The Use and Effectiveness of the Tools Designed to Reduce Emergency Medical Care Personnel Workplace Stress: A Critical Analysis

A dissertation submitted in fulfilment of the requirements for the Degree of Master of Health Sciences in Emergency Medical Care in the Faculty of Health Sciences at the Durban University of Technology

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DECLARATION

This is to certify that the work is entirely my own and not of any other person, unless explicitly acknowledged (including citation of published and unpublished sources). The work has not previously been submitted in any form to the Durban University of Technology or to any other institution for assessment or for any other purpose.

28 August 2022

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ABSTRACT

Work-related stress is generally defined as harmful physical or emotional responses that may occur when the needs of the occupation do not match the abilities, resources or necessities of the employee. This can lead to poor health and physical injury. Emergency medical care personnel (EMCP) are not immune to this condition. They are a vital component of the healthcare system but workplace stress places their effectiveness at risk. This is evident when they have to treat patients at scenes of a violent nature. Such experiences result in an increase in stress thereby affecting their decision-making abilities. As employees have a right to be safe at work, they must be able to access the tools required to ensure they remain emotionally safe and well.

This study aimed to identify the tools currently supporting EMCP in the Emergency Medical Care Service of the Gauteng Provincial Government (GPG) in Johannesburg, South Africa, and whether these tools are currently utilised. It also sought to investigate how effective these tools are in reducing work-related stress among EMCP.

Qualitative methods were used to investigate the meaning of social phenomena around the tools used to manage work-related stress, as encountered by EMCP in their work capacity. The study followed an interpretivism philosophy, using purposeful sampling, while data collection was conducted using in-depth interviews. The population comprised EMCP working in Johannesburg for the GPG, and participants were selected using non-probability sampling, following a snowball technique. Thematic analysis was used to analyse the data.

The research found that tools to manage work-related stress (WRS) were available and were utilised. However, some causes of WRS were found not to have adequate tools for reducing such stress. While some tools had positive effects, like formal debriefing sessions, others like the Employee Wellness Programme (EWP) needed some improvement. Additionally, the lack of security increased WRS immensely, yet there were very limited effective tools designed to reduce stress from the increased security threats experienced by EMCP. Finally, causes of WRS were identified for

which no tools were available for its reduction and thus immediate action is required to reduce it.

WRS has been seen to have multiple adverse effects for organisations in general and EMCP in particular. Therefore, addressing issues raised by this research could have a positive impact on the industry. In addition, the findings contribute to the body of knowledge on mental health among prehospital emergency care workers.

DEDICATION

This work is dedicated to the following people:

1. My daughter Simile Chuma maNyambose, born with Arthrogryposis, my princess, meeting you redefined what love is to me; it keeps me going.
2. To my family, without you, I would be a house with no pillars, like a house built on sand with no foundation. I appreciate your direct and indirect support. Also, I dedicate this work to my mother, Mrs DT Mtetwa, who has always consistently prayed and supported me throughout my life.
3. To emergency care workers of South Africa, I believe resilience and your strength are underrated. Doing this study made me realise and appreciate that much is underplayed. The demanding situations you face daily are extraordinary; to keep up with that, you need to be applauded.
4. Lastly, I also dedicate this work to the victims of Gendered Based Violence (GBV) globally. Females are slaughtered by their partners; I hope things get better and GBV ends.

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When I did my first year at the Durban University of Technology, I never pictured myself doing a Master's Degree. At some point, mid-studies, I thought of giving up; many people encouraged me, from simple statements like "I believe in you Malusi", by Nicole de Montell, to Mr Raveen Naidoo, who was a Head of Department (HOD), who walked to me and called me by my first name, told me he loved the passion I have. It would take me far; such and many other statements by my other former lecturers do need to be acknowledged. For that, I am forever indebted to the EMS educators of South Africa.

This work would have been impossible without the angels in green, as they like to call themselves. I would like to thank operational Emergency Medical Care Personnel (EMCP) in Gauteng Provincial Government who participated and shared their personal experiences in Work-Related Stress. I hope this work improves your workplace well-being and enhances your general well-being.

While the EMCP had a significant contribution, Lebone college of EMS contributed much. To the college's research committee, I appreciate your support and understanding. To the college's Principal, Mr "Rabs" Ravhandalala Ndotenda, thank you for your humility and for welcoming me to use the college facilities and for advice on navigating my way around. Furthermore, I do appreciate my facilitator colleagues for all the assistance, much appreciated.

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My second supervisor, Miss Philile Mtshali, thank you for your assistance; you are a natural psychologist; when things were overwhelming, you assisted me in navigating through it. Your presence in this project is valued.

Lastly, I am nothing without my Lord and Saviour, Jesus Christ. He has been my pillar and driving force. I believe the strength even to attempt such a project can only be found in the powers beyond me.

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LIST OF ABBREVIATIONS

ALS	: Advanced life support
AEA	: Ambulance emergency assistant
ANT	: Paramedic
BLS	: Basic life support
BAA	: Basic ambulance assistant
BTech	: Bachelor of Technology
CCA	: Critical care assistant
DUT	: Durban University of Technology
ECT	: Emergency care technician
ECP	: Emergency care practitioner
EMC	: Emergency medical care
EMCP	: Emergency medical care personnel
EMCPM	: Emergency medical care personnel manager
EMS	: Emergency medical services
GPG	: Gauteng Provincial Government
ICU	: Intensive care unit
ILS	: Intermediate life support (or ambulance emergency assistant)
N.Dip	: National Diploma in Emergency Medical Care
PTSD	: Post-traumatic stress disorder
HPCSA	: Health Professions Council of South Africa
SAAS	: South Australia Ambulance Service
SAPS	: South African Police Service
WRS	: Work-related stress

GLOSSARY OF TERMS

Advanced life support: A level of care provided within the paramedic, emergency care technician and emergency care practitioner scope of practice, as determined by the Health Professions Council of South Africa in terms of the Health Professions Act (Mkhize 2021).

Basic life support: A level of emergency care provided primarily by emergency care providers that practise within the **Basic Ambulance Assistant** scope of practice as determined by the Health Professions Council of South Africa in terms of the Health Professions Act (Mkhize 2021).

Basic ambulance assistant: A person registered as such with the Health Professions Council of South Africa in terms of the Health Professions Act (Mkhize 2021).

Community policing forum: A community policing forum is a platform on which community members, organisations (community-based organisations, non-governmental organisations, businesses, faith-based organisations, youth organisations, women's organisations, school governing bodies), other relevant stakeholders (provincial government, local government, traditional authorities and parastatals) and the police meet to discuss local crime prevention initiatives (Twani 2019).

Emergency care practitioners: A generic practitioner drawn mainly from paramedic and nursing backgrounds. ECPs receive formal training and extended clinical skills to equip them to work as an integral part of the healthcare team working within and across traditional boundaries of emergency and unplanned care (Mason *et al.* 2007).

Emergency communication centre also referred to as "metro control": a dedicated self-contained facility for the housing of call handling and dispatch personnel (Mkhize 2021).

Emergency medical care personnel/ambulance crews: persons registered under section 17 of the Health Professions Act as paramedics, ambulance emergency assistants, basic ambulance assistants, operational emergency care orderlies,

emergency care assistants and/or persons who hold a valid first aid certificate issued by a first aid organisation accredited by the Professional Board for Emergency Care Practitioners (Mkhize 2021).

Emergency medical care personal manager: a person who is duly appointed as the responsible manager for the emergency medical service and who is registered with the Health Professions Council of South Africa in terms of the Health Professions Act (Mkhize 2021).

Emergency medical services: an organisation or body that is dedicated, staffed and equipped to operate an ambulance, medical rescue vehicle or medical response vehicle in order to offer emergency care (Mkhize 2021).

Health Professional Council of South Africa (HPCSA): a statutory body, established in terms of the Health Professions Act No. 56 of 1974 and committed to protecting the public and guiding professionals.

Intermediate life support: a variety of non-invasive and invasive emergency procedures which include intravenous therapy, defibrillation and drug administration

Mob justice: "Mob justice is a form of extrajudicial punishment or retribution in which a person suspected of wrongdoing is typically humiliated, beaten, and in many cases killed by vigilantes or a crowd. Mob action takes place in the absence of any form of fair trial in which the accused are given a chance to defend themselves; the mob simply takes the law into its own hands" (Kakumba. 2020).

Prehospital: any environment that occurs out the emergency department/casualty resuscitation room or place allocated for resuscitation in a healthcare setting (Anderson, Anderson and Glanze 2002).

WhatsApp: a mobile phone application that is used to communicate between people. It is available in many countries, anytime and anywhere, where there is cellular phone internet reception or computer; it offers reliable, secure communication throughout the world where there is reliable internet service (Koum 2021).

Note: **Crews** and **EMCP** are sometimes used interchangeably.

Calls and **cases** are sometimes used interchangeably.

1. CHAPTER ONE: INTRODUCTION

1.1 Introduction and background

Many factors contribute to the work-related challenges emergency medical care personnel (EMCP) experience in their day-to-day responsibilities, including exposure to the victims of contact crimes, also known as violent crimes. Challenges include the weight of critical decision-making in uncontrolled and unpredictable environments, and the inability to source relevant clinical support when needed (Halpern *et al.* 2014: 6; Vincent-Lambert and Westwood 2019: 12).

According to the commissioner of the South Africa Police Service (SAPS), contact crimes in South Africa resulted in 21 022 deaths in the 2018/ 2019 financial year. This equates to 36.4 people per 100 000, or 57 deaths per day (Sitole 2019: 14). This is five times higher than the global average. EMCP are regularly exposed to such cases, primarily to attend to victims. At times when the SAPS is not on the scene, EMCP may subsequently themselves become the victims of contact crimes. This exposure to both firsthand and vicarious trauma is known to adversely affect emotional and psychological wellbeing (Vincent-Lambert and Westwood 2019: 14).

EMCP must make rapid, critical decisions for patients who are severely injured, while also fearing for their safety at these scenes. The responsibility of making critical decisions on someone's life is described in the literature and known to result in disruptions to emotional and psychological wellbeing, especially when there is limited support (Halpern *et al.* 2014: 2).

Furthermore, EMCP trained in basic life support (BLS), who are dispatched to a case that requires an advanced life support (ALS) skilled clinician, may not have access to such clinical support when needed. As a result, BLS crews may find themselves beyond their scope of practice and clinical authority, resulting in an inability to effectively manage a critically unwell patient. This could not only be frustrating for the BLS crew, but it can also result to undesirable work outcomes such as poor clinical outcome, clinician guilt, or self-blame, which may increase work-related stress (Funk 2005: 35).

Much research has focused on whether high levels of stress are experienced by EMCP, with most researchers finding that stress does indeed exist (Setlack *et al.* 2021). This is reflected in a systematic literature review of more than 49 publications in a study conducted by (Sterud, Ekeberg and Hem 2006). This review affirms that there are high levels of work-related stressors, which include both chronic and acute stressors. These authors further report that EMCP have high levels of burnout and suffer from an array of mental health challenges, all associated with work-related stress (Sterud, Ekeberg and Hem 2006). Another systematic review by Wagner *et al.* (2020: 16) reported strong evidence of mental health conditions among EMCP, conditions such as post-traumatic stress disorder (PTSD), depression, anxiety and trauma-related mental health disorders. These authors strongly predict that the causative factors of such conditions are organisational factors. While certain authors have identified that EMCP experience stresses at work, others have identified various strategies that can be employed by emergency medical services (EMS) in assisting their employees:

- Understanding on the part of management of the needs of employees
- Management engaging with EMCP
- The implementation of approaches that support physical and psychosocial health
- Ongoing professional and personal development
- The provision of tools for peer-to-peer communication
- The inclusion of family members in the wellness initiative
- Ongoing support for those who have left the service.

However, there is limited literature on how effective these measures are for EMCP (Smith and Burkle Jr 2018: 4).

1.2 Research problem

The primary role of EMCP is to provide medical assistance for patients in the prehospital setting, as well as transportation to a healthcare establishment for relevant definitive care. When employees are exposed to workplace stress, research indicates that this may result in

- a reduction in professional efficacy (Greenglass, Burke and Moore 2003),

- low productivity, which may develop because of negativity concerning the job (Schaufeli 2017)
- energy depletion may occur in their work environment (Hoboubi *et al.* 2017)

Work-related stress (WRS) therefore has an impact on the mandate of EMS organisations to deliver a service to the community. In this regard, Funk (2005) states that WRS contributes to poor job performance, and increased rates of absenteeism and staff turnover. He adds that these issues result in increased financial strains on employers (Funk, 2005). Hassard *et al* (2018: 27) support this statement; in a literature review they state that the cost related to WRS rose to USD187 billion in 2014 in the Pan-European countries alone. This indicates that WRS not only affects communities, but also the government's fiscus.

If the core function of the EMCP is compromised by WRS, there must be a system that will assist EMCP to be effective in their responsibilities.

Many factors contribute to EMCP workplace stress. Ward (2006) suggests that aggression between co-workers, organisational problems and poor working conditions are common. These factors can lead to EMCP having issues such as general psychopathologies, PTSD, or self-medication with alcohol (Hichisson and Corkery 2020). Strategies that may mitigate workplace stress for EMCP include resilience training, professional counselling, quality clinical improvements training, and having a healthy social life (Sebela 2016: 44). Sebela (2016) further suggests that such strategies are likely to reduce burnout, suicide and the social manifestations of occupational stress, as well as have organisational ramifications such as reduced absenteeism and staff retention.

Over the years, many EMS organisations have created local systems, programmes and tools that are designed to take care of employees' WRS. The effectiveness of such strategies, however, remains unclear. Evidence indicates that EMCP rely mostly on family support, with only a few utilising formal systems provided by employers (Minnie, Goodman and Wallis 2015: 17).

1.3 Aim

This study aimed to identify the tools that currently exist for supporting EMCP working for the Gauteng Emergency Medical Services in Johannesburg, Gauteng province, and whether these tools are currently utilised. In addition, the study sought to investigate how effective these tools are in reducing WRS in EMCP.

1.4 Research questions

1. What strategies are provided for supporting EMCP to mitigate WRS?
2. How are the strategies identified in question 1 implemented by EMCP?
3. What impact do WRS support strategies have on EMCP?

1.5 Chapter layout

Chapter One: Introduction

This chapter gave a general overview of the research, including the study objectives and the scope of the study.

Chapter Two: Literature Review

In this chapter literature relevant to the study, which focuses on WRS in relation to EMCP, is reviewed.

Chapter Three: Research Methodology

The research methodology applied in this study is discussed in this chapter, with a focus on how the data were collected and the tools that were used to collect the data.

Chapter Four: Data Analysis and Results

The fourth chapter contains lays out the data analysis process, after which the data are presented along with the findings.

Chapter Five: Conclusion and Recommendations

Chapter Five summarises the work and recommendations are made based on the findings of the research.

1.6 Theoretical framework

This study will apply a theoretical framework that focused on the organisational climate. A theoretical framework reflects the way in which the researcher sees the world in which their study is to be conducted. The study focuses on the tools that are used to manage WRS. Thus, the sample used in this study included operational personnel and managers. Based on this, it was deemed appropriate to apply a theoretical framework that studied one of the factors that influence the organisational climate. This will be discussed further in Chapter Three.

1.7 Conclusion

WRS is a problem for both staff and employers, resulting in increased costs for employers in the form of staff attrition and the like. WRS may be reduced by the use of effective tools; to date, the tools available to EMCP in the Gauteng province of South Africa have not been fully explored for their efficacy. The next chapter examines the literature relevant to the study.

2. CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

Work-related stress (WRS) has negative physical and psychological effects on emergency medical care personnel (EMCP) (Donnelly 2012). It can reduce productivity in emergency medical services (EMS), which may have detrimental effects on the community being serviced (Adib Ibrahim *et al.* 2019). In addition, acute stress has an impact on the execution of certain EMCP duties, like medication calculation. In the face of acute stress, EMCP can end up making unintentional medication errors which may result in critical adverse events for patients (Leblanc *et al.* 2005). Furthermore, a study by Regehr and LeBlanc ((Regehr and LeBlanc 2017), which reviewed the repercussions of exposure to chronic stress, revealed that stress may reduce risk assessment in cases that require professional judgement. One of the causes of WRS, that is, critical incidents, has been identified as directly affecting EMCP performance. For example, EMCP spend a long time post exposure for a critical incident on completion of such cases. Consequently, if they have to spend more time post critical incident exposure, the population they serve may experience delays in receiving emergency services (Gates, Gillespie and Succop 2011). This reduces the delivery of services by EMS organisations as a whole, directly affecting the communities they service (Bavafa and Jónasson 2020). There is evidence that indicates that tools designed to manage WRS are effective and create a better work environment for employees (Elder *et al.* 2020). However, there is a lack of evidence on what tools are used in the prehospital setting, and also whether these tools are effective or not. This lack of evidence is more prominent in Africa, and noticeable in South Africa.

This chapter will appraise the literature that discusses issues concerning WRS experienced by EMCP in the prehospital setting. In addition, it will critically review the relevant published literature and identify current research gaps.

2.2 Literature search methods

The literature review was conducted using resources found in databases such as Embase, PubMed, Science Direct, Google Scholar, and DUT Open Athens offline access. Search terms including (but not limited to) paramedic, ambulance, emergency medical care, first responder, emergency medical technician, and pre-hospital healthcare personnel were used to identify literature relevant to EMCP. These were combined with search results of topics related to occupational stress and/or WRS for ambulance personnel or paramedics or emergency care workers. The researcher also searched for dissertations and theses from various university repositories in South Africa. Such a strategy was encouraged by paucity in South Africa and Africa.

2.3 South African public emergency medical services culture

2.3.1 Population impact on WRS

A country's healthcare system and population have an impact on the WRS of EMCP. In this case the healthcare system referred to includes primary healthcare, prehospital care, in-hospital treatment and other related services. Poorly managed patient care in the primary healthcare service clinics or even the absence of primary healthcare, for example the absence of clinics, can lead to an increase in patients seeking access to hospitals. This in turn results in an increase in ambulance call out, or the transportation of patients to hospital, thus increasing the workload of the prehospital component. Razzak and Kellermann (2002) agree with this, emphasising the importance of having a strong synergy in the functioning of the departments that make up a healthcare system.

In a systematic review, Kironji et al. (2018) highlight the important role the community plays in understanding the responsibility EMS has in enhancing healthcare. There are times when the community does not understand the role of EMS, or does not understand when to call for an ambulance, or when there is a severe illness that requires immediate ambulance transportation (Anest *et al.* 2016a; Kironji *et al.* 2018).

In some communities when a child is gravely ill at night, parents may wait for the clinic to open in the morning, rather than calling an ambulance immediately for treatment

and hospital transportation (Anest *et al.* 2016b). Consequently, ALS paramedics may be required to take this child from the clinic to the hospital, thus creating a burden on the EMS as there is a shortage of these practitioners. Such cases are often left to basic life supporters who may become overwhelmed because of their lack of training, skills and experience in managing such cases (Butler and Adefuye 2019).

2.3.2 South African Healthcare System on WRS

In South Africa, the healthcare system is made of the private sector and public sector. The private sector services patients with medical aids/insurance and those who can afford cash fees (Gordon, Booysen and Mbonigaba 2020). Conversely, the public sector provides service which is generally free, based on the principle that healthcare is a fundamental human right and should be accessed by anyone in need, whether a South African national or a foreigner (Vanyoro 2019). The Statistician-General of South Africa Maluleka (2019) states that only 17.2% of the South African Population has medical aids to access private healthcare, that means the balance 82.8% of the South African population depends on public services for healthcare (Maluleka 2019).

2.3.3 South African Socio-Economic Status

Most of the South African population makes use of the public sector for healthcare services, and there are significant contributors to the presentations this population brings to the healthcare system, for example poverty. Jansen et al. (2015) determined that poverty affects the ability to afford essential items for survival in South Africa. In addition, it contributes to the poor's inability to access public services and healthcare (Maphumulo and Bhengu 2019). There are also other factors that affect access to EMS such as the lack of road infrastructure in certain areas, which makes it hard for EMCP to reach patients.

In South Africa's urban areas, many communities live in informal settlements, which generally comprise poor people, and this has an impact on the health status of patients attended to by EMCP. Such informal settlements are the result of rapid urbanisation with people seeking employment and better services (Turok and Borel-Saladin 2014). Zerbo, Delgado and González (2020) found that residents of informal settlements have a higher incidence of

- communicable diseases
- malnutrition

- child mortality
- non-communicable diseases
- poor mental health
- injury and accidents

These conditions influence the EMS landscape. Meth (2016) adds that residents of informal settlement are at risk of violent crimes owing to the absence of visible policing and an effective justice system, which leads to vigilantism. Vigilantism occurs when , communities try to manage crime by taking the law into their hands. In South Africa, this is referred to as mob justice (Traynor *et al.* 2020).

2.3.3.1 Informal settlements

The landscape of the prehospital sector in Gauteng and South Africa is influenced by the conditions presented in the previous section, with many of the clients served by EMS coming from these informal settlements (Maile 2020). Exposure to such a working environment results in vicarious trauma, as EMCP may have no control of their work environment (Reinecke 2017). Such communities are where the majority of EMCP's workload originates. Furthermore, EMCP who are frequently exposed to cases that involve the victims of violent crime and vigilantism are likely to suffer secondary traumatic stress syndrome such as compassion fatigue. Little is known if there is any form of assistance in the form of tools for coping with exposure to vicarious trauma and compassion fatigue (Renkiewicz and Hubble 2021).

2.3.4 Ambulance funding model

Government ambulances are funded by the state and the clients do not pay for the services (Weimann and Stuttaford 2014). This presents challenges, especially for a developing country, with more than 80% of the population depending on the government for healthcare services. With an increase in demand and a limited supply of health services, the government is failing to supply the needs to deliver best care for the population (Mayosi and Benatar 2014; Maluleka 2019; Maphumulo and Bhengu 2019).

A number of challenges faced by ALS EMCP have been identified, including high volumes of work, limited ALS personnel, and equipment supply limitations (Vincent-Lambert and Wade 2018). The shortage of ALS and equipment leads to delays in the transportation of some critically ill patients (Ashokcoomar and Naidoo 2016).

2.3.5 Lack of oversight and monitoring of clinical practice

There is insufficient knowledge of the clinical practice expectations for ALS EMCP, and this tends to be a stressor in the workplace for this group. An example of this is the lack of clear protocols or policies that guide the clinical care standards for neonatal intensive care unit transfers (Ashokcoomar and Naidoo 2016). Furthermore, there is lack of quality monitoring, especially for clinical care in South African EMS, particularly in the provincial ambulance systems (Vincent-Lambert 2015). This is because the focus is on service delivery rather than the quality of care. As the struggles are experienced in service delivery and less focus is given to quality improvements, EMCP may be pressured to service more clients by respective EMS organisations (Howard *et al.* 2020).

2.3.6 Workforce attrition

There are a number of factors that contribute to reducing morale and interest among EMCP to work in South Africa, resulting in EMCP turnover and migration, with many leaving for international employers. These factors are identified as “push factors” because they influence migration. These push factors are also related to stressors for prehospital workers and include the following:

- *Working conditions*, including poor work-related facilities, and the lack of professionalism and general respect from patients and co-workers
- *Factors specific to EMS* such as ineffective EMS management and organisations’ focus on financial gains rather than the quality of EMS
- *Physical security*, including a dangerous work environment and lack of security
- *Education and training*, for example the lack of development of skills and opportunities
- *Job security* – EMCP fear they might easily lose their jobs (Hackland and Stein 2011; Govender *et al.* 2012; Gangaram 2017).

Furthermore, there has been high turnover of paramedics in other parts of the world; such turnover has been directly linked to WRS. It has been found that EMCP's daily tasks at work are sources of physical and emotional stress, which sometimes affect their personal lives and marriages and bring financial challenges. These factors influence EMCP's decisions to resign from the profession (Dopelt *et al.* 2019).

2.3.7 Poverty and health

Another cause of WRS noted in the literature on EMCP is the nature of the cases they attend. South Africa is an emerging economy, with 49.2% of the population living below the poverty line (Lehohla 2015). Poverty, inequality and unemployment can increase violence; in addition, there is a high likelihood of the usage of firearms in murders (Sen 2008; Kramer 2012; De Villiers 2021). This phenomenon is more prominent in densely populated urbanised areas like Johannesburg (Meth 2016). Like many developing nations, South African EMCP are confronted by the ripple effects of working in a country with so much poverty and violence. However, trauma is not the only by-product of poverty. There is a relationship between poverty and health in South Africa, with the lowest socioeconomic groups bearing the most considerable burden of ill-health (Ataguba, Akazili and McIntyre 2011).

EMCP that work for the public sector in South Africa have a higher workload. This is because the majority of the population cannot afford medical insurance for private healthcare (De Villiers 2021). In addition to the high workload, they are faced with challenges such as insufficient clinical guidance and lack of equipment (Ashokcoomar and Naidoo 2016; Howard *et al.* 2020). Such working conditions can lead to a stressful work environment (Anest *et al.* 2016b).

