true experiences underpins the trustworthiness and validity of the study's findings.

3.2.10.2 Applicability

Applicability, also termed generalisability, in qualitative research, refers to the extent to which the findings and conclusions of a study can be applied to other individuals, settings, or contexts.[245] It is crucial to recognise that achieving generalisability poses a significant challenge in case study research. This is particularly true for this study, which is

contextually bound to a specific setting, a single EMS base in the Western Cape of South Africa, and to a unique population of emergency medical care practitioners within the extraordinary context of the COVID-19 pandemic in South Africa.[218]

Yin[218] emphasised that comparing the generalisability of case studies to that of quantitative research is not appropriate. While quantitative research relies on statistical generalisation, a qualitative case study like this study leans on analytical generalisation. This approach involves generalising specific findings to a broader theory rather than to a wider population.[218,250] In this study, the focus was primarily on exploring and understanding the experiences of EMS staff at the Khayelitsha EMS base in Cape Town rather than on the generalizability or transferability of the results to other contexts.[251] Nevertheless, the generalization of the study's findings can be facilitated by decontextualizing and abstracting emerging themes, concepts, and theories.[245]

To enhance the transferability of the findings from this qualitative research, the researcher provided a detailed description of the research setting, the context of data collection, and the underlying assumptions central to the research. This detailed account can enable other researchers to understand the specific conditions under which the study was conducted. If they wish to 'transfer' the study's results to a different context, the onus is on them to determine the appropriateness of such a transfer.[248] This approach acknowledges the limitations in generalisability while providing a clear and comprehensive basis for other scholars to make informed judgments about the applicability of the findings in other settings.

3.2.10.3 Consistency

The literature on case study methodology suggests that one way to increase consistency is by developing a formal database that another researcher, separate from the case study report, can independently inspect.[218]

In this study, to uphold this principle of consistency, the researcher meticulously maintained a database containing notes from all interviews. These notes were systematically typed and organised using a computer note-taking software application. The organisation and accessibility of this database were designed to ensure that other

researchers could efficiently retrieve these notes for review or further analysis at a later stage. The notes were methodically categorised according to the major subjects outlined in the case study protocol, thereby facilitating easy navigation and reference.

Additionally, all documents related to the case study, including transcripts, annotations, and other relevant materials, were archived in referencing software. This archival method not only facilitated efficient storage but also ensured that these materials were readily accessible for any future researchers interested in inspecting or utilising the database.

Furthermore, the researcher diligently maintained a chain of evidence throughout the study. This chain allowed an external observer to trace the research process from the initial research questions through to the study's conclusions. By providing this clear and traceable path of evidence, the researcher not only enhanced the construct validity of the study but also reinforced its consistency. This approach ensured that each step in the research process was transparent and could be independently verified, thereby strengthening the overall reliability and rigour of the study.

3.2.10.4 Neutrality

Maintaining neutrality was paramount in this study. Neutrality, as defined, is the degree to which the study's findings accurately reflect the participants' experiences and perspectives, free from the researcher's personal biases, influences, or perspectives.[246] To achieve this, several strategies were rigorously implemented throughout the research process.

Firstly, the researchers consciously engaged in reflexivity, constantly reflecting on and questioning their own assumptions, beliefs, and potential biases. This self-awareness helped minimize the influence of personal perspectives on the interpretation of data. Additionally, to further ensure neutrality, the study employed a transparent and systematic approach to data collection and analysis. This approach included using a well-defined and consistent methodology for data collection and analysis, which was strictly adhered to throughout the study.

Moreover, during the data analysis phase, the researcher actively sought to identify and challenge their preconceptions and interpretations, striving to ensure that the themes and conclusions drawn were firmly grounded in the participants' narratives rather than influenced by the researcher's subjective viewpoints.

Furthermore, to validate the neutrality of the findings, peer debriefing sessions were conducted. These sessions involved discussions with other experienced researchers who reviewed and critiqued the research process and findings, providing an external perspective to ensure that the conclusions drawn were solely based on the data collected. By rigorously applying these strategies, the study strived to uphold the principle of neutrality, ensuring that the findings presented were a true and unbiased representation of the participants' experiences under the conditions of the research.

3.2.11 Ethical considerations

Ethics in scientific inquiry refers to doing good and avoiding harm.[252] Therefore, the protection of human participants is a key aspect of every study. In qualitative studies, the researcher usually relies on interaction with participants in their everyday environment and thus needs to be keenly aware of ethical issues that may arise through such interactions. To avoid harm, the researcher must consider appropriate ethical principles. The well-established ethical principles discussed in the research literature are autonomy, beneficence, and justice.[252,253]

Each participant was provisioned with an information letter and consent form (Annexures D-I). The consent form included the purpose of the study, identified the benefits of participation in the study, notation of risks to participants, a guarantee of confidentiality to the participant, assurance that the participant can withdraw at any time, and the provision of names of persons to contact if there were any concerns. All collected raw data was locked in a safe in the researcher’s office. Hence, no unauthorised persons had access to the data.

3.2.11.1 Autonomy

In this study, the principle of autonomy was stringently upheld to respect the rights and individual agency of all participants. Autonomy in research ethics emphasizes the importance of respecting participants' rights, including their right to be thoroughly informed about the study, the freedom to decide whether to participate and the right to withdraw at any point without any consequences.[252]

In order to honour this principle, informed consent was a key process in the research methodology. Each participant was required to read and sign a consent form before any data collection commenced. This form was meticulously designed to ensure participants were clearly informed about the purpose of the study, their expected participation, and any direct or indirect effects the study might have on them. Additionally, the form provided contact information for the researcher's main supervisor and co-supervisor, offering an avenue for participants to seek further information if needed.

Prior to commencing the study, the researcher obtained approval from the UCT Human Research Ethics Committee (Annexure C). Permission was also sought and granted from the Western Cape Government Health Research Unit, the Director of WCG EMS and the District Manager of the EMS base identified as the case study site.

At every stage of data collection, participants were explicitly reminded of their rights, including the freedom to participate or withdraw from the study at any time, as detailed in the consent form. Emphasis was placed on the confidentiality of the information provided by the participants. To safeguard anonymity, each participant was assigned a code for data collection purposes, ensuring that personal identifiers were not used in the research thesis or any related documents.

Regarding data security, all qualitative data were securely stored in a safe in the researcher's office, under lock and key. Electronic data, such as audio transcripts, were password-protected on the researcher's personal computer. Access to the raw data was strictly controlled, with no unauthorised individuals permitted access. The researcher committed to maintaining the raw data in a locked safe for five years, after which all data would be responsibly destroyed, further ensuring the confidentiality and privacy of the participants' information. This comprehensive approach to autonomy reflects a deep

commitment to ethical research practices, ensuring that participants' rights and dignity are respected throughout the research process.

3.2.11.2 Beneficence

The principle of beneficence emphasises the importance of doing good for others and preventing harm.[251,252] In this study, the researcher was acutely aware of the sensitive nature of the research topic, particularly its potential to evoke stressful or emotional reactions from participants. To address this concern, a distress protocol was adopted for the qualitative data collection process.[254]

This protocol outlined a clear and compassionate response to instances of emotional distress during interviews. If a participant exhibited signs of distress, the researcher was prepared to stop the interview immediately and provide immediate support while assessing the participant's mental status according to the distress protocol (Annexure J). The well-being of the participant was prioritised above the continuation of the interview. If the participant chose to continue, the interview would resume only with their explicit consent. In cases where it was not possible to continue, or if further support was deemed necessary, the participant would be referred to the WCG EMS wellness coordinator. This coordinator was on standby to help and could facilitate further referral to the employee wellness support programme contracted by the WCG EMS, ensuring that participants had access to professional support services if needed.

Additionally, the protocol included a provision for a courtesy follow-up call to the participants, encouraging them to reach out if they experienced increased distress following the interview.[254] It is noteworthy that while no participant required the full application of the distress protocol, a few participants needed brief pauses during the interview to compose themselves, particularly when discussing their experiences.

This proactive approach to participant welfare ensured a commitment to beneficence in the study. By implementing and adhering to the distress protocol, the researcher ensured that the potential for harm was minimized and that participants' emotional well-being was safeguarded throughout the research process.

3.2.11.3 Justice

The principle of justice in research ethics is centred on addressing the power dynamics between the researcher and participants, ensuring fairness and equal treatment for all involved.[251,252] In this study, the application of the principle of justice was particularly pertinent due to the potential power dynamics inherent in the researcher's position within the EMS organisation.

As an employee of the training department, the researcher had no direct managerial or supervisory role over operational EMS staff who formed the participant group for this study. This absence of a day-to-day managerial or supervisory relationship was crucial in mitigating any potential power imbalance between the researcher and the participants. It ensured that the participants did not feel compelled to participate or be influenced in their responses due to a perceived power differential.

To further uphold the principle of justice, the study was designed to treat all participants equally, providing them with the same information, support, and opportunity to contribute. The researcher's role was clearly delineated as separate from their professional position within the EMS, and this was communicated to the participants. This clarification was essential to establish a research environment characterised by mutual respect and equality, free from any undue influence or coercion.

By taking these measures, the researcher strived to maintain a balanced power dynamic, ensuring that the participant's involvement in the study was based on voluntary and informed consent and their contributions were valued and respected equally. This approach not only adhered to the ethical principle of justice but also contributed to the overall integrity and credibility of the research.

3.3 Conclusion

This chapter presented a comprehensive overview of the qualitative case study research methodology used to gather data for this study. Four distinct participant samples were meticulously selected, aligning with the specific objectives of the research. The data

collection instruments encompassed a variety of interview schedules, each tailored to address the respective sample and its corresponding objective.

The procedures for data capturing and analysis were explicated in detail, highlighting the stringent steps undertaken to ensure the trustworthiness and reliability of the study. Furthermore, the chapter delineated the ethical compliance measures implemented, providing a robust conclusion to the methodology of the research process. The next chapter details the data analysis and discussion of findings substantiated by verbatim quotes from the data collected.

CHAPTER 4: ANALYSIS AND DISCUSSION OF FINDINGS

4.1 Introduction

In this chapter, data gathered from EMS practitioners and EMS managers is presented. An analysis of the findings made is also discussed. The main purpose of this inquiry was to explore the psycho-social impact of the COVID-19 pandemic on EMS practitioners and managers. This study sought to explore how the EMS practitioners and managers experienced the COVID-19 pandemic, how they coped with the pandemic and what psycho-social aspects strengthened their wellness at a personal level and within the context of their work environment. Data was collected using semi-structured interviews and focus group discussions with EMS practitioners and managers, respectively. The data in this chapter was analysed holistically from all the samples and will be presented collectively, according to the themes and sub-themes that emerged, using a process of thematic analysis. The themes from the study served to capture rich and descriptive information pertaining to EMS practitioner's and managers' experiences.

4.2 Sample codes

The codes assigned to the samples to identify verbatim quotes used in the following data analysis are presented in Table 1 below.

Table 1 Codes assigned to samples

Sample	Description	Code
Sample 1	EMS practitioners involved in the care and treatment and or transport of confirmed COVID-19 patients	N
Sample 2	EMS practitioners who had recovered from a COVID-19 infection	P
Sample 3	EMS practitioners employed in managerial roles during the COVID-19 pandemic	FG
Sample 4	Validation panel	V

4.3 Data analysis and findings

The following section presents the findings made and an analysis thereof. The data has been grouped into seven main themes and thirty-nine sub-themes which were identified according to the responses of the participants. These are presented in Table 2 below.

Table 2 Themes and sub-themes

Theme	Sub-theme
4.3.1 Theme 1: The EMS practitioners within the pandemic	4.3.1.1 Fear of death 4.3.1.2 Misinformation and vaccine hesitancy 4.3.1.3 Fear of loss of colleagues 4.3.1.4 Post-COVID-19 health concerns
4.3.2 Theme 2: The work milieu	4.3.2.1 Lack of preparedness for the pandemic at the EMS base 4.3.2.3 Sanitization 4.3.2.4 Ostracism in the workplace 4.3.2.5 Changed relationships with colleagues 4.3.2.6 Anger and resentment amongst staff 4.3.2.7 Support and comfort from colleagues 4.3.2.8 Impact on teamwork and camaraderie 4.3.2.9 Working with patients
4.3.3 Theme 3 Working at the interface of the community	4.3.3.1 Community fear 4.3.3.2 A community in isolation 4.3.3.3 Community frustrations and protests 4.3.3.4 Education and advocacy 4.3.3.5 Community hope
4.3.4 Theme 4: Impact on the family context	4.3.4.1 Fear of taking COVID home 4.3.4.2 Impact of infection on family 4.3.4.3 Loss of loved ones 4.3.4.4 Concern of family for EMS practitioners 4.3.4.5 Effects of isolation 4.3.4.6 Socio-economic distress 4.3.4.7 Family support
4.3.5 Theme 5: Mental health challenges	
4.3.6 Theme 6: Wellness interventions	4.3.6.1 Counselling 4.3.6.2 Positive mindset 4.3.6.3 Use of home remedies

	4.3.6.4 Spirituality 4.3.6.5 Exercise 4.3.6.6 Music and dancing 4.3.6.7 Hobbies and crafts
4.3.7 Theme 7 Challenges within a managerial context	4.3.7.1 Lack of support and care 4.3.7.2 Policy changes 4.3.7.3 The lack of resources 4.3.7.4 Manager-related challenges with staff 4.3.7.5 Recognition and appreciation 4.3.7.6 Workload 4.3.7.7 Future planning

4.3.1 Theme 1: The EMS practitioner within the pandemic

The first theme that emerged in the data was related to participants' experience of "working at the forefront of the pandemic." This theme reflected the intricate tapestry of profound emotional responses and psychological challenges experienced by the participants during the first wave of the COVID-19 pandemic. Three interrelated sub-themes emerged from this theme, with the first sub-theme relating to the "fear of death and morbidity." This uncovered the deep emotional struggles of participants, who had to navigate their fears and anxieties stemming from their first-hand encounters with patients, other people and issues related to the pandemic. The second sub-theme explored participants' experience of working at the interface of the community, and the third sub-theme reflected on participants' experience of transcending the COVID-19 pandemic. In the sub-sections that follow, data related to participants' fear of death is presented and analysed as the first sub-theme under theme one.

4.3.1.1 Fear of death

The novel coronavirus (COVID-19) pandemic, declared by the World Health Organization (WHO) in early 2020, had profound effects on humankind worldwide. Front-line health care workers, such as EMS practitioners in South Africa and their managers, were as affected as compared to their healthcare counterparts in hospitals, such as the nurses and doctors. These frontline EMS staff not only had to grapple with the physical health

ramifications of the virus but also had to confront the broader emotional and psychological effects linked to the pandemic that transformed the lives of almost all humankind. From their fears tied to the virus to the nuances of serving in isolated and high-risk settings, their personal experiences and narratives during this period were diverse and uniquely compelling.

Sub-theme one mirrored the palpable dread of mortality that dominated many of the narratives within the data. Both the EMS practitioners and managers voiced their existential fears of death, saying as follows:

> *"It felt like death … I'm going now, I'm going to die."* (P4)
>
> *"I don't think there was anybody who wasn't worried about COVID because it was killing patients and staff."* (P5)

The fact that EMS practitioners had more intimate and direct contact with patients who were critically ill and had to witness their suffering and deal with the loss of lives would have intensified their fears of death. As expressed in the data, participants believed that this was the end of their life's journey, saying, "I'm going now." Another shared that this fear of death was a concern for all EMS practitioners, as COVID-19 was killing so many people. Participants shared their feelings, saying:

> *"I was scared because we lost many people because of COVID-19."* (N3)
>
> *"People [staff] were getting sick and were dying … and then, we wondered who's going to die tomorrow …, because everyone was getting sick."* (N1)
>
> "W*hen I started seeing more people [staff] with COVID and some of them, they were dying in front of me, then I started to say hey, this is dangerous."* (N1)

"We lost our colleagues from COVID. So, you didn't know what to do. You were just praying that you don't get COVID or that you don't die because we were scared of losing our lives and then losing our kids.… it was not the easy thing … it was painful." (N8)

Empirical research abroad has, in fact, documented that healthcare workers accounted for the highest number of reported infections and deaths in Europe during the COVID-19 pandemic.[255] Studies with nurses found that setting up intravenous drips daily, disinfecting patients' spaces, and providing basic medical care placed them at a higher risk of contracting the virus. Much of their work mirrors that of the medical interventions and processes carried out by EMS practitioners, which exemplifies the risks they faced.[256] In the United States, it was reported that approximately 1,469 healthcare workers lost their lives to the virus.[257] A systematic review of infection and mortality of health care workers by Bradyopadhyay[13] further found a total of 152 888 infections and 1413 deaths abroad., whilst the International Council of Nurses estimated that 115,000 healthcare workers across the world lost their lives to COVID-19 between January 2020 and May 2021.[258] These statistics shed light on the context within which many health care workers were plunged into, and which compelled them to work in, despite the grave risks linked to same. Their fear of death can, therefore, be understood.

Other studies with health care workers found that these workers were deeply affected when they had to care for ailing colleagues. One of the largest studies in the United States of America, found that health care workers, reported that caring for colleagues with COVID-19 was extremely distressing.[259] In other studies, participants placed themselves in the shoes of ailing colleagues, who were struggling to recover from the virus and hence began to experience acute tension and emotional distress.[260] Nelson and Lee-Winn[261] also shared that nurses felt afraid and powerless when their colleagues became ill and had to be intubated and died. As evidenced in the narratives of participants in the current study, those in other studies were similarly unprepared for the deaths of colleagues and experienced deep shock and consequent increased heart rates.[262] One shared that she was involved in the resuscitation of her colleague and was left shaking when the chest compressions she administered failed. Iheduru-Anderson[263] also reported from her study that health care workers experienced a myriad of emotions

following the death of their colleagues. They experienced feelings of devastation, deep heartache and sorrow and felt exceptionally vulnerable thereafter.

For some participants, their fear of contracting COVID-19, was heightened by their chronic medical conditions. One participant said:

> *"I am diabetic and was diagnosed during COVID… diabetic patients are more vulnerable to lose their lives … so it was a very difficult time for me. There was a case, … we transported a diabetic patient to the hospital, and five minutes later she [the patient] was gone [deceased] … so mentally, it really affected me." (N 9)*

This excerpt underscored the heightened anxiety experienced by EMS practitioners with co-morbidities. This participant felt more vulnerable, as the experience of transporting a diabetic patient with a co-morbidity may have potentially exacerbated their condition and caused the patient to pass on. These notions are corroborated by other studies, which indicate that individuals with underlying health conditions are at greater risk of increased health complications because of co-morbidities.[264–266] Support for this argument is also linked to data from other studies, which found that those with co-morbidities encountered increased psychological distress during the COVID-19 pandemic.[21,267] The prevalence of chronic illnesses such as diabetes, hypertension and chronic obstructive pulmonary disease amongst nurses and doctors has been noted by several researchers, with some healthcare workers suffering from more than one chronic disease.[268]

Managers afflicted by co-morbidities were also sent home. One said:

> *"I was one of them who was also sent home because of chronic hypertension. I didn't want to stay at home. I wanted to be here [at workplace]."* (FG3)

The participants' fear of death was also exacerbated by the fact that there was no known cure or vaccine during the first wave of the pandemic. This affected both EMS practitioners and managers alike, who shared that their fears related to the lack of a cure.

> *"All the people were thinking that there is no cure for COVID … if you get it, you're going straight to death."* (N4)

> *"My partner treated the first COVID patient and then we didn't know it was COVID, but he [crew partner] talked about the symptoms and I remembered that I read something about this new disease, and I told him that I think you've been in contact."* (P1)

> *"We were just not aware when it [COVID-19] came out. We didn't know what to expect… and it cannot be cured. And that is where the fear came. It couldn't be cured."* (FG3)

As reflected in the excerpts, the lack of information during the first wave of the virus and the fact that there was no cure fueled tremendous levels of panic and distress among the participants. One participant shared that a colleague had treated a COVID-19-positive patient but did so unknowingly. As evidenced, even at that stage, participants were unaware of the cause of the virus but were acutely aware there was no cure. Other writers have supported the notion that such feelings of acute fear and helplessness are common during the early stages of emerging infectious disease outbreaks, which resulted in profound psychological distress among health workers.[169]

4.3.1.2 Misinformation and vaccine hesitancy

A further sub-theme which emerged in the data was linked to misinformation regarding the virus and hesitancy to take the vaccine. The pandemic birthed a deluge of information, some of which was not always factual. There were also a lot of different opinions circulating regarding the vaccine, which led to hesitancy in taking the vaccination. One participant shared as follows:

"There was much controversy about the vaccine; there were negative things said about this vaccine, so I was also afraid to get vaccinated." (P5)

Studies on vaccine hesitancy during the COVID-19 pandemic further corroborate these findings. Roozenbeek et al.[269] highlighted that exposure to false information about COVID-19, including myths about the vaccine, made individuals less likely to accept the vaccine once it became available. The data suggests that misinformation or conspiracy theories prevented both healthcare workers and the public from getting vaccinated against the virus or even recommended vaccination to vulnerable people within their social circle.[269] In a qualitative study by McAlearny[270] some participants also expressed that their resistance to vaccination was grounded in mistrust toward the vaccine's swift development, potential side effects, and previous personal experiences with COVID-19.[270] Despite the aforementioned, it was crucial that EMS practitioners took the vaccine due to their heightened susceptibility to contracting the virus.

The fact that there was no cure for COVID-19 heightened EMS practitioners' sense of vulnerability. It brought home the realisation that with every visit to a patient's home, encountering the virus and contracting it was a real possibility. In order to cope, participants shared that they had to work hard at dispelling their fears and anxieties, as their positions as emergency care workers constantly catapulted them into a space with patients who were battling with the virus. One EMS practitioner shared:

"So, in my mind, I'm entering houses to treat COVID-19 patients, so we are more exposed… like them [hospital staff], and they don't care anymore … we also stopped caring now … It's like our normal life now." (P 3)

The aforementioned narrative suggests that EMS practitioners had to accept that they were going to be exposed to the virus, and the best way to deal with this reality was not to care. It would appear that they had attempted to normalise what was a grave situation

in order to get their work done. Despite these mechanisms to cope, the possibility of them experiencing burnout or even post-traumatic stress disorder (PTSD) was a reality.[271] The data from previous pandemics also supports the notion that healthcare workers tend to develop and use maladaptive coping strategies such as self-blame, avoidance and the use of substances during crises.[272]

The fear of death amongst the sample was also exacerbated by the fact that EMS practitioners were constantly exposed to media reports regarding the increasing COVID-19 fatalities. The following narratives attest to the fact that the media was amplifying their anxieties and fears as follows:

> *"The news provided all this information about COVID and how people were dying all around the world every day."* (P 2)

> *"I was stuck in a one room alone and the only thing that was keeping me company was my phone and the TV and I'm not going to say they were helpful because. when you switch on the TV, the only thing you see is people dying because of the same disease that you also have…I was very lonely, and it was very scary."* (P9)

The strong attention given to the pandemic and how it was evolving and causing mass deaths globally further heightened the fear EMS practitioners were experiencing. The possibility of severe illness or death began to become a reality for many of the participants, as they had to confront hearing of the rampant loss of lives worldwide. These feelings of dread and fear were evident in other studies as well, which showed that an "infodemic" or excessive media coverage had exacerbated their psychological distress. Thompson et al.[273] corroborated the idea that during health crises, similar to the COVID-19 pandemic, excessive media consumption can amplify individual anxieties and fears, especially when personal experiences and media narratives converge.

Similarly, Gao et al.[274] found that individuals with high levels of social media exposure related to COVID-19 had an increased probability of experiencing anxiety, depression, or a combination of both. The data from the current study revealed that increased exposure

to social media created mental health distress among the participants. The authors argued that overexposure to pandemic-related news on social media platforms could be linked to elevated mental health problems.[274] In fact, it was reported that the fear of death, being gravely ill, experiencing helplessness and the potential to transmit COVID-19 to both patients and loved ones led to many cases of suicide among nurses in India and Italy.[271] In other studies, healthcare workers experiencing COVID-related mental distress were found to have presented with insomnia, engaged in risky behaviours such as substance use, and experienced feelings of panic and confusion, burnout, irritability, over-eating and social withdrawal.[275] These findings highlight the need for greater mental health support amongst healthcare professionals. This aspect is discussed further under theme six in this chapter.