2.4 Stress and causes of Stress in emergency medical care

Having established that the South African EMS culture and population has an influence in the amount of stress experienced by EMCP, this section explores the phenomenon of stress, with specific focus on WRS in relation to EMS. It also focuses on the dominant subcategories that are a root cause of stress in the prehospital setting.

2.4.1 Stress

Stress is a phenomenon that occurs in all humans. It is not necessarily an unpleasant experience, as in some cases stress can be pleasing (Le Fevre, Matheny and Kolt 2003). Pleasing stress is also called eustress, while unpleasant stress is referred to as distress. In general, stress is defined as a nonspecific response of the body to any demand made upon it. EMCP experience unpleasant stress in their workplaces (Bienertova-Vasku, Lenart and Scheringer 2020).

Selye (1950) identified a general adaptation syndrome, stating that this syndrome occurs during stressful situations; the first stage is alarm reaction, the second stage is resistance, and lastly, comes the stage of exhaustion. In this third stage, the ability to be resilient is almost nullified. Resilience is an individual psychological resource used by individuals in dealing with stress (Duschek *et al.* 2020). Apart from reduced resilience, prolonged exposure to the exhaustion stage may result in physiological illnesses and psychosocial effects (Sharit and Salvendy 1982; Godoy *et al.* 2018; Bienertova-Vasku, Lenart and Scheringer 2020).

Figure 1 illustrates the **Types of stress experience continuum**. The curved line represents the stress levels, and the flat line with arrows describes the stress experience. General observations are that stress is never at zero, and the more extreme the life experience is, the more stressful it becomes (Sharit and Salvendy 1982). The work of EMCP presents a certain level of stress as a result of the nature of the industry. EMS work in a dynamic environment, with public calling on EMS organisations when they face life-threatening emergencies. EMCP have to act and adapt rapidly while applying life changing skills (Granter *et al.* 2019).

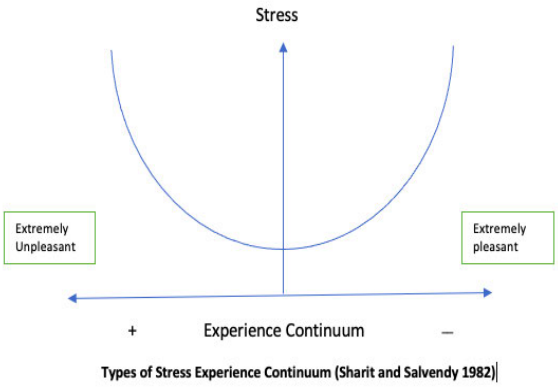

Figure 1: Types of stress experience continuum

2.4.2 Work-related stress (WRS)

In this section, we look at WRS. WRS is defined as harmful physical and emotional responses that occur when the job requirements do not match the worker's capabilities, resources or needs (Dallard 2019). This type of stress falls more on the unpleasant side of the experience continuum shown in **Types of stress experience continuum**. EMCP experience WRS, which results in them further developing post-traumatic stress reactions. If EMCP experience consistent stress, such has in critical incidences, and operational and organisational types of chronic stress, they are more likely to experience post-traumatic stress syndrome (Donnelly 2012; Lawn *et al.* 2020).

If left unmanaged, the ramifications of chronic WRS such as psychological, physiological, and social challenges may negatively affect EMCP in the long term, and it may also, unfortunately, affect organisations by increasing employee turnover. This confirms that WRS not only harms EMCP but also organisations (Johnson *et al.* 2005; Alenazi *et al.* 2016; Smith *et al.* 2019).

In addition to chronic stress, acute WRS also has an impact on the execution of EMS duties, resulting in poorer situational awareness, poor cognitive flexibility, unsafe behaviour, and involvement in incidents that are unsafe (Sedlár 2021a). This not only puts the public at risk, but also the effectiveness of organisations in rendering emergency care services (Smith *et al.* 2019).

2.4.3 Work-related stress in emergency medical services

WRS stress in general is caused by factors intrinsic to the job, organisational factors, and personal and professional conflicts (Michie 2002). While these may apply generally to any employment, they also apply to EMS.

Intrinsic factors in EMS are those that inherent to the nature of the job:

- long shifts
- high workload
- pressure to complete cases
- cases that are complicated and hard to manage
- no breaks

- poor working conditions
- unsafe work environment (Van Der Ploeg 2003).

Organisational factors include
- no consultation on organisational changes
- the organisational culture
- lack of job security
- lack of promotion
- lack of training and educational opportunities (Decker 2021).

Personal and professional conflicts include
- new employees not following work instructions
- rude in-hospital staff
- bullying managers who are critical, demanding and unsupportive
- staff shortages (Hruska and Barduhn 2021).

Many factors may contribute to EMCP having work-related challenges in their day-to-day responsibilities. The responsibility for making critical decisions on someone's life is known to result in disruptions to emotional and psychological wellbeing, especially when there is limited support (Halpern *et al.* 2014: 2). Furthermore, stress tends to reduce the quality of paramedic's clinical performance (LeBlanc *et al.* 2012).

2.4.3.1 Factors intrinsic to emergency medical services naturally acquired owing to the nature of the job

2.4.3.1.1 Lack of access to clinical support

BLS trained EMCP who are dispatched to a case that requires an ALS skilled clinician may not have access to clinical support when needed (Newton, Naidoo and Brysiewicz 2015). As a result, BLS crews may find themselves beyond their scope of practice and clinical authority, resulting in an inability to manage a critically unwell patient effectively. This could not only be frustrating for the BLS crew, but it may also result in poor clinical outcomes, clinician guilt, and self-blame, which may increase WRS (Funk 2005: 35; Cushman *et al.* 2010; Lawn *et al.* 2020).

2.4.3.1.2 Violence

According to the commissioner of the South Africa Police Service (SAPS), contact crimes in South Africa caused 21 022 deaths in the 2018/2019 financial year. This equates to 36.4 people per 100 000, or 57 deaths per day (Sitole 2019: 14). This is five times higher than the global average. EMCP are regularly exposed to these cases, primarily to attend to victims. However, at times when the SAPS is not on the scene, EMCP may themselves become victims of contact crimes. This exposure to firsthand and vicarious trauma adversely affects emotional and psychological well-being (Vincent-Lambert and Westwood 2019: 14).

Most undergraduate paramedic students have witnessed violence against EMCP in South Africa, and feel unsafe (Vincent-Lambert and Westwood 2019), with emergency medical care being rated as one of the top three most dangerous occupations (Jonker, Graupner and Rossouw (2020). A quantitative study conducted by (Maguire *et al.* 2018a), which researched the prevalence of physical assaults against EMCP with 1778 respondents across 13 countries, found that at least 65% of EMCP have experienced violence at work. These events lead to psychological wounding, which in turn affects productivity and threatens well-being. It is clearly evident that effective means are required to reduce stress for EMCP while at work (Lawn *et al.* 2020).

2.4.3.1.3 Shift work

The nature of emergency services demands that providers operate consistently throughout the day and night, even on weekends and holidays. This means that EMCP must work shifts. These shifts may be very different from 08h00 to 16h00, with some personnel being required to work 12-hour shifts, alternating between day and night. In other areas, shifts may comprise 10 hours during the day and 14 hours at night. Moreover, in other parts of the world EMCP are required to work two days, two nights with a break for four days (Sofianopoulos, Williams and Archer 2012; Khan *et al.* 2021). These types of rotation may disturb normal sleeping patterns. In addition, Khan *et al.* (2020) report that these shifts may lead to higher levels of insomnia, which may be associated with higher levels of depression and anxiety among paramedics. In addition to these mental health presentations, Khan *et al.* used the Pittsburgh Sleep

Quality Index score in their study, finding that paramedics had higher scores than the recommended clinical cut-off. Khan *et al.*'s study concluded that the chronotype (or inclination about times of the day) of shift workers has a strong negative impact on their mental health.

2.4.3.2 Organisational stress

2.4.3.2.1 Mis-categorisation of high and low acuity cases

The prehospital sector exposes EMCP to both low acuity and high acuity emergency medical work. Both types of case bring great responsibility, and sometimes this leads to stressful situations and WRS (Khorram-Manesh 2020). Spangler *et al.* (2020) state that errors in the dispatch system may lead to some cases being categorised as low acuity when they are in fact high acuity. This in turn may lead to undertreatment of the patient, thus compromising the patient and overwhelming the crew treating the patient, leading to stress. This stress can be magnified by a perceived sense of failure to render services, especially if the patient dies while in the care of an EMCP (Alshehri, Pigoga and Wallis 2020).

2.4.3.2.2 Uncontrollable work demands

Stress may sometimes be enhanced by failure in expected support systems such as high employer expectations and high call volumes with a minimum refreshment or food breaks for EMCP (Regehr and Millar 2007). Added to that, EMCP are sometimes expected to complete tasks within a limited period. This increases pressure to meet tasks and decreases opportunities for quality job output (LeBlanc *et al.* 2012). Furthermore, it has been determined that job dissatisfaction, associated with organisational stress and negative patient attitudes, contributes to WRS (Maslach, Schaufeli and Leiter 2001: 406).

2.4.3.3 Personal and professional conflicts

Patterson *et al.* (2012) state that crucial teamwork components include mutual trust, clear communication, as well as knowledge of structures that enhance collaboration in the work environment (also referred to as shared mental models). In addition, poor

teamwork is always associated with negative patient outcome. Fernandez *et al.* (2020) add to the concept of teamwork by suggesting that a team comprises two or more people who have to share thoughts, beliefs and feelings; they states that these are the basic needs for a team to function as a unit.

In the South African context EMS crew comprises two people, and if there is a need for ALS, they make up the third team member. It can happen that these members do not have a good working relationship, and there may be conflict. Conflict is a fundamental source of WRS (Patterson *et al.* 2012). Patterson *et al.* (2012) further report that some EMCP work with more than 50 crewmates in a year owing to conflict in the workplace. This change of crewmates could sometimes work against the development of a shared mental model. One of the reasons for this high rate of change is interpersonal conflicts, decreasing employee retention of EMCP.

Poor teamwork in EMS can increase job vulnerability, medical errors, unpleasant events and dangerous workplace behaviours that bring insecurity (Rashtchi *et al.* 2020). This then gives a clear need to have effective tools to manage the stress that can be brought by interpersonal conflict while at work. Effective tools to mitigate WRS can help organisations render better services to their clients (Sedlár 2021b).

2.5 Effects of stress: psychoneuroimmunology (immune, endocrine, nervous system)

WRS is experienced in the physical world, in the workplace. However, it not only affects the work experience, but also other things such as psychology and homeostasis in human beings. The following section focuses on the immune, endocrine and nervous systems. A great deal of research has been conducted to assess the impact of stress in such body systems.

2.5.1 Endocrine system: cortisol

Assessing saliva cortisol is a tool used to determine stress in employees. It creates readable data that give a clear picture of employee stress levels (Vining *et al.* 1983; Hegg-Deloye *et al.* 2014). An *et al.* (2016) conducted a systemic review, finding that

of the forty articles studied biomarkers used to assess stress, such as saliva and cortisol, were assessed the most.

EMCP experience stress in their workplace. This is clearly reflected by indicators such as increased cortisol, catecholamines and cardiovascular changes (Hegg-Deloye *et al.* 2014). Hegg-Deloye et al. (2014) noted that cortisol was particularly prevalent in participants with underlying conditions. In the same study, younger employees with no chronic conditions did not have increased cortisol during the active working part of their day; rather, increased cortisol was noted at the start of a shift. This suggests that their peak stress levels occurred more at the start of a shift. This study does not mention the area in which the EMCP worked, for example whether it was a city or a rural or remote area. It does appear that the EMCP were not too busy; at some point they were all able to sleep a minimum of five hours on night shift. This study cannot therefore be applied to all EMS systems worldwide, such as in major cities, but it does give a picture of stress in the prehospital setting. Backé *et al.* (2009) also found similar findings. Their results found that EMCP have stress associated with the type of work done in EMS; although the stress was not consistent, there were findings of increased salivary cortisol. It is worth noting that the organisation in which the research was conducted was in an urban area. The EMCP had access to emergency physicians in the prehospital setting more frequently than is common done in other parts of the world.

In a more recent study in the Swedish ambulance service, saliva cortisol from EMCP was assessed in specific cases that were viewed as high acuity; such cases included traffic accidents, cardiac incidents, cases involving children, and neurological patients, all of which appeared to result in an increased frequency of elevated cortisol levels, thus reflecting EMCP as being stressed (Karlsson *et al.* 2020).

Published articles on saliva cortisol levels for stress assessment in EMCP are found mainly in developed nations; no research has been done in developing countries like South Africa. However, this does not mean that WRS does not affect EMCP in developing nations. EMCP are not a homogenous cohort and many factors can affect the way they experience WRS. Such factors include EMS organisational structures,

lack of resources when carrying out everyday tasks and responsibilities as EMCP, and the types of case they are exposed to.

2.5.2 Compromised immune system

Depending on the type of stress that people may be exposed to, their immune system may be compromised. A compromised immune system is one of the risks of chronic stress, common among EMCP who experience WRS (Van Der Ploeg 2003; Esch, Kream and Stefano 2018). This presents itself as systemic inflammation during stressful situations (Dragoş and Tănăsescu 2010), and continuous stress can lead to dysregulation of the immune system, which in turn leads to chronic diseases such as frailty and atherosclerosis in adults (Morey *et al.* 2015). Moreover, Morey *et al.* (2015) further state that psychological stress has similar effects to chronological ageing. When chronological ageing is coupled with chronic stress, it rapidly increases immunological ageing (Graham, Christian and Kiecolt-Glaser 2006).

2.5.3 Physiological effects

It is well established that chronic psychological stress can adversely affect health. A survey by Puterman *et al.* (2010) found that stress increases the risk of cardiovascular conditions and diabetes, and it may accelerate cell ageing. Accelerated cell ageing occurs when the telomeric DNA found at the end of the chromosome is shortened, bearing in mind that shortened cells do not multiply (Schutte and Malouff 2016). While no study has assessed the telomere of EMCP, recommendations have been made by Dallard (2019), for example, that the size of the telomere can be a good indicator of WRS.

Furthermore, the American Heart Association agrees that psychosocial stress is associated with cardiovascular diseases, fluctuating blood pressure, and coronary artery plaque, as well as abnormal blood glucose and dyslipidaemia. In addition, high cardiac enzymes have been found in the bloods of patients with psychosocial stress (Osborne *et al.* 2020).

2.5.4 Mental health effects of work-related stress

WRS may result in many mental health conditions which EMCP in particular may be prone to, for example PTSD. PTSD may occur when a person experiences, witnesses or is confronted by an event which may be life threatening, or which may affect psychological integrity (Friedman *et al.* 2011). There is a greater prevalence of PTSD, depression and anxiety disorder among EMCP compared to other occupations (Wagner *et al.* 2020). The evidence is seen in a number of research papers, with others noting a relationship between WRS and PTSD in EMS (Straud *et al.* 2018). These studies found a link between operational and organisational stress, critical incident stress, and the use of alcohol and PTSD symptomatology (Eiche *et al.* 2019). This relationship indicates that EMCP experience stress while at work, followed by post-traumatic symptomatology (Donnelly 2012).

Hegg-Deloye *et al.* (2014) conducted a systematic literature review looking at the years 2000 to 2011. The review studied published research on post-traumatic stress, sleeping problems, obesity and cardiovascular disease in paramedics. The study acknowledged that EMCP accumulate a great deal of acute and chronic stress while on duty. It further states that their stress leads to PTSD, which in turn leads to cardiovascular complications. Moreover, this review confirms the prevalence of PTSD, sleeping problems and obesity among EMCP. The review recommends that there should be organisational and individual interventions in place to reduce emotional distress among EMCP. Additionally, it recommends that programmes should be designed specifically to improve the health of EMCP.

WRS affects the mandate of EMS organisations to deliver services to the community. Furthermore, Funk (2005) states that WRS contributes to poor job performance, as well as increased rates of absenteeism and staff turnover. These issues result in increased financial strains on employers (Funk 2005). Hassard *et al.* (2018) support this statement in a literature review in which they state that the costs related to WRS rose to USD187 billion in 2014 in the pan-European countries alone. This reflects that WRS affects communities, which also affects the government’s fiscus.

2.5.5 Social effects

The impact of stress not only affects work-related aspects. It has ricochet effects that are observed when workers are in their private setting, such as with their families. Smith *et al.* (2019) discovered that emergency workers sometimes experience difficulties fulfilling family responsibilities or activities owing to being emotionally drained. Sometimes they return from work feeling stressed, such that they do not do things they enjoy. WRS has also been seen to affect cognitive and emotional well-being. In this regard, Rabenu, Tziner and Sharoni (2017) found that it leads to conflict within the family, negative moods and higher disagreements in marriage.

The ricochet effect of WRS on family ends up affecting job performance. EMCP use family time as a coping mechanism; however, if that is affected it will mean one of the vital coping mechanisms used in their private setting is negated (Soomro, Breitenecker and Shah 2018). Kumar, Prasad and Kumar (2018) have reported that female employees tend to ignore work-related issues at home and prioritise family, in that way negating issues that result from WRS. This suggests that males are more likely to suffer negative effects on relationships than females.

2.6 Tools used to manage work-related stress

2.6.1 Organisational tools

It is in the best interests of EMS organisations to have proper functional systems that help EMCP to manage WRS (Dube 2020). It is for this reason that organisations have specific department or regular systems that render services that could reduce WRS. For example, in the City of Tshwane Municipal EMS, after studying the after-effects of EMCP exposure to fatal road accidents, Sebela (2016) found the following systems were used to assist employees:

- Supervision
- Employee assistance programmes
- Continuous professional development
- Quality improvement
- Learning and support
- Open communication.

Maritz (2015), an industrial psychologist, explored psychological trauma management among EMCPs in multiple organisations in Gauteng province. He recommends that there should be different systems that involve both the organisational means and the personal approach**.** In Maritz's submission, he mentions the following:

- On-site face-to-face counselling
- Group debriefing sessions
- Awareness programmes
- Multiple stressor programmes
- Efficient job preparation and regular training
- Sufficient resources.

Looking at the above, organisations have strategies in place to manage WRS, but whether they are used or effective is unknown. In the same organisation they were not there or not fully implemented; hence the industrial psychologist made such recommendation (Maritz 2015). It is worth noting that organisations have policies in place that give birth to systems. Within the system there are personal approaches that are used to bring the policy to fruition.

Although there are systems and programmes in place, studies have recommended that improvements be made in the execution of wellness programmes provided by employers. Smith and Burkle Jr (2018) found seven key areas where improvements had to be made by employers to programmes designed to reduce WRS:

- Understand the workforce
- Engage with the staff
- Avoid silo approaches to physical and psychosocial health
- Enable ongoing professional and personal development
- Provide the tools for peer-to-peer support communication
- Include family in the wellness initiatives
- Provide ongoing support for those who have left the service.

This study reflects that there may be tools to manage mental health in the workplace, but they may not have the best outcomes and need to be reviewed to assess whether

they are effective. It is worth noting that globally few studies have been done to review tools to manage WRS in general, and this situation is even worse in South Africa.

2.6.2 Social Focused Tools used to manage WRS

Coping mechanisms have been classified as positive and negative coping strategies (Zana 2019a). Positive strategies include formal and informal tools, with formal tools including debriefing, mental preparation using chaplaincy, and disengaging. On the other hand, negative coping strategies include the use of drugs and compassion fatigue. Furthermore, some EMCP lack the education and training to managing emotional trauma; this explains why some will end up experiencing compassion fatigue (Dehghannezhad *et al.* 2020).

One of the coping mechanisms used to reduce WRS is detaching from work completely when the shift is complete, and this is done by focusing on social activities after work (Clompus and Albarran 2016). However, some EMCP finds themselves failing to dissociate work from their social spaces. This is highlighted by Lawn *et al.* (2020) in a literature review where they found that some of the effects of WRS experienced by EMCP spills over into their social spaces, such that they feel they have to withdraw socially. This negatively affects relationships.

Looking at Sebela (2016), Maritz (2015) and Zana (2019), there are coping mechanisms in place in various organisations, and these can be separated into organisational and personal coping strategies:

Personal coping strategies:

- Drugs
- Alcohol
- On-site face-to-face counselling
- Taking leave days/rest days
- Hobbies and talking and socialising with peers

Positive personal coping strategies are important. Failure to have such mechanisms can lead to detrimental effects such as drug usage and alcohol abuse. These

strategies can in turn lead to impaired productivity in the workplace (Hichisson and Corkery 2020).

2.7 Conclusion

Wheeler and Dippenaar (2020) agree that EMCP are exposed to multiple stressors while at work. They state that these stressors manifest as WRS, ending up affecting the social, physical and mental health of EMCP. They state that this goes further in the way that it affects EMCP's physiological responses. EMCP have been found in general willing to do their jobs. Based on this, EMCP and employers have the same interests, but because of their exposure to WRS, EMCP fail to be productive. A number of studies have identified that EMS organisations understand there is a need to manage WRS. However, in South Africa, there is a lack of studies that scrutinise how such programmes are implemented and whether they are effective. This is displayed by the current literature discussed in this literature review.

3. CHAPTER THREE: METHODS

3.1 Introduction

The preceding chapter focused on a review of the literature on the nature of South African emergency medical services (EMS), with a focus on the possible causes of work-related stress (WRS) for emergency medical care personnel (EMCP). This section provides details of the research design and the methods that were used for conducting this research.The Research onion

gives a bird's eye view of the research principles followed in this study when designing the research project.

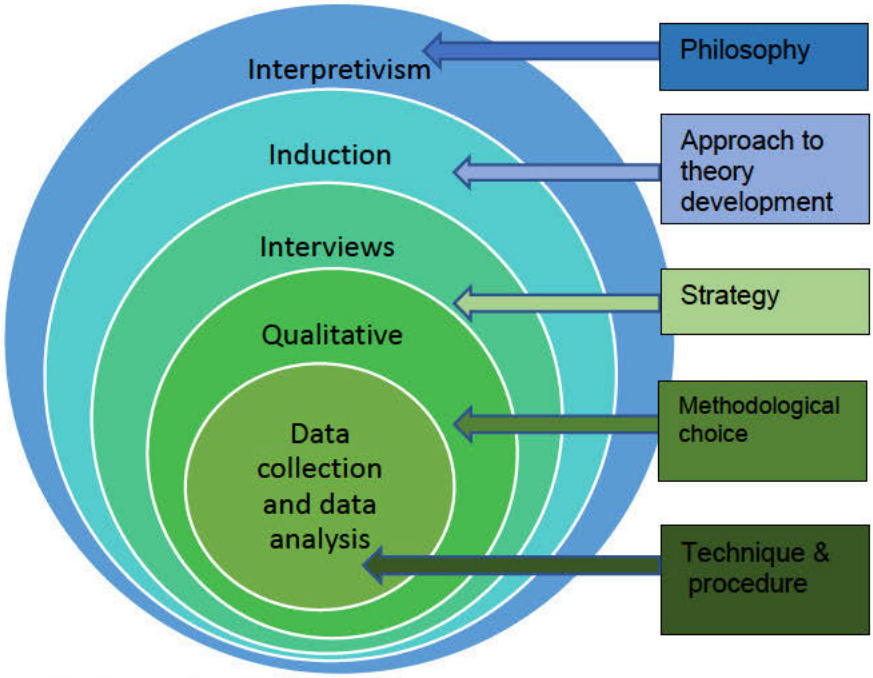

Figure 2: Research onion

A research philosophy is a set of beliefs and assumptions applied by the researcher in developing knowledge. In this research, the researcher followed an interpretivist philosophy, as described by Saunders (2016). When analysing the epistemological aspects of interpretivism, Žukauskas, Vveinhardt and Andriukaitienė (2018) state that "all knowledge is related to the one who knows and can be understood only in terms of directly related individuals". The researcher agrees with this view, hence EMCP

comprising operational and station managers were interviewed to ascertain their understanding and experiences of WRS.

3.1.1 Theoretical framework

A theoretical framework is an explanation of how the researcher views the world in which they conduct research. It creates an idea in the reader's mind of how the researcher views the world. Collins and Stockton (2018) state that a theoretical framework clarifies the epistemological disposition of the research and, by so doing, it brings to light the logic of the research methodology, as well as explaining the structure of the theory behind the research findings.

Collins and Stockton (2018) also argue that a theoretical framework can be used to explain the beliefs and ideas that are held by the researcher in explaining a phenomenon in research. In this research study, the researcher looked at various theoretical frameworks, finding that the dominant ones in the field of WRS are the biopsychosocial model and the organisational climate model (Gask 2018; Pecino *et al.* 2019). The biopsychosocial philosophy focuses in three components: i) the biological, ii) psychological and iii) social dimensions (Borrell-Carrio 2004). While the literature in WRS extends to the physiological ramifications of stress, more research has been done on the organisational climate model, thus inspiring the research in this study. The structure of the theoretical framework for this research draws on four parameters:

1. The structural properties of the organisation
2. The environmental characteristics of the organisation
3. The organisational climate
4. The formal role characteristics within the organisation (Kundu 2007).

An organisational climate is a set of global perceptions held by members of an organisation about the organisation's environment (Mannion and Davies 2018). The environment in this case is influenced by the population and the communities within which the EMS organisation functions. The environment has a direct impact on employees, including EMCP and EMCP managers. Kundu (2007) states that the organisational climate framework is the "sum of total of perceptions based on the

interaction between individual perceptions and the organisational environment". On the other hand, Bitsani (2013) states that an organisational climate is created by individuals within an organisation, who would ordinarily be reacting to the outcomes presented by the organisation and its environment.

Tools for reducing WRS can have a significant impact on how the organisation functions. A high stress load has an impact on the performance of clinicians, not only affecting them at work but also their social life, and in some cases affects their physiological functioning.

3.1.2 Background and position of the researcher

The researcher followed the consolidated criteria for reporting qualitative research (COREQ) to document what is expected from a qualitative researcher report for most of this chapter (Tong, Sainsbury and Craig 2007). In this section it is advocated that qualitative researchers show reflexivity. This is when the researcher reflects on their own feelings or thinking that might have influenced their research.

I am a male South African and the researcher of this study. Accordingly, I conducted interviews with station managers and operational EMCP. At the time I conducted this research I was employed and working full time as a paramedic in the South Australia Ambulance Service (SAAS). In my current employment, I volunteer as a peer supporter, as part of a first-line response strategy that assists paramedics with work-related issues, personal issues, traumatic events, loss, grief and group crisis strategies.

My career EMS started in 2004 when I enrolled at the Durban University of Technology (DUT). After completing my first year I registered as an intermediate life support practitioner, and stopped studying, working for various private companies and in education and training, teaching basic ambulance assistants and working at events. In 2009, I returned to complete the diploma, which I did in 2010. I then also completed a Bachelor of Technology at the Durban University of Technology.

For this study, it was an added advantage to have worked for the organisation in which the research was conducted. During the period in which I worked there, which ended in July 2018, I worked in the intensive care unit (ICU) and as a clinical coordinator. While conducting the research, I realised that my experiences in the ICU ambulance were generally not the same as those experienced by EMCP and which increase WRS.

3.1.3 Study population

The target of the study was operational managers and operational EMCP who had worked for the Gauteng Emergency Medical Services in Johannesburg for a minimum of three months and were registered with the Health Professions Council of South Africa (HPCSA). Data collection was done using individual semi-structured interviews for Phase 1 and group semi-structured interviews for Phase 2.

3.1.4 Inclusion criteria for managers: Phase 1

- Managers had to have been managers or acting managers with the Gauteng Provincial Government (GPG) Emergency Medical Services for more than three months
- Managers had to be registered in the Emergency Medical Care register at the HPCSA.

3.1.5 Exclusion criteria for managers: Phase 1

- Managers who have been in that position with the GPG Emergency Medical Services for less than three months, or have acted in that position for less than three months; or
- Managers not registered in the Emergency Medical Care register at the HPCSA.

3.1.6 Inclusion criteria for EMCP: Phase 2

- The EMCP had to have worked for the Gauteng Department of Health, Emergency Medical Care Department for more than three months, and

- The EMCP had to be registered as Emergency Medical Care Personnel at the HPCSA.

3.1.7 Exclusion criteria for EMCP: phase 2

- An EMCP who has not worked for Gauteng Department of Health, Emergency Medical Care Department for more than three months; or
- If a manager, the EMCP could not answer the employee section; or
- An EMCP who is not registered as EMCP at the HPCSA.

3.1.8 Sampling strategy

After obtaining ethical approval from the Durban University of Technology Institutional Research Ethics Committee (Ethical Clearance no. IREC 169/20), the researcher contacted the GPG chief executive officer (CEO) by email, inquiring about the processes to follow in conducting research at the organisation. The CEO referred the researcher to the Office of Clinical Research at the Lebone College of Emergency Care, where the committee responsible for research at the GPG Department of Health Emergency Medical Care Services is located. Following a meeting of the committee, the researcher was granted approval to conduct the study.

The sampling method used was a nonrandomised sampling technique. This technique was favoured for its practicality and ability to target relevant participants. One type of nonrandomised sampling technique is convenience sampling, whereby the researcher requested EMCP who were available to be interviewed. Convenience sampling was deemed suitable owing to the accessibility and availability of participants. One of the disadvantages of convenience sampling is the unintended selection of a homogeneous sample. To mitigate this effect, in this case different qualification level and different genders were included (Etikan, Musa and Alkassim 2016).

3.1.9 Recruitment and sampling: Phase 1

The recruitment of the population expected to be eligible to participate in the study for Phase 1 took place by email invitation. Subsequently, managers were referred thereby applying a snowball recruitment technique. In total, three participants were recruited. All the participants of Phase 1 were sent questions via WhatsApp and email. They

were given time to read the questions (see Annexure A: Research **Questions**) in order to make an informed decision about whether they would agree to be part of the study.

3.1.10 Recruitment: Phase 2

The population for the second phase of the study was recruited by the researcher at the Lebone College of Emergency Care, where EMCP were attending various training courses. The candidates were contacted, and later invited to participate, through their respective class representatives using the researcher's invitation template. As suggested by the researcher, prospective participants then came to the classroom. At this point, the researcher explained what the research was about and answered questions related to the study. Those who were interested and who met the inclusion criteria were given the questions that guided the interview (see Annexure A: Research **Questions**) If they were comfortable proceeding, they were asked to sign a consent form.

3.1.11 Data collection: Phase 1

Data were collected using semi-structured interviews. This method was used because it allowed the researcher to ask questions and also scrutinise if responses are inadequate. Semi-structured individual interviews were conducted in person and were recorded after gaining consent from the participant. The researcher recorded the interviews so that the data could be reviewed during the analysis phase.

The researcher prepared a number of questions that guided the interview (**Annexure A: Research Questions**). Although the questions were supplied in advance of the interview, they were asked in such a way that allowed for exploring and going off on relevant tangents when they arose during the semi-structured interview. Having questions prepared in advance assisted in getting respondents to talk; this is what researchers describe as questions that make a respondent give a verbal tour of something they have explicit knowledge of. The researcher used prompts to prevent the responses from derailing the answer, at the same time allowing participants to express their feelings (Leech 2002).

3.1.12 Data collection: Phase 2

There is evidence to suggest that effective focus groups comprise six to eight people. In such groups the participants are asked open-ended questions in an unstructured format (Creswell 2018). (See appendix semi-structured interview questions, Page 121, Question 2 for EMCP.)

In comparison to group interviews, focus group interviews give more in-depth information. They are designed to interrogate a topic in detail, which is easy in a small group of six to eight people (Moser and Korstjens 2018). Additionally, this is strengthened if the group is heterogeneous (Guest 2013).

Participants' demographics will be documented in more detail in the next chapter, chapter 4. Guest (2013) suggests that one focus group interview can provide data saturation. However, Guest (2013) strongly recommends that researchers conduct at least three focus group interviews in case one group interview does not go as planned, which is what the researcher did for this study. Guest, Namey and McKenna (2017) agree with this, stating that more than 80% of all themes are found within two to three focus groups, and 90% are found within three to six focus groups. This supports the interviewing of three groups. For this reason, the researcher deemed it fitting to have three groups.

3.1.13 Data interpretation through thematic analysis

Data collected from both phases of this research were analysed thematically. The thematic analysis process comprised the following steps:

a) **Familiarising oneself with the data**. This process started during the interviews, with the researcher taking notes and continued during the transcribing process. Once the transcripts were completed the data were studied closely.
b) **Generating initial codes**. Codes were created by reading what each participant in each group said.
c) Searching for themes. The researcher examined each of the codes for similarities and then grouped them, thereby creating themes.

d) **Reviewing themes.** The researcher shared the transcripts with his co-researchers, who then also conducted an analysis, making the identification of themes a joint effort.
e) **Defining themes.** Theme names were adjusted in order to add meaning to the research.
f) **Producing the report.** After the themes were finalised a report was produced (Boyatzis 1998).

Thematic analysis is a systematic way of arranging and describing data in detail. This form of analysis allows for the identification of themes pertaining to the study. Braun and Clarke (2006: 87) developed a step-by-step approach that stipulates the process of finding themes and organising them in a logical way.

Thematic analysis has been used in many qualitative research studies. Vaismoradi *et al.* (2016) and Nowell *et al.* (2017) agree that this is a great tool that can be used in research that requires the logical and systematic gathering of themes. Nowell *et al* (2017: 2) further suggest ways in which to use the tool such that it is trustworthy. They define trustworthiness as credibility, dependency, conformability, and transferability, mentioning that these factors are achievable if the processes of the thematic analysis are followed.

Data from Phase 1 and Phase 2 will be analysed simultaneously; this means data gleaned from both individual interviews with managers and group interviews with EMCP will appear under the same themes if relevant.

The semi-structured interviews and the focus group discussions inquired into the causes of WRS, with questions being posed to managers and to EMCP, respectively. The researcher then proceeded to focus more on the research questions for the study. This was a vital step in understanding the tools that are in place to manage WRS, thereby seeking to understand the impact that these tools have. The themes start with a description or context of what is the theme about. Then, within the theme, a context is given preceded by verbatim quotes from the participants.

The interviews were conducted in English, although both the interviewer and the participants were bilingual, sometimes using more than one language in the

interviews. During the interviews participants would respond in English and sometimes in their mother tongue or an informal blend of local languages. In the transcripts, the researcher translated this to English. The researcher did this because the languages, or the informal of local languages were known to him.

3.1.14 Ethical considerations

The researcher gained ethical approval from Durban University of Technology Institutional Research Ethics Committee, Ethical Clearance number IREC 169/20

Annexure B: Ethical Approval. Gatekeeper approval was also obtained through a letter dated 13 April 2021

Annexure C: Gate Keeper Letter of Approval**.**

The relationship between employer and employee can sometimes be such that the employer acts in an authoritarian fashion towards an employee, rendering the employee vulnerable. Both our research cohorts were employees of the organisation, with managers playing a management role with regard to EMCP. This also made EMCP more vulnerable. It was important for the researcher to ensure that both these groups of participants were protected from any adverse events that could have arisen from the research

To protect participant confidentiality, participants were not identified using their names or their geographic areas of responsibility. The researcher created codes such as EMCPM1, EMCPM2 and EMCPM3 for managers in Phase 1 and EMCP1, EMCP10 etc. for EMCP in Phase 2. This assisted in maintaining the anonymity of all the

participants. They were also made aware that the sessions were recorded and who would have access to the recordings, and that their anonymity was important to the researcher and would be maintained. Information about the length of time the recordings would be kept was also provided. In addition, Lebone College of Emergency Care as the setting for EMCP interviews was conducive to confidentiality, as none of the participates were at their normal work stations, and thus could not be identified by their fellow workers. Moreover, they were comfortable in the setting as they were familiar with the college.

Participants were given time to read and ask questions about the details of the informed consent form to participate in the study before they signed it. The researcher was aware that this kind of research may invoke certain emotions or distress in the participants. To manage this the participants were made aware of what they would be asked before they consented to the interview. No adverse events were experienced following the interviews; indeed some participants showed gratitude for the opportunity to sit and discuss matters in relation to their work and WRS. Although the researcher was prepared to refer participants who showed signs of distress for counselling, there was no need to make use of this service.

3.1.15 Ethical reflexivity

During the phase of data collection I had no relationship with the organisation; although all the participants in this phase were known to me, I had never worked with them before. All participants were made aware that the interviews were solely for the purposes of the research project and that my interest in the research topic was stimulated by my personal experience having worked in three countries and each countries' management of WRS for the EMCP.

3.1.15.1 Validity and reliability

Grossoehme (2014) defines validity as the trustworthiness of data, which means the findings of the study must be reflected in the data collected in their true state. Elsewhere, Noble and Smith (2015) define reliability as accountability by the researcher such as when he/she states whether there are any biases that influence the findings of the study. These concepts are important as they improve the credibility

of the study. It is for this reason that the researcher employed tools that are recognised to improve validity and reliability like conscientious record-keeping, and clear traceability of data and the like (Noble and Smith 2015). Creswell (2018: 215) suggests that in qualitative research, researchers can use multiple methods to support validity.

Guest, MacQueen and Namey (2012) recommend that validity and reliability be done in all the stages of the research. The various techniques that were applied to promote validity and reliability are discussed as follows:

Data collection phase

- More than one way of collecting data was applied as the data were collected from station managers and from EMCP. In that way the information provided by the two parties could be compared, thus enhancing reliability.
- The data collection instrument was developed by the researcher and refined after critical discussion between the researcher and the supervisory team to ensure it was aligned with the overarching research questions. In that way the measuring instrument measured what it was supposed to, thus ensuring validity.
- During the interview process prompting questions were asked to ensure that the interviewee's responses answered the research questions.
- The participants were given an opportunity to review the transcripts and approve or reject them if they did not agree. This assisted in ensuring that correct information was documented and used for the research.

Data analysis phase

- The transcript provided verbatim details of the interviewing process thus ensuring validity.
- The coding was done by two researchers other than the main researcher; in other words, it was done by three people, who all arrived at similar conclusions, meaning that the results were consistent and reproducible. This enhanced the reliability and trustworthiness of the research.

- It is also worth noting that the lead researcher, second researcher (main supervisor) and third researcher have different industry backgrounds (operations in different countries, and operations and academia, and psychology), thus reducing background industry bias.
- Themes with direct quotations were used to connect the researcher's interpretation to the participants' verbal statements.

3.1.16 Summary

This chapter described the methodology applied and the processes undertaken to conduct the research, including ethical approval, recruitment and data analysis. Details regarding the validity and reliability of the study were also reflected in this chapter.

4. CHAPTER FOUR: RESULTS

4.1 Introduction

This chapter outlines the study findings. As described in Chapter one, this research aims to identify the tools that currently exist in supporting Emergency Medical Care Personnel (EMCP), working for the Gauteng Provincial Government (GPG) Emergency Medical Care Services in Johannesburg, that are used to manage work-related stress (WRS). This research also aimed to explore whether these tools are currently utilised and investigate how effectively these tools are perceived to assist EMCP in reducing WRS (see Figure 1). To achieve this aim, the researcher had to initially understand the stressors affecting the EMCP to know if the tools designed to reduce the specific stress are utilised and whether they are effective. The research questions are as displayed in **Figure 3** below.

Table 1: Research questions

EMCP Research Question	
Question	
1	What strategies are provided for supporting EMCP for WRS?
2	How are the strategies identified in 1 implemented by EMCP?
3	What impact do WRS supporting strategies have on the EMCP?

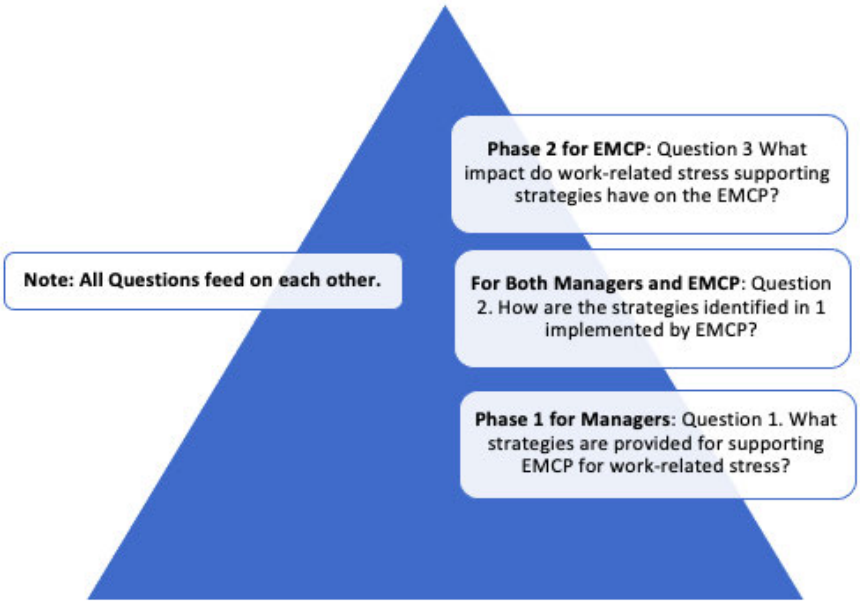

Figure 3: Flow of research questions

In order to address the research questions, it was deemed necessary for participants first to explore the causes of stress for EMCP. This was done to understand whether the tools to reduce the stress that are in place do indeed address the specific EMCP needs.

4.2 Demographic information

The first phase of the research included managers, who are referred to in this work as emergency medical care personnel managers (EMCPM). The managers comprised two males and one female, aged between 33 and 52 years of age, with experience ranging between four and ten years with the organisation. One manager was an intermediate life support (ILS) practitioner, and two were emergency care technicians (ECTs). All three managers were responsible for a base in or around the Johannesburg metropolitan area. Based on their location, their EMCP would be deployed in informal settlements, townships and suburban areas.

In the second phase, which included EMCP, the researcher conducted three semi-structured group interviews with a total of 19 participants. The focus groups were named Group 1, Group 2, and Group 3. Group 1 had six members, Group 2 had seven members, and Group 3 had six members. Overall, the groups included three basic life support (BLS) personnel, 14 ILS personnel and two emergency care practitioners

(ECPs). The groups comprised four females and 14 males, with one preferring not to state their gender. Among the 19 EMCP, two were shift supervisors. These participants met the inclusion criteria because they did not hold management status, and they were involved in the operational like non-shift supervisor EMCP. The EMCP's experience with the organisation varied between seven months and 11 years, while their ages ranged between 22 and 43 years (see Table 2: **EMCP Demographic information** below).

Table 2: EMCP Demographic information

Group number	No. in each group	Min. experience	Max. experience	BLS	ILS	ECP
1	6	7 months	4 years	3	3	0
2	7	1 year	11 years	0	7	0
3	6	13 months	6 years	0	4	2
(total)	19					

The research identified various themes which will be presented below as Phase 1 results from managers and Phase 2 results from EMCP.

Figure 4 below presents a summary of the themes found in the research. Data from both phases were analysed and the themes are presented as a culmination/combination of the two phases.

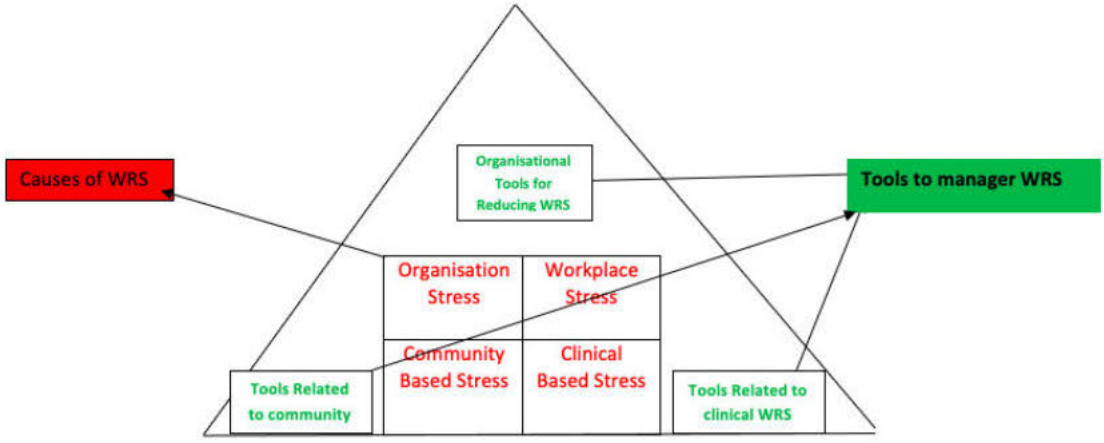

Figure 4: Triangle of tools to reduce WRS

4.3 Themes

Four themes emerged from the thematic data analysis as causes for stress: clinical, community, organisational and workplace. These relate to the three categories of tools aimed at reducing WRS: organisational, clinical and community. These seven aspects are presented in Figure 4 below.

4.3.1 Theme 1: Clinical work-related stress and related mitigation strategies

The responsibility for a person who is vulnerable and whose life is compromised can be overwhelming. During data collection, clinicians expressed that the nature of the tasks they do brings them stress. Stress-reducing strategies also were mentioned and the effect they have in mitigating stress for EMCP.

4.3.1.1 Subtheme: High case volumes

EMCP and managers agreed that the high number of cases is one of the causes of stress for EMCP. High volumes of cases place pressure on EMCP to attend to more calls; this is done by managers or by the emergency control centre.

> *One of the stressful things we meet in our bases, like I don't know, maybe I will … the employer sometimes they do not look at our workload* [EMCP8-Group 2].
>
> *It's a workload, like Mike Charlie [Control Centre] says "Outstanding calls", sometimes they say it when I arrive at work, they say 10 [calls] piled then you have to push to cover up those outstanding calls, so that gives us the stress* [EMCP6-Group 1].
>
> *I think to my understanding it's where for a quick example one is struggling or not coping with their workload or sometimes actually it might not be workload it's an environment that you [are] working at is not conducive can give you stress* [EMCPM2-Manager].
>
> *Our managers don't try to get where you come from, for an example, when you are at work and you already have 10 outstanding calls, you leave with a certain amount of equipment and you service your first house you go to hospital, before you even leave [hospital] you get a second call, you go service that house [and go to hospital], already now limited in terms of resources you have used let's say Jelcos [brand of intravenous cannulas] for these patients they are now finished you need restock, you go to base, our supervisor like to listen to radio. He asked what are you doing at base, "we are here*

> *to stock", he will be concerned with the fact that you are delaying this call* [EMCP1-Group 1].

High call volumes are part of the stressors for EMCP, however EMCP and managers have different expectations. Managers can be under pressure to deliver services to the communities in their respective areas, while EMCP struggle to cope with the call volume. While the managers have a management responsibility, the EMCP have a more physical responsibility, which may render them fatigued, and may affect their cognitive abilities and therefore the ability to render services. Additionally, having calls back to back can mean no meal breaks, which exacerbates their fatigue. EMCP expressed they do not feel supported by managers as the pressure to do more cases comes from managers. The above quotes also reflect that EMCP feel the managers do not recognise that they have a heavy workload.

High call volumes are associated with the depletion of disposables while attending to calls. EMCP1 in Group 1 mentioned that owing to pressure from the control centre and/or manager and thus the inability to return to the station to restock, they find themselves running out of disposable resources.

4.3.1.2 Subtheme: Types of case

Apart from the high volumes of calls, the nature of the calls EMCP attend was mentioned as causing stress. When asked what causes stress for their team, one manager replied:

> *… ehh okay, I don't know, I can't say how do they experience it, okay … types of calls they're going out to, alright, the amount of calls they go to, ehhm that is basically how I feel they experience it* [EMCP3-Manager].

The manager [EMCP3-Manager] appeared to be initially unsure about what the causes of stress, but further stated that the types of call EMCP attend to can bring stress. In addition, EMCP with lower skill levels like BLS have to rush to the hospital for the emergency management of patients.

> *[BLS clinicians] cannot put up a [intravenous] line, so, now your response you must just quickly [sic], take the patient to hospital* [EMCP12-Group 2].

BLS clinicians are sent to cases which require skills that are beyond their training or qualifications, in this case intravenous access or fluids administration, so as the patient's needs exceed what the clinician can render, they need to get the patient to hospital quicker. This would perhaps be less stressful if clinical support was available, or if cases were triaged to the right clinical level, for example ILS and above, or if the workload were not so high.

Managers stated that there is stress resulting from the cases that the EMCP attend to, and the volume of calls results in pressure, which may increase stress. As an example, one of the managers, EMCPM1, mentioned that one of the crews once had to declare 11 people dead. These people were killed by vigilantes, which is also referred to as mob justice (please see glossary for definition of mob justice). This case exemplifies the volume of emotionally confronting work and the nature of the calls that EMCP face.

> *… I had a person now recently that dealt with 11 declarations [of death] at one time, of people that were … mob justice and killed, it was quiet a gruesome scene, and he was in quite a state …* [EMCP1-Manager].

ILS personnel and more qualified EMCP are expected to declare the end of life, yet it is highly unusual to declare 11 people at once.

4.3.1.3 Subtheme: Clinical stress mitigating strategies

High case volumes and the case type were identified as factors contributing to WRS. These are complemented by stress-management strategies with a clinical focus, including an in-house training facility, formal and informal debriefing, and the presence of advanced life support.

a) ***In-house training facility:*** EMCPM mentioned that in cases where EMCP showed signs of struggling in the clinical management of patients, they would be referred to the internal training college. This is where refresher courses and clinical guideline updates are undertaken. Such interventions assist in boosting the confidence of EMCP when carrying out their duties.

> *… you also get him involved with training. Send him for training courses, when you send a person for training, and they pass the training course they feel more empowered ...* [EMCPM1-Manager].