4.3.1.3 Fear of loss of colleagues

The death of colleagues also exacerbated the fear of death. This had a profound impact on the participants, who became more aware of their mortality due to the reality of the virus. The grief linked to losing close colleagues not only created sadness but anger among participants, who felt that the pandemic had robbed them of those they loved. Participants shared as follows:

> *"I am extremely saddened and angered by the pandemic; it took away my close work colleagues, who I considered family, and I feel a part of me has died with them… I don't think people ever recover from pain; you just learn to deal with it in your own way."* (FG 9)

These deep fears of dying were further magnified by the demise of their colleagues:

> *"We lost one of our colleagues here through COVID … and that became more stressful now because it was happening in other companies like hospitals, but*

it never happened nearby, like at the base … that was the time when we started to realise that this thing [COVID 19] is serious." (P4)

*"The other thing that make me fear … is to lose our members [staff members] to COVID-19 … my fellow colleagues … will lose them due to COVID-19 … you see that the person last week, next week when you come back, you come back to bad news." (N*3)

Even the managers narrated the deep grief felt by the loss of colleagues, saying:

"We really loved her [colleague] … she was a real loving person and the fact that she was dead caused a big dampener on this place [the base] … As managers, we felt it. We all just cried. We didn't know what to say to the staff. Then we knew COVID is real." (FG8)

"Then our cleaner went and then the numbers started rising in Khayelitsha in our ambulance service. Then we became really scared." (FG2)

The fear of loss of colleagues was a further thread in the data, as participants experienced how transient life had become. Echoing the sentiments of most participants, one participant narrated that many colleagues lost their lives suddenly during the pandemic. The sudden deaths of colleagues brought forth the reality of the severity of the virus. They shared that having to witness the death of colleagues was deeply painful. One participant felt that as EMS practitioners, they were insulated as they worked from the base, as opposed to the hospital. However, once staff started to fall ill and pass on, they realised they were equally vulnerable as those in hospitals. The loss of colleagues exacerbated their feelings of vulnerability because they and their colleagues worked at the direct interface of the pandemic. These findings were reminiscent of those made during past pandemics and public health emergencies, where front-line healthcare

workers consistently reported elevated levels of fear and anxiety in terms of contracting the virus, succumbing to it and infecting their loved ones.[202,276]

The loss of close colleagues, coupled with the inability to grieve in such high-stress, high-risk environments, prevented participants from working through their losses. This exemplified the need for mental health support amongst this sector of healthcare workers. One participant narrated how his grief had affected him, saying,

> *"We were work colleagues and worked together for more than three decades, so we also became really close like family; I treated him as a brother…I stood by him through his diagnosis, the day he died, I felt like I lost my brother so you never recover from these deaths, you just go on".* (NP 15)

He added that he would not recover from this grief, which suggests the need for grief therapy for all EMS practitioners. The lack of therapeutic support can lead to complicated grief or prolonged grief disorder, especially among those who have lost loved ones.[277] In fact, the literature documents the immense mental health burden healthcare workers were encountering not only through witnessing the death of their colleagues but also patients who were passing on and their loved ones as well. Inevitably, this led to deep distress regarding whether they would survive the pandemic.[271] Consequently, writers have opined that COVID-19 could cause post-traumatic stress disorder as well as mood and anxiety disorders.[134,278]

4.3.1.4 Post-COVID-19 health concerns

For those participants who contracted and recovered from COVID-19, many uncertainties lingered about their health. One participant explained his difficulties with breathing normally and her deep fear that she would never lead a normal life again:

"My breathing started to be more difficult [after recovery from COVID] … I started wheezing when it's cold … I worried about the future of this… my concern is my lung damage that I will never recover and be normal again." (P3)

These concerns reflect the emerging understanding of 'long COVID symptoms or post-acute sequelae of SARS-CoV-2 infection, where individuals continue to experience debilitating symptoms or develop new ones post-recovery.[279,280] Other studies found that during the first wave of the COVID-19 pandemic, healthcare professionals began to experience pronounced stress, anxiety, depression, and insomnia due to the mental health burden linked to fear of COVID-19.[50] Factors that were found to contribute to these mental health symptoms were the highly transmissible nature of the virus, the fear of becoming ill and dying, helplessness, the lack of a vaccine and other definitive treatment protocols. Ardebili et al.[174] noted that the onset of the COVID-19 pandemic was marked by fear, anxiety, hopelessness, and helplessness among healthcare providers. Extreme fear and anxiety became prevalent during the initial month and were characterised by ambiguity, loss of control, and decreased human interactions, particularly in the workplace. This intensified healthcare providers' anxiety.

4.3.1.5 Transcending the COVID-19 virus

The fourth sub-theme emerging under theme one, related to EMS practitioners' personal experiences of transcending the perils of the COVID-19 pandemic. Given that they worked directly at the interface of the pandemic and faced the acute risk of contracting the virus, it sparked a much deeper reflection on life amongst the participants. For most EMS practitioners, the pandemic provoked a renewed sense of purpose in life and gratitude for having survived the initial waves of the virus. One participant expressed:

"My feelings are different because now [after recovery from COVID] I feel like I'm alive … I feel like I'm a different person." (P4)

This participant reported having developed a new-found appreciation for life after surviving the virus. These transformative experiences were not only exclusive to those who contracted the virus. Some participants who did not test positive for COVID-19 were still profoundly affected by the complex circumstances surrounding the virus. Several shared as follows:

> *"Life is too short … because that COVID did a lot of things in our lives."* (N5)

> *"I'm grateful to have lived until 47 because I lost my father at that age."* (P6)

The juxtaposition of one of the participants' own survivals against the age of his father's passing highlights the fragility of life and how his survival during the pandemic deepened his gratitude for his own existence. These sentiments mirror the findings made by da Silva Neto et al.[281] , who concluded that the pandemic created heightened feelings of gratitude for life amongst their participants and greater reflections on their mortality. In this vein, authors such as Zhang, Yang and Jia[282] argued that positive thinking was a crucial emotional resource, leading to a heightened ability to endure adversity and maintain good mental health during stressful life events. This suggests the need for greater support and workshops to promote positive thinking and build mental resilience amongst this group of practitioners.

Interestingly, for some EMS practitioners, their initial trepidation associated with COVID-19 morphed into a sense of resilience once they realised they could survive the infection. This was evident in the following excerpt:

> *"I was actually better equipped now that I was tested positive. So, the fear was actually bit gone."* (P2)

The aforementioned finding mirrors those made by Maunder et al.[144] during the SARS outbreak, where first-hand experience of the virus, resulted in a sense of reinforced resilience against the prevailing dread related to it amongst health care workers. Waters et al.[283] highlighted that gratitude, hope, optimism and life satisfaction were the strongest predictors of psychological well-being. This suggests that those with a positive mindset could transcend the most difficult challenges confronting their wellness.

Peer support also emerged as a key factor in participants positively transcending the emotional toll of the pandemic. One participant highlighted the therapeutic value of interpersonal interactions amongst colleagues, saying as follows:

> *"The trauma and stress of this COVID and the way it hit you…to me, I overcame it by talking to the people [colleagues]…talking and sharing makes me heal inside and it makes me strong."* (P4)

The aforementioned narrative elucidated the invaluable role of peer support and the value of shared experiences in helping EMS practitioners heal. By talking to colleagues about the turbulent experiences they collectively experienced during the COVID-19 pandemic, participants gained a sense of comfort and strength.

In this vein, another participant shared:

> *"The trauma and stress of this COVID and the way it hit you…I overcame it by talking to the people [colleagues]…talking and sharing makes me heal inside and it makes me strong."* (P4)

These sentiments align with findings made in a study by Walton et al.[284] , which underscored the importance of social support, especially among healthcare workers, in mitigating the emotional strains of a pandemic.

In essence, the sub-theme related to “transcending the COVID-19 pandemic” then highlighted the challenging yet transformative journeys of EMS practitioners in South Africa during this pandemic. It captured their introspective revelations about life and mortality while highlighting the pivotal role of peer support amidst their distress. These findings cohere with that of the extant literature, which paints a rich tapestry of resilience and transformation amidst adversity. As the narratives revealed, the COVID-19 pandemic created the opportunity for a much deeper introspection about life and its purpose and meaning amongst EMS practitioners. It further revealed the invaluable role that peer support played amongst colleagues and the value of shared experiences in navigating the intense psycho-social and emotional aspects wrought by the pandemic. These findings resonate with those research findings in global literature. Ardebili et al.[174], for example, conducted a study in China and reported that despite the physical and emotional toll the pandemic wreaked on healthcare providers, there was a sense of resilience and dedication amongst them to overcome their difficulties.

In essence, the experiences of these EMS practitioners, at a personal level during the COVID-19 pandemic, reflected a rich portrait of their emotions, struggles, and coping mechanisms. Their narratives underscore the profound toll on humankind inflicted by the COVID-19 virus and highlight the need for more robust psychosocial support for frontline healthcare workers. Their direct daily interaction with the virus, in its invisible form, through their work meant having to confront a myriad of fears and anxieties brought on by the perils of the COVID-19 pandemic.

4.3.2 Theme 2: The work milieu

The second theme that emerged from the qualitative data analysis is “The Work Milieu." This main theme encompasses the intricate web of experiences and challenges faced by EMS practitioners during the COVID-19 pandemic. Within this overarching theme, several sub-themes have been identified, illuminating different facets of their experiences. These sub-themes include "Lack of preparedness for the pandemic at the

EMS base," "lack of personal protective equipment," "sanitisation," "ostracism in the workplace," "changed relationships with colleagues," "anger and resentment amongst staff," "support and comfort from colleagues," and "impact on teamwork and camaraderie." Each of these sub-themes provides a unique lens through which the multifaceted impact of the pandemic on EMS practitioners can be examined, and the efforts they made to navigate this challenging landscape can be understood.

4.3.2.1 Lack of preparedness for the pandemic at the EMS base

One of the most salient issues emerging from the data was the lack of preparedness at the EMS base for the pandemic. Several managers captured this by saying:

> *"It [COVID-19 pandemic] took us by storm and it just blew us apart."* (FG7)

> *"COVID-19 came as a shock. We didn't know what to expect."* (FG8)

The lack of preparedness was evident in all aspects of EMS, from staff to infrastructure, as follows:

> *"It just showed us just how unprepared we were for the pandemic when it came to education, when it came to knowledge when it came to equipment, when it all aspects of it and just showed us how unprepared we were as a service."* (FG2)

For other managers, it was their fear of not knowing anything about the virus:

> *"I think it was mostly the fear of the unknown."* (FG8)

"It [COVID-19] is unknown. So, we were tasked now to go there [to COVID calls]. So now it's like if I go there, I'm going to die." (FG3)

"You try to avoid getting infected and then things were not in place. We've learned on a day-to-day basis." (FG8)

Moreover, there was very little information about how to manage the crisis, which was expressed as follows:

"So, communication, I think communication where that was involved, you know, was maybe lacking." (FG8)

"Studies of different countries putting their two cents to it and at the end of the day, the people that actually suffer are EMS personnel, because now we get told this circular gets sent out and then two weeks later, there's another circular. So, I think we were totally unprepared." (FG4)

"Information at that stage was too little." (FG2)

Even the daily life of reporting at work shifted dramatically as one participant shared as follows:

"*We had to then fetch people at home. You needed to have that permit with you to drive through many roadblocks … people [EMS staff] were scared … We [EMS managers] had to take them [EMS staff] home again.*" (FG3)

These excerpts suggest an array of challenges confronted by EMS practitioners during the initial phases of the COVID-19 pandemic. These challenges, as highlighted in the

data, spanned multiple facets of EMS operations, including education, knowledge, equipment, and infrastructure. A lack of effective response to the COVID-19 crisis seemed to exist both at personal and system levels, which amplified the fears and anxieties of EMS managers and staff, who were compelled to make important decisions without appropriate resources and support, such as accurate information equipment, or appropriate contingency plans. The profound fear of the unknown surrounding COVID-19, as expressed by participants, resonates with the psychological impact of uncertainty documented by Willis et. al.[89], who observed that the lack of preparedness affected the frontline health workers and the healthcare system. For healthcare workers, it led to increased stress and job dissatisfaction due to the challenges in managing patient care and personal safety. This lack of preparedness also contributed to a sense of uncertainty and unpredictability in the workplace, impacting their mental well-being and job performance. At the healthcare system level, this unpreparedness manifested in operational challenges, such as inconsistencies in protocols and procedures, which in turn affected the overall efficiency and effectiveness of healthcare delivery during the pandemic.[89] Furthermore, the disruption of daily operations mirrors the logistical challenges highlighted in studies on healthcare system resilience during pandemics.[285]

From the data presented, it appears that communication and lack of information may have been one of the key gaps during the COVID-19 crisis. Similarly, Boin et al.[286] found crisis communication, such as clear messages, to be one of the main challenges of national response to the COVID-19 crisis. Moreover, Kruk et al.[285] stressed the importance of resilient healthcare systems in effectively responding to crises, underscoring the need for proactive preparedness efforts. The lack of preparedness observed in these findings reflects a systemic issue that has been documented in previous research, contributing to the challenges faced and the psychological stress felt by EMS practitioners in the Khayelitsha base during the COVID-19 pandemic. Addressing this unpreparedness is crucial not only for the well-being of EMS personnel but also for improving the overall resilience of healthcare systems in the face of future pandemics or crises.

4.3.2.2 Lack of personal protective equipment

In the second sub-theme, under theme two, one of the most significant threads emerging in the data was the lack of personal protective equipment and the fears EMS practitioners voiced around the lack of same. The participants shared as follows:

> *"There was limited PPE [personal protective equipment] and they [EMS staff] were frustrated … they [EMS staff] were scared, because they didn't want to touch patients …"* (N11)
>
> *"At work it was even worse because we didn't have PPE."* (P1)
>
> *"The people were dying, and then it changed from A40 suit … now you must go and wear apron and then it's like when you now send a soldier to war, but you're giving the soldier less protection... that is how I felt."* (N9)
>
> *"We [EMS staff] literally didn't have anything [personal protective equipment] but the patients were there for us and people [EMS staff] were crying, because they must go to places with COVID"* (N1)
>
> *"They started to be like, it is only the paramedics who's going to get the PPE [personal protective equipment] when they load the people, people who are severe they are intubated."* (P3)

As evidenced in the aforementioned narratives, there was a dire shortage of protective personal gear. This was despite the fact that EMS practitioners had to work at the height of the pandemic when the spread of the virus was rampant and many people were dying. Participants described feeling that they were going to "war" without any armour, which compromised their safety and lives. More seriously, however, it affected the care of patients, as EMS practitioners were afraid to touch patients without the necessary protective equipment. Moreover, what was disconcerting to find was that such equipment was at times only being availed to those EMS practitioners who were dealing with those

patients who were gravely ill and had to be intubated. This captures the lack of concern for those who still had to work in a COVID-afflicted milieu.

Even the managers who formed part of the focus group discussion acknowledged the lack of personal protective gear, saying:

> *"People started panicking. Because of the shortage of PPE's [personal protective equipment]."* (FG3)

> *"We had two staff sessions [meetings] here because of not having the right equipment, not the right PPE [personal protective equipment], not the right place to change …We did not have all those types of things. So that was the scariest part".* (FG2)

Another manager specifically reported issues around the size of the gear received, saying:

> *"We ran into problems because of the people's sizes, large, extra-large ….so which means there was a lot of pressure on those smaller ones to wear the PPE [Personal Protective Equipment]."* (FG2)

Another described how he was forced to take extra stock for his staff to protect them. This, however, should not have been the case, as it should have been readily available.

> *"I took extra for my shift because I didn't know what to expect. I didn't know how many calls came through, so I am to blame as well for taking someone*

else's things [personal protective equipment]. Keeping it for myself to protect my staff and to protect myself." (FG7)

The global literature mirrors these findings, particularly the shortage of protective personal equipment among healthcare workers. International studies, such as one in Australia, found that among 2131 respondents of 2197 who reported lack of access to PPE, 47% reported that they had to reuse or extend the life of their PPE.[4] In Ethiopia, a similar study found that 28 % of the participants were somewhat satisfied with the availability of personal protective equipment, and only about 46 % reported satisfaction with receiving the correct personal protective equipment.[287] The issue of the quality of personal protective equipment for healthcare workers emerged as a common thread in other studies as well. Participants in a study in Bangladesh, for example, reported that personal protective equipment at their hospitals was not only inadequate but of inferior quality. This was despite the government reporting that all hospitals were supplied with the required number of items.[288]

The poor quality of protective gear was also evidenced in the current study, as a manager said:

"We need to plan … we need proper PPEs [Personal Protective Equipment] because we started using up all the nice PPE's [Personal Protective Equipment], we got PPE [Personal Protective Equipment], the ones where you put it on and your foot goes right through … So, we need to improve on the quality." (FG8)

Internationally, many reports criticised the government for personal protective equipment that was of inferior quality.[108,289] The poor quality of personal protective equipment and lack of access to same was reported in other studies as well.[290] Other researchers noted that increased infection rates amongst health care workers were linked to the recycled use of protective personal equipment and insufficient availability of same.[291] This

consequently compromised the safety of workers and compelled them to buy their own personal equipment to protect themselves.[288]

Several participants lamented that management appeared uncaring or unaware of the dangers of the pandemic by not provisioning them with adequate equipment. They asserted that:

> *"They [management] mustn't be short of PPE [personal protective equipment], so we mustn't fight for what is right. We mustn't fight for it [for personal protective equipment]."* (P3)

Of grave concern, was as another participant shared, that managers expected them to reuse their masks, which was extremely risky practice.

> *"They [management] used to give us N95 [type of mask] and then they say you put it in the envelope and then you had to get use to this again … so we said no this is not working. So, we were angry at them [managers]."* (N9)

The plight and vulnerability of participants, as they worked with COVID-19 patients, were heightened as evidenced in the following excerpt:

> "Y*ou feel for a pulse, and you're scared because you don't have PPE [personal protective equipment] because you were going for declaration [death declaration]."* (N2)

As reflected in the above narrative, EMS practitioners had to endure exposure to the virus because the nature of their work required them to touch and work closely with patients.

Moreover, participants also voiced that there was little training or information with regard to the use of protective gear. They said:

> *"Now we wanted to take off our PPE (personal protective equipment] but there was nothing in instructions on how you do these things"* (N1)

> *"We didn't know whether we did the right thing taking this thing [personal protective equipment] off, did we get infected through this thing [donning off]."* (N1)

What was more disconcerting was that none of the participants reported receiving any training regarding the use of personal protective gear. Training regarding the proper donning and doffing or discarding of used personal protective gear is critical in ensuring that healthcare workers are protected from COVID-19 and patients are protected from nosocomial infection. A study by Wundavalli et al.[292] found that repeated cycles of practice of donning and doffing personal protective gear reduced errors in its use. Chaka, Mekuria and Melesie[290] reported from their study that 65 % of healthcare workers in their sample had received training on the use of personal protective equipment, with about 80 % of this group saying that they could don and doff, based on the information received during the training. The primary factor within the current study and other studies, however, was the limited supply of protective gear for healthcare workers during the pandemic.

Moreover, managers in the study reported other issues, such as a designated area where protective gear could be changed. One manager said as follows:

> *"We had to do the donning and doffing and we needed an area. So, we decided to use the toilet area."* (FG1)

Issues related to a lack of training with regard to use of the gear emerged from the data collected from managers as follows:

> *"We were trained with the Ebola type of protection gear and this [COVID-19] was a whole different type of thing."* (FG2)

This finding around training resonates with discussions in the literature. A study by Keleb, et al.[293] in Ethiopia found that health care workers' adherence to using personal protective equipment was low and linked to a lack of training. Muze et al.[294] , however, opined that it was still concerning that these workers did not use a mask in the workplace despite having formal educational qualifications that underscored its importance. Consequently, it can be concluded that workplace training was critical to achieving compliance with safety protocols.

Despite having protective gear, EMS practitioners experienced other challenges with colleagues. One expressed that none of their colleagues availed themselves to help them change after the transfer of a COVID-19-positive patient. This reflects the deep fear others felt that they could contract the virus either through touching the protective wear or contact with the EMS staff themselves. One participant shared how their colleagues hid away from them:

> *"We're asking, one of our colleagues or the officer to come help us undress the gear that we had, and no one was there. Everyone was at the hospital, not at the base, when you come back…they were hiding in the hospital to hear that now we're back at the base, we're done with the patient…now we're back. We want to take off these things that we had, chuck it somewhere and change now no one wanted to come and be in contact with us or being like close to us."* (N1)

Although the impact of prolonged use of personal protective equipment did not emerge in the data, other studies reported the challenges associated with wearing personal protective gear for lengthy periods of time. In a study undertaken in India, participants described feeling suffocated and breathless, saying that they could not eat or drink for sometimes up to five hours whilst wearing their protective gear. Moreover, excessive sweating caused by wearing protective gear causes them to become dehydrated.[295] Nurses in a study in Turkey also reported experiencing physical pain and fatigue, saying they were drenched in sweat as they went about their duties.[296] In yet another study in India, health care workers lamented that personal protective gear made it difficult for them to render effective patient care.[297]

EMS practitioners in the current study, shared however that they made sure that their patients had masks:

> *"Only with my patients. I made sure they had a mask on and I had a mask on, but with my partner [crew partner], we didn't wear masks, when we were together in the front of the ambulance."* (P1)

Despite this, however, there appeared to be an overwhelming fear amongst EMS practitioners that they would contract the virus, despite using a mask. The following excerpt reflects this:

> *"Because every time you go to the call you had that fear of that maybe today, I will get it … even if you've got this mask."* (N2)

Hence, as evidenced, even when protective gear was available, participants experienced immense fear that they could still become infected as they had no training on how to safely remove the gear. Some participants, however were grateful for the protective gear and shared the importance of using this as follows:

"We trusted the PPE [personal protective equipment] … at least it calmed us down because you were covered. Then at least you are calm, and you are reassured that nothing will happen … they started to be short of staff … certain people must get the PPE [personal protective equipment] and you have to sit with that patient at the back … I was like if the virus is airborne, and even if the patient is coughing, then it's going to land on my PPE [personal protective equipment]" (P3)

Despite being provisioned with personal protective equipment, a few participants still believed that they were at risk and would not survive if they contracted the virus. They said:

"Although you were given a sanitiser and some PPEs [personal protective equipment], we were not sure we're going to survive." (P5)

"I was telling myself I am going to get it … I'm going to get it, whether I am going to wear the mask or not … and the mask was misting up when you wear glasses." (P1)

"You [EMS manager] have to tell that somebody to get on an ambulance. You get a few masks because there's not enough masks. You get one bottle of D-Germ [sanitiser] … You get 5 masks and you must go do the calls." (FG4)

The fear of working with COVID-19-positive patients was well documented in the literature as well.[165] Chew et al. [165] reported that patients with COVID-19 had said that they found doctors and nurses to be very fearful of working with them and maintained a physical distance from them in the hospital. One participant in their study specifically said she felt isolated in the hospital, as the nurses did not come to her when she called for help. This was mirrored in the findings of the current study.

Another disconcerting finding emerging in other studies in the literature was the poor quality of personal protective equipment provided to certain groups of healthcare workers. Iranian researchers reported that nurses in their study had received protective gear that tore easily, while the protective gear allocated to doctors was of a better quality.[298]

Another shared the challenges experienced with the rationing of protective equipment for non-emergency cases, saying:

> *"You cannot come with the PPE [personal protective equipment] every time you go to the call for declaration [death declaration]."* (N2)

The aforementioned excerpt reflects the nature of EMS work and the hazards of working during the pandemic. Hence, while the pandemic called for protection, participants still had to undertake death declarations, which meant having to expose themselves. In a study in Iran, one of the nurse participants shared how her entire body began shaking with anxiety whenever she had to care for a patient with COVID-19. Another described that she began breaking out in a sweat when she had to work closely with a COVID-19-positive patient. The data reflects the enormous fear participants grappled with within the milieu of their work.[299]

Other participants shared how they had to become resourceful when faced with a lack of protective gear, saying:

> *"They [the crews] were scared of it [COVID] at the beginning, especially us here on the ground, because I remember one day, I was supposed to transport a patient from KDH [Khayelitsha Day Hospital] to Tygerberg [Tygerberg Hospital]. There was no PPE [Personal Protective Equipment] at that time and then another crew refused to transport that patient. I did use a*

sheet to cover myself and then I did transport the patient to Tygerberg Hospital." (N1)

"Me and my partner, we bought it [personal protective equipment] for ourselves." (N6)

"We actually made our own stuff before the PPE [personal protective equipment], the suits and all these came out. We used these red bags and then made me like a jacket … Mr. [manager] was laughing at the time … I was just creative doing my own thing and I went out with it." (P2)

"There was no PPE [personal protective equipment] at that time and then another crew refused to transport that patient I used a sheet to cover myself and then I did transport the patient." (N4)

Managers also reported a strong sense of resilience and determination amongst staff, saying:

"At times, It was difficult. There were almost strikes here. About PPE [personal protective equipment] about this and about that. But at the end of the day, they [EMS staff] still went out and with the little knowledge we had … with the little equipment with had with the little PPE [personal protective equipment] we had, they [EMS staff] still went out and did the calls." (FG7)

Research has evidenced a reduced incidence of infection among healthcare workers who use personal protective equipment such as masks, caps, gowns, and gloves.[268] In the current study, EMS practitioners, however, continued to execute their duty towards patients, even when they had no protective gear. Several used a sheet to cover themselves, whilst another shared how he made his own jacket before protective gear had become available. This reflects their deep commitment to place patient care before their safety and well-being. Other scholars also reported that it was workers' "sense of duty to care" that overrode the undesirable and difficult circumstances linked to working

during the pandemic.[300] For example, in a study in India it was found that healthcare workers had to reuse their personal protective gear or wear cloth masks to try to prevent exposure to the virus.[297]

Similarly, Almomani et al.[301] found in their study in Jordan that although the nurses in their study were afraid of COVID-19, they felt the need to confront their fears and "go for it." These findings resonate with those made in a local study in Cape Town, where Reid et al.[302(p.7)] shared that a senior clinician had said that "when it comes to saving lives and helping people…people will go that extra mile regardless of who they are or where they come from."

4.3.2.3 Sanitisation

The third sub-theme emerging in the data revolved around sanitisation. This was tied up with the notion of protection from the virus. Participants shared that they had to become more aware of the virus and more stringent with their sanitisation protocols during the pandemic. With regards to the emergency vehicle and equipment, participants said:

> *"When you come to work, you must make sure that you clean everything. The steering wheel, the chair every time you offload the patient, we clean, we change the masks. Since then, we are cleaning every day before we start working."* (N5)

> *"We used to delay [calling in service] … we used to call late [in service] because we just wanted to make sure that while you are in the ambulance, the ambulance is clean. Then, someone else will take over. And then you come the next day; you repeat the same thing we used to call later as well."* (N9)

> *"I didn't know how I got COVID because before COVID, I was cleaning the ambulance in a way that people noticed … I don't want to say I was the only one, but I was scrubbing it [the ambulance] to the last corner"* (P3)

"We made sure every time we offloaded the patient that we cleaned the ambulance" (N6)

"I would just air the ambulance out … if there was blood …I would just wipe … so some of them [EMS crews] were washing them [ambulances], and I didn't do that. I just wiped it with sanitiser because if the disease is there, there are other diseases as well." (P1)

"When I accepted the call, I accepted that call maybe after 15 minutes because I was still busy cleaning the ambulance. then I'm already late with that priority to one call [urgent case]." (N8)

"We had a bit of a problem with the filters. So, the whole procedure how to clean the tubes and all of that stuff." (P1)

The quotes document the extent to which participants rigorously cleaned and scrubbed out the ambulances and equipment in order to stay safe. Staff engaged in a rigorous sanitisation of the ambulance and the equipment to stymie the spread of infection or exposure to the virus.