Educational updates also referred as refresher courses at the training college are designed to reduce stress by providing clinical training and therefore empowering clinicians to deal with the workload and case type demands by increasing their clinical confidence.

b) ***Formal and informal debriefing***: Managers typically mentioned debriefing as a tool to reduce WRS. Sometimes this was triggered by critical incidents or the manager listening to informal conversations between EMCP; subsequently a more formal debriefing session is organised.

> *… she was traumatised after that event, and she could not do her work. We had to call her in and sit down with her and we did a debriefing session, that did not seem to work, and yah … I had to refer her EWP, and eventually she was referred to outside psychiatric help …* [EMCPM1-Manager].

Not all station managers conducted debriefing sessions, however. The research identified that this responsibility is left to the ECP among the EMCP. If the ECP was not interested or busy with operational duties, EMCP felt there was no support or time available for debriefing sessions.

ECPs felt that debriefing sessions were informative and effective and could improve clinical practice for the rest of EMCP. However, they suggested that they were not supported by managers in conducting debriefings. Additionally, making debriefing sessions a task organised by ECP increased their workload, which was exacerbated by the fact that no time was allocated for such sessions. Lack of support by managers in organising debriefings made the rest of the EMCP view these sessions as unnecessary. It also transpired that it was not compulsory to attend, which meant that EMCP with no will to clinically improve did not attend.

> *… hey bekunaleya call leya [speaking isiZulu: There was that other call] that's the only time, and what I have noticed its most of the time when the ECPs [Emergency Care Practitioners] they wanna debrief we see them as nagging, and when most of the time when the ECP says, can we have five minutes, we develop a negative attitude, uzosi-bora [isiZulu S/he is going to bore us] …* [EMCP9-Group 2]

One manager mentioned that at his station they debriefed. However, this is done only when adverse events or critical incidents affected a patient. He recalled a case where he believed the ECP who led the debrief did it with a punitive approach and identified that it did not reduce stress; instead, it worsened the anxiety for the EMCP involved.

> *… then it moved to the clinical point where the more experienced BTech [ECP] maybe it wasn't a good idea to call him, 'cause he pointed out quite a lot on the clinical side which made it actually worse … what should have been done and what should not have been done ahh eventually, that was also very stressful ...* [EMCPM1-Manager].

Debriefing was used to varying degrees and had the capacity to both reduce and worsen stress if done poorly.

c) ***Presence of advanced life support:*** Some of the debriefing sessions, as organised by advanced life support paramedics, assist the manager with lesser clinical capabilities and knowledge. Moreover, ALS paramedics help to back up lower clinical level EMCP when they have challenging cases; this is an industry set-up of the emergency care system in South Africa. However, as identified by one EMCPM below, there are limited ALS crews available. If these practitioners are available, their presence reduces stress when there are critical cases.

> *… if ever there is an accident on N1 it will be easy to get to N1, to Ebony, Diepsloot, cause they are also responding to Alex, but we do have, we do, in Midrand we have 4 ALS and 1 hours back up* [EMCPM2-Manager].

The presence of ALS personnel does make a difference in managing critical patients; however, yet again a shortage of these EMCP reduces their accessibility.

4.3.1.4 Subtheme: Lack of a mitigating strategy for high call volumes

There is no standard break time for resting or a meal for EMCP. This is because they work 12 hours, and there is no structure in how they have meal breaks within these shifts. This is confirmed by EMCPM2-Manager below.

> *… ehh because of ahh in the emergency setting [industry] we would like to have a one-hour lunch, in an emergency care industry, we cannot, if we can practise that there will be dangers that will be coming after you, for example if you say 11 o'clock ambulance*

> *number one take a lunch and somebody got [sic] injured in front of them, [will they] continue with lunch not servicing the person …?* [EMCPM2-Manager].

There are times when EMCP have to negotiate a break with their dispatcher; however, it is unclear whether this is standard practice within the organisation:

> *… I communicate with dispatcher, always I communicate, for my side, remember in my class, someone mentioned that you must work smart not hard, so, what I normally do, if I'm from a transfer I tell Mike Charlie [the communications operator], if he gives me another call, I tell him or her, but it depends on a type of call. I tell him I just came back; can I please have a break?* [EMCP15-Group 3].

Lack of breaks can mean that EMCP continue to work throughout their 12-hour shift without adequate break intervals. This is one of the causes of stress. In addition, there are inadequate tools to manage the stress brought by the high call volumes.

It appeared that while there are tools to manage clinical WRS, these mainly comprise the organisation using internal systems that focus on training, whether formal or informal. This training takes place through debriefing and the training college and, additionally, having more skilled clinicians like ALS practitioners. However, the implementation of these tools is not consistent throughout the organisation.

4.3.2 Theme 2: Community violence and security measures

EMCP provide emergency medical care services to communities. However, in Johannesburg, EMCP finds themselves working in dangerous conditions in these same communities. This is because, at times, these communities experience unrest, vigilantism and crime. For this reason, EMCP find themselves stressed and challenged in delivering the services that these communities deserve.

4.3.2.1 Subtheme: Contact crime

Working in Johannesburg means the EMCP find themselves working in informal settlements and sometimes in townships. This presents challenges that end up

increasing WRS. For example, EMCP managers describe how acts of criminality have been reported in informal settlements and townships such as targeting ambulances and ambulance vandalisation, as well as EMCP sometimes being robbed of their personal belongings.

> *In the informal settlement mostly, it's being marked as a red zone, so, there is lot of crimes [sic] that is happening there …* [EMCPM3-Manager]

> *… this is because of a lot of robberies and hijacking and staff that has been going on recently at GPG [Gauteng Provincial Government], guys getting attacked for cell phones, guys going out on call for instance where there is no real patient, they are just being targeted …* [EMCPM1-Manager].

> *… like for instance a base in [Base X] they were having this, I think they had an incident where the crews were assaulted now it was said that, for each and every call especially at night, there is gonna be a police escort now … like he said they were held at gun point. Some of the equipment they were taken, another thing, they will also take your personal belongings …* [EMCP12-Group 2].

EMCP and managers mentioned different forms of crime. While this is a burden on the day-to-day functioning of EMS, it also exerts unnecessary and unmanageable pressure on EMCP. Based on the above quotes, informal settlements seem to be dangerous working areas for EMCP, with participants indicating that the organisation gives little or no support in assisting to reduce the stress resulting from such crimes .

4.3.2.2 Subtheme: Phenomenon of mob justice

One of the managers mentioned the challenge of a phenomenon where a community takes the law into their own hands, which is referred to as mob justice. In addition, the community attempts to prevent healthcare for a person accused of a crime after they have assaulted him/her. An example is mentioned by one EMCP who attended a case where an older male had allegedly raped a younger female and the community caught the suspect and assaulted him. This sometimes results in EMCP being attacked by the members of the community (the "mob"). This presents EMCP with challenges, such as exposure to serious traumatic injury for the accused and exposure to violence. In addition, as mentioned above, the nature of calls they experience may increase

their stress and exposure to unsafe scenes. This was mentioned by EMCPM1, recalling what some members of his team had experienced.

> *… they been attacked 3 times one where there was mob justice where the public refused that they take the patient ahh then ahh its actually 4 times, on other times was when they tried to assist with an MVA …* [EMCPM1-Manager].

a) **Mob justice: primary violent assault of the patient**

A primary violent assault in mob justice is when there is an assault on the person or people that the community has identified as culprits. These assaults typically lead to severe injuries and may lead to the demise of the person assaulted. All groups interviewed mentioned having some experience of cases involving mob justice.

Mob justice scenes can be gruesome, and on such scenes, mortality may be one of the ordinary experiences for EMCP, like some of the EMCP in this study. One participant interviewed had witnessed 11 fatalities, and they had the responsibility for declaring life extinct. Unfortunately, it became overwhelming for one of the crew members such that they requested mental health support from their manager. While an EMS organisation cannot prevent mob justice, it is responsible for providing strategies for enhancing safety in the workplace**.**

> *… I had a person now recently that dealt with 11 declarations [of death] at one time, of people that were … mob justice and killed, it was quiet a gruesome scene, and he was in quite a state, eh when he phoned me …* [EMCPM1-Manager].

The organisation has a plan to assist in managing the mental health challenges brought by the severe effects of mob justice for EMCP through the employee wellness centre. From what the EMCPM1-Manager stated, good results were experienced post consultation with the services offered by the organisation.

b) **Mob justice: secondary violent assault**

Secondary violent assault occurs after the community has attacked the victim and a member of the public has called an ambulance. It happens when members of the public realise that the person they assaulted is getting help. When the ambulance

arrives, two possibilities can unfold: the mob can attempt to further attack the victim, or they may attack the EMCP in an attempt to prevent the patient from getting help.

Ordinarily, police are expected to attend to public violence; however, EMCP reported that the police are not activated until they are on scene, and they usually have a delayed response. For example, EMCP1 stated that police could take up to two hours before arriving on the scene; this happens particularly in informal settlements.

> *Yeah, still on this talking of stress at work the threats are every day thing, especially, especially in cases where its mob justice, there is somebody who has been assaulted there by the mob, there is always threats, where there is a mob, there is always threats to the ambulance personnel …* [EMCP18-Group 3].

> *The community ended up going away, we then attended to the guy, the guy is locked inside a shack, as we are attending suddenly they start throwing rocks, the guy is here [pointing on the side] and we are that side, so we are retrieving I believe those guys came from behind us, they started throwing, we were inside a passage, and those rocks came, we were holding our ECG, equipment, I jumped over the fence I grabbed my crew I pulled her over the fence I left jump bag as well as the dynamac [vitals monitor], pulled her over … then they started attacking us … as we left we got to the base, supervisor comes asked us what happened to the call, but his main priority. His main focus was "did you not get the patient", [he said] "go back and get the patient"* [EMCP1-Group 1].

The EMCP in the case above indicated that their workplace is not safe – not safe for the patient or them as EMCP. Their exposure to violence may fit the description of a dangerous workplace. It would appear that there are no tools in place for managing the stress induced by secondary violent assault in the workplace.

> *Yeah, on scene there, so you get a call, they will say it's a stabbing, so when you get there, as you busy treating the patient, the perpetrators they come to finish off the patient in front of you, and there is nothing that you can do* [EMCP12-Group 2].

EMCP 12 narrated some of their experiences, suggesting that the presence of EMCP unintentionally triggered the further assault on the patient – also exposing them to danger. Unfortunately, such cases can bring a lot of stress and permanent psychological scars.

> *I once had an incident like that mob justice … on this, squatter camp [informal settlement] the old man stabbed a young lady, with a knife, stabbed chest, when we stopped with the ambulance the community brought that lady to us … we checked the patient, and we found that it's a P4 [demised] ... the community came, with this old man, they already assaulted the man … they made a circle, there were many of them … they were waiting for us to say this patient is dead, so that they can also kill this man* [EMCP10-Group 2].

The community rendering mob justice deems killing the suspect a way of punishing them for the crime they committed. Unfortunately, this results in EMCP witnessing or experiencing violence, in that way increasing stress. EMCP10 is expressing his account of an incident that turned hostile, effectively turning their workspace into a dangerous working area. Their presence unintentionally endangered a patient. Although this narration is multilayered, it has multidimensional stressors that EMCP experience in the workplace.

> *So, we were caught in a space like we can't say that, cause they will kill this one, so some of us, we were three, it was me and my crew and the back-up [ALS], we wanted to help this man cause he was already bleeding, they denied us. They said you can't help this one, let this one die, let this one bleed and die. We are waiting for you to treat this one, if this one you say she's died [sic], we are killing this one.*

Prehospital emergency care workers are there to sustain life like EMCP10 describes; in this case, they intended to treat the patient, and they were prevented from doing so. Furthermore, the issue became confrontational when the mob threatened to murder the patient.

> *So we were trapped in that scene, we called the police it was around 18h00 afternoon, the police said they were busy with this parade and changing of shift, so we waited there for about two hours in that hostage until the police came, when they came they come with one bakkie [South African English for a utility van], we see them standing there [sic], they could see ehh they can't control that crowd they went back, to call others, the second time they came in numbers that's where we were free now we can say, guys this patient is dead in the presence of police* [EMCP10-Group 2].

These cases show how EMCP interacting with mob justice events fits the definition of WRS; this is because there was a direct threat to EMCP physical safety which might have impacted on them emotionally and possibly also on their mental wellbeing. Due to being EMCP they find in positions where they are not able to manage their security. Despite these experiences, the organisation provides no or inadequate support for these kinds of incidents and EMCP are continuously overwhelmed by threats to their physical safety and that of their patients. While it is expected that other support services like the SAPS will play a role in such cases, their ineffectiveness reduces EMCP safety, thereby increasing WRS.

4.3.2.3 Security and safety mitigating strategies

Working with community policing forums (CPF) and the police

Some areas are known as *red zones*; such areas are known to be crime and violence hot spots. In such areas, managers meet with CPF to work on mitigating strategies to keep EMCP safe.

> *… chairperson of the Community Policing Forum so we had an agreement, they told me that this place is a red zone to them, because of most of the crimes is from that place so I said what If that place needs an ambulance, are you gonna be able to escort them? They said there is no problem …* [EMCPM3-Manager].

While other EMCP and managers told of violent experiences at work, some managers stated that their crews had not experienced such incidents. This was credited to having sound preventative systems that enhance the safety of EMCP while in potentially violent areas. One manager was asked, "Have your crews experienced violence in the informal settlements?" Their response was as follows:

> *Mmmh not really, we have a good communication with the police, so mostly they activate when they go to those places, during the night I advise them that don't go in at night, they must bring the patient to you, while being escorted by the police or there or the ECP [meaning CPF] the community police forum* [EMCPM3-Manager].

In this case, there are three systems in place that assist the managers in enhancing workplace safety for EMCP while at work, with these three systems the organisation in directory reduces WRS:

- Firstly, the SAPS escorts EMCP when it's not safe; the police protect them during medical interventions and become a link between the community and service providers in an attempt to improve community safety.
- Secondly, CPFs are used; these are community members who work with the police, arrange pick-up points, and protect the EMCP while they render services.
- Lastly, emergency services have safe meeting points where community members bring the patient to them.

There are also EMCP who believe that this strategy is ineffective and impractical. They stated that going to the police station generally delays the call. Additionally, they have to wait for SAPS to be available before attending to an Emergency, and sometimes there are not enough police vehicles to assist them.

> *… for each and every call especially at night, there is gonna be a police escort now, every time they get a call, they first go to the police station and wait there for an hour or two for there is not enough vans to escort them, then they go do a call so can you imagine the time. The delay, even if that is the case, for us there is no security at all, we are not safe at all. The police are not protecting us ...* [EMCP12-Group 2].

Conclusion on community violence and security measures

Communities contribute to the type of work EMCP attend to; their behaviour while EMCP are in attendance has an impact on how EMCP feel while at work. The organisation is aware of these working conditions; while there is some level of reaction to these concerns, at the same time, they appear to take place too late. As a result, EMCP continue to feel unsafe and vulnerable. The long-term effects of such exposure are unknown.

4.3.3 Theme 3: Organisationally manifested stress for EMCP and available stress-reducing strategies

Emergency medical services (EMS) organisations are in the business of offering such services to the community. However, they employ the services of EMCP to render these services; the organisation may unintentionally be a source of stress for EMCP. Organisationally manifested stress occurs when the organisation focuses on service delivery while unintentionally ignoring the needs of the EMCP in rendering such services. This was one of the themes that were found during data collection. While the study identified the cause of stress, EMCP also explored the resources used to address the stress that results from the organisational causes of WRS.

4.3.3.1 Subtheme: Shortage of resources and advanced life support

a) Shortage of resources

EMCP are available to offer services to the communities they serve, but sometimes their ability to render services can be hindered by a lack or shortage of resources. The participants shared their experiences regarding challenges related to the resources required to render assistance.

> *Even equipment sometime[s], let's say now we are in covid, right? so we are supposed to transport covid patients and when you get to work you only get one surgical mask, they expect you to work with all the cases with one surgical mask, for all the patients the whole day* [EMCP11-Group 2].

> *… we [become] stressed because of the busses [vehicles] that we are using, it can not even enter wherever that we [are] going, our equipment, we don't have certain equipment that we also need, it becomes stressful because it's hard to actually do our work* [EMCP1-Group 1].

In the above case, the EMCP expresses a shortage of personal protective equipment required to manage patients during the coronavirus 2019 (Covid 19) global pandemic. This exposed them to the risk of being infected. Furthermore, another EMCP expresses a shortage of general equipment to render EMS services:

> *… when you check the appropriate things that are needed they are not there, even at the station you can report to the station manager he will be aware … you feel useless, you feel like a taxi driver or an uber driver we just fetching mara [Johannesburg slang for "but"] you can't really do anything* [EMCP5-Group 1].

One of the EMCP mentioned that most ambulances they use have mechanical problems, with frequent breakdowns. This also becomes a safety concern; EMCP spend most of their day in an ambulance, thus operating a vehicle that they do not trust can be a source of frustration.

> *… one more that causes stress, the department must stop buying these fake vehicles Iveco, that Iveco is fake, fake brand previously we used Mercedes Benz and Krafter, those were perfect vehicles. If you can check now, the current one I'm driving is 35 000 kms, but seyisikorokoro [isiZulu for worn and ragged], it's been serviced more than five times, not only mine, almost for the whole base.* [EMCP6-Group 1].

Furthermore, the EMCP suggests that the ambulances they drive are not suitable for the infrastructure in the areas they service. There is poor infrastructure in the informal settlements, with poor roads that are inaccessible.

> *We are using this MVs now, they are large, it's like they are big [group agrees] Krafter, they are long as soon as you enter informal settlements those roads are very narrow you might drive maybe a kilometre too on that narrow road. How you get out, you have to reverse … it simple things that make it more stressful* [EMCP1-Group 1].

When an accident occurs when driving on such a road, they have to contribute to fixing the vehicle if they are found to be at fault.

> *You write a report, [someone says] they will suspend you, and they will see if they find you [guilty] and they charge you and you pay for the vehicle or if it was really not your fault then ... my friend someone paid close to 50 000 ZAR, they were deducting 3500 ZAR monthly* [Group Randomly talks-Group 1].

b) Shortage of advanced life supporter (ALS) practitioners

Some stations do not have ALS practitioners; therefore, the EMCP in the ambulance find themselves waiting for ALS who may be coming from other regions, they wait while they are confronted by critically ill or injured patients. In addition, when crews with limited training have patients that require treatment beyond their training level they find themselves in stressful situations. For example, in the following quote a manager was asked if there is an ALS practitioner at his station. He responded as follows:

> *… we have one in Midrand plus or minus 12 (km) to our base … so we decided let's put you guys at Midrand, if ever there is an accident on N1 [name of the busiest highway in Gauteng province], it will be easy to get to N1, to Ebony, Diepsloot, cause they are also responding to Alex, but we do have, we do, in Midrand we have 4 ALS and 1 hours back up* [EMCPM2-Manager].

In the above case, the EMCPM and the district manager decided to place ALS "back up" at a central point where they would have access to various areas in order to support other stations. This means that after the crews have arrived on a scene with a critical patient, they have to wait up to an hour for assistance. This is due to a shortage of ALS practitioners who are ordinarily placed on every station. EMCP7 below narrates their experience where a patient was died owing to inadequate resourcing.

> *… the only back up was ECT she came but she did nothing to the patient, 15 min later the hospital (Hospital X) was on divert so we had to go to (Hospital Y) as soon as we arrived, I could see that the patient is no more …* [EMCP7-Group 2].

There is not only a shortage of ALS practitioners, but sometimes a shortage of ILS practitioners as well. Thus, in an ambulance, there may be just two BLS EMCP, who may not be able to meet the patient's clinical needs. The EMCP will know that they could have done better with assistance from more trained clinicians. This leads to stress from knowing they did not give the best help possible. Additionally, they may be questioned and reprimanded for undertreatment when they hand over to the hospital emergency department.

> *… if you are both BLSs like she said, you get a patient like 80% burns, and they [BLSs] cannot put up a line BLS, so, now your response you must just quickly take the patient to hospital,*

when you get there, you come across problem doctors, where they say this patient has been mismanaged … [EMCP12-Group 2].

4.3.3.2 Conclusion on shortage of resources and advanced life support

The shortage of EMCP registered under paramedic and ECP register with the HPCSA results in stress for EMCP with fewer skills. This is because they are confronted by critical patients that they cannot manage, and there is no strategy to manage the stress brought about by this shortage of ANT- and ECP-registered EMCP.

The shortage of essential resources such as the disposables needed for rendering emergency medical services is unnecessary and preventable. However, the organisation does not do enough to ensure these basic essentials are available. In that way, the organisation contributes to WRS.

4.3.3.3 Subtheme: Employee placement

Employee placement is a vital component in any organisation. The relevant skills must be allocated to the location where there is need and demand. However, EMCP maintained that sometimes the GPG does not consider their needs when placing them.

> *I think a big stressor is the placement thing, I've seen that, people who are applying to GPG are stressed about that placement process but then it's also a thing of once you have been placed you are a lucky one and if you are placed in a station that is preferable to you, sometimes they can move you and then they say "but you are working for Gauteng EMS, so we can move you anywhere in Gauteng", as mentioned that can cause financial stress, and other stress and everything …* [EMCP21-Group 3].

There is a direct link between where the employee works and how they spend their money. EMCP17 alludes to this, as it has impacted on their budget and spending money in their household; furthermore, it affects relationships with colleagues.

> *I think finance, sometimes you find some people stay a bit further I think that's indirect affect how they behave at work. Let's say I travel over 60 km a day, when I get to work I am tired. Two, I am frustrated I don't even have enough finances, petrol money, for the whole Four days, it will affect the way I interact with my colleagues, it will affect the way I interact with patients, it will affect the way I execute my duties* [EMC17-Group 3].

As mentioned above, EMCP21 raises issues resulting from employee placement that does not support the employee's needs. EMCP21's statement highlights that newly qualified ECPs avoid applying for vacancies in the organisation because they fear they will be placed further away from their preferred locations. EMCP 17 adds that placement contributes to fatigue caused by driving to and from work and financial stress related to high fuel prices. This then affects work relations and the work itself.

One of the interviewed managers mentioned that recently employees had been given an option to work closer to home.

> *For now, I can say those who are being employed correctly there is support because they would ask you where do you reside, then they gonna place you next to your residential but currently those who were in the department [Who have been employed for a while] ehh you need to find someone who is gonna work, where you are working, like doing cross transfer …* [EMCM3-Manager].

Conclusion on employee placement

Some of the EMCP within the organisation are not given the privilege of choosing to relocate to stations closer to their homes. An EMCP's work location may impact their financial status, fatigue and overall WRS. Currently, there is no tool available for actively trying to rectify or reduce stress caused by employee placement.

4.3.3.4 Remuneration and Performance Management and Development System (PMDS)

GPG EMS has a programme whereby they monitor employee performance and encourage those that are performing well using financial incentives. While this has been a tool created with good intentions, it has resulted in stress for other employees who feel the tool is not employed fairly.

One of the EMCP stated that they were involved in a physical fight with their manager over the PMDS.

> *I've had an incident where I had an encounter with my boss, an encounter that got physical …* [EMCP5-Group 1].

The researcher asked EMCP5 what the reasons were for him getting physical with his manager. His response was the following:

> *There is this money that we get, like usually every year, I don't know why they froze [it], it called PMDS [Performance Management Development System], I was denied PMDS (Groups start making noise in agreement). People work up with ama-SMSs [Plural of Short Message Services – also referred to as cell phone text] of 6.7 [6700 ZAR], 7.2 [7200 ZAR] others 6.5 [6500 ZAR]. Mina (isizulu for 'I') woke up with 700 ZAR, I didn't understand cause we work in pairs, if my partner gets it, but I don't, it mean he is working and I am not …* [EMCP5-Group 1].

There would appear to be a lack of understanding of the way in which the PMDS functions for EMCP. It is a system that has the potential to encourage EMCP. Also, it can bring positive energy into the workplace, but in this case, it brought stress for this EMCP, and possibly even the manager too could have been stressed, considering there was a physical fight.

> *… there is this tool they call PMDS, somewhere somehow, maybe I am working with my colleague here, I am doing what I am expected to do, at the end of the year, they rate us, and then they rate me +/- 4, then we are doing the very same thing, then I will end up getting a PMDS but my colleague doesn't get the PMDS it will end up putting him to be demoralised …* [EMCP19-Group 3].

Conclusion on the PMDS

While the study aimed at looking at the tools used to manage WRS, PMDS was available as a tool to motivate and encourage employees in the workplace, thereby creating a positive workplace, with the hope that it would reduce WRS. Based on this research, it might be effective in creating a positive workplace, and therefore reducing stress for some employees but not everyone. The way this tool is implemented seems not to have been effective in some cases. Some of the EMCP did not have clear understanding of the principles pertaining PMDS. Accordingly, when they do not get money without any explanation stress may be increased, and they believe the system is not transparent. This is made worse because it involves remuneration.

4.3.4 Theme four: Stress caused by workplace influences and strategies for mitigating it

The EMCP spend a lot of time at work. Therefore, relationships have to be forged, which sometimes do not work as expected. Some causes of stress appeared to come from the workplace, such as relationships with the managers and sometimes with fellow EMCP. There is no specific mitigating tool designed to manage WRS for EMCP directed at this issue.

4.3.4.1 Subtheme: Lack of support from managers

Lack of support is sometimes shown when, for example, a manager fails to support EMCP when they have personal restrictions that prevents them from attending to certain employment obligations. For example, EMCP7's professional drivers permit expired but could not be renewed because s/he was attending work training. His/her manager subsequently decided to suspend him/her. In this case, the EMCP expect some level of understanding since training is an operational obligation.

> *I was at school by that time, my PDP expired when I was at school, and I got suspended. For few days but thanks to HR it did go through, but the manager did everything possible that I get suspended* [EMCP7-Group 2].

> *our manager was not supportive, [be]cause he called me and said come to work. I said "my doctor said I must take these days" and he said "No its too much, you must come to work now"* [EMCP4-Group 1].

In the above case, an EMCP was sick with Covid-19, resulting in a shortage of operational staff. Nevertheless, the manager forced her to come to work even though not cleared by the doctor.

Another EMCP expressed lack of support from his/her line manager, such that the EMCP felt that managers were not capable of supporting them, i.e., they generally lacked empathy. In contrast, such a statement cannot be substantiated; it appears that is arose from a place of concern and frustration resulting from a lack of existing support.

> *They don't support, they also support you if you do certain things for them, but I don't think they are capable of supporting us as crew members. We can blame them and say they don't support us, but they are not capable* [EMCP12-Group 2].

On the contrary, one of the managers stated that the organisation had encouraged its employees to bring up issues, suggesting that they could offer the necessary support when needed.

> *Okay first I do the parades in the morning with the guys, that they're aware I tell the guys from the start (that) we have an "open door policy" okay if there is any problems if there is any issues ehh they are more than welcome to talk to the supervisor and they are welcome to come and talk to me* [EMCPM-1Manager].

Furthermore, EMCPM1 stated how they prioritise EMCP as they are the critical component of the organisation.

> *When it comes to my personnel (EMCP) those are my people, those are the first responders, those are the guys that's gonna do the work at the end of the day, ok so … it's very important for me to ensure that they are okay* [EMCPM1-Manager].

Another manager, EMCPM2, also reflected on the support they offer to EMCP, confirming what EMCM1 stated, that they are always open for EMCP to bring their challenges to them, and reflected on how they identify EMCP who are struggling and attempt to find a solution.

> *Let's say for example I have employee one has stress problems and I pick up the problem and I identify the problem, or I want to refer a person or he or she approaches me, right, Now where we are at as managers right, we usually have to… find out what is the problem from the person right, and as a manager remember you also have to advice people* [EMCPM2-Manager].

Since the sample was not taken from the same station, managers are likely to express what they do in their respective stations, and EMCP will express how they feel they are treated in their stations by their managers. Nevertheless, both EMCP and managers contributed information about the absence or presence of support.

4.3.4.2 Tension between EMCP and between EMCP and managers

Sometimes the tension between managers and EMCP hinders communication that may be important in the improvement of the services they offer. In answer to a question about whether the manager was there to listen and/or discuss clinical cases with EMCP, the EMCP responded with the statement below.

> *Sitting here with maybe our managers, you know you gonna fight, we gonna fight* [EMCP11-Group 2].

This is a clear reflection of tensions between managers and EMCP, which may be reflected in the source of WRS.

> *I've had an incident where I had an encounter with my boss, an encounter that got physical* [EMCP5-Group 1].

The EMCP above disagreed with his line manager when they were rated poorly for the PMDS. This affected the employee's bonus in comparison to his/her colleagues. This resulted in tension which degenerated into a physical fight between the EMCP and his/her manager.

> *I called him to my office and sat down with him and I said look, I have these problems with you, ehh, what is the reason? And the guy started talking, eventually he started talking ehh cause I said to him, I don't want to work that way I liked everybody to be happy at work, I can see you not happy ... he actually felt, like everyone was pushing him out, he did not feel (like he was) part of the team* [EMCPM1-Manager].

Background on EMCPM1's account, there was manager had a new employee from a different geographical area, with a different culture and background from the rest of the team, such that this was affecting the EMCP's performance while at work; they felt isolated and did not get along with the partners they were working with. This is evidence that fellow EMCP can also cause some level of stress while at work.

4.3.4.3 Mitigating strategies for stress caused by the workplace

4.3.4.3.1 Management style as a mitigation strategy

There was an indication that managers try to monitor EMCP's wellbeing. If they notice they are not in a good state, they will meet with them, ascertain their mental wellbeing, and in some cases suggest strategies to assist in reducing stress while at work. However, this depended on the manager's management style.

> *… you have to put yourself in the shoes in the shoes of the people in that level, so that you can identify the problems and come with possible solutions …* [EMCPM2-Manager].

It is an EMCPM's duty to draw up the crew or team rosters for EMCP for operations. EMCPM1 mentioned that they sometimes noticed certain EMCP struggling to work together, and would then need to find a suitable alternative co-worker to support the crew's productivity. This alleviated stress on the crew member who might have been suffering from working with an incompatible partner. Additionally, EMCP3 mentioned that they avoid female crewing because it increases vulnerability, increasing the potential of exposure to crime; preferring to pair a male and a female, hoping that such crewing will reduce the chances of contact crime. This management style appears to a) have a synergistic effect with the crew, b) reduce the vulnerably of female crew members to contact crime, c) reduce vulnerability overall, d) reduce stress while crew attend to cases.

> *Also balancing the gender aah due to safety, because I do not prefer both females to work in an ambulance …* [EMCPM3-Manager].

> *… what I would do in a case like that or what I did on this guy's case I paired him with a someone … not one of the guys that will be as hard on him …* [EMCPM1-Manager].

When interviewing EMCPM it became apparent that they had different approaches to how they deal with WRS. At the start of a shift, one of the managers said they would use the shift-change handover as a brief meeting. Such meetings are referred to as morning parades. EMCP use these briefs as an opportunity to communicate with the EMCP. They also share important information about the organisation that affects operations and try to find mitigating strategies for the known challenges that arise during day-to-day operations.

> *… parades in the morning with the guys, that they're aware I tell the guys from the start (that) we have an "open door policy" … and they are welcome to come and talk to me, I will monitor their work progress see how they are progressing …* [EMCP1-Manager].

Managers played a significant role in reducing or managing WRS for EMCP. It appeared that they believed their strategies had a positive note impact on the reduction of stress**.**

4.3.4.3.2 Tools offered by the organisation through the Employee Wellness Programme (EWP)

According to the managers, there is a programme that offers services that assist in wellness for employees within the organisation. Each manager referred to the programme by a different name, but the benefits were the same.

This programme is used as a primary source of employee wellness in the workplace. In the interviews with the managers, it was common knowledge that such a programme existed. However, there was no consistency in what the programme is referred to as.

- EMCPM1 Manager – Employee Wellness Programme
- EMCPM2 Manager – Employee Assistance Programme
- EMCPM3 Manager – Wellness Employment Centre

While EMCPM3 called it a Wellness Employment Centre, the other managers said it was operated at Head Office. However, in essence, they all suggest a service that is available to EMCP.

tools to reduce WRS are generally introduced during induction when the employees join the organisation. Since 2018, the Wellness Programme team has given a presentation to new members during the induction week. This was, however, disrupted during the Covid-19 pandemic, since indoor gatherings were not permitted, which meant that the newer members were not introduced to this strategy. Apart from the group that was affected by the Covid-19 pandemic, some members were not informed

about this strategy, especially those that were employed prior to 2018, although they may be aware of some components, as outlined in the following quotes:

> *When you start, on your induction they will introduce you to the chaplain* [EMCP8-Group 2].

> *When they are employed, they go through induction, so through induction they get introduced to this employment wellness centre, that is available in the department* [EMCPM3-Manager].

> *I still remember they introduced themselves in my induction, they mentioned a point, they said after more than 90 days, they will go to each and every base and check if we are still ok …* [EMCP19-Group 3].

Some EMCP had knowledge of the EWP, while others only reflected on the chaplaincy. This is seen as a first step in implementation.

4.3.4.3.3 Activation of employee wellness initiative

There are three ways in which the employee wellness initiative is activated:

- Self-activation
- By the supervisor
- By the manager

The first contact will be with the chaplaincy service; they evaluate and assess how much they can offer in the situation and offer counselling. Some of the participants mentioned that the chaplains are generally religious and that their services are Christian based. If chaplains feel their intervention is not effective, they refer the EMCP on to a psychologist or even a psychiatrist. This is done in consultation with the EMCP involved. If the EMCP agrees, a further referral is offered. Neither the psychiatrist nor the psychologists are part of GPG EMS; they are instead part of GPG Health. If the EMCP does not feel comfortable using GPG systems, they can consult their own practitioner.

> *Firstly, you communicate whatever issue you have with your immediate supervisor, and then they contact the chaplain services, and then the chaplain will come over and*

> *talk to you, and then if it's something that can just end on that level, then it ends there, but they keep on following up, and then sometimes you can ask, or give consent that they relay the matter to somebody higher, more professional. I am not saying that the chaplains are not professional. Like, qualified psychologist that more about it* [EMCP17-Group 3].

The EWP assists EMCP in various situations and is not just limited to work-related matters. It extends its services to issues concerning staff members' families. EMCPM2, one of the managers, mentioned three services.

- Assistance for family members who need mental health support
- Assistance with domestic disputes
- Extramural activities such as sports days

> *… they cover everything, we were informed that no matter its [sic] not work related you can … let's say for an example you have a younger brother now he is being introduced to drugs actually they can assist [sic], to get the facility for the personnel, but remember it's not at work, his set up is gonna be different but they can assist for free, so its open for everyone, for any kind, it marriage, it financial, work related all those they do.. yah assist* … [EMCPM2-Manager].

4.3.4.3.4 Chaplaincy

The first line for EWP is the chaplains. All issues that EMCP have that affect mental wellbeing in the workplace are referred to the chaplains. Although they also offer counselling, they recommend referral to a psychologist or psychiatrist if the problem is complex. The psychologist and psychiatrist are not part of GPG EMS but rather part of the department of health, under which GPG EMS falls.

When the EMCP start with the organisation, they are introduced to the chaplaincy. This is done to equip them with the tools to manage WRS in the workplace as part of the induction package.

> *EMCP7: Yes, that's where you find the chaplain and they can organise you counselling and staff. That's where they will educate you about safety and what SHE program, safety and awareness at work.* [EMCP7-Group 2]

> *… they immediately send a chaplain to you … to communicate with the personnel and the manager with Midrand … hhee just at moment you log a complaint or a query they send a chaplain immediately …* [EMCPM2-Manager].

Chaplains are a team and form part of the EWP programme. They are the first point of contact for EMCP in accessing any EWP programme. Based on the data provided they also offer training about safety, health and the environment in the workplace, and other mental health-related issues in the workplace.

4.3.4.3.5 Challenges with chaplaincy

Some EMCP felt that the chaplaincy did not provide for religious beliefs other than Christianity. They stated that the chaplains are mostly Christians, and they offer Christian-based measures for managing WRS like prayer and bible-based motivation, which was not necessarily what they needed. Therefore, while some EMCP may be comfortable with a Christian approach, others may not be. Below are some examples of the responses given by EMCP when asked what a chaplain is.

> *I can say ... they are a religious group, they first get to know you, they ask questions, they wanna know what you believe in your spiritual life ...* [EMCP5 Group-1].

> *On the chaplain it's a religious belief they only focus, while here we are diverse, if you come to me, and you preach to me about the Gospel, Jesus Christ, and you find that I am a non-believer, that one, I will not even listen to you, what you are trying to say to me, already you have mentioned something I do not believe in, that's why I say it's a none …* [EMCP9-Group 2].

> *But there is a lady I am currently working with. She was once gun pointed and all that they robbed them, drove them with an ambulance, dumped them somewhere, then she reported at work, they called chaplain, the only counselling chaplain gave was just praying for them ...* [EMCP2-Group 1].

In addition, one EMCP suggested that they do not trust the confidentiality of the process. They stated that sometimes what they communicated to the chaplains is then told to other stations. Moreover, some fear that their issues could be communicated to other managers or supervisors without their permission.

> *It is underutilised I think the issue it's the trust in this whole process, we do not trust the process that … At some point I wanted to get counselling and whatever, the process that was used I wasn't happy with it I wasn't even sure that whatever that I am going to talk about is going to stay there… and then the other thing is our managers, our supervisors we do not trust them, and this process has to go through them that's why we do not use this process … there is a lot of power abuse … there is no professionalism that's the other thing … That's why we don't even use them* [EMCP17-Group 3].

It is worth noting that the activation of services by EMCP9-Group 2 and [EMCP2-Group 1 was done mainly when there were critical incidents; cases that were considered minor resulted in no activation. Some incidents that are deemed not to be critical may be overlooked, while seeking help can be of benefit.

> *… I do know that GPG does have chaplaincy service. I think that can be a first step for a lot of people, but from what I have seen, that service is underutilised, and it is a thing of a lot of people just think that "ok no its fine". "It's nothing, let's just move on" or whatever and they don't realise that that has caused a form of PTSD, or can develop to PTSD that traumatic experience, and even though the service is there it is offered, I feel like it is underutilised …* [EMCP21-Group 3].

Apart from those services mentioned above, some EMCP mentioned other services offered by the EWP:

- Financial advice
- Immediate family assistance with mental wellness in crises
- Team building activities

Conclusion: Tools offered by the organisation through the EWP

The EWP was introduced during induction for some, while other employees seemed only to remember the chaplaincy component of this tool. Hence, its implementation has a lot of loopholes. Nevertheless, this reflects the organisation's intention to reduce WRS. In this instance, the organisation acts before WRS occurs.

4.3.4.3.6 Summary of themes

This study identified the tools available to manage WRS after first having explored the causes of stress. The researcher also assessed whether each cause of stress identified was aligned with a tool used by the organisation or employees to manage WRS. **Figure 5** presents the causes of WRS and the themes identified in the form of a triangle.

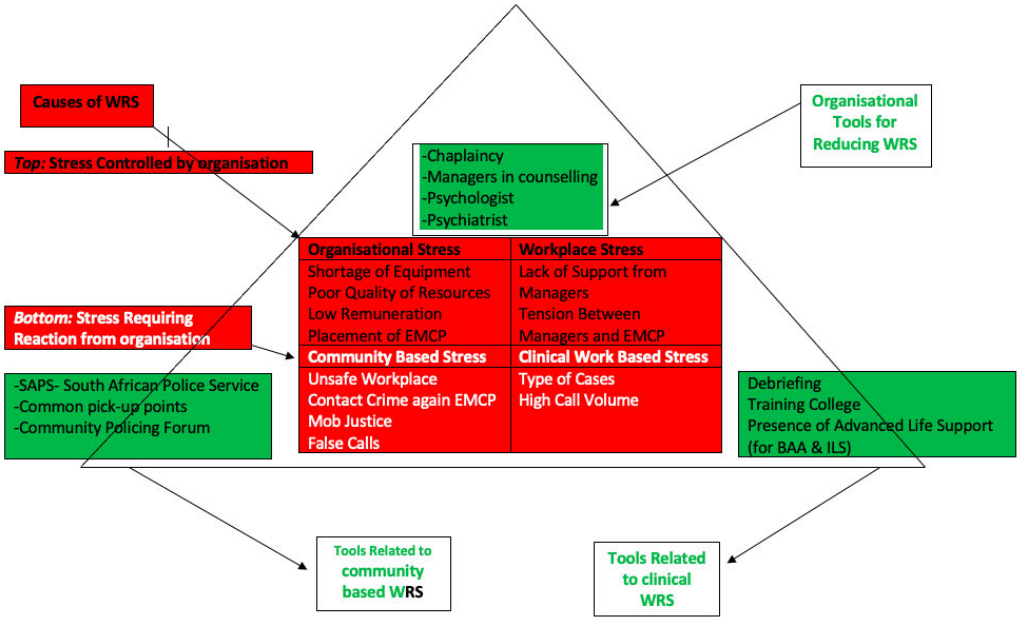

Figure 5: Detailed theme triangle

Four sources of stress were identified for EMCP:

1. Organisational stress
2. Workplace stress
3. Community-based stress
4. Clinical stress

The sources of organisational stress and workplace stress are pressures that the organisation has control over and require certain action on the part of the organisation. On the other hand, community-based stress and clinical stress are stresses that the organisation can react to. Nevertheless, owing to the fluidity of the community's behaviour and the variety of patient presentations, the organisation can merely anticipate and react to these stresses.

Organisational tools to reduce WRS

A. Management style
B. Employee Wellness Programme (EWP)

    - Chaplaincy
    - Psychologist
    - Psychiatrist

Tools to reduce community-based stress

A. South African Police Service
B. Community Policing Forum
C. Safe meeting point with patients

Tools to reduce clinical work-related stress (WRS)

A. Inhouse training facility
B. Formal and informal debriefing
C. Presence of advanced life support (ALS) personnel

4.3.5 Impact of the WRS support strategies

This section answers the third research question: “What impact do WRS support strategies have on the EMCP”. The data collected indicates that there is stress that the organisation may have direct or indirect control over. The organisation does not intentionally create stress for EMCP, but as they strive for service delivery stress is unintendedly produced. This stress can only be reduced by action from the

organisation (see **Table 3)**. Some of the stress the organisation has no control over, like the stress that comes from the community that EMCP serve. This stress can present in a form of cases arising from the community to violence within the community. This causes further stress arising from the clinical cases EMCP are presented with. During the interviews it transpired that there are forms of stress for which organisations have clear strategies in place with a positive impact, in other cases they need support or further development for better impact.

Table 3: Sources of Stress vs strategies to reduce stress

Stress organisation can control	
Organisational stress	Workplace stress
Shortage of equipment Poor quality resources Low remuneration Placement of EMCP	Lack of support from managers Tension between managers and EMCP
Organisational tools for reducing WRS	
Chaplaincy Managers in counselling Psychologist Psychiatrist	

As it appears on the triangle **Figure 5: Detailed theme triangle** above are sources of stress are managed using the means discussed in the following sections.

4.3.5.1 Impact of organisational tools on reducing WRS

The impact of these tools was discussed on various levels by EMCP, for instance chaplaincy was the initial point of contact between EMCP and the organisation. In this case it appeared that in some cases it was effective and had a positive impact, and somewhat achieved its purpose.

> *I've had an incident where I had an encounter with my boss, an encounter that got physical. They had to refer me, they called chaplain and I sat down with the chaplain guys, and I explained what happened from the start, from their understanding they told me that my case was bigger than them. It had to go way pass i-chaplain [i- is isizulu prefix for such a noun], I've had i-counsellor them organising an actual qualified counsellor …* [Group 1-EMCP5].

In the case above, EMCP 5 explains their encounter with the EWP – chaplaincy. Based on the account, chaplains were present within the organisation, and they offered mediation. In addition, they escalated the matter for better continuity of care. This case reflects that the tool is used for its intended purpose and has a direct impact when dealing with WRS.

> *Like I said I feel like the chaplaincy service is an important factor, as a gate way to further help especially when it comes to the violence and stuff, to have someone to talk to, as EMCP19 mentioned, the psychologist and everything, the chaplaincy service could refer you for that, and for any stressful situation* [EMCP21-Group 3].

The end user for the services such as chaplaincy is the EMCP. The statement above reflects their account, and they seem to view chaplaincy as an important component of stress-reducing strategies for the organisation. These findings suggest that the chaplaincy has a positive impact as a stress reduction strategy, and it does provide the relief it was designed for.

4.3.5.1.1 Impact of managers in WRS management

One of the managers stated that they offered counselling to the EMCP they led and that they had done training previously. This manager tool involved counselling the EMCP at the station in order to reduce WRS for the EMCP.

> *Alright, first, I will have some counselling with them… [*EMCPM1-Manager]

While counselling was one of the tools for managing WRS, it was also important to understand whether this tool was having any effect in the management of WRS. Below is a reflection by an EMCP based on their experience:

> *It's because [I] felt better personally, 'cause I was able to talk to someone and really explained how I feel. Without being judged. The other station managers of course they gonna listen but in the end they gonna side with the colleague …* [EMCP5-Group 1].

The EMCP above expressed a possibility of the managers being biased and siding with other managers if they are called on as counsellors, suggesting this may lead the EMCP who is being counselled to not receiving quality counselling. Furthermore, managers were considered not to be the right personnel to reduce stress for EMCP. The other issues mentioned were lack of trust and confidence which affected

confidentiality. In contrast, having external personnel like a psychologist was viewed by EMCP as a better option when dealing with WRS. Having a psychologist appeared to be effective and had a direct positive impact because they offered unbiased assistance, and also there was comfort in catharsis with a person who is not part of the organisation.

> *… so this one [psychologist] the counsellor neutral position [sic], they are not in a position to choose sides, I was happy [be]cause I was able to offload anything without being able to hold back or think what the next person is gonna say…* [EMCP5-Group 1].

The manager as counsellor was mentioned by some of the managers but did not appear as one of the tools mentioned by the EMCP in any of the groups. There are many reasons for this: the EMCP–manager relationship may not allow the freedom to talk freely, and managers represent the employer. In addition, in cases where an EMCP believes the stress emanates from the employer, talking to the manager may not reduce the stress.

4.3.5.1.2 Management strategy for dealing with a shortage of equipment

A shortage of equipment was identified as one of the causes of WRS for EMCP. The company has a system whereby stations are audited by a quality assurance team which checks for the compliance of the ambulance station with many aspects. They audit the state in which the station is run, including but not limited to the equipment in the storeroom and the ambulances. EMCP 11 gives an account of how this system is of benefit in ensuring equipment is ordered:

> *… regarding the quality assurance … since they came there is a little bit of improvement. Regarding the equipment-wise [sic]. Because they will ask why do we have a sharps container that is full. Then the manager will insist to get new sharps containers … the managers work under pressure if they know that those guys are coming …* [EMCP 11-Group 2]

It would appear from this strategy that the organisation is aware of the shortfalls in the way the stations are run, including the shortages of some equipment, and they then have a team that monitors the performance of managers and how they stock up. In that way, monitoring the managers seem to be productive in improving the supply of

equipment. This strategy seems to be effective and leads to some improvement in EMCP stress.

While there is a tool or strategy to assist managers, it appeared that there the strategy in place was not adequate to improve on this aspect.

4.3.5.2 Impact of tools related to community stress

The impact of stress exacerbated by the community the EMCP work in is more serious, owing to the fact that the environment is dangerous. The organisation has no direct control over how community members behave. EMCP told of how hard it was to service the various communities. Below is a table developed from the triangle that displays the different sources of stress emanating from the community in the red table and also the strategies to reduce stress, indicated in the table in green, which are organised by the organisation.

Table 4: Sources of stress and strategies to reduce stress

Stress requiring reaction from the organisation	
Community-based stress	**Clinical-work-based stress**
Unsafe workplace Contact crime against EMCP Mob justice False calls (also known as hoax calls)	Types of case High call volume
Tools related to community-based WRS	
South African Police Service (SAPS) Common pick-up points Community policing forum	

Strategies to reduce stress that emanate from the community EMCP serve require reactions from multiple systems; the initiation of such stress-reducing means requires organisations to plan and source these strategies as seen in **Table 4**. One of the reaction measures was the utilisation of the SAPS; for example, SAPS will accompany an ambulance to scenes that are known or deemed to be dangerous areas or when there are angry community members or the area is a red zone. EMCP 12 narrates their perception of this tool for managing such stress below. EMCP 12 felt that there

was no or limited security for them while at work, and they had no voice in deciding whether to service a case that might be dangerous for them. Furthermore, the strategy in place seemed to be unreliable.

> *… there is no security we are forced to do these calls on our own, only when encounter a situation and they tell us to notify our dispatcher and at that time the response time of the police is gonna take some time… …crews were assaulted now it was said that, for each and every call [In locations that are known to be dangerous] especially at night, there is gonna be a police escort …* [Group 2-EMCP12].

The statement above reflects on the reactional structure of managing challenges that can be anticipated. The reactionary approach seems not to be contributing as an effective strategy to reduce stress. Some EMCP have no confidence in this arrangement:

> *… where there is a mob, there is [sic] always threats to the ambulance personnel, luckily in most cases you find that there is one van of police there at least who will escort you, and make the scene safe because remember if the scene is not safe, I cannot work, that's the rule …* [Group 3-EMCP18].

In this case, the presence of SAPS on scene before the ambulance is seen as a contributor to a feeling of safety for EMCP; therefore, the presence of SAPS is seen as positively contributing to reducing WRS.

> *... every time they get a call, they first go to the police station and wait there for an hour or two for there is not enough vans to escort them ... The police are not protecting us. The company is not protecting us …* [Group 2 EMCP12].

One of the concerns about requesting support from the SAPS was the delayed arrival on scene, this meant there was the imminent danger that they remained vulnerable. In such cases this strategy might not achieve its intended purpose.