Managers also reported:

"We had two designated ambulances, and those ambulances were parked there. If you ever saw people walking circles around the vehicle, it was those two vehicles. Those ambulance doors would have been wide open. They [EMS crews] cleaned them, they [EMS crews] would spray them." (FG3)

In addition to sanitising the emergency vehicle, EMS personnel took extreme measures to sanitize themselves personally. They reported as follows:

"Me and my partner we used to sanitize the whole body spraying the whole body, especially when it's a knock off time … sanitize all the clothes that we were wearing like we were killing it [COVID virus] … let's kill it. So, it was not nice at all … we felt threatened." (P3)

"Then I was doubling my gloves. Since that time, I'm still wearing two pairs of gloves." (N8)

"After that time, I didn't stop using the sanitiser. Even at home, I'm buying my own stuff, cleaning the house." (N8)

As narrated, participants endeavoured to sanitize their clothes and personal bodies and wore double protective gear due to the level of threat they experienced. This intense process of sanitisation formed an essential part of their physical protection and gave them a sense of peace that they would not contract the virus. One of the reasons that participants took greater care was that they were also afraid of taking the virus home because of the nature of their work. With regards to their home, they shared as follows:

"I just used to make sure that I cleaned the house. I used to make sure that I took off the uniform in the garage and then before I touch my family, I used to make sure that I shower." (N9)

"A lot of planning took place prior to where I was going to get out of my car … I was going to clean myself before I entered the house, so it was a whole situation at home." (P1)

"When you come from work ...if I had a COVID patient then I would take off that uniform and put it in the washing machine. I didn't want to touch my kids in that uniform. So, every time you were stressing because you were not free" (N8)

Similar findings were reported in other studies, where healthcare workers described that they had become obsessional with sanitizing themselves, as they were afraid to infect their elderly parents who had co-morbidities.[296] Participants in the current study shared that they removed their work uniforms in the garage before entering their homes and cleaned themselves up before entering their homes. As one participant said it took careful planning to ensure that they did not just step into their homes. The pandemic created the need for a whole new sanitisation routine. These stringent protocols affected family life and bonding, as participants could not immediately interact with their children once they got home. This not only resulted in greater levels of stress but feelings of disconnectedness from family.

One participant shared this feeling, saying:

> *"I felt like I was all isolated from my family."* (N2)

Even when not at work, participants expressed that they were cautious and undertook intense sanitising measures when shopping and when they used public transport. This was described as follows:

> *"I was more careful when eating at home after when I'm doing the shopping. I was wiping all the items I bought. I was more careful where I put the bag. Plastic bag. It was down in the taxi. I can't where I put down. I must wipe it. I was wiping everything. Wearing masks all the time. Sanitising all the time."* (P3)

The participant's meticulous approach to sanitising groceries and being cautious about the placement of items like plastic bags in public transport reflects a heightened awareness and proactive attitude towards minimising the risk of infection. This diligence

is a direct response to the pandemic environment and illustrates a significant shift in routine practices and perceptions of safety, both personally and professionally.

These practices underscore the psychological impact of the pandemic on EMS practitioners, who must navigate their roles as frontline workers while also managing personal safety concerns. The constant vigilance in sanitising and the use of protective measures even outside the work environment indicate an underlying stress and a need for comprehensive wellness strategies.

4.3.2.4 Ostracism in the workplace

Another sub-theme that emerged under the work milieu was EMS practitioners' experiences of ostracism in the workplace. To this end, the participants reported that they were very afraid to disclose to colleagues if they tested positive because they didn't want to be ostracised. They shared as follows:

> *"People were very scared, because most of the guys, even if they tested positive, they didn't want us to talk about it."* (N3)

> *"They were scared to come out and say that, ok I have this [COVID 19], they were hiding that … which means they were scared, because it was like they're going to infect others you … because of the stigma that was on that time."* (N3)

> *"The minute you walk in [workplace], and then it seems like you get left alone. Everyone just disappears. So that was what brought all the anxiety … everyone is like they dislike you. Or they don't want to be associated with you."* (P6)

One of the managers similarly shared:

> *"People used to avoid people; they would walk a circle around you."* (FG8)

"Here if you would just say I've transported the COVID patient, then you can see how your colleagues would just avoid being around that person for a couple of good hours." (FG6)

As narrated above, many EMS practitioners were afraid to disclose their status or talk about the fact that they were COVID-positive. The decision not to disclose suggests that they could have come to work whilst infected, thereby spreading infection to others. It also suggests that they had to cope with the emotional struggles linked to being positive, without receiving the support they required. Ostracism, related to COVID-19, has been described as the social process of excluding people who could potentially contract or were infected with the virus.[171] The rampant spread of the disease, escalation in deaths related to it and the lack of a cure for the same coalesced to create deep discrimination towards those who were infected.

The literature reflects that healthcare workers globally had similar experiences in the workplace. A study undertaken by Kwaghe et al.[161] and Kwaghe et al.[161], in Nigeria, found that many healthcare workers distanced themselves from their colleagues who worked in COVID-19 units and treated them as if they were the virus itself and as if they would infect them. One of the participants in their study reported having an unpleasant experience when he was asked to leave the staff cafeteria. Others reported being asked not to touch things in the hospital and being labelled a "COVID doctor," whilst others resorted to running away when they saw the participants. This left many participants in their study feeling embarrassed, rejected, and deeply traumatised.

Similar findings were reported in India, where healthcare workers experienced rejection and felt discarded and abandoned by fellow colleagues.[93] One expressed that a colleague literally ran away from them, avoided eye contact with them and went so far as writing in the lift that she was a "COVID carrier". Simeone et al.[167] and Badrfam, Qorbani and Zandifar[303]opined that this ostracism was driven by a host of factors, such as media reports and a lack of adequate knowledge regarding the virus. Despite these reasons, it is crucial that management work towards creating a more supportive work climate during pandemics where staff are not hesitant to disclose their status.

4.3.2.5 Changed relationships with colleagues.

The fifth sub-theme emerging in the data explored the impact of the pandemic on relationships participants shared with colleagues. Many participants shared that their relationships with colleagues changed. They reported sharing intense feelings of fear and trauma at their workplace, with one saying that they were all expecting to become infected at some point:

> *"Even with colleagues …you know that almost everyone is traumatised and was waiting for their time to die, to get infected."* (N1)

The aforementioned excerpt suggests that staff relationships and the atmosphere at the base changed to one of fear and trauma as colleagues anticipated becoming gravely ill or becoming infected.

Even the face of daily interactions changed drastically. One participant shared the following experience:

> *"I asked a lift from one of my colleagues, Mr. ..., and then he gave me a lift, but lucky for me, I sat at the back of his car … when I got home, … I see he posted on WhatsApp [mobile messaging platform] that yes, I received my results and I'm COVID positive. That was stressing me a lot because now I was in the same car with him."* (P4)

The above excerpt highlighted how simple, normal interactions during pre-pandemic times changed drastically during the pandemic. It was no longer possible for EMS practitioners to interact and engage with each other, as the potential to become infected was so easy.

Other participants shared, however, that their colleagues became more caring and supportive towards each other during the pandemic. They said as follows:

> *"I'm the older guy … they [colleagues] said you must watch out you've got co-morbidities… so they [colleagues] were more worried about me, … they were actually more worried about me than themselves …"* (P2)

The data revealed a shift from usual camaraderie to an atmosphere marked by fear and trauma. The anticipation of infection, as voiced by participants, emphasises their heightened sense of vulnerability and shared anxiety within the workplace. This collective trauma disrupted the usual interpersonal dynamics, transforming everyday interactions into potential health risks.

Conversely, this period also fostered a deeper sense of care and support among colleagues, particularly towards those perceived as more vulnerable. This duality reflects the broader psycho-social impact of the pandemic on EMS practitioners, influencing their coping strategies and interpersonal relationships. It reflects the need for a wellness framework that addresses not only individual stressors but also the collective emotional experiences of EMS practitioners.

4.3.2.6 Anger and resentment amongst staff

Managers also noted that there was a great deal of anger and resentment amongst staff, which would manifest itself in different ways:

> *"That was also shocking to me as a manager … staff would after they had done a COVID case they would come and change here [inside the base]. So the thing is that if I'm getting it [COVID-19], you must also get it [COVID-19]."* (FG3)

"Staff [EMS staff] would question you and they would throw that in your face all the time. Do you want me to be a statistic? Why must I do all the COVID calls? No, because you are thin, I only have mediums. I don't have large [size]. I don't have extra-large [referring to A40 suits]. Now when are you you're going to get? So, you are just being bombarded with questions all day long." (FG3)

EMS practitioners appeared to be very resentful of managers, particularly as they felt they were safe in their offices, whilst the EMS practitioners had to endure being in the direct space of the virus with patients who were positive.

"The staff would say: But you guys as management, you're in the office, you're not going out there with us. So, at one stage, now you need to go out also with them [EMS staff] with the same worry. I can't see this killer [COVID-19]." (FG8)

"We were being labelled as you managers are killers, because you're sending us out with not enough PPE [personal protective equipment], not the right sizes and even having the wrong PPE [personal protective equipment].""(FG5)

The data from EMS practitioners, particularly from a managerial perspective during the COVID-19 pandemic, revealed critical insights into the internal dynamics of EMS teams. These were marked by a palpable interplay of anger, resentment, and perceived managerial insensitivity. These emotions, stemming from the frontline experiences of handling COVID-19 cases, reflected a deep sense of injustice and fear among staff. The resentment was further fuelled by the feeling of vulnerability due to perceived inadequacies in protective measures, as well as a breakdown in trust between staff and management. This situation aligns itself with literature, which discusses the heightened occupational stress and morale issues within healthcare settings during pandemics.[144,271,304]

Furthermore, the data highlighted significant perceived insensitivity from managers regarding task allocation and the provision of personal protective equipment (PPE). This issue extended beyond logistical concerns, symbolising deeper issues about frontline worker safety and well-being. Frustrations about inappropriate PPE sizes and inadequate supplies were indicative of broader concerns about the protection of healthcare workers.[305] Additionally, EMS practitioners' resentment towards managers, accusing them of detachment from frontline realities and endangering lives due to inadequate PPE, signified a severe disconnect and a breakdown in professional relationships. This perceived undervaluation and alienation, as described by Ornell et al.[306], stressed the need for improved communication, trust, and support systems within healthcare organisations to address these critical workplace dynamics and their implications for the mental health and well-being of healthcare workers.

4.3.2.7 Support and comfort from colleagues

The seventh sub-theme, however, focused on the positive aspects emerging from the pandemic. This included the support and comfort of colleagues as the pandemic evolved. Participants narrated the importance of this support and comfort as they struggled to come to terms with the changing times. Reflecting on how support calmed colleagues, participants shared:

> *"So, it was all about the communication as well…so once I spoke to them, they [colleagues] became calmer."* (P9)

> *"We need to support each other … the support is the thing that I've learned during COVID because the neighbor that I told you before, that he died because of COVID 19 his daughter, is a nurse at Netcare Hospital … I was the only person that she can share anything about this COVID-19 because she said to me, you are the one … you understand what I'm talking about."* (N3)

"The guy that I'm working with, I used to share with him as well, because, I mean, I told him about my aunt [passed away], so I used to talk to him as well." (N9)

The data above from Emergency Medical Services (EMS) practitioners, as reflected during the COVID-19 pandemic, revealed the critical importance of interpersonal communication and support in the EMS community. Communication in this context went beyond operational coordination, serving as a pivotal tool for emotional support, which was crucial in crisis situations. This was reflected in the work of Maunder et al. [144](2006) and Brooks et al.[304] , which highlighted how effective communication within the EMS teams played a crucial role in reducing anxiety, uncertainty, and fear by fostering a shared understanding of the crisis.

Additionally, the participants highlighted the significance of empathic and relatable support networks, especially in stressful situations like the pandemic. As reflected in data the experiences shared by the participants, they often sought emotional support from colleagues who could relate to their experiences. Similarly, studies by Ornell et al.[306] (2020) and Greenberg et al.[271] (2020) found that mutual support was essential in mitigating stress and burnout in healthcare professionals. The role of peer support, as emphasised by Albott et al.[175] and Pollock et al.[305], was also highlighted, illustrating how sharing personal losses and challenges within the EMS workplace could be therapeutic and instrumental in building resilience among healthcare workers. These insights stressed the need to nurture support systems within healthcare settings for both operational success and the emotional and psychological well-being of healthcare professionals.

4.3.2.8 Impact on teamwork and camaraderie

Teamwork and team spirit were also negatively affected due to the stressors of the pandemic. EMS practitioner shared:

"They [the crews] we were not socialising. Everyone was thinking of themselves that time. You don't even want any other guy [colleague] to come to your ambulance. You know it must be you and your partner only. Even when it's you and your partner, she had to stay in her corner. I stayed in my corner, so it was not a normal time." (N6)

"So, everything changed, the attitude just changed … even during parade time you can see, … the guys that were supposed to transport they were not greeting me after that call. So, it changed up to a point that I called them … I mean, at the end of the day … we are paramedics… I called them and then I just explained to them I had the right to inform my manager if something like this happened. So, you guys mustn't take it personally." (N9)

A strong sense of camaraderie also prevailed amongst the participants. This was evidenced in the following excerpts, which reflected how the EMS staff bonded together in the face of adversity:

"We, at Khayelitsha [base] in general as a whole, we are community. We stand together, we fight as a team." (P1)

"We were working together just to make the front side [the driver's cabin of the ambulance] to be safe." (P5)

"I knew that if I refused to do the call, they [dispatch] will end up pulling some paramedic from northern [Northern Division base, from Pinelands [Western Division base] while I'm here. So, I used to go and do the call." (N9)

"It's not about the qualification, but it's about working together because that case they didn't need any equipment, it was just oxygen transport." (N9)

"We understand each other [crew] So every time we deal with this patient, we know what role you must play, and then even afterwards. You see, it did help us to have the stable partner [crew partner] at that time."(N6)

"We, at Khayelitsha [base] in general as a whole, we are community. We stand together, we fight as a team." (P1)

"We were working together just to make the front side [the driver's cabin of the ambulance] to be safe." (P5)

"I knew that if I refuse to do the call, they [dispatch] will end up pulling some paramedic from northern [Northern Division base, from Pinelands [Western Division base] while I'm here. So, I used to go and do the call." (N9)

A manager shared as follows:

"The 80%, even if they were high risk, they [EMS staff] wanted to do something because that is what we've been doing. Put your own needs one side to help the next person, but to include everybody, there was a whole lot of exclusions that happened." (FG4)

As evidenced in the aforementioned excerpts, participants honoured their call to serve patients. They stressed the importance of working together to provide oxygen to critically ill patients. Another said he did not refuse to do calls as he knew if he refused another paramedic would be called up. The feelings of camaraderie appeared to be a significant factor in ensuring that patients received the care they needed. Such solidarity was crucial in high-stress environments, as it fostered resilience and collective coping mechanisms, as suggested by Pollock et al.[305] The commitment to ensuring safety and taking responsibility for calls, even at personal risk, underscored a profound sense of professional duty and team spirit. This aspect of teamwork, emphasizing unity and mutual support in crisis situations, resonated with the findings of Magner et al.[96] , who highlighted the importance of peer support and collective resilience in healthcare settings during challenging times.

The experiences of EMS practitioners during the COVID-19 pandemic presented a dual narrative. On the one hand, the stress and fear associated with the pandemic led to social distancing and a shift in teamwork dynamics; on the other, there emerged a strong sense of camaraderie and solidarity among EMS staff. These findings highlighted the complex and varied impacts of the pandemic on professional relationships and team dynamics in high-stress healthcare environments. They underscored the importance of understanding and addressing these changes to support the mental health and well-being of healthcare workers in crises.

4.3.2.9 Working with patients

Interactions with patients have also changed in a myriad of ways. Firstly, as one EMS practitioner explained, the nature of illness amongst the population shifted as follows:

> *"The primary calls had dropped … there was fewer motor accidents. OK, these people were getting hurt less, there were less assaults, bottle stores were closed."* (N15)

> *"Many patients didn't want to go to hospital with the fear of not coming home."* (FG5)

> *"So, our stats [call rate] had dropped, so it was mostly only COVID cases that needed transportation or needed to be attended to."* (FG8)

> *"When crews went to their [community members] houses, you know it was like. I don't want to go because I don't know if I'm coming back."* (FG)

> *"It took a toll not just on families, but on crews as well, because knowing that you know that there's always somebody that wants to go with but now it's only the patient that can be at the back and it's only you and I think they [management] made concession that you didn't have to sit at the back [of the ambulance] with the patient."* (FG6)

Some patients were even afraid of going to hospital, as evidenced below:

> *"The moment the patient says I need to take you to hospital for this cough the patient would say no and ask can you give me your oxygen tank?"* (FG2)

> *"Eighty percent of the patients that we transported at the time never came back because those that were in the condition to stay at home, they stayed at home. But those that couldn't, they went and most of them didn't come back."* (FG5)

During the COVID-19 pandemic, Emergency Medical Services (EMS) managers provided insightful data on the evolution of patient interactions and the nature of EMS calls. As reflected in the data, EMS managers saw a significant shift in emergency call patterns, with a notable reduction in primary calls, such as motor accidents and assaults, attributed largely to lockdown measures and the closure of public venues and bottle stores. This trend, consistent with global observations reported during the pandemic, indicated a decline in trauma cases and non-COVID-related emergencies.[271] The data also revealed that most EMS responses were for COVID-19-related cases, highlighting how the pandemic refocused healthcare resources and emergency response towards managing the virus.

The data above also reflected how the pandemic deeply affected patients' attitudes towards hospital care. Fear of contracting COVID-19 or not returning from the hospital led to increased reluctance among patients to seek hospital treatment, as reported by participants. This anxiety among the public, reflective of the uncertainty surrounding the novel coronavirus and its treatment, often resulted in patients preferring on-site care, such as oxygen therapy, over hospitalisation. The grim reality of the pandemic's mortality rate was evident in the acknowledgement that a significant proportion of transported patients did not return. Additionally, the pandemic's impact extended to EMS crews, who faced the emotional challenge of transporting patients without the presence of family

members. This change in protocol, essential for infection control, disrupted the traditional patient-caregiver relationship and added to the psychological burden on healthcare workers and patients alike, resonating with the findings about the pandemic's impact on healthcare delivery.[305]

In summary, the data from EMS managers during the COVID-19 pandemic illustrated a profound transformation in emergency medical services. The shift in the nature of emergencies, characterised by a decrease in non-COVID incidents and an increase in COVID-related cases, coupled with the public's heightened fear of hospitalisation, underscores the extensive impact of the pandemic on healthcare services. These observations emphasise the need to address the psychological implications of such crises for both patients and healthcare providers, ensuring comprehensive care even in the face of unprecedented challenges.

4.3.3 Theme 3 Working at the interface of the community

EMS practitioners not only work within the pre-hospital milieu but also spend a major part of their time transporting patients and working within a community context. This theme sheds light on the complex interactions and challenges encountered by EMS practitioners and managers as they engaged with communities during the COVID-19 pandemic. It was, in fact, Bender et al.[307] who asserted that the collective trauma experienced by communities during the pandemic further exacerbated the emotional distress experienced by healthcare workers. This is because EMS practitioners bore witness to how the virus had affected not only the health of community members but also created isolation and fear amongst them. Four sub-themes emerged under this theme: community fear, a community in isolation, community frustrations and protests, education and advocacy, and community hope.

4.3.3.1 Community fear

One of the first major threads in the data under this sub-theme was the awareness that community members themselves were gripped by immense fear. One important aspect emerging from the data was the perception that community members had that EMS

practitioners were potential carriers of COVID-19. This caused them to mistrust the EMS practitioners and led to a reluctance to seek medical help, as it required engaging with EMS staff. This deep apprehension was evidenced in the following excerpts:

> "*They [community members] didn't want me to come closer because they [community members] knew that I'm working with obviously COVID related job and COVID patients that are confirmed with testing… they [community members] so cautious everywhere you go or everywhere you touch, they [community members] don't want to come close to you or to wherever you touch.*" (N1)

> *"When they [community] see you in those masks, the community wants to run away from those ambulances.*" (FG6)

Even in a personal context, community fear of the EMS practitioners changed:

> *"No one was knocking there by your house and asking for bread this time … They knew that you're working for EMS [emergency medical services]."* (N9)

> *"People were seeing us differently, even in a community, people didn't want to speak to me really because as they used to say, I'm a paramedic and you guys deal with COVID, so you have COVID and stuff like that. It was really like they labelled us, Yes, we were labelled."* (P2)

> *"Especially in the community, in the street where I live, and people distanced themselves…friends' distance themselves."* (P2)

> *"They were so cautious everywhere I went or everywhere I touched, they didn't want to come close to you or to wherever you touch."* (N1)

As shared in the narratives, the perception that EMS practitioners were potential carriers of the virus not only complicated the delivery of care but also underscored the significant impact of public perceptions on the work and well-being of EMS practitioners. These findings resonate with existing literature regarding the stigmatisation of healthcare workers during the pandemic.[308] The fear and avoidance of healthcare workers by community members reflect the broader social stigmatization associated with infectious diseases and those at the forefront of managing them. In fact, there have been incidents of COVID-19-related attacks on healthcare workers reported globally, which led to "social ostracism," discrimination, and eviction from their homes.[309,310] As evidenced in the data, local community members distanced themselves from the EMS practitioners and were outwardly reluctant to come close to them or engage with them. Other studies have found that healthcare workers directly involved in caring for patients were stigmatized by family members, colleagues and neighbours.[256] What was disconcerting to find in the literature, though, was that healthcare workers became targets for both verbal and physical abuse in the community.[311] This led to elevated levels of psychological distress and fear.[312]

Participants also had to deal with the stigma linked to the virus. Some community members had a belief that burning down the homes of COVID-19-positive individuals could eradicate the virus, which not only reflected community despair, despondency, and deep ignorance regarding the virus. Additionally, the fact that they encountered EMS staff, who were wearing personal protective equipment (PPE), exacerbated community fears and contributed to them distancing themselves from ambulances and medical personnel. One participant expressed this by saying:

> *"When transporting COVID patients, you will be labelled."* (FG3)

> *"People [community members] wanted to burn down their [COVID-19 positive residents] house and all those things because they [community members] believed they could kill the disease [COVID-19], they could burn it down because this one was bring it to the community … you get labelled as the killer."* (FG8)

As evidenced above, both community members and friends kept their distance from participants as they were aware that they worked for emergency services and, therefore, had a higher risk of being positive. The fact that some people were asymptomatic also heightened everyone's fears that anyone could still be infected but not display symptoms of the virus. Other researchers similarly reported that healthcare workers in their study experienced discrimination and were deeply isolated by friends who were aware that they worked with COVID-19 patients.[167,313]

Some participants, however, understood the fears of community members and their desire to protect themselves as follows:

> *"Well, I didn't feel that much worried [about community avoiding contact] because people [community members] didn't understand what it [COVID 19] was. At least we knew, and we had at least some sort of information about the disease, and that that gave me more comfort."* (P2)

> *"Yeah, that's why I wasn't even worried, because I understood that they don't know about this thing [COVID 19] … if you look at me, you can get COVID. That was their perceptions that went around in the communities where I stay."* (P2)

> *"Initially you like this is a worldwide pandemic. Must I let them [family] know? Must I not let them know. So eventually like after three or so times then you like put it on the family chat guys, I'm positive, my wife is also positive … And then there's obviously the dead silence. No one says nothing, and maybe they will just say, OK, we'll pray for you all. You'll be strong."* (P6)

4.3.3.2 A community in isolation

Participants also described how the pandemic changed the landscape of the communities they served. They said that responding to calls within certain communities presented an eerie sight for them as EMS practitioners, as the streets were deserted. This created a palpable sense of isolation for both them and for those in that community. It not only

heightened their feelings of isolation but reflected the depth to which the pandemic altered daily community life. The following excerpt, for example, offers a glimpse into the stressful and changed working conditions faced by EMS staff as they navigated the communities they served. One paramedic shared:

> *"At one stage, this whole Khayelitsha [Cape Town district] just became dead that people [community] would just back away. They [community] didn't even want to come out of their houses."* (FG1)

> "Y*ou're [EMS crews] the only ones that were actually operating because at one stage this whole Khayelitsha [suburb] just became dead that people would just back off. They [community members] didn't even want to come out of their house."* (FG1)

This excerpt highlights how a once bustling community "was literally silenced" and became dead. This was undeniably difficult for EMS practitioners, who, under normal circumstances, would be accustomed to navigating busy streets and a community filled with people going about their daily lives. The experience of working and living on deserted streets mirrors similar descriptions in the literature related to how pandemics created a scenario of isolation for all.[304] EMS practitioners, like other frontline workers, faced the unique experience of commuting on roads while the rest of the population was under lockdown orders within the confines of their homes. The desertion described in the data reflected the scenario across national and global boundaries, where Parisi et al.[314] noted the closure of shopping malls, entertainment and sporting facilities, schools, and spiritual centres and entrenched remote working for many.