> *… we called the police it was around 18h00 afternoon, the police said they were busy with the parade and changing of shift, so we waited there for about 2 hours in that hostage until the police came …* [Group 2-EMCP10].

One of the main functions of EMS is to assist patients in emergencies; however, owing to dangerous working environments, EMS organisations have to implement strategies to eliminate or reduce dangers. With a reduction in danger, WRS is reduced. However, in this case Group 2-EMCP10 expressed that one of the tools intended to reduce danger results in delay and impairment of the emergency medical care services. Therefore, this tool is seen by some EMCP as unintentionally negatively affecting the service.

4.3.5.3 The impact of tools related to clinical WRS

Clinical WRS is brought about by a lack or shortage of technical abilities or knowledge of the duties by clinicians or EMCP. The tools designed to reduce WRS resulting from challenging clinical presentations are designed to enhance the knowledge of the EMCP or increase the availability of clinicians that have more knowledge. Examples of these tools are seen in **Table 5: Tools related to clinical WRS** below.

The tools identified in this study which are related to clinical WRS include debriefing, attendance at the training college, and the presence of ALS staff to provide clinical support.

Table 5: Tools related to clinical WRS

Tools related to clinical WRS
Debriefing
Training college
Presence of ALS (for BAA & ILS)

4.3.5.3.1 Impact of the presence of ALS staff as a WRS supporting strategy

One of the EMCP had a case where they requested clinical support ("back up") by a more skilled clinician owing to the severity of the patient's condition. In this example, even though the clinician that arrived was more skilled, the patient had complicated injuries that could not be managed by the prehospital resources that were available. Additionally, the clinician (EMCP7) felt that the demise of the patient could have been preventable if there was a more skilled clinician such as a doctor on the scene. Such

critical injuries leave both clinicians and patients vulnerable, with the clinician having the patient's best interests at heart, only to be limited by their abilities.

Stress resulting from complicated clinical cases, such as in this case, is not well managed. The shortage of highly skilled clinicians in this case is evident.

> *… back up ECP, ANT, the only back up was ECT she came but she did nothing to the patient, 15 min late the hospital (name withheld) was on divert so we had to go to (name withheld) as soon as we arrived, I could see that the patient is no more, but the doctors tried their best, but he didn't survive …* [Group 2-EMCP7].

Further to the above, one of the EMCP stated that there are few instances where back-up from clinicians with advanced skill level is available. Therefore, based on the above the EMCP feels they are not supported by the organisation. In this case this tool is seen as under implemented, and its absence does the opposite of reducing stress. The impact, therefore, is seen as negative. EMCP 1 below suggests that it appeared to be worsening and now there are fewer clinicians with advanced skills.

> *… it's worse … everything was perfect … you would get back up even without asking requesting, but … all these other bases, you will go to a call and your request back up, you will even end up driving "scoop and go" Back up will never arrive ...* [Group 1 EMCP1].

4.3.5.3.2 Impact of debriefing in reducing stress

In all groups there was knowledge of the tool referred to as debriefing. Some clinicians felt that this tool was effective, for example:

> *… our debriefing [sic] we would talk about the roles … we even rehearse those specific roles … as a shift we improved and it was also easier for us to work with other services … it improve [sic] even the confidence of colleagues on scene, it improved everybody's behaviour around those kind of situations* [Group 3 EMCP17].

Debriefing in this group was positively reflected as an effective tool. The participants clearly stated that it improved confidence in their clinical roles and improved their understanding of their role. This tool was not only effective in reducing clinical based

WRS, but it also improved clinical practice. Debriefing also supports the core function of EMS in managing patients.

> *... those little debriefing sessions are the one that are helping us. So, it's a matter of when you are in school, and you can see things differently* [In this case EMCP 2 was stating that the sessions that they have, chatting with their partners about cases after completions, assisted in improving clinical management of patients and, the EMCP further compared such sessions to being at an EMS training collage] [Group 2- EMCP 9].

There are two matters that were highlighted in the above quote, one being debriefing and the other being the internal training college (referred to above as "school"). The internal training college offers educational improvement and debriefing, thus assisting with the clinical management of cases. Therefore, debriefing does appear to be reflected in a positive manner.

4.3.5.4 Conclusion

Most of the tools or strategies in place to manage WRS had some positive impact. EMCP in this study expressed that tools that are designed to reduce stress that emanates from the organisation had a positive impact, although there was some dissatisfaction with certain strategies.

Moreover, the WRS reducing strategies were identified as needing improvement. There were cases where some WRS was not addressed due to omission or lack of identification of stress or oversight by either EMCP, supervisors or managers. It seemed like some tools were not in place, like when EMCP were dissatisfied with remuneration, or a lack of quality of resources. Limited tools were available that were designed to manage the stress resulting from these challenges. one of the groups mentioned a quality assurance team; however, this was not mentioned in the other groups. It also seemed like the quality assurance audit was not applied consistently within the organisation. Whatever the case, as a strategy it could not be evaluated and its impact in this case could therefore not be observed.

Like the stress that emanates from clinically challenging cases, the tools have some positive aspects, but may benefit from improvement too. Debriefing had a positive impact but may need to address a few issues regarding the quality of its delivery. Additionally, with regard to the WRS resulting from clinical cases, the presence of ALS had a positive impact, but there is a national shortage of ALS which is also evident within the organisation – this needs to be addressed. Regarding stress that results from the community they serve, GPG EMS cannot control the community nor their can they control its behaviour, but they can put systems in place to protect employees while at work, in that way reducing WRS. While there were some systems in place, their impact was not significant. Therefore, this area needs special attention to make it effective and significant.

5. CHAPTER FIVE: DISCUSSION, RECOMMENDATIONS AND CONCLUSION

5.1 Introduction

This research sought to understand the strategies that were in place to support emergency medical care personnel (EMCP) when experiencing work-related stress (WRS), how such strategies are implemented, and the impact these strategies have on reducing the WRS in EMCP. In this chapter, the key findings will be discussed. While conducting the research it became apparent that in order to answer the research question explicit knowledge of the causes of stress was required.

5.2 Clinical based WRS and related mitigation strategies

The EMCP in this study mentioned that they experience high call volumes. These overwhelm EMCP which increases WRS. In other studies, high call volumes have been cited as a common cause of stress. Moreover, this issue is known to cause fatigue and has other psychosocial implications. High call volumes have been credited to understaffing in many instances (Paterson, Sofianopoulos and Williams 2014; Kokoroko and Sanda 2019).

EMCP are frequently confronted with clinically challenging incidents, and such incidences increase when mental health disorders are present (Loef *et al.* 2021). Furthermore, an increase in the frequency of exposure to challenging incidents is associated with reduced recovery time post incident. Additionally, this has been reported as common among EMCP and is associated with psychopathology (Alexander and Klein 2001). Training that is designed to enhance clinical knowledge is one of the known mitigating strategies for reducing stress (Groombridge *et al.* 2021), however many clinicians recommend a need by the employer to put more effort into making such training more accessible.

Furthermore, EMCP have no choice as to when their meal break will be. Lack of meal breaks has been reported previously in EMS, and has been identified as a cause of stress for EMCP (Mahony 2001). Lack of meal breaks contributes to fatigue, and

consequently poor decision-making (Lawn *et al.* 2020). Managers in this study viewed EMCP as essential services that are required by the community, which translates to a burden of being always available, such that meal breaks are ignored. However, while the importance of EMCP is notable, there is a need for them to have meal breaks even when there is a high workload (Witkin and Litt 2018). Having meal breaks has been seen to improve service efficiency and overall performance (Allan *et al.* 2019). Policy changes have been recommended that grant EMCP designated periods to take mandatory rest breaks and meal breaks (Min *et al.* 2020).

Recent publications affirm that increased workload can lead to stress (Prottengeier *et al.* 2019), which has been credited to a “lack of job autonomy”. Lack of job autonomy occurs when employees do not have control over their responsibilities or lack the independence to make decisions on their employment responsibilities (Lawn *et al.* 2020). This seems to fit what the EMCP go through. This study found that EMCP are informed that many cases are pending as soon as they start their shift, which is beyond the EMCP’s control. Mathangi (2017) suggests that the lack of significant job autonomy is associated with low productivity and a reduction in job quality. This means lack of autonomy can prevent the best clinical outcomes from being achieved.

While clinically based WRS accompanies high call volumes, the types of call may also affect stress, sometimes influenced by the clinician’s level of training and experience (Perona, Rahman and O'Meara 2019). Perona, Rahman and O'Meara (2019) emphasise that some clinicians may experience increased cognitive load if they have cases that they do not know how to handle, resulting in fatigue and medical errors.

There are different levels of EMCP competencies in South Africa. As a result, the EMCP with fewer skills find themselves having to manage cases that are complex and require advanced skill levels. This was highlighted during the interviews, as seen in Chapter 3. This has the potential to be detrimental to the patients and can result in stress for EMCP. These findings are consistent with the results of a recent literature review, which concluded that clinical-based stress is a common experience among EMCP. This is more prominent when EMCP are tasked with cases that are beyond their scope of practice. Such cases cause distress owing to the inability to render the emergency care assistance needed by the patient (Lawn *et al.* 2020).

5.2.1.1 Mitigating strategy for clinical-based work-related stress: high call volumes

This research found no strategies focused on assisting EMCP to deal with the stress resulting from high call volumes. At times, EMCP had to negotiate with dispatchers as to whether or not they would get a meal break. There was evidence to show that reflected there was no standard practice regarding meal breaks. Hence, rest breaks could be a possible strategy for allowing recovery from day-to-day WRS. Allowing and recognising rest breaks may reduce fatigue while at work, as having standard scheduled meal breaks has been identified as improving healthcare worker well-being and workplace productivity (Wendsche *et al.* 2017).

The EMS organisation should employ fatigue management systems that strategically reduce risk, eliminate errors, produce better patient management and improve EMCP well-being (Ramey *et al.* 2019). Other EMS organisations have policies in place to manage fatigue; these policies include

- fatigue and sleep scales used by EMCP to assess their level of fatigue (Garrubba and Joseps 2019)
- allowing EMCP to have proper meal, bathroom and rest breaks (Jacobs *et al.* 2017)
- line managers ensuring that EMCP are trained and that they understand and are aware of fatigue management
- reporting and documenting all fatigue risk incidents and encouraging a culture of fatigue risk management (Health 2021).

While these strategies may be in place in some organisations, there have been reports of these mitigating strategies being based on little or no evidence (Patterson *et al.* 2018). Nevertheless, this means other organisations have identified fatigue as a challenge and have tools in place to manage it. However, it is worth noting that these organisations are based in developed nations and that the GPG EMS is located in a developing country. In any case, this reflects a need to design evidence-based strategies that will the fit needs of EMCP employed by the GPG.

One of the primary conditions of employment in South Africa as stated Basic Conditions of Employment Act 95 of 1997 states that "an employer must give an employee who works continuously for more than five hours a meal interval of at least one continuous hour" (Government 1997). One of the managers who was interviewed (see Chapter 4) suggested that there is no structure allowing time for breaks, nor is break time recognised in GPG EMS. There is therefore a need to develop policies that are in line with the Basic Conditions of Employment Act, 1997. The lack of mitigating strategies for managing how EMCP feel about the lack of support they experience concerning high call volumes is a concern as this leads to fatigue.

5.2.2 Clinically based work-related stress: types of call

All EMCP experience clinical-based stress on occasion, as was expressed during the interviews. This was credited to the severity of calls they are confronted with. However, some like basic ambulance assistants (BAAs) and ambulance emergency assistants (AEAs) were more vulnerable to such stress owing to the lower skill set they possess compared to the EMCP who are ALS providers (Tiwari *et al.* 2021). Therefore, an organisation with different EMCP clinical levels of practice should consider supporting all EMCP, with more focus to those who are more prone to experiencing stress from clinical exposure (Elder *et al.* 2020). It has been reported that employees with less stressful employment responsibilities have significantly better health, while those with stressful types of workload suffer from multiple health condition (Parslow *et al.* 2004). This reflects on the possible benefits of having good WRS mitigating strategies.

Furthermore, in the face of challenging calls, it is common for EMCP to feel ill-prepared to deal with these challenges; as much as such working conditions are well documented and expected within the industry, there is lack of well-developed tools to manage this type of stress (Zana 2019b).

During the interviews, the experience of stress resulting from exposure to critical cases was reported. This was expressed by EMCP who were not ALS trained. While that was mentioned, the organisation has tools in place to manage clinical-based WRS. This finding is consistent with research in other parts of the world; in Sweden,

prehospital EMCP mentioned they were confronted by clinical-based WRS owing to types of call they attend to, such that they felt they were personal shortcomings in their management of critical patients (Bohström, Carlström and Sjöström 2017). At GPG EMS, there is an internal college where EMCP can be trained in new skills and new qualifications, as well as refresh their cognitive knowledge of old skills. This was stated by one of the managers and confirmed by operational EMCP. This tool was having a positive impact on EMCP and they were able to be apprised of new guidelines and improve the knowledge they had before by doing “refresher classes”. Employees who work in highly stressful environments benefit from cognitive training and refresher classes at work. This reduces stress with regard to their responsibilities and also cements knowledge of standard operational procedure (Kluge *et al.* 2019).

One of the tools that were identified that reduce stress for EMCP who have a qualification such as BLS and AEA is the presence of ALS paramedics or emergency care practitioners. This finding is consistent with a finding made by Delorenzo *et al.* (2018) where the presence of ALS was seen to improve patient care. While this finding does not mention a reduction in WRS, it is known that ALS personnel present improved clinical care, thus reducing clinical stress from lesser skilled clinicians. EMCP stated that ALS personnel presence in the GPG seemed to alleviate a lot of clinical stress. This was because the level of training and broad skill set of this group of practitioners brings about improvement in the clinical management of patients (Hubner *et al.* 2017).

Moreover, there is a clear shortage of ALS providers nationally. This is seen in **Table 6**, which indicates that, in December 2020, there were 29 458 BAA and 11 333 AEA nationally, compared to a total of 3427 ALS providers (i.e. a ratio of 11.9 non-ALS providers to one ALS provider). Highly trained paramedics such as ALS can be of great benefit to an EMS System (Woodall *et al.* 2007). Furthermore, in addition to ALS being of benefit to the healthcare system, their presence in the management of patients is associated with positive neurological outcomes in critical patients, as well as in resuscitation (Naito *et al.* 2020).

Table 6: Clinical level, education and number of clinicians by the HPCSA: December 2020

Level of clinical Practice	HPCSA Registration Category	Duration of Study	Level of care	Total EMCP
Basic Ambulance Assistance (BAA)	BAA	4-5 Weeks	Basic Ambulance Assistance (Supervised Practice)	29,458
Ambulance Emergency Assistant (AEA)	AEA	12-14 weeks	Ambulance Emergency Assistance	11,333
Emergency Care Technicians (ECT)	ECT	2 years	Advanced Life Support	1,074
Paramedics **Critical Care Assistance (CCA)** **National Diploma**	ANT (Ambulance Noord Tegnikus)	*CCA- 9-10 Months* *National Diploma 3 Years*	Advanced Life Support (With Some Extended Clinical)	1,532
Emergency Care Practitioners (ECP)	ECP	*National Diploma + 2 years part time* *4 years degree*	Advanced Life Support (With More Extended Clinical Practice Skills)	821
Total for all Emergency Medical Care Personnel				44,218

Number of Emergency Medical Care Personnel Registered with the HPCSA as of December 2020

A relationship exists between knowledge of technical skills during the management of critical patients and stress; clinicians with fewer technical skills tend to be more stressed and gain confidence from the leadership of clinicians with more technical skills (Krage *et al.* 2017). This seems to be in line with findings in this research that non-ALS providers experience stress in the absence of clinical support.

Table 6 presents a list of EMCP registered by the HPCSA as of December 2020. The table represents South Africa and not just the EMCP employed by the GPG. From the table, there is clear evidence of limited ALS EMCP compared to other EMCP. However, it is worth noting that ECPs are very limited, with only 821 listed, while there is a large supply of BLS with 29 458 practitioners. This translates to a ratio of 1 ECP to 36 BAA.

Based on the above information, it would appear that there is a limited supply of ECP. This creates a challenge, with EMCP in the ambulance requiring support from ECPs and ECPs not being there or available elsewhere. Extensive research has looked at the reasons for the shortage of ECPs; in general, most studies credit this to organisational stress. Furthermore, these stresses lead to the immigration of ECP and other ALS practitioners. This shortage of ECP frustrates the EMS system, leading to pressure on EMCP who are presented with critically ill or injured patients, and thus affecting the quality of EMS output (Hackland and Stein 2011; Govender *et al.* 2012; Gangaram 2017).

5.2.2.1 Mitigating strategy for clinical-based work-related stress: debriefing

This research identified that debriefing is used to destress after a challenging case and contributes to improving confidence among EMCP in their practice. The World Health Organisation defines debriefing as a process where a person or group formally review their performance after a particular event that may be critical or just an ordinary shift (Flin *et al.* 2009). Elsewhere, Maestre (2014) views debriefing as an activity that two or more people undertake to understand why actions were taken during a specific activity, as well as to describe the feelings experienced during the activity. Debriefing is ordinarily followed by strategies to change attitudes towards any challenges that might have been noted during the specific event (Oriot, Alinier and Alinier 2018). In addition, if the reflection is positive it is discussed, with such discussion being encouraging in future activities (Maestre *et al.* 2014). Debriefing is reported to enhance clinical knowledge and therefore improve clinical outcomes (Villani *et al.* 2021), as a result it enhances management by EMCP of cases that are deemed critical (Ugwu *et al.* 2020).

Debriefing may be classified as either informal or formal debriefing. Informal debriefing is described as a conversation between ambulance crews when they complete a challenging case, and is also described as reflection on experiential learning (Werry 2016). Informal debriefing could take place between two people or a group sharing information about the case at the station. A Swedish study agrees with this concept, such that the participants described it as a “healing ritual” (Bohström, Carlström and Sjöström 2017). In this study both types of debriefing are done, suggesting that this tool is accessible and is used by EMCP. However, there was no guidance or structure for these debriefing sessions, and they simply comprised general discussions. While such sessions are not structured, learning does occur during them. However, there is a lack of support from managers in that they do not provide the time and resources to support such debriefing sessions.

Formal debriefing has more structure and specific targets, like a concept called TALK, which is a mnemonic for Target, Analysis, Learning points, Key points (Diaz-Navarro

et al. 2021). The TALK structure is designed for clinical debriefing and has a specific working framework. As a tool for formal debriefing, it is a means of encouraging patient safety that organisations can employ to influence work culture. Furthermore, Raemer *et al.* (2011) suggest that there is a structure for conducting debriefing sessions; they recommend that a debriefing session should be prepared around the following questions:

- Who is conducting the session?
- What method will be used?
- When will it be conducted?
- Where will it be conducted, with specific reference to the environment?
- Why is the session conducted, and what theoretical framework will be used to support the content?

Formal debriefing and informal debriefing are both beneficial and each have their advantages. In this study we discovered that both these methods are used to mitigate clinical stress. Discussing cases with colleagues socially does not equate to formal debriefing, however it can bring some “off-loading” (Oriot, Alinier and Alinier 2018). For example, a study conducted in Cape Town, South Africa, found that 45% of the participants stated that one of the tools they use to cope with WRS is to talk to fellow EMCP. This seemed to have a positive impact on managing emotions (Minnie, Goodman and Wallis 2015). While this is not a formal debriefing session, in this research we can say it does bring “clinical load shedding” since EMCP share the clinical load. However, it may not bring about the best clinical practice solutions, especially if participants’ level of clinical practice and knowledge is similar. Other studies agree that informal debriefing has a positive effect. Furthermore, informal debriefing is there right after the incident occurs; it is for this reason it is sometimes referred to as psychological first aid (Rodger and Atwal 2018).

Formal debriefings should be conducted in a way that is not judgemental, shameful or blaming of the participants. Shaming techniques should not be used as they undermine any learning experience (Oriot, Alinier and Alinier 2018). One of the managers mentioned that an experienced ECP conducted a debriefing session with a newly qualified EMCP after the latter had had a case that had adverse events. By the end of the session the newly qualified EMCP was even more distressed as a result of

the judgemental nature of the session and had to seek the help of a mental health specialist. The debriefing sessions were more critical to the errors during patient care. There was no development, support or highlighting of the positives; as suggested above, it is crucial to have the right person with the required training conduct a debriefing session (Naidoo 2021). As much as a debriefing session may reduce WRS, it may result in precisely the opposite (Oriot, Alinier and Alinier 2018). This has been well highlighted in research into WRS, which indicates that criticism that is not constructive tends to increase WRS (Oriot, Alinier and Alinier 2018; Hoyt, Darabos and Llave 2021). ECPs are expected to have greater clinical knowledge as they attend universities and, for that reason, they are the ones who conduct debriefing sessions; additionally, they are expected to be trained to conduct debriefing session (Macfarlane, Loggerenberg and Kloeck 2005; Sobuwa and Christopher 2019) (Makkink and Dreyer 2021). Two issues emerged from this: the first is whether ECP need more on-the-job-training to provide debriefing sessions, and the second is who provides clinical support for ECP? While ECP are required to provide debriefing sessions, its emerged that they may be interrupted while the sessions are in progress in order to respond to cases. This suggests that there are no specific times allocated for debriefing, which may frustrate debriefing as a WRS mitigating tool. As it can be productive, it may benefit from having a set time for debriefing to be conducted (Burns 2016; Chen and Arriaga 2021). Moreover, if the organisation allocates a specific time for debriefing, it may reflect keenness to enhance patient safety and employee wellness, with a positive reflection of organisational culture (Rodger and Atwal 2018).

5.2.3 Recommendations for clinical-based work-related stress: high call volumes

There is a need for the GPG to establish a policy that standardises meal breaks and rest breaks for EMS. Furthermore, there should be clear strategies for reducing fatigue in the presence of high call volumes. Based on the South African Basic Conditions of Employment Act, EMCP should have two breaks during a 12-hour shift. Additionally, more resources should be made available to service a large population such as Johannesburg, thus reducing the pressure on EMCP.

5.2.4 Recommendations for clinical-based work-related stress: types of call

Clear strategies should be in place for an organisation such as the GPG EMS to retain EMCP who are ALS practitioners. As discussed above, having ALS personnel in the organisation will reduced stress on the operational EMCP. Besides retaining existing ALS providers, more ALS providers should be employed; in that way EMCP with minimum skills and clinical knowledge will not be overwhelmed by clinical-based WRS.

Tools should be designed to manage WRS in ALS providers. There was no evidence to show how they manage critical cases beyond their scope of practice, and the stress that emerges from those types of case.

Debriefing needs to be employed effectively, using recognised debriefing measures. Time should be set aside for debriefing sessions and they should take place without interruption. In addition, the organisational culture should be enhanced in order to promote learning, and bring about improvements in patient safety**.**

5.2.5 Community violence and security measures

In the previous chapter, the study found that the community EMCP serve places a lot of stress on EMCP. This stress may emanate from false calls, crime perpetrated on the EMCP themselves and violence in the community resulting in calls that are of a gruesome nature. This finding is not unique to GPG EMS, as robustly discussed in a literature review by Murray *et al.* (2020), who found that violence has been seen to be a leading cause of stress for many emergency care services. Furthermore, there is evidence that there is a concerning negative relationship between violence, burnout and patient care. Organisations do not have control over this type of stress and cannot control what the clientele they service does (Converso 2021).

When EMCP enter the industry, there is a strong emphasis on hazard management before approaching any scene. This is always done to ensure safety. However, EMCP may not always have control over the management of hazards or dangerous environments (Asadi *et al.* 2019). An example from the study is when EMCP are attacked by an angry mob, as was discussed in the results chapter. Interestingly, the

employer has a responsibility to create a safe work environment for their employees. Part 8 of the South African Occupational Health and Safety Act 85 of 1993 advocates that employers should do all that is reasonably practical to ensure the safety of the working area for employees (Labour 1993).

Organisation's strategies for mitigating stress include the Community Policing Forum; these strategies involve utilising law enforcement, such as the SAPS. However, based on the results of this study, EMCP feel vulnerable and continuously exposed to harmful conditions while at work. They do not feel the tools provided reduce danger or mitigate the risk, thus creating a very stressful work environment. In their literature review, Murray *et al.* (2020) argue that although there are mitigating factors associated with stress caused by violence, these tools are inadequate and not specifically designed for EMS; this was also the case in this study. In other parts of the world there is increased evidence of EMCP carrying defence weapons while on duty (Maguire *et al.* 2018b). This reflects a lack of confidence in the strategies for mitigating violence while at work. In this study, the tools used to manage WRS emanating from the community they serve are ineffective and need improvement.

There is consistency in studies that suggest a lack of mitigating strategies for reducing stress for EMCP brought about by violence in the workplace. Such stress needs to be addressed using a variety of approaches, such as the promotion of societal behavioural change, consideration of socio-political factors, and a positive organisational safety culture. (Baig *et al.* 2018). Additionally, mitigating strategies for reducing WRS brought about by violence are not possible without strong support from the organisation; this includes strong policies that target the workplace violence protection capacity (Khoza 2021).

5.2.6 Recommendations for measures to mitigate community violence and a lack of security

The stress that arises from the nature of the community is hard to manage from the organisation. However, there should be mitigating strategies for anticipating potential crises in the red zone and thus reducing the danger for EMCP.

EMCP that have been exposed to confrontational cases, whether primary violent assault on the patient or secondary violent assault", should automatically be checked to assess their wellness by a programme such as the EWP.

5.2.7 Shortage of resources and advanced life support

In developing countries, there may be challenges in acquiring resources to service communities (Moyimane, Matlala and Kekana 2017). As seen in the results section, EMCP struggle with a shortage of clinical equipment. The resource shortage does not end with clinical equipment, as they also stated that the vehicles they use are not suitable for the road infrastructure in the informal settlements. The shortage of suitable ambulances or basic infrastructure has been seen as a challenge in South Africa and in other African countries (Ziraba *et al.* 2009; Dawson 2014; Phiri *et al.* 2021). A literature review focused on articles that discuss barriers in the prehospital setting stated that in countries with underdeveloped economies it is common to have challenges with frequently needed equipment (Kironji *et al.* 2018). A shortage of equipment can lead to WRS and moral distress, as EMCP may know what needs to be done, yet fail to render services owing to the shortage of resources (Jafari *et al.* 2019). In this study, EMCP highlighted this insufficiency but managers did not put much effort into ensuring that such shortages are prevented.

EMCP mentioned this as a source of stress while they are at work. This form of stress is stress that emanates from issues that the organisation can have control of. One could argue that since South Africa is a developing country, this may be an expected challenge. However, a shortage of ALS and equipment remains one of the unaddressed causes of WRS for EMCP.

Organisations do not mean to stress their employees while they are at work. They aim to render services; however, they end up causing stress for their employees. In this case, they do so by forcing EMCP to service more cases, sometimes with limited resources. This also means organisations are unprepared for this unintended stress. This is the case for the GPG as employers of EMCP. Based on the data collected, there are inadequate strategies for mitigating this stress. It is worth noting that the ALS shortage is a shortage nationally. The workforce of the South African EMS is

distributed as follows: 76% comprises BLS and 18% comprises ILS, while ANT comprises 3% (ALS provider), ECT 2% (ALS provider), and ECP 1% (ALS provider). This means that ALS providers comprise just 6% of the entire EMS workforce in South Africa (Tiwari *et al.* 2021). It is worth noting that not all the practitioners who are included in these figures are practising in South Africa; some work in other African countries and in other parts of the world. There is thus notable under-resourcing, negatively impacting on the provision of EMS (Govender *et al.* 2012; Tiwari *et al.* 2021).

5.2.7.1 Employee placement and remuneration and the Performance Management and Development System (PMDS)

Placement of employees is one of the issues mentioned by EMCP as one of the causes of stress, with personnel being placed where the company needs them rather than close to where they reside with their families. However, it appears that the organisation had changed its attitude towards placement, placing employees closer to their homes especially for newer employees, which is an effective way of preventing stress for EMCP who join the organisation. However, those who have already been placed still suffer stress brought about by being far from their residential areas. There is a positive relationship between favourable employee placement and employee performance; accordingly, employees should be considered in decisions about their employment and location, and these should suit both the employer's and the employee's needs. This significantly improves organisational performance (Meswantri and Ilyas 2018; Ulfah and Prastiwi 2020). In this study employee placement choice was not accessible to everyone but was deemed effective in reducing stress for the group that has access to it. However, the organisation needs to prioritise and make it accessible to all EMCP.

One of the tools that the organisations use to motivate employees is the Performance Management and Development System (PMDS). This was mentioned as one of the causes of stress in some cases. Talent management tools like the PMDS are used by employers to encourage EMCP and to recognise performance. This occurs during appraisal done and takes the form of monetary recognition for efforts that reflect doing

more than the ordinary duties of employment. This is done to show recognition of human capital by employers (Bibi 2018).

Kubheka Z. (2018) looked at the PMDS in the GPG Emergency Medical Services, reporting that some employees believed that PMDS is a tool used by managers to control employees. Additionally, some employees believed that managers would withhold bonuses for no reason. This was consistent with what the EMCP who were interviewed felt. One EMCP ended up having a verbal altercation that deteriorated into a physical fight with their line manager because they believed that the PMDS scoring system was used against them. Managers should know to how to facilitate performance management appropriately for employees in order to minimise disputes. This process means managers and employees must be educated in performance management, and employees should be knowledgeable about the tool used (Brown *et al.* 2019). Performance management systems have the potential to make a positive impact and positively correlate with employee performance (Ahmad *et al.* 2018).

5.2.7.2 Recommendation for mitigating the shortage of resources and advanced life support

Kubheka Z. (2018) suggests that the PMDS has the potential to be effective in bringing about job satisfaction and assisting the organisation to reach its goal. Still, there must be clear induction on how the PMDS is implemented and clear communication about what is expected of EMCP by supervisors, and managers when the PMDS is used. Cong, Nguyen Van and Hoang Huu (2013) hold similar views, stating that employers and employees need to agree on how such tools are used, and employees must have a voice in how this process is conducted. If communication is clear and fair there is the likelihood of reducing conflict, in that way allowing the tool to be effective and, furthermore, enhancing workplace well-being (Hoque *et al.* 2018). Sustaining the number if ALS is significant. Having 6% of ALS representation in the country's EMS system suggests that organisations are likely to struggle to recruit and/or reduce turnover for this population. Improving the quality of employment for ALS as well as the other EMCP, is one of the recommendations for enhancing retention (Gangaram 2017).

5.2.8 Stress caused by workplace influences

Human interaction happens in the workplace and takes place with colleagues or with supervisors. There is sometimes a hierarchy in workplaces, with some colleagues holding more authority than others. For example, in EMS, better qualified EMCP have more clinical authority than those who are less qualified. Such human interaction requires professional relationships. Unfortunately, some of these relationships end up being unprofessional or tense, as was noted in the study.

In the research, some EMCP expressed that they experience tensions between themselves and other EMCP and/or with their managers. This was also found in a study that had similar findings where managers did not support EMCP (Clompus and Albarran 2016). Such findings have been reported previously where by other EMCP felt some colleagues acted like “big brother”, stating that such relationships end up in some level of aggression, violence and verbal abuse (Lawn *et al.* 2020). This was shown to result in WRS. Furthermore, it was expressed that EMCP lack support from their managers. This lack of support could be observed in the issues above such as regarding the PMDS. EMCP were not supported such that they felt managers were deliberately against them. This resulted in psychological stress such as loss of self-worth, agitation while at work, and withdrawal. Generally, employees end up resorting to being withdrawn and avoidance as a coping mechanism, which was also noted in this study (Bhandarker and Rai 2019).

5.2.8.1 Mitigating strategies for stress influenced by the workplace

The organisation had a well-established system to assist employees who experienced welfare challenges and WRS. This also covered circumstances where EMCP experienced critical incidents. The programme in place to deal with this is called the Employee Wellness Programme (EWP), which is initiated by chaplains. First, they do the primary screening to assess the EMCP involved. Then they offer assistance in the form of talking to and motivating the employees involved. The EMCP mentioned that sometimes they get prayers and bible-based motivation. The following are the challenges relating to the EWP:

- Initiation of the programme had some grey areas, like who made the first call to activate the programme.
- Lack of trust on the part of EMCP who had never used the programme and those that had:
    - Confidentiality leaks were mentioned and experienced by some EMCP.
    - Effectivity of the programme based on rumours.
- Most EMCP believed the programme was focused on religion, and it was more Christian based; as not all EMCP are Christians, this meant they had no confidence that the programme would help them.
- Some critical incidents were overlooked by managers or supervisors or even EMCP.
- Some EMCP did not know about the programme.

Lack of knowledge of the EWP is common, which also explains the lack of knowledge on how such programmes function. If the programme is not known its usage will be minimal (Makhanya 2021). The EWP as a tool to reduce WRS has positive impact and has the potential to be made even better. EMCP who have used the tool, highlighted some positive strategies by the EWP team; the availability of a psychologist and a psychiatrist somehow brought some positive value. This was consistent with the finding in other studies that there are some employees who value these services, while others do not see the benefit. In addition, concerns such as that of confidentiality were a common challenge (Malatjie and Ncube 2019). One EMCP mentioned a significant advantage that the psychologist was not employed by the EMS organisation but rather by the health department. This made them feel that their private conversations were not likely to end up with senior management, therefore enhancing confidentiality. Psychologists are part of EWP programmes and have ethical accountability to ensure confidentiality. Additionally, they should assist organisations to create a culture that promotes workplace wellness (Chipeva and Trendafilov 2021).

Tracy (2017) states that a critical incident is an incident that disrupts or impacts the functioning of the business. Examples of such include non-fatal workplace accidents, mortality of an infant or child, armed or unarmed robbery, etc. This description is not focused on EMS but relates to any workplace. However, EMCP experience such

events and they may not be treated as critical incidents. All groups could recall an incident that could be classified as a critical incident, yet many did not get a reaction from a chaplain or a member of the EWP. At times these incidences were reported to line managers, but no actions were taken to assist EMCP. Unsurprisingly, inability to identify emotions or describe emotions associated with critical incidents is prevalent among EMCP and even managers. This inability may result in slow recovery from the impact of a critical incident (Halpern *et al.* 2012). . Furthermore, more tools need to be developed that could clearly focus on managing critical incidents at work. Although this tool may affect operations, EMCP taking a break post a critical incident has been identified as being effective. Down time post a critical incident has been seen to have great effect in avoiding depression following critical incidents; EMCP could consequently benefit from being removed from their shift after exposure to a critical incident (Halpern *et al.* 2014).

5.2.9 Recommendations regarding workplace influences

The EWP programme should create ways to ensure that it is known within the organisation among EMCP. Managers were confused over what the programme is called and some did not know about it at all. Therefore, the EWP should make an effort to advertise its presence. The programme should also improve its systems and prevent a breach of confidentiality.

In regard to stress-reduction strategies, some at the EWP use faith-based methods, which have been proven to be effective (Smith, Walker and Burkle 2019). In the study some EMCP identify a Christians and having chaplains that use bible-based motivation may benefit them. However, those that have a different religion might not find comfort in Christian based inspiration. Some programmes have faith as part of the EWP but not as the primary approach.

Some EMS organisations have programmes like EWP, however instead of chaplains they have EMCP who work as colleague supporters, referring to these employees as peer supporters. Rather than being based in a centralised office, peer supporters are part of the team. Such programmes are designed to align to EMS system (Connolly *et al.* 2021) .

In addition, a clear definition of a critical incident is required, and such incidents should automatically activate the EWP. All systems that can identify a potential critical incident should be used including the control centre, self-reporting, manager reporting and the general nature of the case, for example a mob justice victim. The organisation should be proactive in trying to reduce WRS for EMCP.

Organisations should prioritise reviewing the effectiveness and appropriateness of the tools available. It would also be of benefit to design more programmes to reduce WRS specific to the GPG EMS community. Such programmes should be up to date in terms of the social landscape of the organisation and the global EMS community.

5.3 Conclusion, limitations, and further research

The aim of this study was to identify the tools that were used by the Gauteng Provincial Government Emergency Medical Service (GPG EMS) in supporting EMCP in dealing with WRS. It also sought to determine whether the tools in the organisation were utilised and, additionally, to understand whether these had an effective impact. The research was conducted using qualitative methods and an interpretivist approach, where participants shared their lived experiences. Participants were identified with the use of a snowball sampling technique. Data collection tools included interviews and focus group interviews. A thematic analysis was used to analyse the data. While conducting the study, it became apparent that in order to understand what tools were present, it was imperative to understand the sources of stress for EMCP.

The study ascertained that EMCP were affected by WRS from various sources such as from the organisation they worked for, from the community they served, and from the clinical work they did. All these forms of stress were addressed using certain tools that were in place. This study was able to establish the tools available in the GPG EMS, and their effect.

The organisation manages stress using an EWP programme. It was established that the EWP was effective if well applied. However, it was not well known throughout the

organisation and may thus need improvement, specifically in terms of inclusivity and confidentiality. In that way, confidence in its use will increase among EMCP.

Tools for dealing with stress that emanates from the community EMCP serve are in place but are not entirely effective. The EMCP still felt unsafe when working in areas that are dangerous or referred to as “red zones”. The organisation may have to redesign tools relating to this aspect in a way that will suit the EMCP while not compromising EMS services for the community they serve.

Effective strategies to manage stress emanating from the clinical component of their employment include debriefing, attending the internal college, and having ALS practitioners on critical cases. However, access to these tools needs to improve, as well as the organisational culture around the application of these tools.

Overall, the EWP and managers need to work together in strengthening, solidifying and executing their roles and responsibilities in the management of WRS for EMCP. A significant amount of work may need to be done in redesigning and rejuvenating tools for reducing WRS and their consistent effectivity.

This study is an important landmark in knowledge of the management of WRS. Accordingly, this study will assist more studies in designing tools to deal with WRS. Furthermore, the study contributes to the knowledge of mental health for EMCP globally and especially in Africa, where limited studies have focused on this area.

5.3.1 Limitations

In Phase 1 managers were sampled using a type of purposeful sampling referred to as a snowball technique. A limitation of this method was that the sample ended up being people who knew each other; those who were not known to the primary participant did not have a chance on being part of the study.

The second phase used nonrandomised sampling where the researcher permitted whoever was available to participate in the study. This limited other EMCP who would have offered valuable information but who were unavailable at the time. This phase of

the study used group interviews to collect data; accordingly, the limitations experienced during this data collection included when interviewing EMCP in the group their responses might have been influenced by what others had said, as everyone was listening when the others responded. While this can be an advantage in igniting the conversation, it does however create group bias towards the discussion.

Further limitations included that, when listening to some of the experiences of the EMCP, the researcher was at times overwhelmed, mostly as a result of the horror of some of their experiences. This could have created cognitive bias on the part the researcher, and a sympathetic bias towards the EMCP, therefore influencing the results. It is also easy to find employees who are unhappy with their employers, which create an environment that is prejudiced towards an employer and the EMCP narrative is biased.

One of the disadvantages of qualitative research is the small sample size. In this case, the sample was drawn from one organisation and in one province, Gauteng. While there is an advantage in obtaining an in-depth point of view from the EMCP in a qualitative study, it cannot be assumed that all EMCP in the organisation agree with how the three groups felt. There may be benefit if the future studies were to address similar questions using quantitative methods, thus covering a larger sample including other provinces and/or countries.

Finally, the study focused on EMCP and managers at the station level, thus benefitting from acquiring in-depth information on human resources and policies, and the organisation's senior management perspective on what they have in place and how they measure the effectiveness of the tools, as well as accessing any other data on measures employed by the GPG to weigh the effectivity of their tools used to manage WRS. All this could be of benefit in understanding which tool is effective and which is not, and lastly, what strategies they use to evaluate employee wellness. This could also be used by future studies.

5.3.2 Further studies

It would be of benefit for the industry to have tools that are designed to reduce WRS in the South African EMS landscape. This study has identified that EMCP have limited resources to manage certain WRS, including stress from the organisation such as heavy workloads, and stress caused by dangers in the communities they serve. However, little is still known about what the best strategies are to manage stress from such sources. Further studies could look into this and develop practical strategies that may work in the South African EMS industry.

Violence and crime are a challenge for EMCP; exposure to such ills can have detrimental effects. In addition to the day-to-day challenges, a study that looks at the psychological effects of violence and crime towards EMCP would be of benefit. Such a study could also include examining the effect on their mental health, clinical practice and overall well-being.

Furthermore, little is known about the criteria used to determine a critical incident; thus, determining how a critical incident is identified would contribute to how WRS is dealt with. Furthermore, unidentified critical incidents can have long-term effects in dealing with mental health for EMCP, and therefore the life span of an EMCP on the job.

5.3.3 Personal reflection

During the study, I learnt that EMCP had no clear knowledge of the tools in place to manage WRS. While some EMCP had a positive outlook on being at work, others had a negative outlook due to their experiences. During the data collection phase of the research I experienced overwhelming feelings due to the hardships EMCP experienced in their workplace. This is, however, expected in qualitative research, and I was assisted in dealing with this by having time to discuss such feelings with one of the researchers who is a psychologist. This seemed to dispel or reduce these overwhelming feelings. Also, allowing sufficient time between in-depth interviews would be one of the considerations in my future research. Having a large enough break between interviews allows for reflection and recuperation before the next interview.

References

1. Adib Ibrahim, M., Abdul Aziz, A., Suhaili, N.-A., Zahid Daud, A., Naing, L. and Abdul Rahman, H. 2019. A Study into Psychosocial Work Stressors and Health Care Productivity. *The International Journal of Occupational and Environmental Medicine*, 10 (4): 185-193.

2. Ahmad, D. I., Danish, D. R. Q., Ali, S. A., Ali, H. F. and Humayon, D. A. A. 2018. Comparative Study of Banking Industry Based on Appraisal System, Rewards and Employee Performance. *SEISENSE Journal of Management*, 2 (1): 1-11.

3. Alenazi, S. K., AL-Otaibi, B. S., Alenaz, A. N. and Alrashidi, Q. S. 2016. Stress and burnout among Red Crescent paramedic ambulance workers in Riyadh. *Journal of Emergency Medicine, Trauma and Acute Care*, 2016 (2 - International Conference in Emergency Medicine and Public Health-Qatar Proceedings)

4. Alexander, D. A. and Klein, S. 2001. Ambulance personnel and critical incidents: impact of accident and emergency work on mental health and emotional well-being. *Br J Psychiatry*, 178 (1): 76-81.

5. Allan, J. L., Johnston, D. W., Powell, D. J. H., Farquharson, B., Jones, M. C., Leckie, G. and Johnston, M. 2019. Clinical decisions and time since rest break: An analysis of decision fatigue in nurses. *Health Psychology*, 38 (4): 318-324.

6. Alshehri, M. F., Pigoga, J. L. and Wallis, L. A. 2020. A mixed methods investigation of emergency communications centre triage in the Government Emergency Medical Services System, Cape Town, South Africa. *African journal of emergency medicine : Revue africaine de la medecine d'urgence*, 10 (Suppl 1): S12-S17.

7. An, K., Salyer, J., Brown, R. E., Kao, H.-F. S., Starkweather, A. and Shim, I. 2016. Salivary Biomarkers of Chronic Psychosocial Stress and CVD Risks. *Biological Research For Nursing*, 18 (3): 241-263.

8. Anderson, D. M., Anderson, L. E. and Glanze, W. D. 2002. *Mosby's medical dictionary*. Mosby St. Louis.

9. Anest, T., De Ramirez, S. S., Balhara, K. S., Hodkinson, P., Wallis, L. and Hansoti, B. 2016a. Defining and improving the role of emergency medical services in Cape Town, South Africa. *Emergency Medicine Journal*, 33 (8): 557-561.

10. Anest, T., Stewart de Ramirez, S., Balhara, K. S., Hodkinson, P., Wallis, L. and Hansoti, B. 2016b. Defining and improving the role of emergency medical services in Cape Town, South Africa. *Emerg Med J*, 33 (8): 557-561.

11. Asadi, P., Ziabari, S. M. Z., Vatani, J., Ghotbi, J. and Safaee, F. 2019. Assessing the knowledge of Guilan Pre-Hospital emergency personnel (EMS) from safety principles. *J Adv Pharmacy Education Res*, 9 (S2): 99-105.

12. Ashokcoomar, P. and Naidoo, R. 2016. An analysis of inter-healthcare facility transfer of neonates within the eThekwini Health District of KwaZulu-Natal, South Africa. *South African Medical Journal*, 106 (5): 514.

13. Ataguba, J. E., Akazili, J. and McIntyre, D. 2011. Socioeconomic-related health inequality in South Africa: evidence from General Household Surveys. *International Journal for Equity in Health*, 10 (1): 48.

14. Backé, E. M., Kaul, G., Klußmann, A., Liebers, F., Thim, C., Maßbeck, P. and Steinberg, U. 2009. Assessment of salivary cortisol as stress marker in ambulance service personnel: comparison between shifts working on mobile intensive care unit and patient transport ambulance. *International Archives of Occupational and Environmental Health*, 82 (9): 1057-1064.

15. Baig, L. A., Shaikh, S., Polkowski, M., Ali, S. K., Jamali, S., Mazharullah, L., Soomro, M., Kumari, B., Memon, S., Maheshwari, G. and Arif, S. 2018. Violence Against Health Care Providers: A Mixed-Methods Study from Karachi, Pakistan. *The Journal of Emergency Medicine*, 54 (4): 558-566.e552.

16. Bavafa, H. and Jónasson, J. O. 2020. Recovering from Critical Incidents: Evidence from Paramedic Performance. *Manufacturing & Service Operations Management*,

17. Bhandarker, A. and Rai, S. 2019. Toxic leadership: emotional distress and coping strategy. *International Journal of Organization Theory & Behavior*,

18. Bibi, M. 2018. Impact of Talent Management Practices on Employee Performance. *SEISENSE Journal of Management*, 2 (1): 22-32.

19. Bienertova-Vasku, J., Lenart, P. and Scheringer, M. 2020. Eustress and Distress: Neither Good Nor Bad, but Rather the Same? *BioEssays*, 42 (7): 1900238.

20. Bitsani, E. 2013. Theoretical Approaches to the Organizational Culture and the Organizational Climate: Exploratory Research Examples and Best Policies in Health Care Services. *Journal of Human Resource Management*, 1 (4): 48.

21. Bohström, D., Carlström, E. and Sjöström, N. 2017. Managing stress in prehospital care: Strategies used by ambulance nurses. *International Emergency Nursing*, 32: 28-33.

22. Borrell-Carrio, F. 2004. The Biopsychosocial Model 25 Years Later: Principles, Practice, and Scientific Inquiry. *The Annals of Family Medicine*, 2 (6): 576-582.

23. Boyatzis, R. E. 1998. *Transforming Qualitative Information: Thematic Analysis and Code Development*. SAGE Publications.

24. Braun, V., Clarke, V., 2006. Using thematic analysis in psychology. Qualitative Research in Psychology 3, 77–101.. doi:10.1191/1478088706qp063oa

25. Brown, T. C., O'Kane, P., Mazumdar, B. and McCracken, M. 2019. Performance Management: A Scoping Review of the Literature and an Agenda for Future Research. *Human Resource Development Review*, 18 (1): 47-82.

26. Burns, B. 2016. Caring for colleagues through debriefing. *Kai Tiaki Nursing New Zealand*, 22 (8): 12-42.

27. Butler, M. W. and Adefuye, A. O. 2019. Assessing the knowledge of emergency medical care personnel in the Free State, South Africa, on aspects of paediatric pre-hospital emergency care. *Pan Afr Med J*, 32: 98.

28. Chen, Y.-Y. K. and Arriaga, A. 2021. *Crisis checklists in emergency medicine: another step forward for cognitive aids*: BMJ Publishing Group Ltd.

29. Chipeva, M. and Trendafilov, D. 2021. WELLBEING, PERSONAL CONDUCT, EMOTIONAL DYNAMIC. *RECREATION, WELLNESS INDUSTRY AND NICHE TOURISM*: 20.

30. Clompus, S. R. and Albarran, J. W. 2016. Exploring the nature of resilience in paramedic practice: A psycho-social study. *International Emergency Nursing*, 28: 1-7.

31. Collins, C. S. and Stockton, C. M. 2018. The Central Role of Theory in Qualitative Research. *International Journal of Qualitative Methods*, 17 (1): 160940691879747.

32. Cong, N. N., Nguyen Van, D. and Hoang Huu, T. 2013. Effects of Motivation on Employees' Performance at Petrovietnam Nghe An Construction Joinst Stock Corporation. *American Journal of Business and Management*, 2 (2): 160.

33. Connolly, R., Murray, E., James, A., Harris, L. and Hancox, B. 2021. What is peer support? Co-Creating a Programme. In: *The Mental Health and Wellbeing of Healthcare Practitioners*. 109-119. Available: https://onlinelibrary.wiley.com/doi/abs/10.1002/9781119609568.ch9 (Accessed

34. Converso, D. S., I. Balducci, C. 2021. Violence exposure and burnout in healthcare sector: mediating role of work ability. *Medicina del Lavoro*, 112: 58-67.

35. Creswell, W., J., David Creswell. 2018. *Research Design Qualitative, Quantitative, and Mixed Methods Approaches*. Fifth Edition ed. Mathura Road, New Delhi 110 044, India: SAGE Publication.

36. Cushman, J. T., Fairbanks, R. J., O'Gara, K. G., Crittenden, C. N., Pennington, E. C., Wilson, M. A., Chin, N. P. and Shah, M. N. 2010. Ambulance Personnel Perceptions of Near Misses and Adverse Events in Pediatric Patients. *Prehospital Emergency Care*, 14 (4): 477-484.

37. Dallard, F. M., Dormann C.,Idris, M A. 2019. *Psychosocial Safety Climate A New Work Stress Theory*. Switzerland: Springer.