4.3.3.3 Community frustrations and protests

Despite the respect and support evidenced for EMS practitioners, in the preceding sub-sections, there were also community members who vented their anger and frustration onto government employees, including the EMS practitioners. These experiences

exemplified the broader tensions and frustrations within pandemic-affected communities. It highlighted the challenges experienced by EMS practitioners, who had to work at the interface of communities, with one participant sharing as follows:

> *"The community, when they're protesting, they like to attack the government."* (N8)

It is possible that the closure of businesses and the loss of jobs hit poverty-stricken communities even harder. Faced with a debilitating disease in their milieu and a lack of necessities due to a lack of income inevitably caused much frustration for members of poorer communities. EMS practitioners, as front-line workers, faced attacks from the public due to dissatisfaction with their circumstances. The literature on community dissatisfaction and protests during pandemics highlights the importance of effective communication, community engagement and support for vulnerable communities during times of distress.[315] The frustration evidenced within the data echoes the need for transparent and responsive communication strategies during health crises.[316]

4.3.3.4 Education and advocacy

Another important thread under the sub-theme of community was that of education and advocacy. EMS practitioners and managers were found to take on a more proactive role in educating communities about COVID-19 during the pandemic. Information contributing to community safety and understanding of the virus formed an important role that participants had to play. They shared as follows:

> *"It was very frustrating going out to the communities because we literally had to educate them."* (N11)

The lack of factual information regarding the virus and how it was transmitted is also a thread within the literature. As such, Rana, Mukhtar and Mukhtar[317] called for online and electronic media broadcasts with medical advice on how to prevent the spread of infection.

The excerpts highlighted the dual role that EMS staff play, not only as caregivers but as educators, who were committed to preventing the spread of the virus and ensuring the health of the community. The frustration evidenced in the narrative exemplifies the fact that communities did not understand the virus and how it spread, which perhaps may have led to greater infection rates due to this ignorance. It underscored the need for the participants' duties to extend beyond emergency transfers to include educating communities in a way that would stymie the spread of the disease. This proactive stance was also reflected in the literature, which emphasised the importance of health education and community outreach during pandemics.[318,319] Therefore, EMS practitioners played a critical role not only in healthcare delivery but also in public health education during the pandemic.

This sub-theme, on the experiences of participants at the interface of communities, provided insights into the experiences of EMS practitioners and managers with communities during the COVID-19 pandemic in the Western Cape. It highlighted the complex interplay between fear and hope within communities, the challenges stemming from community frustrations and protests, and the pivotal role that EMS practitioners had to play in education and advocacy. The plight of working in a deserted environment whilst the rest of the community remained safely at home exemplified the loneliness EMS practitioners encountered during the pandemic.

4.3.3.5 Community hope

The fifth subtheme highlighted notions of community hope. Other data suggested that EMS practitioners were sometimes welcomed as beacons of hope within their communities during the pandemic. Amidst the challenges posed by lockdown measures and the relentless spread of the virus, some community members viewed EMS practitioners as a major source of assistance for those in need. As one participant described:

"*The people [community members], when they saw me [coming to treat them] they [community members] seemed to have hope that they [community members] can still get help.*" (N4).

The many issues surrounding the virus, its transmission and lack of a cure and the enormous sequelae of health challenges it wrought on the most vulnerable sectors of the public created deep anguish. This was particularly true for those who lacked information about it and could not immediately access medical help. Hence, knowing that the EMS practitioners were there and could provide much-needed medical care during an emergency left community members feeling hopeful. This is especially true of the poorer, more disadvantaged communities in the Western Cape, who have no access to private medical aid. The welcoming spirit of these poorer communities highlighted the resilience of EMS practitioners and their capacity to instil hope amongst the more marginalised and vulnerable sectors of the community in the Western Cape. These findings resonate with the notions of healthcare heroism and resilience described within the literature.[144] EMS practitioners, as front-line workers, can, therefore, be regarded as sources of hope, comfort, and reassurance to vulnerable communities that had to grapple with the wrath of the pandemic's complexities.

4.3.4 Theme 4: Impact on the family context

Theme four focused on the impact on the family. Seven sub-themes emerged under this theme, namely the fear of taking COVID-19 home, the impact of infection on family, the loss of loved ones, the concern of family for EMS practitioners, the effects of isolation, the effects of isolation, socio-economic distress, and the support of family.

4.3.4.1 Fear of taking COVID home

Sub-theme one, which emerged under the fifth main theme, focused on participants' fears that they would transmit the virus to their loved ones. Working at the forefront

of the pandemic, left most of the participants feeling a sense of acute vulnerability to infection. Their greatest fear, however, was that they could, through their work, infect their loved ones. They voiced these fears as follows:

> *"I had that fear of taking it [COVID 19] from work to them [family].*" (N2)
>
> *"If you are getting this COVID, you cannot take it to your children, to your wife, and then your whole family is going to die.*" (N4)
>
> *"It was going to be us who's going to take it [COVID 19] from the patient and then take it home … so the family was also stressing."* (P5)
>
> *"In my mind, I take it home and then everybody's going to die. You going to kill everyone." (*P5)
>
> *"I was thinking that I'm going to die, … maybe this patient had COVID and then I'm going to take it to my family. That is what I was thinking, especially my little ones."* (N9)
>
> *"I didn't want also that COVID to affect them [participant's children] or I don't want to bring it at home."* (P5)

Even the managers reported a deep sense of fear that they would take the virus to the family. They narrated as follows:

> *"You as a manager are also scared because I need to go home. I'm going to carry this thing home. I'm going to kill."* (FG2)
>
> *"So, we have to take every precaution. You know when you get home, you gotta take your clothes and hang it outside and you gotta be so careful when you touch, and You have to wash hands at all times. You just need to keep your hands clean."* (FG7)

"It was my scariest moment because it [COVID-19] was unknown, we couldn't see where this thing [COVID-19] was … and then we started to become paranoid, paranoid in the sense that if I go out now will I come home and infect my family… also in Khayelitsha we were one of the first places with the first COVID-19 patient … I will never forget that." (FG6)

"When you go home like before you get into your vehicle, you spray yourself head to toe, under the shoes, everything. And when you get home, you must change in the garage." (FG7)

As reflected in the preceding excerpts, participants experienced significant fear due to the unknown nature of the virus and that it could infect their loved ones, who could die. This fear was exacerbated by the fact that the base at which the EMS practitioners worked was one of the first to encounter a COVID-19 patient. Scholars have opined that healthcare workers were at the highest risk of COVID-19 infection because they worked directly with COVID-19 patients.[320] Mayer, Etgar, Shiffman and Lurie[66] argued that children, spouses and other extended family members experienced this fear and anxiety due to the nature of their loved one's work and the risks of them carrying the infection into their homes. It was not surprising then that Shah et al.[321] found that 1 in 6 hospital admissions related to COVID-19 involved not just health care workers but also their family members.

Most participants experienced huge levels of guilt that they would indirectly be responsible for the death of their loved ones, as the nature of their work meant that the risk of spreading the virus to loved ones was greater. One participant expressed fear that his entire family could pass on if they became infected. These findings resonate with the empirical literature where Wu, Styra and Gold[322] similarly reported that many healthcare workers were afraid that they would infect their loved ones. Other researchers such as Tayyib and Alsolami[323] also reported that family members in their study were worried that their loved ones, who were health care practitioners, would bring the virus home to them. As a result of this, other researchers found a high level of anxiety and depression amongst the family members of healthcare personnel, as well.[324,325]

4.3.4.2 Impact of infection on family

This second sub-theme focused on how family was impacted after EMS practitioners had become personally infected. Participants narrated the deep fear that they experienced after becoming infected, saying:

> *"Once you get infected with this, it's a life and death situation. I was always thinking of my little ones [children]."* (N2)

> *"It was scary, obviously, because someone in the house is now positive, and we don't know what the outcome is going to be, but we joked about it. We [the family] still continued as normal. It was normal for patients to pass on…to die at that time because a lot of people were dying*." (N10)

Despite knowing that patients were dying, other EMS practitioners said that they tried to normalise the fact that he had COVID-19 by joking about it. He shared that one of the worst aspects of contracting the virus was that one would not know the outcome. The sheer helplessness faced by EMS practitioners was evident in the following excerpt:

> *"We tried to normalise things still at home to prevent us from going crazy because we couldn't, you know, we couldn't do anything."* (P1)

Becoming infected with COVID-19 also changed the face of daily human interactions that the EMS practitioners shared with children and other family members. They narrated as follows:

"I explained to them [participant's children] it's going to be over in 14 days and if God, willing I do make it. Then they would still have me as a mom … so I said to them [participant's children], it's a matter of life and death … but I don't want to go far away from you." (P4)

"When I get into the house, the kids want to hug you … they wanted to touch me; my biggest fear was to leave my kids to die and leave my kids. … they are still young because my daughter is 12-year-old and the other one four-year-old, so I was just scared…I was just worried that if I die and leave them, who is going to take care of them." (N5)

"I can say you were just thinking about dying … nothing else but dying …What if I die … I didn't achieve anything with my life. … what about my child … I had only one child, so I think about my child. He's still young, and then this thing [COVID-19], what if I die now and then? … So that's what was going on in my mind … I was stressing very much'." (N10)

As reflected by one of the participants, their children still wanted to hug and bond with their parents but couldn't because the parents were infected, and the risk of infecting their children was very real. Another who had become infected shared that she had to explain the harsh reality of being quarantined to her children whilst coming to terms with the fact that she potentially would not survive COVID-19. The fact that she had extremely young children left her with huge anxiety over who would take care of them if she didn't survive. Other researchers shared similar findings. Two scoping reviews found that many health workers who lived with children and elderly family members had to rearrange their living situations by either moving out of their homes to maintain a safe distance from loved ones so as to protect them from the risk of infection.[326,327]

As in the current study, female healthcare workers, in particular, were found to be hugely concerned with spreading the virus to their children.[328] A healthcare worker in Turkey reported that his fear of infecting loved ones stemmed from the fact that the virus was invisible, in that people could be asymptomatic and could consequently silently spread the virus to family members.[329] In addition to the stressors mentioned in the current study, healthcare workers, particularly females, endured other significant issues which

inevitably affected their wellness. Researchers highlighted the plight of healthcare workers' families, saying that women healthcare workers encountered increased stressors as there was no one to care for their family, especially younger children, as they were forced to work longer hours during the pandemic. The lockdown, which resulted in closures of schools and daycare facilities, placed greater stress on parents in terms of the care of their children, whilst their work shifts increased during the pandemic.[330]

One of the participants also shared that becoming infected felt like a life-or-death situation. This effectively meant that they believed that they could die from the virus. These feelings of fear were exacerbated by the fact that many patients were dying, as evidenced in the data. Their confrontation with this reality in their work milieu inevitably escalated their fears regarding whether they would survive the virus post-infection. Not only were participants afraid for their health, but the home environment became filled with tension over the fact that their loved one could pass on. A study undertaken among healthcare workers in South Africa and the general population found a high prevalence of the fear of dying and the fear of becoming infected with the virus.[331] A local study undertaken at three hospitals attributed the high number of healthcare workers testing positive to hospital-acquired infections.[332] Moreover, this study found that healthcare workers experienced varying degrees of the virus, ranging from some workers being asymptomatic to those with severe symptoms and then those who did not survive being infected.

Additionally, studies found that the panic they were experiencing was linked to their care for COVID-19 patients, together with the stress of working extended shifts, which was affecting the quality of patient care. Likewise, the physical conditions of patients were found to be deteriorating rapidly, causing an increased workload that they could not cope with.[333] The research further documented that COVID-19 was causing the deaths of many young healthcare workers who did not suffer from any major illnesses.[333]

It was not surprising then that EMS practitioners in the current study felt that they would not survive and that if they transmitted it to their loved ones, they, too, would not survive. They narrated as follows:

"The main thing was that if I'm going to be infected with COVID, I'm going to die … people were dying of COVID, so that was the main thing … I think that was the family's fear that I'm going to die." (P2)

"I was thinking that one of our like family members could be getting it … there were a lot of people were passing on because of this and now that was anxiety that I had." (N2)

Despite the grim reality of the situation that EMS practitioners and their families found themselves in, they believed that family support was important to stay resilient. One participant attenuated this as follows:

"As a family, we're going to go through this thing [COVID-19] because we believed as a family that the people were dying because they were alone because you're on your own. You have to cope for ten days on your own and you are sick so they [family members] believe that us being together and going through it together would be better than having to for me to be alone at the time, so at home it was like normal." (P1)

"There were anxieties; the fear for me was that it [COVID-19] is going to kill people that are close to me or my family or my colleagues, or but not me …I was not worried about myself." (N1)

When confronted with COVID-19 within their family, EMS practitioners experienced fear of the hospital environment. As one participant shared:

"I was not comfortable taking my family to the hospital because my mother-in-law tested positive. But instead of taking them to the hospital, then I prefer to treat her at home". (N5)

Despite the hospital being a space where one could recover, this participant saw it as a source of infection and a place where the virus spread. Hence, instead of securing treatment in a medical environment, they thought it better to care for their family member at home.

4.3.4.3 Loss of loved ones

The third sub-theme under the family context reflected participants' experiences of the loss of loved ones during the pandemic. The following narrative highlights the immense distress and anguish he experienced through the loss of his brother-in-law.

"I had experience with my sister's husband … it was painful because they only married for one year …. at first, he refused to go to the hospital and then after two days he said no we can take him the hospital. …two weeks he was in coma … I was taking care of my sister because she couldn't even move….. she refused totally to go to the hospital because she said no, they can't both be admitted and the kids, they already have two kids … after Christmas it was December after Christmas then we lost him ...he was forty-four." (N5)

As evidenced above, COVID-19 has no boundaries when it comes to age, as one participant lost a relative who was very young and had little children. The narrative further highlights the huge suffering families experienced as multiple members took ill from the virus or even lost their lives. EMS practitioners, therefore, not only encountered loss and grief in the work milieu but had to confront this same pain and suffering within their

families. Another participant shared his pain as he pondered on why his aunt didn't survive the virus.

> *"I used to ask myself, God, why my aunt didn't survive if this one [a patient] can survive … So, I used to…when I saw those patients, I used to ask God why didn't you give my aunt a chance as well? … so, it was a lot"* (N9)

Other participants shared their grief over the loss of other significant others, such as their neighbours. They said:

> *"My neighbours around me, I lost many people, and I was very, very sad … I was hurt. It was very painful to lose some mothers, you know, due to COVID-19. Sometimes you lose the mother and the father of the family at one time, so it's very sad, very sad …"* (N3)

> *"It affected me negatively because I lost people who were close to me; I remember my neighbour passed away too …husband and wife … both. It was like three months in between then they just passed away due to COVID and then even the family, … my cousin also passed away due to COVID*." (N10)

> *"I think when someone loses a member of the family, or you tested positive, then you need time … you need time to heal…"* (N5)

The above narratives attest to the way in which the pandemic eroded family life and left children orphaned. The multiple deaths of family inevitably caused trauma to many and perpetuated feelings of sadness and despondency, as there appeared to be little time to

grieve either due to the fact that other family members were ill or had passed away in quick succession.

4.3.4.4 Concern of family for EMS practitioners

The fourth sub-theme reflected family members' concern for the EMS practitioners in the sample. This concern was intensified when the participants were COVID-positive. One participant shared how his stress intensified, as his family members had become fearful for his health after he tested positive. He shared:

> *"They [family members] were phoning me every day [while on duty]. But I told my mom only after I recovered that I had COVID because I tested positive…because I could hear in her voice that if I told her that I am positive at that point in time, she wouldn't take it nicely…so I told her only after I recovered from COVID."* (P3)

In a similar vein, another described how emotional it was for both of him and his family when he became seriously ill.

> *"You needed your family to support you and be strong for you as much as you needed to be strong. But I was like, how can I handle it if I'm like feeling like I'm dying and if they [family members] are going to stress about me… so it was not nice, it was very, very emotional."* (P3)

The above excerpt underscored the need for greater mental health for both EMS practitioners and their families when they contracted COVID-19. This notion is further supported in the excerpt that follows, where a participant's mother became very distressed even though the participant was not COVID-19-positive. He said:

"So it was that time that people started dying so much, she [participant's mother] started crying. Then I said to myself imagine what if I get sick."(P4)

Other family members presented with acute anxiety and constant worry that their loved ones would become ill. This anxiety and fear for their loved one is evident as follows:

"Every day when I came home, … It's like every time the first question is, did you have a COVID patient? How are you feeling?" (P1)

These feelings of fear and anxiety resonate within the COVID-19 literature as well. A study done by Tekin et al.[325], in the United Kingdom, found that family members were acutely distressed when they heard of the trauma their loved ones were experiencing when working in the health sector during the pandemic. Empirical research also reflects that healthcare workers experienced a disconnect from family members during the pandemic, as they were afraid that they or their family members would contract the virus.[169] Other studies found that health care workers constantly had to reassure their partners and their children that they were safe at work, while others quickly began to draw up their wills due to the rapid demise of their colleagues.[334]

The inability to cope with the dramatic shifts in health, work and family life birthed by the pandemic caused participants to want to withdraw from their families. One participant narrated as follows:

"You *don't always want to be around your family because you see them now every day versus you saw them coming from work and even now they there all the time, so there were days where I would just go to my room and say*

I'm going to go to sleep and I wasn't, because I didn't want them to be there, I just needed a break from everyone." (P1)

Many of the participants shared that they were forced to quarantine in their own homes or limit the contact they had with loved ones, such as their spouses and children, either to avoid infection or deal with the mental distress they faced. Even researchers such as Khalid et al.[335] reported from their study in Pakistan that 44 % of the healthcare workers in their sample experienced some degree of stigma within their own homes. A further 65 % of this sample were requested to stay away from their social groups. As a result, 37 % of the health care workers in this sample experienced guilt that they had worked with COVID-19 patients. Moreover, 50 % of the sample felt hurt by the reaction of their loved ones, which resulted in 44 % of the sample isolating themselves from friends and family. Other scholars, such as Alajmi[76] also found in their study that extended family members were avoiding contact with health care workers. This was increasing their levels of isolation and creating huger mental health sequelae for this group.

4.3.4.5 Effects of isolation

The effects of the isolation sub-theme focused on the effects on family members when the participants had to be quarantined. Many of the EMS practitioners had to be placed in isolation or quarantine once they became infected. This not only created personal fear but fear which extended itself to their loved ones as well:

*"They [family members] were worried about me … they were phoning every day." (*P3)

"I didn't even phone them [while in isolation], didn't even was in contact with them [family]. I didn't want them [family] to start crying." (P15)

Family members became deeply distressed once their loved ones contracted the virus and had to be quarantined. As discussed in the preceding sub-sections, participants not only had to deal with their physical and emotional health issues but also had to cope with the emotional burden that their loved ones faced when they were quarantined.

De Man et al.[336] who conducted a study in South Africa reported a higher level of depressive symptoms amongst those who had become distressed over being in quarantine.

4.3.4.6 Socio-economic distress

For many, the pandemic exacerbated the economic distress that families had to endure. Participants described this distress by saying:

> *"My wife was still working in these private places whereby it's no work, no pay, so financially it impacted us … also emotionally."* (N10)

> *"As we know a lot of people were dying, others were losing jobs … so my biggest fear was when I thought about my family and other families because you will see in those families it's only one or two members that have the stable job …So if there are other family members that lose their jobs, who's going to take care of their families and the prices of the food are expensive, everything is going up."* (N6)

> *"You have to work because you need to put bread on the table."* (N9)

> *"I did provide for others as well because they lost their job. And even my salary cannot be enough for the whole family. But we have to share."* (N6)

> *"Other members of the family, they all lost their job because others are working in the shops so most of the places [places of work] were closed that time, so they [family members] lost job which was not easy. Then we have to support them [family members].*" (N5)

As evidenced, the pandemic brought unexpected financial hardship to many participants and their loved ones. Several threads linked to the issue of socio-economic distress amongst participants. There were those who, despite the risks of working in the emergency care environment, had to remain in this line of work to support their families. They explained that they wanted to keep their jobs not only to provide for their families but also for those families whose breadwinners had lost their jobs. Rodrigues, Silva and Franco [337] who conducted a study in Portugal, using 11500 families, reported that job insecurity, job loss and financial stress were huge factors within these households. In another study, a participant who was a widow shared that her two daughters were dependent on her economically, and hence, she was terrified of what would happen to them if she passed on through COVID-19.[288] The need for mental health services is more evident given the fact that individuals and families were exposed to stress, anxiety and economic hardship during the lockdowns.[338]

4.3.4.7 Family support

However, what emerged in the data was the salience of family support. Studies on resilience and well-being have consistently identified emotional connection and social support as an important coping strategy for healthcare workers ([BenderEtAl2021]]. Positive social networks characterised by emotional support, communication, and connectivity have helped healthcare workers manage stress during crisis conditions. This is particularly important where quarantine and physical distancing measures associated with COVID-19 have disrupted traditional channels of maintaining emotional connections. Participants described that the support received from family was hugely beneficial to their well-being as follows:

> *"The main thing was that I had my family ...That was for me that was the strength." (*P2)
>
> *"My fiancé, I did have support in the family." (P3)*

"I would phone my mother almost like every second or every minute …and obviously, she's the one that I could phone and tell her that, hey, this is what I did today." (N1)

"I think spending time with my family was good enough for me, like just knowing that they are safe." (N11)

"My family was supportive because they were phoning me. They were checking on me every time." (N8)

"My aunt was still alive. So, I used to call her. I used to talk to her. This is what's going on. And then she used to say no, I will just pray for you." (N9)

The lockdown created a scenario in which much of humankind had to live and connect in social bubbles within homes as opposed to accessing support in broader work and other social contexts.[339] One of the positive spinoffs linked to the pandemic was increased family closeness and bonding and greater amounts of time for interaction with loved ones.[310] EMS practitioners, as front-line workers, required more significant levels of emotional support as they transitioned through the care of patients during the pandemic. As evidenced, the modern use of cellular phones for video and voice calls helped them to stay in contact with their loved ones.[340] Whilst this form of contact could not replace face-to-face contact, it still provided opportunities for loved ones to check in on the EMS practitioners. This reassured both the participants and family members that they were all well.

4.3.5 Theme 5 Mental health challenges

Theme six focused on the mental health challenges EMS practitioners experienced during the pandemic.

Participants who tested positive and needed to quarantine shared as follows:

> *"At that time, especially when they tested me when I found out, I was I tested positive, so I had to phone my wife to say they're taking me away now … I was heartbroken … it was really scary, to be honest."* (P2)

> "*I even called my eldest son and I explained to him if I don't wake up one day in the morning, you must know that the will is in the bank … I said at work, you will be guided … this is my policy, my life insurance and all that … and cried and cried … you don't want to hear that from the parents.*" (P4)

A rapid review of the psychological effects of quarantine reflects the immense emotional distress experienced due to isolation from loved ones.[304] Other researchers reported that once quarantined, healthcare workers experienced immense guilt due to staff shortages and the increased burden placed on their colleagues. Healthcare workers who were separated from their colleagues experienced heightened levels of depression and stress over a loss of income.[304]

As a result of the aforementioned, many reported fears that they would become infected. This was evident within the data for both the EMS practitioners and managers as follows:

> *"I had the anxiety attacks, so there was like a whole week where I wasn't sleeping day and night."* (P6)

> *"To see the people are dying in front of me … It made me really distressed."* (N4)

> *"I was scared … I felt like if I'm going to get it [COVID 19], I'm going to get it [COVID 19] anyway." (P1)*

Other managers reported experiencing a deep sense of fear but shared that they could not outwardly express this. One said:

> *"I was never ever so scared in my life as that, but I couldn't show it."* (FG4)

Even managers recognised the deep fear amongst the paramedic staff, saying:

> *"On parade [shift parade] how do you tell your staff when you see the fear, you can see it."* (FG4)

The COVID-19 pandemic not only wreaked severe mental health problems on ordinary citizens but deeply affected healthcare workers across the globe. As hospital systems and other health care systems confronted the overwhelming number of patients struggling with the virus, the waves of outbreak that followed relentlessly, much was needed to deal with the emotional distress amongst EMS practitioners, emerging from caring for infected patients, dealing with personal infection, the sudden loss of colleagues and fear for the health of loved ones all of which called for programs to deal with the psychological aftermath of the pandemic.[341,342] Writers have argued that healthcare workers were more prone to develop post-traumatic stress disorder, burnout syndrome, depression, anxiety, physical and emotional exhaustion, depersonalisation and dissociation.[311]

EMS practitioners were found to experience severe anxiety, which impacted their ability to sleep. This emanated from the surge of infodemic around COVID-19, which frequently reported on the escalating number of deaths. The fact that participants witnessed patients dying from COVID-19 undeniably intensified their distress. The literature reflected that healthcare workers the world over, experienced severe mental health distress because of their interaction with COVID-19 patients who were critically ill. A study undertaken in Turkey within an intensive care unit, found that more than half of the sample of health care staff experienced anxiety, depression and emotional exhaustion.[343] Other

studies in Germany and Iran similarly found an increase in the prevalence of mental health problems such as anxiety, extreme fear and helplessness.[288,344] Voth et al.[345] opined that because these healthcare workers were exposed to a greater number of critically ill patients, their levels of mental health were higher than those in primary care settings. Moreover, the massive changes to daily life, the lockdown measures, social distancing and decreased social and familial contact catalysed feelings of depression and isolation.[142] In fact, a global study called the COVISTRESS study found that paramedics, as first responders in the pandemic, experienced stress levels that were 12.7 % higher than those of medical doctors.[97]

Participants believed that they would not escape personal infection because of their frequent and direct contact with COVID-19 patients. This notion was supported by Peter, Rima and Wayne[322] who opined that this type of contact, as well as bouts of self-isolation and self-quarantine and exaggerated bits of information within the media, were catalysts for anxiety and distress.

Other participants expressed that their medical background intensified their fears because they were aware of the fluctuations in their heart rates and in their oxygen levels. They shared as follows:

> *"You know everything [medical knowledge]. So I started to monitor my Sats [oxygen saturation levels], and then it was scary, the heart rate because it was, it was fluctuating."* (P3)

Another participant who had tuberculosis expressed concern that because her lungs had been compromised, they would not be able to withstand the virus. The participant said:

> *"My other fear was that I had TB [tuberculosis] before I came here [base] … this COVID is very dangerous…. my lungs were exposed to TB [tuberculosis] ... are they [the lungs] going to help me survive in this COVID."* (P3)

Others, however, expressed that they tried to remain hopeful. They said:

> *"I trusted my well-being, or like I can fight it, man, I can feel, I can fight it. In your mind you were saying to yourself, you can fight it."* (P3)

> *"I was not coping, but I couldn't just give up. I had to keep it up for my family."* (N6)

The participant, as mentioned above, expressed that despite feeling that he could not cope, he kept up the fight against the virus for the sake of his family.

Other stressors EMS practitioners faced included:

> *"My mum, she was sick that time with COVID, so I had to take care of her … I was putting in long hours after work … I must look after my mum and take care of my sister."* (N6)

> *"My personal fears and anxieties were my family … getting them what they need during the lockdowns."* (N11)

4.3.6 Theme 6: Wellness interventions

The "wellness interventions" theme identified in the data was linked to wellness. Nzonzo[346] identified exogenous and endogenous drivers of well-being amongst employees. He referred to exogenous drivers as those that include the occupational environment, policies and regulations, and the social and workplace environment.

Endogenous drivers, in contrast, cover those that include the emotional, spiritual, physical, and psychological health of employees.

Six sub-themes emerged under the theme of wellness interventions. These were "counselling," "positive mindset," "spirituality," "exercise," "music and dancing," and "hobbies and crafts."

4.3.6.1 Counselling

One of the first sub-themes to emerge under the wellness theme related to the need for EMS practitioners to receive counselling and support. The need for greater psycho-social support for healthcare workers also resonates within the COVID-19 literature. Several writers have posited the need for greater mental health interventions for healthcare workers, arguing that they were at greater risk for anxiety and depression.[296] The mental health burden emerging from the pandemic is well evidenced under theme 6 of this chapter. Participants in the current study shared their need for more significant support saying as follows:

Individual support

> *"They [colleagues] would cry, and then we wait up until they [colleagues] stop because it was very difficult for us to console each other. Even though we've got people that had the guts to do that if someone can, like, come here at the parade [before start of shift] and start crying, it's very difficult for you to console them because number one, who are you to them … because you are just like colleagues, probably that person is even older than you."* (N12)

> *"How am I going to console this father of four with the family? The wife left home to work, and now he comes here. What am I going to say to him? … And probably, he's going to say something that's going to also make me cry.*

So, let me see how long he is going to cry and take it from there when he's done crying." (N1)

The above two narratives reflect the deep despair and depression EMS practitioners were facing. This suggests that there were no mechanisms available to provide emotional support to them. Participants, therefore, asked for professional help as follows:

"We need more people that are better-equipped knowledge-wise to speak to us and reassure us." (P2)

"A professional…someone that doesn't know you…that person maybe will be here one, maybe even once or twice a month, or whatever … once a week … and come to the staff and speak to the staff … It does help." (P13)

Another participant shared that the COVID hotline was manned by their colleagues, which made it difficult for them to call for help. Although they desperately needed help, they had to put on a brave act and forge ahead without the support they needed.

*"We couldn't ask for help … We couldn't make that call because it's our staff answering the phone … on that side, the COVID hot line … So, I can't speak to my own staff member… I'm brave … I don't need the help, and I need to speak to someone who will listen to me … (*FG7)

The most important thread emerging within the data, however, was the need for ongoing counselling. They shared as follows:

"Talking is good." (P3)

"We must get the counselling even now" (N6)

"They don't want me or somebody else; they [EMS staff] want that professional help." (P2)

"Counselling is the only thing that would improve our wellness." (N12)

"Even the counselling maybe … let's say after the call … you can come, sit for maybe 20 minutes or 30 minutes just to relax your mind for the next patient because it was a severe case, and we were dealing with it." (N2)

Other participants shared the importance of regular debriefing to prevent the emotional breakdowns that staff were experiencing.

"I think the debriefing is something that has to be continuous, to maintain some sanity in the ones that are breaking down." (N11)

The above narratives illuminate the trauma being experienced by EMS practitioners during their line of work and the need for debriefing, trauma counselling and support as they dealt with the severity of COVID-19 patient cases. The need for healthcare departments to implement counselling services to "prevent, alleviate or treat increased anxiety levels" amongst healthcare workers has been strongly advocated for in the literature.[338] Due to the extant research within the international context, which documented the levels of anxiety, stress and depression amongst health care, there have been arguments for psycho-social interventions and support amongst health care workers.[137,347] This is well evidenced even within the current study.

To this end, Rana et al.[317] argued the need for a hotline for medical workers to discuss their emotional issues with trained healthcare practitioners. They further argued for a workable shift system so that health care staff could get adequate rest and a system where psychologists could visit health care staff to offer counselling and debriefing. Vaibhav, Priya and Gupta[348] advocated the need for "mental health warriors, "such as

psychologists to preserve the mental health of other "health warriors." Vani and Banerjee[349] similarly argued that it was critical to provide holistic care to frontline healthcare workers for the benefit of society as their healthcare needs depended on them.

Other participants expressed the need for group support, as evidenced in the following excerpts:

> *"We should think about a support group for staff … after your shift, you meet for an hour, you talk about how your day went, how your situation was and how they are coping because someone else's coping mechanism could be yours too."* (P14)

> *"The online thing is also I think is also helping … it's also good on that WhatsApp to share the information, all the new things, all the new updates."* (P5)

The need for peer group support alongside counselling also emerged in the literature. One participant said that it was important for colleagues to come together and learn from each other about the wellness interventions they were using. Other studies have also highlighted the importance of group support and other forms of individual therapy. Participants also called for online support where in-person group meetings were not possible. In this vein Shechter et al.[350] wrote that participants in their study had accessed therapists for help, sought individual counselling, used online clinicians for support or online mental wellness groups and listened to mental support videos to achieve wellness.

These are essential strategies to consider in supporting EMS practitioners as they heal from the trauma of the first wave of the pandemic. The data also reflected the broad range of other wellness interventions used and suggested by EMS practitioners to cope with the stressors of their work at the height of the pandemic.

4.3.6.2 Positive mindset

Several participants said that they endeavoured to keep a positive mindset in order to cope at work and stay well. They shared as follows:

> *"I ended up thinking that COVID is not going to get to me … because I was going for tests, and they were all negative."* (N1)
>
> *"I'm in the first line to help the people, so I must put myself in their mind to say these people need my help … I must have a positive mind. So that that's the strategy I used."* (N1)
>
> *"COVID, for me, was a killer, but not to make me be afraid of it; even though I knew it was killing some people that were close to me and some that were with me, I was still confident to go to calls even though I know that there is COVID there."* (N1)

These narratives exemplify the mental stance that EMS practitioners had to adapt to in order to cope with the huge challenges of working during the first wave of the pandemic. They were willing to put COVID patients first despite knowing the dangers linked to working with them. They fulfilled their duties, knowing that they were working with the threat of the virus and that they could potentially become ill or pass on from it.

4.3.6.3 Use of home remedies

Several participants shared that they used home remedies to remain healthy as well as to recover from COVID-19. They said as follows:

> *"The colleagues that were positive to overcome this thing [COVID-19] were very supportive … they would tell me to steam …take this … use the Vicks*

rub take warm bath … they were phoning me also, so it was giving me hope during recovery." (P4)

"My partner and I were always using ginger and garlic and stuff. So, we would remind ourselves. Let's go and do this garlic thing to help us, and I think it did help us because we didn't get COVID both of us at that time." (N6)

"My girlfriend also was doing this mixture of honey and ginger. All that stuff and then bought all those flue things …you know that time for us Africans we believe in that one system … So, we were steaming a lot using eucalyptus … So, we were using anything that can help." (N10)

Several popular home remedies being used include the use of ginger and garlic to bolster the immune system, whilst others used to steam regularly to prevent them from getting the virus or to enable recovery. One participant shared that there was a lack of information, on what to do in the event of contracting the virus or in terms of prevention. He said:

"So, anything you hear, you just go for it because there was not much information even from World Health Organization, rather than use your normal flu medication that time." (N10)

Another shared:

"I wanted to keep myself healthy. I was always taking vitamins, and some flu things [medications], and then I was exercising to keep myself healthy." (N5)

Across the globe, there was also a surge in the use of alternative therapies and vitamin supplementation to prevent people from becoming very ill with the virus. Various writers concurred that dietary intake of fresh and healthy foods was critical to ensuring that

people received the necessary vitamins and micro-nutrients to develop a strong immune system.[351,352] Health care workers in Ghana engaged in regular physical exercise and took supplements like zinc and vitamin C to protect themselves from severe infection.[353] Yet others supported the use of steaming in the prevention and treatment of COVID-19.[354]

The narratives above highlight the broad range of wellness interventions used and supported by EMS practitioners and managers alike. They suggest the myriad wellness strategies that can be incorporated into participants' wellness by EMS management. In this vein, Sheek-Hussein, Abu-Zidan and Stip[275] asserted that disaster preparedness for a pandemic requires the management of emotional and physical distress not only for healthy members of a population but also for patients and health care workers. Hence, wellness strategies to address the mental health sequelae must be factored into any disaster management plan for infectious pandemics such as COVID-19.

4.3.6.4 Spirituality

Spirituality also emerged in the data as perhaps one of the most important wellness interventions. Spirituality and religiosity were found to positively influence subjective well-being amongst other healthcare workers, as in the present study.[355] Spirituality has been described as "a search for the sacred, or a process through which people seek to discover, hold onto, and when necessary, transform whatever they hold sacred in their lives".[356(p.260)] Spirituality, in a broad sense, can therefore be seen as giving hope and meaning during illness, including engaging in rituals and reading sacred texts. Scholars have supported this notion, arguing that spiritual and religious practices provide meaning and purpose to individuals and families and, therefore, act as an important support system that could buffer stress.[357,358]

The narratives that follow provide evidence of the vital role spirituality played in the lives of EMS practitioners during the pandemic.

"Lucky enough, by God's Grace, I didn't get it." (N2)

As shared, one participant believed that his faith and strong belief in God's divine grace kept him protected from the virus.

Others narrated the importance of prayer as follows:

> *"I used to pray at home." (N9)*
>
> *"They [friends] were praying and hopeful for you that nothing will get to you, and out of all of those things, you extract what you think is related to you, and it make you go forward and get stronger." (N1)*

The literature also reflects that many healthcare workers and the general public found comfort and solace in their religious and spiritual beliefs during the pandemic.[359] During crises, individuals often turn to their spirituality for their emotional, mental and physical well-being.[215] As such, spiritual beliefs and practices have been regarded as salient coping mechanisms to deal with life-changing and traumatic experiences.[360] Empirical research has documented that spirituality plays a significant role in decreasing the fear and anxiety experienced by healthcare workers during times of crisis. Dalle Ave and Sulmasy[361(p.1577)] opined that spirituality played a considerable role in helping people find "meaning while facing disease and death." It is not surprising then that the findings made in the current study, mirror many of those made by researchers in other studies, that health care workers were turning to God or a Supreme Being for protection for themselves, their families, patients, colleagues, and friends.[362]

Others such as Yusof, Norhayati and Azman[363] found in Malaysia, for example, that when participants believed in surrendering everything to God, their inner strength increased, as their beliefs and practices helped them to cope better. Yet other empirical work documented that positive religious coping strategies were linked to lower levels of depression and anxiety among healthcare workers during the pandemic.[364] This coheres

with findings from a study in Brazil, where healthcare workers who had increased spiritual well-being tended to have better coping strategies in relation to pandemic-induced stress.[365]

Other researchers also noted that certain religious rituals, such as reading religious literature and praying, helped health care professionals cope with the despair and stress experienced during the pandemic.[366] In India specifically, 61 % of healthcare professionals reported finding comfort in their religion. Seventy percent of their sample specifically said that prayer and meditation had brought them comfort during times of acute stress. Similar to the findings made in this study, researchers in another study in Bangladesh reported that healthcare workers were able to find solace during the pandemic through their belief in God and through support from family and colleagues.[288]

4.3.6.5 Exercise

Sub-theme two focussed on exercise as follows:

> *"There's swimming. There is hiking as well now, so they keep us busy, it is good, … you don't feel like you just go to work and then you go home."* (N9)

> *"After work, I can go there if I belong to a swimming team or a hiking team. If I belong to a running team, then this is where I can relieve my stress than just leave here and go home and keep everything that is on my chest."* (N1)

> *"Get us gyms … gyms at the bases. Fire department, they all got the gyms…So you can spend an hour or two after work or whatever at your workplace doing something to boost you physically because it releases endorphins …You flow and take a lot of stress off from your mind."* (P2)

One manager suggested that time for activities such as exercise or training should be integrated as part of regular working hours for EMS staff as follows:

> *"We would tell you [EMS staff member] while you're on duty, we will make time for you to exercise. We make time ... so while I'm here, I know today is my training day, my eight-hour training day."* (FG4)

As evidenced, participants then recognised the importance of exercise through running, hiking or swimming. One participant made a noteworthy suggestion of introducing gyms at their base so that they all had a place where they could readily work out. Other managers supported this by saying:

> *"We need to relook at work and just juggle around … not just all the time work, work, work, and no play. We need to work and play … that will make a happy workforce."* (FG1)

This is important, as it has been argued that during times of ill-health and stress, exercise and mild forms of activity, such as walking, help to regain one's level of fitness.[367] Lockdown measures hampered the ability of many people to engage in exercise. Mahlangu et al.[70] found that South Africans had experienced higher levels of stress during the lockdown, as they were confined to their homes and could not participate in outdoor activities. Moreover, the inability to access social networks increased the sense of isolation felt amongst this vulnerable population. Hence opportunities for exercise were and still are an important part of ensuring the well-being of EMS practitioners. A study done by Shechter et al.[350] found that healthcare workers in their study used several wellness interventions: physical activity/exercise (59 %), talk therapy ((26 %) and the use of virtual support groups (16 %). These lend support to the interventions suggested by the current sample.

4.3.6.6 Music and dancing

Music also appeared to be another wellness strategy in the data. EMS practitioners shared that they used dancing to keep upbeat as follows:

> *"So, in the mornings, we just put the speaker there, and then we dance in the parade before we go to the ambulances, then we have some dancing session."* (N15)

> *"In the mornings, but now we've got our little jukebox … Instead of just talking, we'll do a 5-minute activity. You play music, people will do something, and you will see when staff come to work. You look at them when they get out of their car, and their shoulders hang. It's like, oh, God, am I again here? Now you [manager], instead of just giving them duty roster, you make them say, let's play music. Let's do it. Let's dance. They come out there, they're happy, they make noise …. So that's the type of things that we need to do."* (FG5)

One of the managers reported:

> *"Make it [workplace activities] to let me forget about their problems, just for that 5 minutes and then 5 minutes will become 10 minutes of happiness, and if I'm happy, I'll be positive. If I'm positive, I won't get sick."* (FG1)

4.3.6.7 Hobbies and crafts

Yet other participants shared that engaging in hobbies and craftwork helped them cope with their fears and anxieties during the pandemic. One said:

> *"I picked up a new hobby I started doing crafts, so it was fun. … it helped a lot because you needed to do something else, because if you thought about*

it, then you feel symptomatic or, you know like you're now psychologically COVID positive … So, I tried not to think about it." (P1)

This narrative supports earlier findings with regard to the need to keep a positive mental frame of mind. As shared, one could easily feel symptomatic due to the high numbers of people who were positive, but through positively engaging the mind, they believed they could remain resilient. This notion coheres with findings from other studies, where healthcare workers who were positive were found to engage in cooking, experimenting with new recipes, painting, reading, listening to music, playing sports and watching movies.[296]

4.3.7 Theme 7: Challenges within a managerial context

This last and final theme highlights the complex and stressful challenges that EMS practitioners encountered during the pandemic. Several sub-themes emerged from the data, including lack of support and care, policy changes, lack of resources, manager-related challenges with staff, recognition and appreciation, workload, and future planning.

4.3.7.1 Lack of support and care

The lack of support for EMS practitioners during the pandemic and the stressful circumstances under which they functioned were prevalent in the data. EMS practitioners shared as following:

"There was no support … I did not receive any support from the department …not even from like lower management, middle management." (P2)

"We should get more support because we're dealing with something that anyone else wouldn't deal with … those who were not in the ambulance that time, they should come even daily to us and give us maybe some ideas of

how to prevent ourselves in terms of infecting ourselves and even something that is written down to cover us if you are not sitting with a patient at the back [of the ambulance] because there were cases like that." (N2)

"You see people, they wanted us to sit with the patient at the back [of the ambulance], and there was nothing which was written in black and white, where they're going to say if this patient dies, you are covered." (N2)

As narrated, support appeared invisible at all levels of the managerial tier during the pandemic. This left EMS practitioners feeling totally alone in dealing with the new and insurmountable challenges they were experiencing. One shared that there were no guidelines on how to deal with transporting a COVID-19 patient, as the expectation was that they had to be with them at the back of the ambulance. Many felt there was no policy to protect them in the event of a patient's death, as COVID-19 created changes to the way in which patient transportation was carried out.

This lack of support was further entrenched by the fact that managers didn't even allow them to come to their offices because they didn't want to be at risk of infection from staff. Participants expressed this as follows:

"I feel like they [management] are not there to deal with that situation." (N9)

"The managers will just make sure that no one gets to the office … no managers stepped up." (N1)

Others expressed their isolation from management, saying:

"Most of the time when something happens, you are on your own." (P1)

As EMS practitioners shared, they often had to face the challenges linked to a new virus on their own. This was evidenced in other studies, such as in India, where researchers found that many healthcare workers felt pressured to learn new skills as the pandemic evolved and had to work beyond the scope of their allocated roles because of the nature and the huge number of emergencies.[297]

Yet others described the considerable sense of powerlessness and helplessness they faced in engaging management to provide them with better protective gear. Their lack of a voice within the pandemic and the uphill battle they faced as they endeavoured to provide emergency medical services is evident in the narratives that follow:

> *"We were tired of fighting with management about not doing something."* (P1)

> *"Your voice wasn't heard at the time so that to me that is no support … then you suggest something … no, you ask something … no … … we don't have every time … we don't have, there is nothing."* (P1)

To this end, many EMS staff began leaving employment because of fear and the lack of support from management during the pandemic. One participant shared as follows:

> *"Rather than losing staff … because that's why we're losing them because if they say it to you, we're not getting supported, why are we here … so, to me, I feel like support as a whole. The department should come and get involved … find out what it is that we need."* (P1)

The aforementioned narrative reflects the huge levels of fear experienced by the participants, who voiced the need for counselling and greater mental health support. The

rampant spread of the virus and escalating number of deaths undeniably provoked stress despite the fact that they had personal protective equipment. Banerjee[276], therefore, called for ensuring that those healthcare workers working at the forefront of the pandemic had regular meals, adequate sleep, peer support, supportive therapy and other mental health interventions that could reduce psychological distress. The unsupportive and uncaring nature of healthcare managers was documented in other studies as well. A study by Han et al.[368] found that healthcare workers were disgruntled by their organisation's inability to respect the human rights of their personnel, poor planning, and lack of human resources and personal protective equipment. Organisational health managers were found to be invisible and were unsupportive and did not check on employee's wellness regularly. Other writers also asserted that healthcare workers felt angry and frustrated as they believed there was no one to protect them in the work environment.[369]

The lack of care for EMS practitioners was also evidenced in the data. This is seen in the narrative that follows:

> *"They [management] sent him [colleague] to the staff doctor, and then all the results showed that he is not fit for work … and then the management warned him to be fit for work."* (P3)

Hence, even when EMS staff tested positive and were ill, managers expected them to continue working. Whilst it can be understood that there was a huge need for EMS given the mass number of people who were becoming critically ill, a more humane and staff-centred approach to those who tested positive and became ill was necessary. COVID-19 produced a plethora of symptoms, some of which were highly debilitating, particularly that of fatigue and shortness of breath. Being expected to be present at work and care for others whilst also possibly spreading the virus further was not only irresponsible but also reflected the lack of compassion for staff not fit for duty.

Others shared:

> *"I can say they [management] don't care about us as long as you're moving, you are fine to them [management] if they don't see what you feel, they don't care… it's all about their clients … we are just bumps in the seat."* (P3)

> *"You feel like you just thrown away …"* (N9)

> *"The only call that you get from the managers is to ask when are you coming back… when you come back, the only thing that you get from the managers is, where is the final report?"* (P3)

> "*So, when you started to say how you are feeling now in the mind of management, it's like this one doesn't want to work …It's all about work here.*" (P3)

This lack of care or concern for their fears was further evidenced as follows:

> *"Most of the time, if you receive a call, it doesn't matter if you are scared … you are uncomfortable if you have to wear your PPE [personal protective equipment] and do the call … there was no counselling."* (N5)

Healthcare workers are at greater risk of contracting COVID-19 due to occupational exposure.[268,370] The literature reflects the significant mental health burden placed on EMS practitioners by the pandemic.[371] A review of 127 papers on the effects of pandemics on healthcare workers reflected contemporary research that documented COVID-19 as a source of burnout and stress-related disorders.[372,373] Gupta and Sahoo[373], however, opined that much of these mental health effects could be attributed to a lack of support and communication from authorities and a lack of personal protective equipment. In fact,

researchers such as Du et al.[374] concluded from their research that it was imperative that frontline workers who were at high risk for anxiety and depression be more closely monitored. This was not the case in the current study, as EMS practitioners felt they had been discarded.

Hence, what was evident in the data was that management failed to recognise the emotional distress being experienced by participants. As one EMS practitioner shared, "They don't see what you feel." This reflects that management was oblivious to the intense psychological distress being experienced on the ground. The burgeoning research on healthcare workers found, for example, that they experienced decreased appetite, fatigue, difficulty sleeping, nervousness, frequent crying, and suicidal thoughts.[375] It is, therefore, possible to assert that EMS practitioners experienced similar symptoms but felt discarded by managers who prioritized patients. Whilst patient care is uppermost in the line of health care delivery, such care can be compromised by staff who are not physically or emotionally well. To this end Shen et al.[375] I called for managers to ensure that staff have regular psychological assessments so they can receive appropriate help.

According to Banerjee et al.[276] self-care strategies should be promoted amongst healthcare workers to ensure their well-being. He argued that managers should have promoted the consumption of regular meals, adequate rest and sleep, work breaks and greater peer and mental health support. In fact, the World Health Organisation[376] published a document that detailed strategies that healthcare managers and workers could adopt. Acknowledging the huge levels of stress being brought to bear on front-line healthcare workers, they advocated for them to have greater rest and sleep, practice eating healthy meals, participate in physical activity or exercise programs and stay connected with loved ones using digital technology. More importantly, they encouraged healthcare managers to be aware of the mental health stress being experienced and to prioritise the availability of psycho-social support to their staff. Despite this call being made to managers, it would appear that staff received lesser levels of support from their managers.

In the worst-case scenario, one participant reported that management never kept their status confidential. He said:

> *"Once you tell the manager about your situation, everyone knows your diagnosis."* (N9)

This excerpt reflects the breach of trust and confidentiality during the pandemic. COVID-19 exacerbated levels of stigma and ostracism, and hence, when other EMS staff became aware that a particular staff had been infected, they potentially experienced stigma and greater levels of ostracism. At the height of when staff required greater support, they experienced rejection as follows:

> *"If you enter the manager's office, you'll see him [the manager] get up to open the door… in my mind, he does not want my breath near him, so he goes out not to be in the same room with me, those were the things that stressed me but you have to accept it, because that's the reality of the disease … you also got that thing in your mind that I don't want to infect somebody else again so when I came back I quickly wore a mask."* (N11)

Research abroad also found that healthcare workers had expressed a desire to receive greater support and encouragement from their managers.[377] It was found that managers preferred to use electronic forms of communication and did not appear to understand the rapid changes linked to their work during the pandemic. There were too many emails from various different managers with multiple changes that they could not cope with. Most importantly, it was found that managers lacked an understanding of the resources required to function during the pandemic, lacked concern for how they were coping, or required rest to function optimally at the height of the pandemic.[377] Other researchers also noted similar challenges, particularly the lack of readiness to deal with the challenges associated with the pandemic and the failure to ensure a reasonable workload, as mistakes were inevitable when working under conditions of fatigue and multiple emergencies.[378] It is not surprising then that health researchers called for greater social

support networks and the need for support using video calls and virtual meetings to sustain social relationships.[304]

Studies undertaken in India also found that EMS practitioners working with COVID-19 patients experienced additional stress in their work due to changes in their work routine and uncertainty in executing their duties due to the changing face of the pandemic. The increased workload exhausted EMS practitioners and caused them to become angry when they were dealing with members of the public who didn't understand the situation of healthcare workers. Moreover, unpredictable work shifts, where participants had to work unusually late or double shifts, prevented them from going home to spend time with their loved ones.[379]

4.3.7.2 Policy changes

> *"They [management] should look at these policies that will guide us on what we can't and can do … certain things that we can do as long as we got the proper PPE [personal protective equipment]."* (P2)

EMS practitioners also called for changes in policy, as above, saying that policy should be able to guide which guided them on what they could do within the context of the pandemic. They emphasised, however, that their roles should be supported by having personal protective equipment. The need for support from leadership and management is evidenced in the data presented, which documented the huge physical and mental health challenges that the EMS practitioners experienced. Writers have affirmed that under normal working conditions, healthcare workers experience greater work stress than the public. As such, it is critical that healthcare leaders be aware of the psychological distress experienced by workers and put mechanisms in place to provide support to employees and their families.[310] Research abroad has documented that healthcare workers received poor organisational support, and found that managers did not visit them, enquire about their well-being, and often had to endure long shifts, with an increased workload and fewer staff being available.[298] Policies that address these multi-faceted

issues are critical to ensuring the well-being of staff working at the forefront of the pandemic.

4.3.7.3 The lack of resources

> *"So, I had a nice connection here with the hospital staff, so if I needed more stuff [personal protective equipment], I would go over, but I didn't tell Mr … [manager] that because he [the manager] was supposed to fix the problem, not me. It wasn't my problem …"* (P1)

The excerpt highlighted the lack of support EMS practitioners experienced from managers to secure personal protective gear. They needed managers to be more aware that the gear was essential to their safety as front-line workers who worked with COVID-19 patients. Research in other contexts highlighted similar difficulties that EMS practitioners experienced. A study in Iran among healthcare workers found that they were becoming increasingly depressed, having to work for long periods of time with sick patients, and having little time with colleagues and family members. They further voiced that management had failed to recognise the difficulties linked to their working conditions. This included a lack of a pre-set action plan, a lack of preparation, minimal human resources, a lack of testing kits, insufficient personal protective equipment and a lack of medical equipment to ensure effective patient care.[333] This coheres with the participants' voices in the current study.

4.3.7.4 Manager-related challenges with staff

In this third sub-theme, managers reported the challenges they experienced with EMS staff. In one of the first threads emerging under this sub-theme, managers reported the difficulties they experienced in getting staff to respond to COVID-19-related calls.

"Then as a manager, you'll have to tell your staff, you must get on the vehicle, and you must go to these cases and working in Khayelitsha is unique because the majority of our staff here they work on myths, this belief and that belief and it was like I've never seen people try to run away from doing calls." (FG2)

"They [EMS staff] had all the excuses, and the difficult part was, as the management team is now, and I was the second in charge … it's like now I have to consider is it my safety …is it the organisational safety." (FG1)

As evidenced in these narratives staff were very reluctant to do these calls, which caused managers to become stressed as help was needed from patients who were ill. Even though myths and various community beliefs may have influenced the EMS practitioners to shy away from these cases, the need for them to uphold their duty regardless of risks was critical during the pandemic. Managers even had to deal with staff who became very aggressive when assigned to transfer patients with COVID-19. This is reflected as follows:

"Staff would come up to you [manager] and say you put me on this COVID vehicle, do you want to kill me? Do you have something against me? As a manager, you need to compose yourself in front of that person [EMS staff member]." (FG4)

Another manager shared a dilemma related to the sterilisation of the equipment as follows:

"They [EMS staff] would still question you, to see what's your answer as a manager … because after doing the ventilator transfer they ask you, what should we do with the ventilator and you're gonna say we're gonna have it gassed [sterilised], we're gonna replace the pipes which are part of the

patient's circuit and then we can continue, but they [EMS staff] would ask how do we know that the virus is not in the ventilator? Now these certain questions you can't answer. So what you do is you take the ventilator and clean it yourself." (FG5)

As reflected above, managers found it difficult to convince staff to sterilise equipment. Staff's unwillingness to sterilise equipment out of fear caused staff to refuse to use the critical equipment required for the transfer of COVID-19 patients. Furthermore, managers did not have enough knowledge to deal with staff inquiries and issues.

As a result of this, the managers themselves became excessively stressed. They shared:

"A lot of times managers broke down, but now you can't break down in front of the staff. You would not go around the corner, go kick something or do something because of the unknown." (FG8)

"We [EMS managers] were under a lot of strain. We were like fuses. The moment a person would push you in a corner, you would explode, but now you need to compose yourself." (FG2)

Other issues that frustrated the managers were the fact that the sanitiser would disappear. Whilst staff may have wanted this to protect their families, it was more crucial that those working at the direct interface of the pandemic be protected.

"There were times when you got so angry because people used to take even the sanitiser. You put the sanitiser on the vehicle [ambulance], and the next minute, it's gone because they [EMS staff] needed to protect their family." (FG3)

“That bottle [sanitiser] disappears because he [EMS staff member] wants to take it home. When he gets home, he wants to make sure his family is safe, and he wants to wash. So, there was limited stock.” (FG3)

The removal of sanitisers from the work environment resulted in a confrontation between EMS practitioners and managers, as the stock of essential items like sanitisers was low.

“We were in near confrontation with the staff member for whom I put a sanitiser there because everything was limited to a bare minimum. There was not enough.” (FG4)

“People used to take extra things to protect themselves … so that panic came in so if there were, like, filters. They would take two extra to keep for themselves…that was even with the masks because it was really the survival of the fittest. If you don’t take the things and take care of yourself.” (FG5)

Managers also expressed that they grappled with having to tell EMS practitioners that they had to deal with COVID-19-related calls. This personal dilemma on the part of managers was narrated as follows:

"As the manager telling the staff now you need to go, you need to do this [responding to COVID-19 calls].” (FG7)

“How do you tell somebody, listen, you still have to do your work when you know how dangerous it could be … how dangerous it is.” (FG1)

Another aspect that was of more serious concern was the resentment from EMS practitioners who had to transport COVID-19 patients.

> *"They [EMS staff] were saying, so I'm transporting a COVID patient. So if I'm going to die of COVID, I'll come and change here."* (FG5)

> *"If that person tells you no, I'm not feeling too lekker [well] I think I'm going home. They just cough, and that was the other thing. Whoever coughed around you wanted to run as far away from that person as possible, and that was probably done … when it is like they would cough in your direction, like they are giving you COVID because I had the COVID case yesterday and the fight back, yes, but that was that tension."* (FG6)

These excerpts reflect how EMS practitioners became retaliatory towards managers due to their fears and frustrations. While this is understood, creating heightened tensions is unacceptable given the multiple and new issues managers were confronted with during the pandemic. As evidenced above, some staff wanted to deliberately infect others by coughing in their direction as retaliation for being dispatched to transfer COVID-19 patients.

The delay in responding to COVID-19 calls, to the detriment of patients, was evidenced as follows:

> *"The minute they came here to don their suits [A40 suits]. It will take them an hour out of fear of taking it, two hours to do the call. Another hour. So, with one patient, you have lost plus or minus 4 to 5 hours"* (FG2)

This excerpt suggests that those EMS practitioners who were forced to work with COVID-19 patients were resentful of the same and hence endeavoured to change in an area where others could potentially be infected. The insinuation was that they did not want to

be the only ones struck by the virus. Regardless of how sad and afraid they were, deliberately attempting to jeopardise the safety and health of other fellow EMS practitioners was not only unethical but also reflected the deep levels of fear being experienced in relation to the virus. This fear is evidenced in an excerpt that reflected the feelings of one of the EMS practitioners:

> "They s*ay it's a confirmed case; just transport it, and don't come with stories. Then it was the big issue here … they said I can't communicate with our manager… I don't want to transport, although I've got the qualification and the equipment … I said it's not about the qualification."* (P9)

This narrative reflects the tensions between managers and EMS practitioners who were tasked with transporting a COVID-19 patient. Despite having both the qualifications and equipment, staff were evidently reluctant to transport the patient due to personal fear.

The tension between managers and EMS practitioners further emerged over issues related to the transportation of COVID-19 patients. Whilst at surface level, it would appear that only Black staff were being tasked to transport patients, the reason for same is that they fitted into the smaller A40 suits, as opposed to their larger counterparts, who had a Coloured racial background. Hence, instead of seeing the broader reasons, EMS practitioners accused managers of being racist as follows:

> *"People will even question you as being racist because you have in the so-called Colored community more obese staff [EMS staff], and they don't fit into these A40 suits, whereas more in the black community where the culture is not eating meat every day, they are thinner … So now that question will be in your face as well."* (FG1)

In addition to sanitisers disappearing, oxygen tasks also became sought after during the pandemic. They also started disappearing like the sanitisers. This was reported by the managers as follows:

> *"So, the oxygen, more oxygen was one of the major issues as well."* (FG5)

> *"We realised that we were losing oxygen tanks. People [EMS staff] were taking oxygen home with them, with the sanitiser and all."* (FG3)

EMS practitioners and community members were also asking for oxygen tanks for the following reasons:

> *"What put a lot of pressure on us was the disappearance of oxygen tanks. People wanted the oxygen. You go to someone's house, they asked, can't you leave that tank [oxygen bottle] here with me?"* (FG7)

> *"A lot of people would ask us for oxygen, yeah. Not just our own families, but people who knew us, even of the staff who come to the manager and say, listen, I need oxygen for my mother."* (FG8)

The disappearance and lack of oxygen tanks meant that EMS practitioners could not be functional. This was problematic due to the high number of COVID-19 patients, who also required oxygen. This was shared and discussed as follows:

> *"That caused a major problem because when a guy [EMS staff] goes on the road, the manager's duty is to ensure that he has all his equipment in order to do his job, so if he hasn't got his oxygen, we can't call him in service."* (FG7)

"Oxygen is what we needed. That's one thing we needed … extra oxygen tanks." (FG6)

Other issues emerging in the data are related to challenges managers experienced with staff, the exploitation of leave, and high levels of absenteeism. This was reported as follows:

"Remember at the beginning if you were symptomatic. It's automatic seven days of isolation, so there was a lot of seven days for people [staff members] even with no symptoms at all." (FG)

"So, you had a case of I'm not feeling well. I'm coughing. It's seven days at home. You didn't need a sick certificate. You don't need whatever. So, some staff took advantage of that. So, we have lots of absenteeism as well." (FG7)

Managers shared that some staff wanted to purposefully infect other colleagues and managers as retaliation for being dispatched to COVID calls, as follows:

"Now you give me one COVID case that's enough for me to expose the next one. Remember, in the beginning, I said if I'm going to die of COVID, then you all of you might as well die of COVID, and that was the myth that was going around." (FG3)

4.3.7.5 Recognition and appreciation

Another sub-theme that emerged in the data pertained to the lack of recognition and appreciation felt by EMS practitioners. They believed that management adopted a

punitive stance towards them instead of appreciating the work they did. This is reflected as follows:

> *"The management is just there to discipline you … It's just there to see what is wrong that you do and then they will come after you … management is here to make you fear them."* (N11)

Others lamented that their work went unrecognised and shared that they would appreciate having their work affirmed. This was shared as follows:

> *"There was no one who says thank you or say a good job today …"* (N4)

> *"Call briefing is so important because the specific one is the positive feedback… you say thank you and the pat on the shoulder and say guys, you were awesome. Those types of things, I mean, it's critical."* (N11)

Managers concurred with the sentiments of EMS practitioners, saying:

> *"Make them [EMS staff] realise that you are worth something because there's another thing in the uniform structures people will say, no, you don't care. I'm supposed to care, but you don't care because you're giving nothing. So, give them something [recognition]."* (FG3)

> *"We have to commend the staff as well; no matter what the question is, they [EMS staff] still went out and did the call."* (FG4)

Empirical research has found that healthcare workers yearned for support and recognition from their colleagues during the pandemic. It was found that praise together

with public gifts increased their morale, and being referred to as the "heroes of the pandemic" bolstered their spirits and made them feel that they were not alone in the fight against COVID-19.[368] Studies such as those done by Razu et al.[380] cohere with those in the current study, where nurses felt very unappreciated. One participant in their study voiced that doctors get all the recognition. Other studies found that despite working long additional shifts, healthcare workers received no incentives, recognition or appreciation, which added to their mental health burnout.[159] Other researchers, however, found that healthcare workers felt more positive when they received messages of gratitude from friends and patients.[381] The issue of workloads emerged as a further challenge amongst staff in the narratives that follow.

4.3.7.6 Workload

EMS practitioners shared that they were overwhelmed by the high caseloads. One said:

> *"The pressure was too much. So, when pressure is too much, you become angry with small things. Nothing makes you happy."* (N10)

Another shared that they had to accept their high workloads as an organisational issue, as they needed to support their families as follows:

> *"I just told myself. I'm here for myself and my family. This is how the organisation is, so you just accepted it."* (N6)

A manager shared, however, how some staff had to carry a higher caseload in order to accommodate those high-risk staff who stayed at home due to Department of Health policy at the time. He cautioned as follows:

"Do not put people on the island or isolate people because that was one of the biggest mistakes that our Department or the Department of Health did, like just to say, you are high risk one side so you are having now that burnout syndrome because the same people used to come to work every day or they were here all the time or you could not even rest." (FG5)

The most significant issue emerging from the above quotes was the pressure created by the increase in patient numbers and the consequent burgeoning workload during the pandemic. Other studies done abroad found that the pandemic increased the workload for most healthcare workers.[382] As such, these researchers urged managers to increase their communication with front-line staff to ascertain the difficulties employees were experiencing at work. The research documented that protracted working hours, disruption to personal and professional life, having to constantly take extreme precautions due to the lack of protective equipment, a lack of clear guidelines from management, and increased social isolation collectively coalesced to contribute to the high levels of depression amongst health care workers. This was reflected in one of the narratives above, where one EMS practitioner similarly shared that work-related pressure was immense and "nothing makes you happy." This alludes to the dissatisfaction amongst this sector of healthcare workers. This discontent resonated with data emerging from international studies where participants reported that they were expected to work longer shifts than normal and also received no compensation for working within these hazardous environments.[383] Asnskew, Amha and Kassew[384], therefore, opined that it was crucial that programs be developed to care for female employees and those with medical illnesses, those who lacked social support, employees whose families had chronic illnesses and those who were in direct contact with COVID-19-positive patients.

One of the EMS practitioners, however, voiced that he was willing to conduct his duties as follows:

> *"I'm fit enough to work. I'm healthy, but I have a chronic illness. Isn't there some way in an organisation you can just slot me in the supply chain? Don't let me stay at home; slot me in there. Slot me in a different section; somewhere there must be a loophole, but don't let the staff that can work stay at home"* (FG3)

Although the above participant shared that he wanted to be at work, he was sent home due to his increased susceptibility to the virus due to his co-morbidity. These issues interrelate and should be factored into discussions around workload.

It is against this backdrop of data emerging from the study that Feroz et al. [385] commented that pandemics uncover the cracks within a country's health care system and the ability of government structures to preserve health care, its economy and society. Studies have found that healthcare workers encountered immense mental stress due to a lack of treatment regimes, and safety protocols and the failure of healthcare administrators to coordinate their activities effectively.[380] Although EMS practitioners did not work within the direct hospital milieu, scholars described such spaces as " chaotic" and "a huge nightmare."[383]

Aminizadeh et al.[386] voiced concerns about the lack of preparedness amongst developing countries to deal with biological outbreaks. They added that disaster preparedness should involve the capacitation of hospitals and staff, identical national protocols, and standards for preparedness in biological disasters. They added that strategies for such disaster management should include "effective training; proper management of resources, proper safety system deployment; enhancing risk perception of managers, staff; and referring people; timely informing; development of syndromic surveillance system; increasing laboratory capacity; and proper patient management," which collectively can prepare hospitals and health care workers for these events. Data presented in the preceding sub-sections, however, illuminate the poor preparedness of the public health sector for the COVID-19 pandemic and the lack of support and required infrastructure under which the EMS practitioners functioned.

In this vein, several other authors also argued for preparedness for biological disasters, calling for greater infrastructure preparedness, management of the influx of patients,

having the requisite equipment, developing policies and standard operating procedures and ensuring the adequacy of hospital beds.[2,387] Moreover, these scholars called for enhanced human resource training that includes donning and doffing personal protective equipment, infection prevention and control, managing patients with COVID-19, contact tracing and testing, and redeployment of human resources to more affected areas.[386]

In summary, participants believed that management had become disconnected from their needs during the pandemic and that they remained hugely unsupported as they grappled with the new virus. The narratives under the last theme mainly reflect the deep cry for help and the need for more significant support at the managerial level. COVID-19 has compelled society and researchers to acknowledge a new type of "mass trauma."[388] The virus has struck every part of society and created tremendous "anticipatory anxiety" related to its spread, the fear of becoming infected, the unavailability of effective medication, isolation, financial distress and a changed way of living. As such, it was posited that medical system workers should be given special consideration due to post-traumatic symptoms.[388] Considering this and the plea for greater involvement by management, management must recognise the need for their visibility amongst front-line EMS practitioners and the need for greater emotional support to ensure that they cope with the multi-faceted issues birthed by the pandemic. Even after the lockdown, many healthcare workers grapple with post-traumatic syndrome symptoms and need help and support to counter the debilitating emotional aftermath of the initial waves of the pandemic. Consequently, greater sensitivity is required amongst managers and the need for government leaders to address institutional leadership practices, organisational preparation and communication, unjust allocation of work and roles and the lack of resources, which has led to discontent and stress amongst healthcare workers during the pandemic.

4.3.7.7 Future planning

Consequently, future planning for pandemics appeared as an essential thread in the data. Managers made the following suggestions and recommendations.

Based on their experiences within the first few waves of the pandemic. They said:

> *"Train a designated squat, and then from there, you train more people. But just if it happens, like I say, be prepared. Worst case scenario, I have my specialists in the field that will deal with this initially, and it must be not just from the bottom, it must be right from down."* (FG6)

> *"Systems are very important. You've got to have systems … but you have to have the finances to run those systems, and I think that is one of our major stumbling blocks when it comes to implementing systems; we don't have the finances for the continuous training for the specialized equipment and for all of that stuff."* (FG2)

Another shared:

> *"We need to get the right people in those positions to identify our needs and then put the right systems in place for our needs. I think that is the most important part."* (FG6)

One of the most important recommendations emerging related to the need for designated, specially equipped ambulances, which would focus specifically on COVID-19 patients.

> *"Having the right vehicles equipped that they don't need to make some vehicles just have them right here. This is my COVID vehicle, or this is my vehicle for isolated cases."* (FG7)

Another manager discussed the importance of training as follows:

> *"Training needs to be ongoing, and people need to have refresher training … I would have a COVID squad, so I would train a designated COVID squad."* (FG7)

As alluded to in the excerpt above, it emerged that it was necessary to train a designated COVID squad to deal with COVID-19-related issues.

Others anticipated further waves that could be as debilitating as the first and called for greater preparedness as follows:

> *"Our job is to control the chaos but also not be part of that chaos. So proper ongoing training is important for team readiness … just to deal with infectious diseases."* (FG7)

> *"We've got to prioritise what is important in EMS. And I think at this moment in time, there's a new variant coming out every third or fourth month. So we've got to prioritise what is important and what is not important, and we work on those systems so that we can be ready."* (FG6)

The analysis of data from EMS managers during the COVID-19 pandemic revealed a clear emphasis on the need for strategic planning and resource allocation for future pandemics. Managers highlighted the importance of establishing specialised teams and advocating for the training of a designated squad as a frontline defence against pandemics. This approach is in line with the concepts of disaster preparedness and response, emphasising the need for specialised, well-trained teams capable of immediate and effective action in crisis situations.[389,390] Additionally, participants pointed

out a critical challenge in implementing robust systems: the lack of financial resources for continuous training and specialised equipment. This financial constraint is a significant barrier to the development and maintenance of emergency preparedness systems, as identified in public health literature.[391]

Furthermore, the data provided recommendations, which included the provision of designated, specially equipped ambulances for infectious diseases. This strategy would streamline response efforts and ensure rapid deployment in case of pandemics, resonating with studies emphasising the importance of resource availability and logistical preparedness in public health crises.[392] Ongoing and refresher training, particularly for a designated COVID squad, was another key aspect underlined by the managers. This continuous training is vital to maintaining team readiness and adapting to evolving challenges, as seen in the anticipation of further waves of the virus. The call for prioritising essential components in EMS, especially in the face of new variants, as mentioned by the participants, aligns with strategic crisis management principles that stress the importance of adaptability and dynamic prioritization in health emergency scenarios.[389,392]

4.4 Conclusion

Chapter four presents a summary of the data and a critical analysis of the findings. It reflects the significant challenge to the psychological resilience of EMS practitioners, who had to grapple with patient care without adequate preparedness, infrastructure and personal protective equipment. The data revealed pervasive levels of stress, anxiety and depression, which in turn supported the need for mental health interventions, particularly those that would nurture their wellness. The data reflected the acute shifts in the EMS landscape as EMS practitioners endured work shifts characterised by few resources and a precarious infrastructure, unpreparedness to intervene with patients with a new virus and the dreaded possibility of spreading the virus to family and colleagues. This, in turn, led to a narrowing down of their social and family network as they isolated themselves, which triggered greater levels of loneliness and helplessness. The study found then a deep need for holistic wellness interventions to deal with physical fatigue and mental health weariness by introducing exercise, counselling, and spiritually-based activities into the work milieu. The chapter that follows presents a summary of the critical findings and recommendations emerging from this inquiry.

CHAPTER 5: CONCLUSION AND FINDINGS

5.1 Introduction

This final chapter presents the conclusions and key critical findings derived from the study. It presents a synthesis of the primary findings derived through an inquiry into how EMS practitioners were affected physically, mentally, and socially during the COVID-19 pandemic. Chapter one reflects the beginnings of the research journey by detailing the background of the study and succinctly depicting the landscape of research conducted on how the pandemic affected healthcare workers and EMS practitioners. Chapter Two followed with a comprehensive and exhaustive review of contemporary literature related to how the COVID-19 pandemic affected healthcare workers. Chapter 3 contained a discussion of the research methodology used to guide the implementation of the research study. In Chapter 4, the data analysed was presented together with a critical discussion of the findings. This was supported by empirical research that corroborated the findings made. Seven main themes and thirty-nine sub-themes, which were uncovered during the analysis, formed the basis of the discussion underpinning Chapter Four. Chapter Five threads together these findings into a summary of the most critical ones made in relation to the objectives of the study, reflects on the limitations of the research study and provides recommendations for future research studies. The final chapter, chapter six, of this research proposes a wellness framework, which emerged through interweaving the data with the literature. It forms a guiding framework that EMS can adopt to help EMS practitioners heal from the complex and multifaceted challenges and stressors that they encountered during the pandemic. Of significance, however, is that the strategies that underpin the framework are valuable to protecting and promoting the well-being of EMS practitioners during the current pandemic as well as other future pandemics or health crises of a similar nature.

5.2 Summary of the main findings of the study

This study captured the experiences and insights of EMS practitioners as they transitioned through the COVID-19 pandemic. Daily life experiences altered dramatically within the context of the pandemic. This study highlighted the changing face of EMS

practitioners' relationships with colleagues, loved ones, and the community alike. They grappled with protecting their health whilst encountering deep emotional distress as they sought to deliver patient care in Khayelitsha EMS in the Western Cape of South Africa, often without the requisite personal protective gear and managerial support. Much of these findings align with contemporary research amongst healthcare workers, which portrays the deep struggles of the healthcare fraternity and the emerging picture of resilience and transformation in the face of such profound adversity.[299]

The COVID-19 pandemic prompted EMS practitioners to engage in deeper introspection with regard to the purpose and meaning of their lives and relationships with significant others. The study captured the often emotionally tumultuous and complex situations they worked in and presented a rich portrait of their emotions, struggles, and coping mechanisms used at the interface of work, home, and the community. Their insights on the immense onslaught on humanity through the COVID-19 virus were evidenced in the findings. Of significance, the study uncovered a gap in mental health support for EMS practitioners, which strengthened the need for a more robust plan to provide care for these frontline workers. What follows is a succinct overview of the key research findings as they interrelate with each objective. It further reflects that the objectives of the study were met.

5.2.1 The experiences of EMS practitioners during the COVID-19 pandemic

The first objective related to understanding the experiences of EMS practitioners during the COVID-19 pandemic at the Khayelitsha EMS base. The data revealed a turbulent journey that shed light on the psychological, professional, and personal facets of EMS practitioners' experiences. It captured EMS practitioners' struggles in navigating a health crisis unparalleled to any they ever experienced before.

The study evidenced the profound emotional and psychological impact of the pandemic wrought by the pandemic on EMS practitioners. Participants shared their deep fears of death and dying, which were exacerbated by their direct interaction with critically ill COVID-19 patients, often without protective gear. This, coupled with the infodemic or the overwhelming influx of pandemic-related information, contributed to more significant fears related to the rampant spread of the disease and mental distress over the same.

Many had to endure grief over the loss of colleagues, contracting the virus personally and their emotional struggles having to isolate away from loved ones. This not only affected them psychologically but impacted family members as well. Several endured long-term health challenges linked to long COVID-19 symptoms as well, which heightened their distress.

The study also found that participants experienced significant challenges in their work environment during the pandemic. These included a notable lack of preparedness for the pandemic and the acute shortages of personal protective equipment (PPE), which meant that EMS practitioners were compelled to work in the direct milieu of the virus. Moreover, stringent sanitisation protocols were introduced, and ambulances often had to be deep cleaned following the transportation of a COVID-19 patient. The latter created experiences of ostracism at work, as certain colleagues distanced themselves from those tasked to respond to COVID-19-related patient calls. These altered interpersonal relationships and coalesced into even further isolation for certain EMS practitioners. The study found that it brought on greater levels of anger and resentment among staff.

Conversely, in some instances, the presence of positive support from colleagues created a sense of camaraderie and togetherness as staff rallied together to work during the pandemic. This was critical to enabling their mental well-being during such a stressful environment. These findings reflected the need for improved preparedness to deal with pandemics of this nature and more enhanced resource allocation within EMS systems.

The study also uncovered the changed nature of EMS practitioners' interactions with the community. It brought to the fore the community's fears about the virus and their reluctance to secure medical assistance at the hospital. Their isolation, frustrations, and protests highlighted the need for EMS practitioners to educate the community about the virus and advocate on their behalf in terms of resources required. EMS practitioners play a unique role amongst health care professionals, as they are those who work primarily in the home and community milieu. As such, they can easily be involved in public health education during pandemics of this nature.

One crucial aspect that emerged from the findings was the heightened effect of the pandemic on the family of EMS practitioners. Not only were EMS practitioners afraid they would transmit the virus to family members, but family members were afraid for the health

and safety of the EMS practitioners. Both EMS practitioners and loved ones had to contemplate the substantial socioeconomic hardship that could emerge if they lost a loved one to COVID-19. Whilst family support was crucial, the study further highlighted the intersection of professional responsibilities and personal life, which exemplified the need for a comprehensive program that includes family as part of a wellness approach for EMS practitioners.

Due to the unpreparedness of the health sector, when the pandemic struck, there were many gaps within the infrastructure. Undeniably, this created a strain on managers and, consequently, EMS practitioners who had to work without equipment and support in a context where patient numbers were increasing. The study uncovered several issues, including the lack of adequate support from managers, resource constraints, ineffective policies that made it difficult to function optimally within the context of the pandemic, and the emotional impact of working under such stressful work conditions. Collectively, these pointed to an urgent need for systemic changes in healthcare management, improving support structures, establishing clear policy frameworks, allocating appropriate resources, and recognising the mental and emotional strain on healthcare workers so as to develop a more resilient healthcare system and workforce who were better prepared for future crises.

Furthermore, the data unveiled the intricate psychosocial dynamics between EMS practitioners and the communities they catered to, highlighting their cooperation at the community level. The fear of acquiring infections from EMS workers led to social avoidance and stigmatisation, significantly affecting their professional and personal lives. The pandemic led to changes in community dynamics and increased feelings of isolation among EMS workers, which paralleled worldwide patterns. Government workers, including EMS practitioners, frequently faced anger from the community due to economic hardships and frustrations. EMS workers played a crucial role in this situation by serving as both educators and advocates. Their primary responsibility was to spread accurate information about COVID-19, counteract misinformation, and address concerns and unsafe behaviours.

The findings offered a deeper understanding of the intricate difficulties EMS practitioners and their families encountered. The apprehension of spreading COVID-19 to family members, the emotional weight of personal infections, dealing with the loss of loved ones,

addressing family worries, and enduring socioeconomic difficulties exposed the intricate interaction between professional obligations and personal life. The significance of familial support in mitigating the psychological consequences of the pandemic was apparent, highlighting the need for interventions that assist healthcare professionals and their families during periods of crisis.

In summary, the study revealed the myriad ways that EMS practitioners were affected as the pandemic evolved. The impact on EMS practitioners' professional and personal lives highlighted the need for a holistic approach to creating wellness and support in healthcare that covered professional work-related issues, mental health well-being and the family context. These insights were invaluable in terms of formulating strategies to enhance the well-being of healthcare workers during future healthcare emergencies and pandemics. This will be considered when designing the wellness framework to be presented in Chapter Six.

5.2.2 The psychosocial effects of COVID-19 on EMS practitioners

The second objective of the study sought to explore the psychosocial effects of the COVID-19 pandemic on EMS practitioners. This objective was met, as the data reflected the profound impact of the pandemic on the mental health of EMS practitioners. The intense emotional distress they faced ranged from the trauma of testing positive for COVID-19, the experience of having to be isolated from loved ones during their quarantine period, witnessing patient suffering, the demise of colleagues from COVID-19 and their deep fears about losing their lives or that of loved ones. Given this substantial mental health burden, any wellness framework must include mental health support so that EMS practitioners get the requisite support to deal with the trauma linked to the aforementioned issues.

One of the most significant psychosocial stressors experienced by participants was the widespread fear of death. This existential dread emerged from working closely with COVID-19 patients, transporting them from home to the hospital. This dread was exacerbated by misinformation regarding the transmission of the disease, which led to vaccine hesitancy. This created extensive emotional anxiety and distress among the EMS practitioners. Moreover, the loss of colleagues and the prospect of long-term health

issues, commonly known as 'long COVID,' added to their fears and concerns. These concerns emphasised the importance of ongoing medical and psychological support for the affected individuals.

Within the work context, EMS practitioners also encountered a milieu fraught with frustration, ostracism, stigma and a lack of managerial support, which collectively negatively impacted their mental health. Despite these challenges, many EMS practitioners embarked on a transformative journey. They developed resilience, discovered a new sense of purpose, and realised the critical role of peer support in their emotional recovery.

The pandemic also had a significant onslaught on family life. The family is a critical support system that can buffer stress and contribute to individual well-being. The family, however, came under immense stress as people lost their jobs and suffered immense financial hardship. Interpersonal relationships between parents, children, and spouses were also affected due to periods of quarantine and because EMS practitioners had to isolate themselves from loved ones often after a day at work. This added to the mental anguish experienced as close intimate relationships were literally severed. These findings reflect the inseparability of the professional and personal life of EMS practitioners and again demand that family support be factored into a holistic wellness program.

5.2.3 Coping with personal and work-related factors

The third objective focussed on understanding how Emergency Medical Services (EMS) practitioners coped with personal and work-related issues. The personal and work-related challenges birthed by the COVID-19 pandemic unveiled an intricate amalgamation of emotions, anxieties, and strategies used by EMS practitioners to cope.

Despite these daunting challenges, many EMS practitioners described COVID-19 as a life-changing transformative experience. They shared that they developed resilience through support from family, friends, and spiritual support systems. Moreover, they rediscovered a sense of purpose and gained a deeper appreciation for life due to observing its transience. Peer support became critical in assisting them in coping with

working at the forefront of critically ill COVID-19 patients. This enabled them to find strength and solace through sharing their experiences.

The mental health difficulties experienced by EMS practitioners during the pandemic were profound. The combination of being directly exposed to the virus, witnessing its deadly consequences, worrying about one's health, going through quarantine, and having family responsibilities resulted in considerable psychological distress. These findings emphasise the need for specific mental health assistance and interventions, especially for healthcare professionals in high-risk positions such as EMS practitioners.

5.2.4 Psychosocial aspects that enhance emergency medical services practitioner's wellness within the context of the COVID-19 work environment.

The third objective focused on exploring the psychological and social aspects that enhanced EMS practitioners' wellness. As discussed under the second objective, the psycho-social well-being of EMS practitioners was disrupted by observing the anguish and fatalities of critically ill patients, which intensified their apprehensions about mortality. Their loss of co-workers, commonly perceived as an expanded kinship, imposed a further emotional burden on them and intensified their vulnerabilities.

A plethora of activities emerged as being important to reconstructing the well-being of EMS practitioners. The study found significant support for individual counselling to be offered to EMS practitioners to help them deal with their fear, anxiety, and grief over the loss of loved ones. In addition, they called for peer debriefing groups to be implemented. This is an important intervention that can support psycho-social well-being, as debriefing following the transportation of a critically ill patient or after witnessing their demise is essential. Moreover, such debriefing is crucial when colleagues have passed on. The study further found that spiritually based activities were an essential part of enhancing psychological well-being. Participants reported that prayer provided crucial emotional support during moments of deep distress. In addition, the study found support for physical activity programs, particularly those that could become entrenched within the daily landscape of EMS practitioner duties. Moreover, there were suggestions to include

creative activities like dancing and listening to music to support their psycho-social wellness.

The COVID-19 pandemic exposed inherent deficiencies in EMS management, such as inadequate managerial assistance, inefficient resource allocation, and problems in policy formulation. These findings emphasise the necessity of enhancing managerial support, establishing clear policy guidelines, effectively managing resources, acknowledging staff contributions, and engaging in proactive planning for future crises. These measures aim to improve the effectiveness and well-being of EMS practitioners during public health emergencies.

5.2.5 Wellness-enhancing framework for EMS practitioners transitioning through a pandemic.

The study also discovered many potential wellness interventions that could strengthen mental health well-being and stymie the effects of the trauma they experienced. In this vein, EMS practitioners suggested the need for counselling, opportunities for regular debriefing, peer support groups, physical activities, creative activities that included dance and music, as well as other spiritually based activities.

In the data analysis, the study highlighted the importance of providing better support from managers, clear policy guidelines, adequate resources, and recognition of the efforts made by EMS practitioners. The challenges encountered during the COVID-19 pandemic pointed out the importance of efficient communication, the proper distribution of resources, and the prioritisation of the mental well-being of healthcare professionals. To tackle future pandemics effectively, it is crucial to implement a systematic approach that prioritises specialised training, preparedness in terms of resources, and robust support systems. Implementing this approach is essential to guarantee the safety and efficacy of EMS practitioners. The global pandemic has offered healthcare systems worldwide valuable knowledge in crisis management, as evidenced by the experiences of EMS practitioners.

A draft framework was developed based on data gathered from EMS practitioners and managers in Khayelitsha. This framework was then reviewed and approved by a

committee of experts. The study's theoretical foundations, specifically the research conducted by Myers, Sweeny, and Witmer[44], served as the foundation for the study and significantly influenced the literature review, thus contributing to the development of the framework. This framework was purposefully developed to propose strategies for improving wellness among EMS practitioners as they encounter the difficulties of a pandemic. The specificities and complexities of this framework are further elaborated upon in the following chapter.

Reflecting on the research conducted, it is clear that the study's objectives were met, and the research questions posed at the outset were thoroughly addressed throughout the research process. However, it is critical to recognise that all research endeavours have potential limitations. Recognising this, the following section of the study discusses the limitations of current research. This acknowledgement of limitations not only demonstrates the thoroughness of the research process but also opens the door for future research to build on and address these identified gaps.

5.3 Limitations of the Research

Several limitations were evident in relation to this study.

- Firstly, due to the turbulent nature of the COVID-19 pandemic and the lockdown regulations that occurred at different times, the scheduling of data collection became problematic. Moreover, because the EMS practitioners themselves were involved in patient transportation, their availability was dependent on their work and health.
- Thirdly, the study's focus on the Khayelitsha EMS base within the Western Cape Province of South Africa might limit its broader applicability. While the findings offer potential generalizability, this context-specific focus could affect the relevance of the findings nationally. This may be offset by the fact that the Khayelitsha community was hardest hit by COVID-19. Hence, data gathered in relation to the EMS practitioners' experiences were rich and can be relevant to other similar settings nationally.
- The study focused on the EMS experience at the Khayelitsha base. An extension of the location to include other EMS settings would have enriched the

understanding of the EMS practitioner experience in different EMS settings. The use of a qualitative design, specifically an instrumental case study, however, although less common in EMS research, guided in-depth insights into the EMS practitioner's experiences, specifically at the Khayelitsha base.

The limitations above are acknowledged, and every attempt was made to offset them to ensure the trustworthiness of the data. The following sub-section details the recommendations made to address these gaps and expand the understanding of the psychosocial challenges that EMS practitioners experience.

5.4 Recommendations for future research

Based on the findings, several recommendations for future research can be made. These are as follows:

- A comparative study that explores how EMS staff and other healthcare workers, namely nurses and doctors, were affected during the provisioning of health care services during the pandemic.
- A study that explores how other EMS staff were affected globally during the pandemic. Data from other countries will help make valuable conclusions regarding factors that can optimise healthcare service delivery in South Africa.
- Research various wellness programs so that a state-of-the-art wellness program that will benefit healthcare workers can be developed for the South African EMS service.
- To investigate the benefits of a wellness program for EMS staff in order to explore the efficacy of such interventions for EMS staff.
- A mixed-method approach to allow for the exploration of not only the depth of individual experiences but also the ability to generalise findings across larger populations, thereby potentially yielding richer and more diverse outcomes.
- Future research could enhance the depth of analysis by including a larger and more diverse sample of stakeholders. Additionally, a comparative analysis across different sets of sampled units on selected parameters could provide valuable insights and further strengthen the findings.

5.5 Other recommendations

A few other recommendations can be proposed based on the findings of the study.

- Firstly, as evidenced, the development of a comprehensive wellness support program to support EMS practitioners is essential. Such a program should aim to support practitioners' overall wellness and benefit their personal and professional lives.
- Secondly, it is crucial for EMS management to partner with other organisations, such as religious, sporting and social organisations, to strengthen the delivery of wellness activities and interventions that can enable the physical and psycho-social well-being of EMS practitioners.
- Thirdly, it is recommended that a policy be developed to implement a wellness framework for EMS and/or allied health practitioners. This framework will ensure compliance with legislation and the allocation of financial and human resources, enabling the wellness of healthcare practitioners.

5.6 Conclusion

Wellness is a complex, multidimensional concept that was profoundly affected by the COVID-19 pandemic. The COVID-19 pandemic, which was an unprecedented global event, had severe ramifications for the well-being of EMS staff at the Khayelitsha base in the Western Cape. Undeniably, those working in the emergency medical services sector experience heightened stress due to the nature of their work. However, the advent of COVID-19 unearthed even greater levels of anxiety, fear and distress due to the potential of contracting the virus in their work milieu. Moreover, relationships between EMS staff, their families, colleagues, and community members alike were disrupted in an unusual way, creating increased isolation at a time when emotional and social support was critical.

The trauma birthed through working at the interface of the virus in an intimate way, bearing witness to the suffering and demise of loved ones, colleagues, and patients, inevitably coalesced into a myriad of issues that will affect the well-being of EMS staff for the next several years or even a lifetime. Despite the aforementioned challenges, several positive outcomes emerged, which included greater collegial bonds amongst EMS practitioners who rallied together to support each other in the face of the virus. These dynamics highlight the potential for more positive human relationships during times of

adversity. The support of friends and family, as well as the benefits of various spiritual activities, cannot be over-emphasised as part of a holistic approach to rebuilding wellness amongst EMS practitioners. Moreover, the support for physical activity to be built into wellness also emerged within the study. Group exercise activities that can strengthen team relationships and building are crucial to strengthening collegiality and bringing equilibrium to EMS teams at their respective bases. One of the most salient threads within an overall wellness program should, however, be managers who support and drive these various wellness interventions. These include, for example, family-inclusive support programs, economic assistance, and open communication strategies between EMS practitioners and staff to address the psychosocial and economic challenges faced by EMS practitioners and their families effectively. These are the various factors that will underpin the emerging framework, which will be presented in Chapter Six.

To restore the functionality of EMS practitioners, who bore the brunt of the initial waves of the COVID-19 pandemic, it is critical that a holistic wellness program be put in place. Such a program will not only enable healing at an individual level but also focus on the restoration of relationships with colleagues, family, and community alike. As such, a framework that interweaves these various facets together is presented in Chapter Six for consideration for adoption by EMS management.

CHAPTER 6: WELLNESS-ENHANCING FRAMEWORK

6.1 Introduction

This chapter brings the study to its close by presenting a framework to nurture and restore well-being and wellness amongst EMS practitioners who were affected by multifaceted issues at the height of the COVID-19 pandemic. This framework, which is presented in this final Chapter, was developed by interweaving insights from key critical data presented in Chapter four, together with insights from the literature reviewed in Chapter 2. Guided by the Wheel of Wellness, the theoretical framework adopted for this study, this chapter presents a structural framework aimed at enabling EMS practitioners' wellness through various proposed interventions. It was designed with the intent to guide EMS practitioners, industry leaders, management, and health leadership stakeholders.

6.2 Rationale for the framework

Despite extensive awareness about the importance of the well-being and wellness of EMS practitioners during the COVID-19 pandemic, little existed within an EMS context to create a structure for the implementation of wellness interventions. The COVID-19 pandemic catalysed a unique set of physical and psycho-social challenges, as evidenced in Chapter Four, which affected the well-being of EMS practitioners at the Khayelitsha EMS base. The myriad physical and mental health challenges brought to bear on EMS practitioners as they went about their work at the height of the pandemic caused significant disruption to their daily lives and depleted their usual coping mechanisms. The lockdown measures left not only the EMS practitioners but also the wider society bereft of their spiritual and other social support networks within the community. Work dynamics shifted dramatically, which resulted in meaningful work support systems being severed and colleagues distancing themselves from each other to prevent exposure to the virus. This isolated and, at times, hostile environment was found to exacerbate the loneliness of EMS practitioners who were infected by the virus or who had to endure working with patients who were gravely ill. Inevitably, the mental health burden on EMS practitioners was immense. What is paramount is a resilient healthcare system to offer healthcare services to patients, particularly in disadvantaged communities, who have no access to

healthcare. This is dependent on EMS practitioners, who, at the forefront of the pandemic, have to work in a very stressful and rapidly changing work environment. Their wellness undergirds not only their responses to various patient crises during a call-out but also affects the medical initiatives levelled at patients who are ill and their ability to make appropriate decisions around the same.

Hence, an under-resourced healthcare setting with a high burden of disease and escalating workloads needs to be strengthened by EMS practitioners who are well. This can only be achieved through targeted, context-specific, and evidence-based wellness enhancement interventions that can ensure that its staff are functioning optimally to cope with the rapidly changing healthcare environment in the face of a new and insidious virus.

Wellness is multifaceted. It is predicated on the notion that the physical, psychological, social, and spiritual aspects of a person's being are inextricably interlinked. Hence, interventions that address wellness for EMS practitioners should identify and focus on these holistic, multidimensional aspects of wellness. This notion underpins the proposed framework of this study.

The proposed framework has also been designed to enable the wellness of EMS practitioners beyond the initial intense waves of the pandemic. It considers, particularly, any post-traumatic stress that may have accumulated at the height of the pandemic but also includes interventions that will promote the overall wellness of EMS practitioners. This is also essential to building the resilience of EMS practitioners and their preparedness for any future health catastrophes as well as any personal calamities that they may face. The data emerging from the current study, in conjunction with the literature and the Myers et al.'s[44] model of holistic wellness, then informed the framework that was developed. A schematic representation of the framework is presented in the sub-sections that follow.

6.3 Relational Depiction of the Framework

The Myers, Sweeny, and Witmer[44] model includes a set of wellness dimensions that are influenced by specific life forces, as well as the external influence of world events. The model's basic concept is that various aspects of wellness and external circumstances

combine to form an integrated influence on an individual. Guided by the researcher's analysis and validated by an expert panel, a diagrammatic representation of the proposed framework is presented below. The EMS practitioner is positioned at the centre of the wellness framework and is surrounded by four overlapping contexts that interface with and mutually influence the EMS practitioner's wellness in a synchronistic way. The sub-section that follows describes some of the interventions embedded within each context identified in the proposed framework.

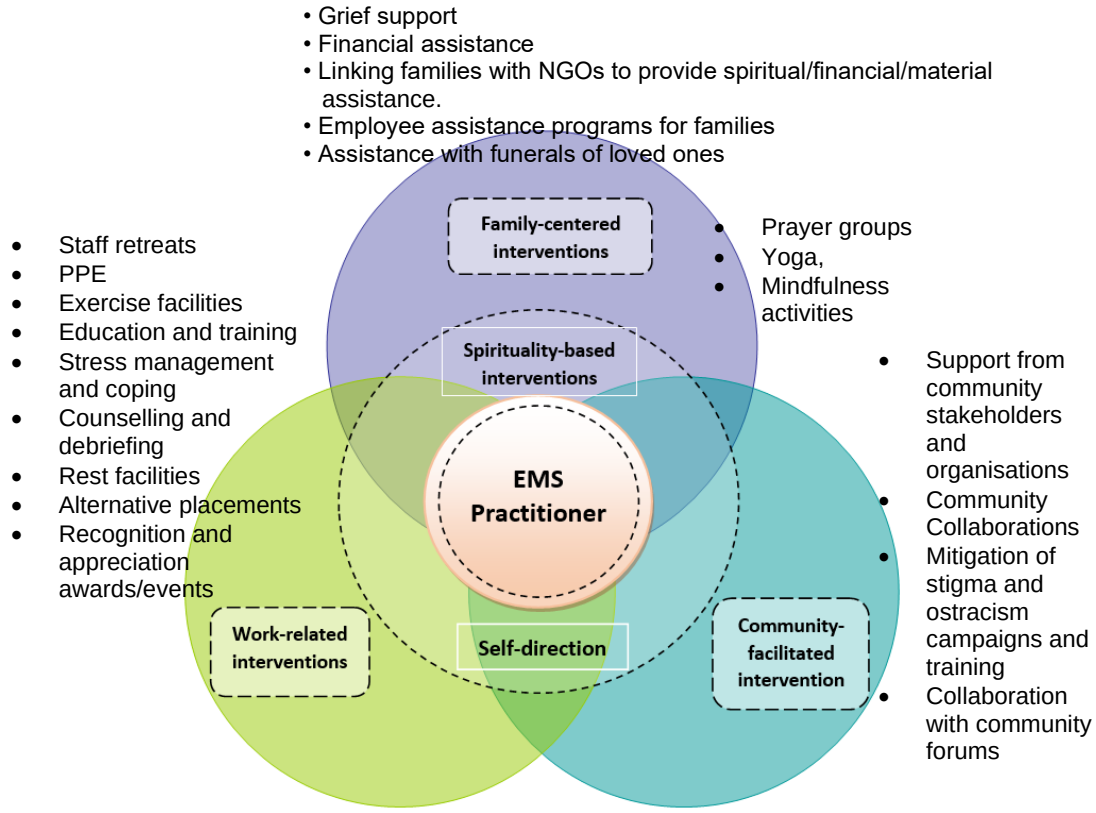

Figure 3 Proposed framework for wellness: key interventions and strategies

6.4 EMS Practitioner

As evidenced by the findings of the present study, the journey towards the personal wellness of EMS practitioners at the Khayelitsha EMS base was severely thwarted during the global and unprecedented events of the COVID-19 pandemic. Their ability to recover and regain their sense of wellness was undeniably affected by the magnitude of the

pandemic and the severity of the virus, which inevitably will affect many for the next few years, if not a lifetime. Hence, the proposed interventions should focus on restoring EMS practitioners' wellness and creating environments that allow them to adapt their journey towards health-directed goals and behaviours while remaining active in the emergency medical care profession. The interventions should target EMS practitioners at both individual and organisational levels while aiming to enhance the physical, psychological and social facets of each EMS practitioner’s health and well-being.

6.5 Spiritually based interventions

Spirituality, through its beliefs, practices and activities, can provide EMS practitioners with a way to cope with the intense stress and emotional toll that ensues through their professional duties. There are a multitude of activities that can be introduced under the realm of the spiritual context. These include prayer, meditation, yoga, listening to religious or spiritual music, reading spiritual texts and support from religious or spiritual leaders. Whilst most of these activities or interventions fall outside the purview of the work context, EMS managers can liaise with religious or spiritual leaders to introduce, facilitate, and lead some of these spiritual activities or interventions at work and outside the work context as well. Meditation, for example, has shown promising efficacy in the reduction of stress. When practised on a daily basis, it can provide peace and greater mental clarity and well-being. Hence, by offering meditation workshops, through guided sessions at the workplace or through digital platforms, EMS practitioners can learn deep breathing and meditative techniques to cope with the onslaught of stress they face at work and access them at their leisure. Another helpful spiritually-based activity that is gathering huge support globally is yoga. Yoga postures and exercises are known to reduce stress as they combine physical movement with mental focus, thereby assisting in stress reduction and improving overall physical health. Regular yoga sessions, facilitated by spiritual or yoga teachers, either in person or virtually, both in the work or community context, are deserving of greater consideration as part of the initiative to create wellness amongst this group of healthcare workers. Moreover, EMS managers can introduce such sessions, tailoring them to be included within the demanding schedules of EMS practitioners. Prayer groups can also foster a sense of community and shared understanding among EMS practitioners while also providing emotional support through collective spiritual

activities. Here again, they can be introduced collaboratively by EMS managers and spiritual leaders. Creating an inclusive environment by organising interfaith prayer groups or dedicating time for spiritual reflection or prayer can allow EMS practitioners to connect with their spirituality in a way that resonates with their personal beliefs. Thus, incorporating various spiritual practices into EMS practitioners' daily routines can significantly improve their mental and emotional well-being and is,, therefore,, a critical component within a comprehensive wellness framework.

6.6 Work-related wellness interventions

The work environment has been identified as a milieu within which a multitude of wellness activities can be initiated to promote the well-being of EMS practitioners. It includes not only the physical working environment but also the organisational culture and policies that influence EMS practitioners' day-to-day experiences. EMS managers can introduce various wellness interventions. These include music and dance-related activities, a poetry or reading club, and sporting activities that range from aerobic classes to jogging to the installation of an onsite gym. Other essential strategies to enhance wellness should include the recognition of EMS practitioner work and appreciation of the same through awards and special functions at work. Acknowledging the work of EMS practitioners in meetings or through awards are initiatives that boost morale and self-worth. Team retreats form another effective way to foster camaraderie and relieve stress. These retreats can offer a much-needed break from the high-pressure work environment whilst providing opportunities for team building and relaxation. Another important factor is financial wellness. These could include providing financial advice to help EMS practitioners make informed financial decisions. Moreover, countering prejudice and discrimination related to gender, sexuality and health can address various forms of ostracism and stigma through education and training and create a more inclusive and supportive workplace.

Furthermore, effective workload management is critical to preventing burnout. This was especially true during the time of the pandemic. Ensuring that EMS practitioners have adequate rest periods, understanding and addressing the needs of staff experiencing post-COVID symptoms through alternative placements, and implementing health screenings are critical to demonstrating empathy towards their circumstances and

enabling the restoration of optimal physical health. Moreover, the provisioning of adequate resources for EMS practitioners to function both effectively and safely is critical to their wellness. Not only is the correct equipment necessary, but training and education on using the same, particularly during times related to pandemic preparedness, is crucial. The utilisation of PPE during times of health crises and preparation to use and safely dispose of the same requires training. Equally important is manager capacity-building workshops, which must be initiated from the top to strengthen leadership during these challenging times and provide greater support to frontline workers.

In the EMS, support systems such as an effective employee wellness program are paramount to nurturing the wellness of EMS practitioners. Counselling sessions, debriefing sessions, and group therapeutic programs offered by qualified psychologists or mental health experts who can provide help, care and support are crucial to overcoming and coping with emotional distress. Even the introduction of a 24-hour hotline can introduce telehealth into the work environment. Finally, changing policies to be more accommodating and supportive of EMS practitioners' needs can significantly improve their working environment. This is especially true for staff with post-COVID-19 infections or disabilities. Improving the work environment then demands a multifaceted approach that addresses both the physical and psychological aspects of the workplace whilst considering their personal and home-related circumstances as well. The following sub-section explores interventions that can be introduced within the family context.

6.7 Family-centered interventions

The family is indivisible from the EMS practitioner, thereby making family presence and support a salient component of EMS personnel’s well-being. This was especially important during the COVID-19 pandemic, as EMS practitioners had to confront their fear of dying and the loss of loved ones. The findings from the current study suggest the need to include family-based interventions as a part of building and strengthening EMS practitioner wellness. Whilst separating personal life from professional life is important, interventions that reflect a commitment to healthy family life are essential.

One crucial strategy for employee assistance programs is to include family therapy programs to deal with family stress and loss. These programs can offer much-needed

counselling and support, thereby helping to nurture a healthy family life and buffer the stress emerging from any family-related crises. It is also important to recognise that many families endured the loss of loved ones during the pandemic. Employer-based grief support programs were important during the pandemic, as the loss of loved ones would have disrupted many EMS practitioners emotionally. Many would have lost parents, spouses or siblings, making it hard to cope, particularly if there were multiple losses. Assistance with the financial costs of funerals also deserves consideration. Additionally, the provision of food and daily living supplies would have provided much-needed relief, especially when EMS personnel were ill or needed to work long shifts during the pandemic.

Moreover, human resource departments should provide material relief and financial guidance to families, such as pension or child education support. This assistance can address the financial stresses associated with bereavement, providing stability and peace of mind to EMS practitioners. Furthermore, the study discovered the need for the EMS work milieu to connect families with non-governmental organisations (NGOs) so as to assist in crises, whether financial or material.

6.8 Community-based interventions

The proposed framework emphasises the importance of considering community-based interventions and activities to support EMS wellness. It suggests the importance of close partnerships and collaboration between EMS services and non-governmental and community organisations in responding to pandemics. These partnerships can also serve as a springboard for an array of activities that can improve the mental and social well-being of EMS practitioners. Very often, community organisations host a repertoire of sporting, recreational and charitable types of work that can offer opportunities to destress while contributing meaningfully to society. Participation in community forums is, therefore, critical for social support and recognition within the community. Particularly at the height of a pandemic or for health awareness, such partnerships are crucial to promoting health information. Moreover, EMS practitioners who participate in such forums can exchange information with community members, discuss community needs, foster trust, and

strengthen the bond between EMS practitioners and the community, leading to their acceptance and safety in community spaces.

As such, these organisations can play an important role in disseminating accurate information, reducing panic related to myths surrounding the virus, and providing moral support to EMS practitioners so that they can undertake their work effectively. Collaboration with the South African Police Services is also important to ensure EMS practitioners' safety and security. This collaboration ensures more effective emergency management and a coordinated response in crisis scenarios.

Furthermore, the study found that community stigma and ostracism were high, particularly amongst those infected in the community or those working in ambulance services. Community education programmes are, therefore, critical to dispelling myths and misinformation and thus reducing stigma. Strengthening work-community partnerships in an EMS context can occur through community outreach initiatives that can help create more supportive and understanding relationships with the community.

Through community outreach and volunteer work, EMS practitioners' psychological well-being can be uplifted, resulting in a resilient and supportive ecosystem for both them and the communities they serve.

6.9 Conclusion

With the depiction and description of the proposed wellness enhancing framework, which resides within four key contexts of wellness, namely “family”, “work”, “community “and “spirituality”, this chapter concludes this study. Emergency medical care is predicated on professional values, ethics, and aspirations that strive towards the health and well-being of those in their milieu. The challenges that emerged from family, community and the health sector coalesced during the pandemic and created a sense of urgency to better prepare for what may come next. There have been rising concerns that the novel coronavirus disease 2019 (COVID-19) pandemic can inflict long-lasting mental health problems on an unprecedented global scale. The magnitude of COVID-19, as exemplified in this study, has transformed the way health providers consider public health, economic security, social relations, and, of course, mental health.

The burgeoning contemporary research reflected an unprecedented level of human suffering caused by the pandemic, and a deeper understanding of its effects on the psychosocial well-being of healthcare workers, including EMS practitioners, may surface in the months and years to come. At a point in history when the world has been more economically and socially interconnected, it has still endured a prolonged, uncertain disruption of life that has compromised the safety, well-being, and mental health of those tasked to offer patient care warranting a reconsideration of how managers and leaders must care for the health care workers themselves.

As EMS practitioners grapple to recover from the onslaught of the COVID-19 pandemic on their emotional and mental wellness and the resultant health distress, self-wellness must be prioritised within the context of collective care and community wellbeing. In so doing, EMS practitioners will not only endeavour to look after themselves holistically but also support others to create transformative healing and build their resilience during and beyond the pandemic. In closing this study, the researcher offers the following quote as parting thoughts:

"COVID-19 has interrupted essential mental health services around the world just when they're needed most; world leaders must move fast and decisively to invest more in life-saving mental health programmes – during the pandemic and beyond."

Dr Tedros

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ANNEXURE A: DEPARTMENTAL APPROVAL TO CONDUCT STUDY

Western Cape Government
Health

STRATEGY & HEALTH SUPPORT
Health.Research@westerncape.gov.za
tel: +27 21 483 0866; fax: +27 21 483 5058
5th Floor, Norton Rose House, 8 Riebeek Street, Cape Town, 8001
www.capegateway.gov.za

REFERENCE: WC_202209_033
ENQUIRIES: Dr Sabela Petros

University of Cape Town
Anzio Road
Observatory
Cape Town
7925

For attention: Mr Radomir Cermak

Re: The impact of the COVID-19 pandemic on EMS practitioners in the Western Cape: strategies to enhance wellness

Thank you for submitting your proposal to undertake the above-mentioned study. We are pleased to inform you that the department has granted you approval for your research.
Please contact the following people to assist you with any further enquiries in accessing the following sites:

Emergency Medical Services	**Craig Wylie**	**021 508 4519**

Kindly ensure that the following are adhered to:

1. Arrangements can be made with managers, providing that normal activities at requested facilities are not interrupted and the constraints caused by the Covid-19 epidemic above are respected and adhered to.
2. Researchers, in accessing provincial health facilities, are expressing consent to provide the department with an electronic copy of the final feedback (**Annexure 9**) within six months of completion of research. This can be submitted to the provircial Research Co-ordinator (Health.Research@westerncape.gov.zc).
3. In the event where the research project goes beyond the *estimated completion* date which was submitted, researchers are expected to complete and submit a progress report (**Annexure 8**) and an updated ethics clearance letter to the provincial Research Co-ordinator (Heath.Research@westerncape.gov.za).
4. The reference number above should be quoted in all future correspondence.

Yours sincerely

PROF. V ZWEIGENTHAL
DIRECTORATE: HEALTH INTELLIGENCE
DATE: 14 October 2022
CC

ANNEXURE B: EMERGENCY MEDICAL SERVICES APPROVAL TO ACCESS RESEARCH SITE

Department of Health and Wellness
Mr Craig Wylie
Emergency Medical Services
Craig.Wylie@westerncape.gov.za | Tel: 0788005644

TO: MR R CERMAK

THE IMPACT OF THE COVID-19 PANDEMIC ON EMS PRACTITIONERS IN THE WESTERN CAPE: STRATEGIES TO ENHANCE WELLNESS (WC_202209_033)

Dear, Mr Cermak

Your request on the above matter refers.

Thank you for the request to conduct research within the Western Cape Government Emergency Medical Services. Your proposal has been evaluated and has been recommended for approval by this office.

I am therefore pleased to inform you that such approval is hereby granted.

I wish you well in your endeavour and trust that you will keep this office and its department informed of your findings when these become available. I look forward to the insights that your research will afford us.

Yours sincerely

Mr Craig Wylie

Director: Emergency Medical Services

DATE: 6 October 2022

ANNEXURE C: ETHICS APPROVAL LETTER

UNIVERSITY OF CAPE TOWN
Faculty of Health Sciences
Human Research Ethics Committee

Room 45, E-52- Old Main Building
Groote Schuur Hospital
Observatory 7925
Telephone [021] 406 6492
Email: hrec-enquiries@uct.ac.za
Website: www.health.uct.ac.za/fhs/research/humanethics/forms

14 January 2022

HREC REF: 729/2021

Prof L Wallis
Division of emergency Medicine
F-51 OMB
Email: Lee.wallis@uct.ac.za
Student: CRMRAD001@myuct.ac.za

Dear Prof Wallis

PROJECT TITLE: THE IMPACT OF THE COVID-19 PANDEMIC ON EMS PRACTITIONERS IN THE WESTERN CAPE: STRATEGIES TO ENHANCE WELLNESS-DOCTORATE CANDIDATE- MR. RADOMIR CERMAK

Thank you for submitting your study to the Faculty of Health Sciences Human Research Ethics Committee (HREC) for review.

It is a pleasure to inform you that the HREC has **formally approved** the above-mentioned study.

This approval is subject to strict adherence to the HREC recommendations regarding research involving human participants during COVID -19, dated 17 March 2020: 06 July 2020 & 01 July 2021.

Approval is granted for one year until the 30 January 2023

Please submit a progress form, using the standardised Annual Report Form if the study continues beyond the approval period. Please submit a Standard Closure form if the study is completed within the approval period.
(Forms can be found on our website: www.health.uct.ac.za/fhs/research/humanethics/forms)

The HREC acknowledge that the student: -Mr Radomir Cermak will also be involved in this study.

Please quote the HREC REF 729/2021 in all your correspondence.

Please note that the ongoing ethical conduct of the study remains the responsibility of the principal investigator.

Please note that for all studies approved by the HREC, the principal investigator **must** obtain appropriate institutional approval, where necessary, before the research may occur.

Yours sincerely

PROFESSOR M BLOCKMAN
CHAIRPERSON, FACULTY OF HEALTH SCIENCES HUMAN RESEARCH ETHICS COMMITTEE
Federal Wide Assurance Number: FWA00001637.
Institutional Review Board (IRB) number: IRB00001938
NHREC-registration number: REC-210208-007
This serves to confirm that the University of Cape Town Human Research Ethics Committee complies to the Ethics Standards for Clinical Research with a new drug in patients, based on the Medical Research Council (MRC-SA), Food and Drug Administration (FDA-USA), International Council for Harmonisation of Technical Requirements for Pharmaceuticals for Human Use: Good Clinical Practice (ICH GCP), South African Good Clinical Practice Guidelines (DoH 2020), based on the Association of the British Pharmaceutical Industry Guidelines (ABPI), and Declaration of Helsinki (2013) guidelines. The Human Research Ethics Committee granting this approval is in compliance with the ICH Harmonised Tripartite Guidelines E6: Note for Guidance on Good Clinical Practice (CPMP/ICH/135/95) and FDA Code Federal Regulation Part 50, 56 and 312.

HREC/REF 729/2021sa

UNIVERSITY OF CAPE TOWN

FACULTY OF HEALTH SCIENCES
Human Research Ethics Committee

FHS016: Annual Progress Report / Renewal

HREC office use only (FWA00001637; IRB00001938) This serves as notification of annual approval, including any documentation described below.			
☑ Approved	Annual progress report	Approved until/next renewal date	31/01/2024
☐ Not approved	See attached comments		
Signature Chairperson of the HREC/ Designee		Date Signed	18/1/2023

Note: Please email this form and supporting documents (if applicable) in a combined pdf file to hrec-enquiries@uct.ac.za.
Please clarify your plan for research-related activities during COVID-19 lockdown.
Please use the latest form found on our website:
http://www.health.uct.ac.za/fhs/research/humanethics/forms

HUMAN RESEARCH ETHICS COMMITTEE
18 JAN 2023
HEALTH SCIENCES FACULTY
UNIVERSITY OF CAPE TOWN

Comments to PI from the HREC
Please can we have an extension on HREC729/2021 for ongoing data collection

Principal Investigator to complete the following:

1. Protocol information

Date (when submitting this form)	17 January 2023		
HREC REF Number	729/2021	Current Ethics Approval was granted until	30 January 2023
Protocol title	The Impact of The Covid-19 Pandemic on EMS Practitioners in The Western Cape: Strategies to Enhance Wellness		
Protocol number (if applicable)	Not applicable		
Are there any sub-studies linked to this study?		☐ Yes	☑ No
If yes, could you please provide the HREC Reference number for all sub-studies? **Note:** A separate FHS016 must be submitted for each sub-study.			
Principal Investigator	Dr Charmaine Cunningham		

(Note: Please complete the Closure form (FHS010) if the study is completed within the approval period)

ANNEXURE D: INTERVIEW SCHEDULE FOR ONE-ON-ONE INTERVIEWS: SAMPLE 1 (practitioners conducting primary or inter-facility transfers of COVID-19 suspected or positive patients)

(FOR USE BY THE RESEARCHER ONLY)

Interview length: 30-60 minutes

Introduction

1. Thank you for taking the time to be interviewed for this study
2. Introduce myself and explain the purpose of the interview.
3. Inform the interviewee about anonymity and the right to withdraw from the interview at any time
4. Obtain permission for audio recording and explain its purpose
5. Obtain consent to participate in the study (Consent letter)
6. Ensure COVID-19 measures are in place (social distance, sanitize, mask/face shield)

Questions

General demographic information

1. Length of service
2. Age
3. Highest medical qualification
4. Gender

Interview questions

1. How did COVID-19 affect you personally?

    Own self, family.

2. Can you explain how CV 19 impacted your role as a paramedic?

3. Can you describe the challenges you faced during the transfers or management of infected patients?

4. Please share with me your fears and anxieties during the pandemic and lockdown.

5. Can you tell me more about the fears and anxieties of your colleagues?

6. What were the coping strategies that you used personally during the pandemic

    Probes: spiritual support, journaling, meditation, family, community

7. Can you describe what support was offered to you during the pandemic from the EMS Wellness Program?

8. What are some of the strategies and interventions that need to be in place to help you overcome some of the distress experienced during the CV 19 pandemic

---

Is there anything you would like to add?

Once again, thank you very much for your time.

ANNEXURE E: INTERVIEW SCHEDULE FOR ONE-ON-ONE INTERVIEWS: SAMPLE 2 (COVID-19 positive practitioners)

(FOR USE BY THE RESEARCHER ONLY)

Interview length: 30-60 minutes

Introduction

1. Thank you for taking the time to be interviewed for this study
2. Introduce myself and explain the purpose of the interview.
3. Inform the interviewee about anonymity and the right to withdraw from the interview at any time
4. Obtain permission for audio recording and explain its purpose
5. Obtain consent to participate in the study (Consent letter)
6. Ensure COVID-19 measures are in place (social distance, sanitize, mask/face shield)

Questions

General demographic information

- Length of service
- Age
- Highest medical qualification
- Gender
- Isolation/quarantine

Interview questions

1. What were your greatest fears and anxieties regarding being COVID positive?
2. Can you share with me how you think you may have become infected.
3.. What were your most challenging moments as you made the journey to recovery?
4. Can you share with me what personal strategies you used to cope with the virus...physically and psychologically.
6. What type of personal support did you receive whilst you were recovering?
7. How would you describe your personal experience of returning to work after recovery?
8. What types of interventions and support do you think are required to help you heal and recover.

Probes

Group support programs, Spiritual support, Nature retreating, Journaling

---

Is there anything you would like to add?

Once again, thank you very much for your time.

ANNEXURE F: STUDY INFORMATION LETTER

Title of the Research Study: The impact of the COVID-19 pandemic on EMS practitioners in the Western Cape: Strategies to enhance wellness

Principal Investigator/s/researcher:

Mr. Radomir Cermak, B-Tech: Emergency Medical Sciences, Higher Diploma in Higher Education and Training, Master's Degree in Health Sciences: Emergency Medical Care

Co-Investigator/s/supervisor/s:

Prof. Lee Wallis, MBChB, MD, Dip IMC RCS Edin, Dip Sport Med, FRCS Edin, FRCP Edin, FRCEM, FCEM (SA)

Prof. Raisuyah Bhagwan, (Ph.D.) Health and Social Science

Brief Introduction and Purpose of the Study:

The emergence of the COVID-19 pandemic has brought with it a new type of stress for EMS practitioners, who were already under daily psychological pressure prior to the arrival of the pandemic, as part of their practice. This added pressure has placed a tremendous psychological burden on EMS practitioners during the COVID-19 pandemic and the National State of Disaster in South Africa since March 2020. The threat to health workers' psycho-social well-being has been established throughout international studies in countries initially affected by COVID-19. With a high rate of infection and associated death rate in a resource-constrained environment, maintaining the well-being of frontline EMS staff is vital to successfully deal with health crises, such as the one caused by COVID-19. Wellness and well-being are necessary attributes for sustainable and healthy EMS staff facing the stress of working in a COVID-19 environment.

The purpose of the study is to explore the psycho-social impact of stress, faced by EMS practitioners, as frontline workers, during the COVID-19 pandemic, and to propose a framework for enhancing the wellness of EMS practitioners within the context of the pandemic and future resurgences.

Outline of the Procedures:

One-on-one interviews will be used to collect the required information. Participants are expected to share their views and experiences regarding COVID-19 and resilience. The interviews will be conducted by the primary researcher at a convenient location and time of participants' preference. Questions will be asked to enable participants to share the required information. Participants who qualify for the interview will include EMS practitioners in all practice categories who transported confirmed COVID-19 cases since the beginning of the pandemic. The session is expected to last approximately 30 – 60 minutes. If necessary, a follow-up session will be requested. The discussion will be audio recorded to gather accurate information and will be handled with the utmost confidentiality.

Risks or Discomforts to the Participant:

COVID-19 measures will be in place in line with Departmental Occupational Health Safety policy and procedures. Should you become distressed during an interview, the interview will be paused, and the researcher will follow a distress protocol to prevent any further emotional stress.

Benefits:

The participants will get to share their insights and experiences, which will add a valuable contribution to the research to improve EMS staff resilience and well-being through appropriate interventions and support.

Reason/s why Participants May Withdraw from the Study:

It is up to you to decide whether to take part in the pilot interview. There is no duress with regards to the same. If you decide to take part in the interview, you will receive this information sheet to keep and you will be asked to sign a consent form. You may withdraw your participation during the research study at any stage before the audio recordings are transcribed. The transcriptions will be completely anonymised and therefore the researcher will have no way of identifying the participant after audio transcription. Your decision to withdraw is entirely your choice; no negative consequences will be incurred if

you should choose not to participate or withdraw. To withdraw you can contact the primary researcher with the information provided below. Your anonymity will be maintained throughout the data collection and analysis. All recordings will be destroyed once the study is completed.

Remuneration:

No remuneration will be offered for participation in the study.

Costs of the Study:

You will not be asked to cover any costs associated with the study

Confidentiality:

All data from interviews will be coded to ensure anonymity; therefore, no names will be used for data collection, analysis, and report. Data will be kept strictly confidential and will only be accessible to the primary researcher and the research supervisor. The identities of the participants will not be disclosed to employers, heads of department, or coordinators.

Research-related Injury: There is no risk of research-related injury.

Persons to contact in the event of any problems or queries:

Researcher: Radomir Cermak (tel no. 021 938 4116) or email: Radomir.cermak@westerncape.gov.za

Supervisor: Prof L. Wallis (tel no. 021 815 8818) or email: lee.wallis@uct.ac.za
Co-supervisor: Prof R. Baghwan (tel no. 031 260 1281) email address: bhagwanr@dut.ac.za

University of Cape Town Research Contact Details:

Faculty of Health Sciences, Human Research Ethics Committee

HREC Ref: 729/2021

Contact: Olivia Langenhoven

Tel: 021 406 6626

Email: Olivia.langenhoven@uct.ac.za

ANNEXURE G: CONSENT FORM

Statement of Agreement to Participate in the Research Study:

- I hereby confirm that I have been informed by the researcher, Mr. Radomir Cermak, about the nature, conduct, benefits, and risks of this study - Research Ethics Clearance Number: 729/2021
- I have also received, read, and understood the above-written information (Participant Letter of Information) regarding the study.
- I understand that I will be audio recorded for the purpose of the study and I understand the purpose thereof.
- I am aware that the results of the study, including personal details regarding my sex, age, date of birth, and initials will be anonymously processed into a study report.
- In view of the requirements of research, I agree that the data collected during this study can be processed in a computerized system by the researcher.
- I may, without prejudice, withdraw my consent and participation in the study.
- I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.
- I understand that significant new findings developed during the course of this research that may relate to my participation will be made available to me.
- I understand that the results of the study will be published in journals.

_____ _____ _____ _____

Full Name of Participant **Date** **Time** **Signature**

I, _____ herewith confirm that the above participant has been fully informed about the nature, conduct and risks of the above study.

_____ _____ _____ _____

Full Name of Researcher **Date** **Time** **Signatur**

ANNEXURE H: INTERVIEW SCHEDULE FOR FOCUS GROUP INTERVIEW

SAMPLE 3 (EMS Managers)

(FOR USE BY THE RESEARCHER ONLY)

Interview length: 30-60 minutes

Introduction

1. Thank you for taking the time to be interviewed for this study

2. Introduce myself and explain the purpose of the interview.

3. Inform the interviewee about anonymity and the right to withdraw from the interview at any time

4. Obtain permission for audio recording and explain its purpose

5. Obtain consent to participate in the study (Consent letter)

6. Ensure COVID-19 measures are in place (social distance, sanitize, mask/face shield)

Questions

General demographic information

- Length of service
- Age
- Highest medical qualification
- Gender

Interview Questions

1. Can you share with me how you experienced the COVID-19 pandemic personally

2. Can you share with me how you experienced it as a manager.

3. Can you describe what were your most challenging moments as a manager during the pandemic.

4. What are your thoughts on the preparedness of EMS staff for the pandemic.

5. What are some of the protocols that need to be put in place in the event of future resurge?

6. Can you share with me the challenges paramedics faced during the pandemic.

7. What are some of the operational strategies that need to be in place to support them

ANNEXURE I: LETTER OF INFORMATION

Title of the Research Study: The impact of the COVID-19 pandemic on EMS practitioners in the Western Cape: strategies to enhance wellness

Principal Investigator/s/researcher:

Mr. Radomir Cermak, B-Tech: Emergency Medical Sciences, Higher Diploma in Higher Education and Training, Master's Degree in Health Sciences Emergency Medical Care

Co-Investigator/s/supervisor/s:

Prof. Lee Wallis, MBChB, MD, Dip IMC RCS Edin, Dip Sport Med, FRCS Edin, FRCP Edin, FRCEM, FCEM (SA)

Prof. Raisuyah Bhagwan, (Ph.D.) Health and Social Science

Brief Introduction and Purpose of the Study:

The emergence of the COVID-19 pandemic has brought with it a new type of stress for EMS practitioners, who were already under daily psychological pressure before the arrival of the pandemic, as part of their practice. This added pressure has placed a tremendous psychological burden on EMS practitioners during the COVID-19 pandemic and National State of Disaster in South Africa since March 2020. The threat to health workers' psycho-social well-being has been established throughout international studies in countries initially affected by COVID-19. With a high rate of infection and associated death rate in a resource-constrained environment, maintaining the well-being of frontline EMS staff is vital to successfully deal with health crises, such as the one caused by COVID-19. Wellness and well-being are necessary attributes for sustainable and healthy EMS staff facing the stress of working in a COVID-19 environment.

The purpose of the study is to explore the psycho-social impact of stress, faced by EMS practitioners, as frontline workers, during the COVID-19 pandemic, and to propose a

framework for enhancing the wellness of EMS practitioners within the context of the pandemic and future resurgences.

Outline of the Procedures:

Focus group interviews will be used to collect the required information. A focus group is a special form of group interview in which the discussion is centred on a specific topic and facilitated by a moderator. During the focus group interview, you will be expected to share your views and experiences regarding COVID-19 and its impact on your wellness and well-being.

The focus group interview will be moderated by the primary researcher at a convenient location and time of your preference. Questions will be asked to enable participants to share the required information. The session is expected to last approximately 30 – 60 minutes. If necessary. The discussion will be audio recorded to gather accurate information and will be handled with the utmost confidentiality. The moderator will ensure that all participants have an equal opportunity to contribute to the discussion, although you may decide not to make comments at certain times in the discussion. This is your right.

Risks or Discomforts to the Participant:

Before the meeting begins, we will review these ethical considerations. It will begin by stating

Some of the topics that I will be discussing today can be sensitive and personal. We don't want you to say anything that you might regret later, and we don't want you to feel stressed by this discussion. So, if I sense that the discussion is getting too stressful or too personal, then I will have us all take a break, relax for a minute, and then start up again at a level where everyone feels comfortable

The researcher will ensure that the environment is safe and the meeting convivial. COVID-19 measures will be in place in line with Departmental Occupational Health Safety policy and procedures. Should a participant become emotionally distressed during an interview, the interview will be paused immediately, and the researcher will follow a distress protocol to prevent any further emotional discomfort to the participant.

Benefits:

The participants will get to share their insights and experiences, which will add a valuable contribution to the research to improve EMS staff resilience and well-being through appropriate interventions and support.

Reason/s why Participants May Withdraw from the Study:

It is up to you to decide whether to take part in the study. There is no duress with regards to the same. If you decide to take part in the study, you will receive this information sheet to keep and you will be asked to sign a consent form. You may withdraw your participation during the research study at any stage before the audio recordings are transcribed. Your decision to withdraw is entirely your choice; no negative consequences will be incurred if you should choose not to participate or withdraw. To withdraw you can contact the primary researcher with the information provided below. Your anonymity will be maintained throughout the data collection and analysis.

Remuneration:

No remuneration will be offered for participation in the study.

Costs of the Study:

You will not be asked to cover any costs associated with the study

Confidentiality:

All data from interviews will be coded to ensure anonymity; therefore, no names will be used for data collection, analysis, and report. Data will be kept strictly confidential and will only be accessible to the primary researcher and the research supervisor. The identities of the participants will not be disclosed to employers, heads of department, or coordinators.

Research-related Injury: There is no risk of research-related injury.

Persons to contact in the event of any problems or queries:

Researcher: Radomir Cermak (tel no. 021 938 4116) or email: Radomir.cermak@westerncape.gov.za

Supervisor: Prof L. Wallis (tel no. 021 815 8818) or email: lee.wallis@uct.ac.za

Co-supervisor: Prof R. Baghwan (tel no. 031 260 1281) email address: bhagwanr@dut.ac.za

University of Cape Town Research Contact Details:

Faculty of Health Sciences, Human Research Ethics Committee

HREC Ref: 729/2021

Contact: Olivia Langenhoven

Tel: 021 406 6626

Email: Olivia.langenhoven@uct.ac.za

ANNEXURE J: DISTRESS PROTOCOL