38. Dawson, H. 2014. Youth Politics: Waiting and Envy in a South African Informal Settlement. *Journal of Southern African Studies*, 40 (4): 861-882.

39. De Villiers, K. 2021. Bridging the health inequality gap: an examination of South Africa's social innovation in health landscape. *Infectious Diseases of Poverty*, 10 (1)

40. Decker, J. A. 2021. Emergency Medical Services Leadership: The Challenges of Retention and Quality Care. Trident University International.

41. Dehghannezhad, J., Zamanzadeh, V., Gilani, N., Rahmani, A. and Dadashzadeh, A. 2020. Compassion satisfaction and compassion fatigue among emergency medical technicians in Iran. *Australasian Journal of Paramedicine*, 17 (1)

42. Delorenzo, A., St Clair, T., Andrew, E., Bernard, S. and Smith, K. 2018. Prehospital Rapid Sequence Intubation by Intensive Care Flight Paramedics. *Prehospital Emergency Care*, 22 (5): 595-601.

43. Diaz-Navarro, C., Leon-Castelao, E., Hadfield, A., Pierce, S. and Szyld, D. 2021. Clinical debriefing: TALK© to learn and improve together in healthcare environments. *Trends in Anaesthesia and Critical Care*, 40: 4-8.

44. Donnelly, E. 2012. Work-Related Stress and Posttraumatic Stress in Emergency Medical Services. *Prehospital Emergency Care*, 16 (1): 76-85.

45. Dopelt, K., Wacht, O., Strugo, R., Miller, R. and Kushnir, T. 2019. Factors that affect Israeli paramedics' decision to quit the profession: a mixed methods study. *Israel Journal of Health Policy Research*, 8 (1)

46. Dragoş, D. and Tănăsescu, M. D. 2010. The effect of stress on the defense systems. *J Med Life*, 3 (1): 10-18.

47. Dube, O. 2020. Assessing the effectiveness of the employee wellness programme on administrative staff at the University of KwaZulu-Natal (Westville Campus).

48. Duschek, S., Bair, A., Haux, S., Garrido, A. and Janka, A. 2020. Stress in paramedics: relationships with coping strategies and personality traits. *International Journal of Emergency Services*,

49. Eiche, C., Birkholz, T., Jobst, E., Gall, C. and Prottengeier, J. 2019. Well-being and PTSD in German emergency medical services – A nationwide cross-sectional survey. *PLoS ONE*, 14 (7): e0220154.

50. Elder, E. G., Johnston, A., Wallis, M. and Crilly, J. 2020. Work-based strategies/interventions to ameliorate stressors and foster coping for clinical staff working in emergency departments: a scoping review of the literature. *Australasian Emergency Care*, 23 (3): 181-192.

51. Esch, T., Kream, R. M. and Stefano, G. B. 2018. Chromosomal Processes in Mind-Body Medicine: Chronic Stress, Cell Aging, and Telomere Length. *Medical Science Monitor Basic Research*, 24: 134-140.

52. Etikan, I., Musa, S. A. and Alkassim, R. S. 2016. Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, 5 (1): 1-4.

53. Fernandez, W., Benzer, J., Charns, M. and Burgess, J. 2020. Applying a Model of Teamwork Processes to Emergency Medical Services. *Western Journal of Emergency Medicine*, 21 (6)

54. Flin, R., Winter, J., Sarac, C. and Raduma, M. 2009. Human factors in patient safety: review of topics and tools. *World Health*, 2 (10)

55. Friedman, M. J., Resick, P. A., Bryant, R. A. and Brewin, C. R. 2011. Considering PTSD for DSM-5. *Depression and Anxiety*, 28 (9): 750-769.

56. Funk, M. Organization, W. H. 2005. *Mental Health policies and programmes in the workplace (Mental Health Policy and Service Guidance Package)* (Policy Guidance). Geneva 27, Switzerland: WHO Press. Available: https://apps.who.int/iris/bitstream/handle/10665/43337/9241546794_eng.pdf (Accessed

57. Gangaram, P. 2017. An investigation into recruitment, retention and motivation of advanced life support practitioners in South Africa. University of Cape Town. Available: http://hdl.handle.net/11427/25289 (Accessed

58. Garrubba, M. and Joseps, C. 2019. The impact of fatigue in the healthcare setting: A scoping review. *Centre for Clinical Effectiveness, Monash Health, Melbourne, Australia. External link: https://www. ausmed. com/cpd/articles/nurses-fatigue*,

59. Gask, L. 2018. In defence of the biopsychosocial model. *The Lancet Psychiatry*, 5 (7): 548-549.

60. Gates, D. M., Gillespie, G. L. and Succop, P. 2011. Violence against nurses and its impact on stress and productivity. *Nurs Econ*, 29 (2): 59-66.

61. Godoy, L. D., Rossignoli, M. T., Delfino-Pereira, P., Garcia-Cairasco, N. and de Lima Umeoka, E. H. 2018. A Comprehensive Overview on Stress Neurobiology: Basic Concepts and Clinical Implications. *Frontiers in Behavioral Neuroscience*, 12 (127)

62. Gordon, T., Booysen, F. and Mbonigaba, J. 2020. Socio-economic inequalities in the multiple dimensions of access to healthcare: the case of South Africa. *BMC Public Health*, 20 (1)

63. Govender, K., Grainger, L., Naidoo, R. and Macdonald, R. 2012. The pending loss of advanced life support paramedics in South Africa. *African Journal of Emergency Medicine*, 2 (2): 59-66.

64. Government, S. A. Labour, D. o. 1997. *No 75 of 1997: Basic Conditions of Employment Act 1997.* Cape Town: Department of Labour. Available: https://justice.gov.za/labourcourt/docs/1997-075.pdf (Accessed 21 October 2021).

65. Graham, J. E., Christian, L. M. and Kiecolt-Glaser, J. K. 2006. Stress, Age, and Immune Function: Toward a Lifespan Approach. *Journal of Behavioral Medicine*, 29 (4): 389-400.

66. Granter, E., Wankhade, P., McCann, L., Hassard, J. and Hyde, P. 2019. Multiple Dimensions of Work Intensity: Ambulance Work as Edgework. *Work, Employment and Society*, 33 (2): 280-297.

67. Greenglass, E. R., Burke, R. J. and Moore, K. A. 2003. Reactions to Increased Workload: Effects on Professional Efficacy of Nurses. *Applied Psychology*, 52 (4): 580-597.

68. Groombridge, C. J., Maini, A., Ayton, D., Soh, S. E., Walsham, N., Kim, Y., Smit, V. and Fitzgerald, M. 2021. Emergency physicians' experience of stress during resuscitation and strategies for mitigating the effects of stress on performance. *Emerg Med J*,

69. Grossoehme, D. H. 2014. Overview of Qualitative Research. *Journal of Health Care Chaplaincy*, 20 (3): 109-122.

70. Guest, G., MacQueen, K. M. and Namey, E. E. 2012. Introduction to applied thematic analysis. *Applied thematic analysis*, 3 (20): 1-21.

71. Guest, G., Namey, E. and McKenna, K. 2017. How Many Focus Groups Are Enough? Building an Evidence Base for Nonprobability Sample Sizes. *Field Methods*, 29 (1): 3-22.

72. Guest, G., Namey, E., Mitchel, M. 2013. *Collecting Qualitative Data: a Field Manual for Applied Research*. 2455 Teller Road, Thousand Oaks, California 91320: SAGE Publications.

73. Hackland, S. and Stein, C. 2011. Factors influencing the departure of South African advanced life support paramedics from pre-hospital operational practice. *African Journal of Emergency Medicine*, 1 (2): 62-68.

74. Halpern, J., Maunder, R. G., Schwartz, B. and Gurevich, M. 2012. Identifying, describing, and expressing emotions after critical incidents in paramedics. *Journal of traumatic stress*, 25 (1): 111-114.

75. Halpern, J., Maunder, R. G., Schwartz, B. and Gurevich, M. 2014. Downtime after Critical Incidents in Emergency Medical Technicians/Paramedics. *BioMed Research International*, 2014: 1-7.

76. Hassard, J., Teoh, K. R. H., Visockaite, G., Dewe, P. and Cox, T. 2018. The cost of work-related stress to society: A systematic review. *Journal of Occupational Health Psychology*, 23 (1): 1-17.

77. Health, Q. Health, Q. 2021. *Fatigue Risk Management*.(Notice 171). Queensland: Queensland Health. Available: https://www.health.qld.gov.au/__data/assets/pdf_file/0029/396056/qh-pol-171.pdf (Accessed 19 April 2022).

78. Hegg-Deloye, S., Brassard, P., Jauvin, N., Prairie, J., Larouche, D., Poirier, P., Tremblay, A. and Corbeil, P. 2014. Current state of knowledge of post-traumatic stress, sleeping problems, obesity and cardiovascular disease in paramedics. *Emergency Medicine Journal*, 31 (3): 242-247.

79. Hichisson, A. D. and Corkery, J. M. 2020. Alcohol/substance use and occupational/post-traumatic stress in paramedics. *Journal of Paramedic Practice*, 12 (10): 388-396.

80. Hoboubi, N., Choobineh, A., Kamari Ghanavati, F., Keshavarzi, S. and Akbar Hosseini, A. 2017. The Impact of Job Stress and Job Satisfaction on Workforce Productivity in an Iranian Petrochemical Industry. *Safety and Health at Work*, 8 (1): 67-71.

81. Hoque, A., Awang, Z., Siddiqui, B. A. and Sabiu, M. S. 2018. Role of employee engagement on compensation system and employee performance relationship among telecommunication service providers in Bangladesh. *International Journal of Human Resource Studies*, 8 (3): 19-37.

82. Howard, I., Cameron, P., Wallis, L., Castrén, M. and Lindström, V. 2020. Understanding quality systems in the South African prehospital emergency medical services: a multiple exploratory case study. *BMJ Open Quality*, 9 (2): e000946.

83. Hoyt, M. A., Darabos, K. and Llave, K. 2021. Emotional processing writing and physiological stress responses: understanding constructive and unconstructive processes. *Cognition and Emotion*, 35 (6): 1187-1194.

84. Hruska, B. and Barduhn, M. S. 2021. Dynamic psychosocial risk and protective factors associated with mental health in Emergency Medical Service (EMS) personnel. *Journal of Affective Disorders*, 282: 9-17.

85. Hubner, P., Lobmeyr, E., Wallmüller, C., Poppe, M., Datler, P., Keferböck, M., Zeiner, S., Nürnberger, A., Zajicek, A., Laggner, A., Sterz, F. and Sulzgruber, P. 2017. Improvements in the quality of advanced life support and patient outcome after implementation of a standardized real-life post-resuscitation feedback system. *Resuscitation*, 120: 38-44.

86. Jacobs, K., Heller, N., Waheed, S. and Appel, S. 2017. Emergency medical services in California: wages, working conditions, and industry profile. *UC Berkeley Center for Labor Research and Education. http://laborcenter. berkeley. edu/pdf/2017/emergency-medical-services-incalifornia. pdf*,

87. Jafari, M., Hosseini, M., Maddah, S. S. B., Khankeh, H. and Ebadi, A. 2019. Factors behind moral distress among Iranian emergency medical services staff: A qualitative study into their experiences. *Nursing and Midwifery Studies*, 8 (4): 195-202.

88. Jansen, A., Moses, M., Mujuta, S. and Yu, D. 2015. Measurements and determinants of multifaceted poverty in South Africa. *Development Southern Africa*, 32 (2): 151-169.

89. Johnson, S., Cooper, C., Cartwright, S., Donald, I., Taylor, P. and Millet, C. 2005. The experience of work-related stress across occupations. *Journal of Managerial Psychology*, 20 (2): 178-187.

90. Jonker, B. E., Graupner, L. I. and Rossouw, L. 2020. An Intervention Framework to Facilitate Psychological Trauma Management in High-Risk Occupations. *Frontiers in Psychology*, 11

91. Kakumba., R., Makanga. 2020. Willing to Kill Factors Contributing to Mob Justice in Uganda. *Afrobarometer Policy Paper* (Policy Paper), 70: 17. Available: https://afrobarometer.org/sites/default/files/publications/Policy%20papers/pp70-factors_contributing_to_mob_justice_in_uganda-afrobarometer_policy_paper-25nov20.pdf

92. Karlsson, K., Niemelä, P., Jonsson, A. and Törnhage, C.-J. 2020. Stress response in Swedish ambulance personnel during priority-1 alarms. *Australasian Journal of Paramedicine*, 17

93. Khan, W. A. A., Conduit, R., Kennedy, G. A. and Jackson, M. L. 2020. The relationship between shift-work, sleep, and mental health among paramedics in Australia. *Sleep Health*, 6 (3): 330-337.

94. Khan, W. A. A., Jackson, M. L., Kennedy, G. A. and Conduit, R. 2021. A field investigation of the relationship between rotating shifts, sleep, mental health and physical activity of Australian paramedics. *Scientific Reports*, 11 (1): 866.

95. Khorram-Manesh, A. 2020. Facilitators and constrainers of civilian–military collaboration: the Swedish perspectives. *European Journal of Trauma and Emergency Surgery*, 46 (3): 649-656.

96. Khoza, T. L. 2021. A MODEL FOR THE PREVENTION OF WORK-PLACE VIOLENCE TOWARDS PUBLIC SERVICE PREHOSPITAL EMERGENCY CARE PROVIDERS IN

GAUTENG PROVINCE (Full Thesis). Philosophiae Doctor, Durban University of Technology. 16/4/2022).

97. Kironji, A. G., Hodkinson, P., De Ramirez, S. S., Anest, T., Wallis, L., Razzak, J., Jenson, A. and Hansoti, B. 2018. Identifying barriers for out of hospital emergency care in low and low-middle income countries: a systematic review. *BMC Health Services Research*, 18 (1)

98. Kluge, A., Silbert, M., Wiemers, U. S., Frank, B. and Wolf, O. T. 2019. Retention of a standard operating procedure under the influence of social stress and refresher training in a simulated process control task. *Ergonomics*, 62 (3): 361-375.

99. Kokoroko, E. and Sanda, M. A. 2019. Effect of Workload on Job Stress of Ghanaian OPD Nurses: The Role of Coworker Support. *Safety and Health at Work*, 10 (3): 341-346.

100. Koum, J. A., B. 2021. *Our App* 2022. Available: https://www.whatsapp.com/about (Accessed

101. Krage, R., Zwaan, L., Tjon Soei Len, L., Kolenbrander, M. W., Van Groeningen, D., Loer, S. A., Wagner, C. and Schober, P. 2017. Relationship between non-technical skills and technical performance during cardiopulmonary resuscitation: does stress have an influence? *Emergency Medicine Journal*, 34 (11): 728-733.

102. Kramer, S. R., K. 2012. Young Black Men's Risk to Firearm Homicide in Night Time Johannesburg, South Africa: a Retrospective Analysis based on the National Injury Mortality Surveillance System. *African Safety Promotion Journal*, 10 (1): 16-28.

103. Kubheka Z., T. M. 2018. The Role of Motivation in the Implementation of the Performance Management and Development System (PMDS) within the Gauteng Emergency Medical Services (GEMS) (Mini Thesis). Masters in Public Administration, University of Pretoria. Available: https://repository.up.ac.za/bitstream/handle/2263/68750/Kubheka_Role_2018.pdf?sequence=1&isAllowed=y (Accessed 2 November 2021).

104. Kumar, M. S. V. S., Prasad, A. S. and Kumar, P. V. 2018. Impact of occupational stress on personal life: A study on private sector life insurance companies in Telangana state. *FROM THE EDITOR'S DESK*,

105. Kundu, K. 2007. Development of the conceptual framework of organizational climate.

106. Labour. 1993. *Occupational Safety 1993*. Cape Town: Department of Labour. Available: https://www.gov.za/sites/default/files/gcis_document/201409/act85of1993.pdf (Accessed 29 October 2021).

107. Lawn, S., Roberts, L., Willis, E., Couzner, L., Mohammadi, L. and Goble, E. 2020. The effects of emergency medical service work on the psychological, physical, and social well-being of ambulance personnel: a systematic review of qualitative research. *BMC Psychiatry*, 20 (1)

108. Le Fevre, M., Matheny, J. and Kolt, G. S. 2003. Eustress, distress, and interpretation in occupational stress. *Journal of Managerial Psychology*, 18 (7): 726-744.

109. Leblanc, V. R., Macdonald, R. D., McArthur, B., King, K. and Lepine, T. 2005. Paramedic Performance in Calculating Drug Dosages Following Stressful Scenarios in a Human Patient Simulator. *Prehospital Emergency Care*, 9 (4): 439-444.

110. LeBlanc, V. R., Regehr, C., Tavares, W., Scott, A. K. R. N., MacDonald, R. and King, K. 2012. The Impact of Stress on Paramedic Performance During Simulated Critical Events. *Prehospital and Disaster Medicine*, 27 (4): 369-374.

111. Leech, B. L. 2002. Asking Questions: Techniques for Semistructured Interviews. *PS: Political Science and Politics*, 35 (4): 665-668.

112. Lehohla, P. 2015. *Poverty and Inequality in South Africa*. Available: http://www.statssa.gov.za/?p=12075 (Accessed

113. Loef, J., Vloet, L. C. M., Vierhoven, P.-H., van der Schans, L., Neyman-Lubbers, Y., de Vries-de Winter, C. and Ebben, R. H. A. 2021. Starting ambulance care professionals and critical incidents: a qualitative study on experiences, consequences and coping strategies. *BMC Emergency Medicine*, 21 (1): 110.

114. Macfarlane, C., Loggerenberg, C. V. and Kloeck, W. 2005. International EMS systems in South Africa: past, present, and future. *Resuscitation*, 64 (2): 145-148.

115. Maestre, J. M., Szyld, D., Del Moral, I., Ortiz, G. and Rudolph, J. W. 2014. The making of expert clinicians: Reflective practice. *Revista Clínica Española (English Edition)*, 214 (4): 216-220.

116. Maguire, B. J., Browne, M., O'Neill, B. J., Dealy, M. T., Clare, D. and O'Meara, P. 2018a. International Survey of Violence Against EMS Personnel: Physical Violence Report. *Prehosp Disaster Med*, 33 (5): 526-531.

117. Maguire, B. J., O'Neill, B. J., O'Meara, P., Browne, M. and Dealy, M. T. 2018b. Preventing EMS workplace violence: A mixed-methods analysis of insights from assaulted medics. *Injury*, 49 (7): 1258-1265.

118. Mahony, K. L. 2001. Management and the creation ofoccupational stressors in an Australian and a UK Ambulance Service. *Australian Health Review*, 24 (4): 135.

119. Maile, L. I. 2020. *Profile Development Model* (Report). Johannesburg: Cooperative Governance. Available: https://www.cogta.gov.za/ddm/wp-content/uploads/2020/08/Take2_DistrictProfile_JHB1606-2-2.pdf (Accessed 09/01/2021).

120. Makhanya, B. 2021. The impact of employee wellness programme on employee wellness and performance: a Kwazulu-Natal Municipality case study.

121. Makkink, A. W. and Dreyer, D. J. 2021. Simulation debriefing: a perspective from emergency medical care students at three South African Higher Education Institutions. *The Pan African medical journal*, 38: 97-97.

122. Malatjie, M. M. and Ncube, M. 2019. Perspectives of the University of Johannesburg's Employees on the Employee Wellness Programme.

123. Maluleka, R. Africa, S. S. 2019. *Statistical Release*.(Notice P0318). ISIbalo House, Koch Street, Salvokop, Pretoria, 0002: Stats SA. Available:

http://www.statssa.gov.za/publications/P0318/P03182019.pdf (Accessed 25 June 2021).

124. Mannion, R. and Davies, H. 2018. Understanding organisational culture for healthcare quality improvement. *BMJ*: k4907.

125. Maphumulo, W. T. and Bhengu, B. R. 2019. Challenges of quality improvement in the healthcare of South Africa post-apartheid: A critical review. *Curationis*, 42 (1)

126. Maritz, B. P. G. 2015. Exploring psychological trauma management among paramedics in Gauteng. Masters Degree, North-West University. Available: https://repository.nwu.ac.za/handle/10394/18946 (Accessed 10 November 2020).

127. Maslach, C., Schaufeli, W. B. and Leiter, M. P. 2001. Job Burnout. *Annual Review of Psychology*, 52 (1): 397-422.

128. Mason, S., O'Keeffe, C., Coleman, P., Edlin, R. and Nicholl, J. 2007. Effectiveness of emergency care practitioners working within existing emergency service models of care. *Emergency Medicine Journal*, 24 (4): 239-243.

129. Mathangi, V. 2017. IMPACT OF JOB STRESS ON EMPLOYEES' JOB PERFORMANCE IN AAVIN, COIMBATORE. *Journal of Organisation & Human Behaviour*, 6 (3): 22-29.

130. Mayosi, B. M. and Benatar, S. R. 2014. Health and Health Care in South Africa — 20 Years after Mandela. *New England Journal of Medicine*, 371 (14): 1344-1353.

131. Meswantri, M. and Ilyas, A. 2018. Determinant of employee engagement and its implications on employee performance. *International Review of Management and Marketing*, 8 (3): 36.

132. Meth, P. 2016. Informal Housing, Gender, Crime and Violence: The Role of Design in Urban South Africa. *British Journal of Criminology*: azv125.

133. Michie, S. 2002. CAUSES AND MANAGEMENT OF STRESS AT WORK. *Occupational and Environmental Medicine*, 59 (1): 67-72.

134. Min, A., Yoon, Y. S., Hong, H. C. and Kim, Y. M. 2020. Association between nurses' breaks, missed nursing care and patient safety in Korean hospitals. *Journal of Nursing Management*, 28 (8): 2266-2274.

135. Minnie, L., Goodman, S. and Wallis, L. 2015. Exposure to daily trauma: The experiences and coping mechanism of Emergency Medical Personnel. A cross-sectional study. *African Journal of Emergency Medicine*, 5 (1): 12-18.

136. Mkhize, Z., L. Health, D. o. 2021. *REGULATIONS RELATING STANDARDS FOR EMERGENCY MEDICAL SERVICES* (Government Gazette). Pretoria: Department of Health. Available: https://www.gov.za/sites/default/files/gcis_document/202102/44161gon94.pdf (Accessed 9 September 2021).

137. Morey, J. N., Boggero, I. A., Scott, A. B. and Segerstrom, S. C. 2015. Current directions in stress and human immune function. *Current Opinion in Psychology*, 5: 13-17.

138. Moser, A. and Korstjens, I. 2018. Series: Practical guidance to qualitative research. Part 3: Sampling, data collection and analysis. *European Journal of General Practice*, 24 (1): 9-18.

139. Moyimane, M. B., Matlala, S. F. and Kekana, M. P. 2017. Experiences of nurses on the critical shortage of medical equipment at a rural district hospital in South Africa: a qualitative study. *Pan African Medical Journal*, 28 (1): 157-157.

140. Murray, R. M., Davis, A. L., Shepler, L. J., Moore-Merrell, L., Troup, W. J., Allen, J. A. and Taylor, J. A. 2020. A Systematic Review of Workplace Violence Against Emergency Medical Services Responders. *NEW SOLUTIONS: A Journal of Environmental and Occupational Health Policy*, 29 (4): 487-503.

141. Naidoo, P. 2021. Paramedic Students' Experience of Simulation Debriefing.

142. Naito, H., Yumoto, T., Yorifuji, T., Tahara, Y., Yonemoto, N., Nonogi, H., Nagao, K., Ikeda, T., Sato, N. and Tsutsui, H. 2020. Improved outcomes for out-of-hospital cardiac arrest patients treated by emergency life-saving technicians compared with basic emergency medical technicians: A JCS-ReSS study report. *Resuscitation*, 153: 251-257.

143. Newton, P. R., Naidoo, R. and Brysiewicz, P. 2015. The appropriateness of emergency medical service responses in the eThekwini district of KwaZulu-Natal, South Africa. *South African Medical Journal*, 105 (10): 844.

144. Noble, H. and Smith, J. 2015. Issues of validity and reliability in qualitative research. *Evidence Based Nursing*, 18 (2): 34-35.

145. Nowell, L. S., Norris, J. M., White, D. E. and Moules, N. J. 2017. Thematic Analysis. *International Journal of Qualitative Methods*, 16 (1): 160940691773384.

146. Oriot, D., Alinier, G. and Alinier, G. 2018. *Pocket book for simulation debriefing in healthcare*. Springer.

147. Osborne, M. T., Shin, L. M., Mehta, N. N., Pitman, R. K., Fayad, Z. A. and Tawakol, A. 2020. Disentangling the Links Between Psychosocial Stress and Cardiovascular Disease. *Circulation: Cardiovascular Imaging*, 13 (8): e010931.

148. Parslow, R. A., Jorm, A. F., Christensen, H., Broom, D. H., Strazdins, L. and D' Souza, R. M. 2004. The impact of employee level and work stress on mental health and GP service use: an analysis of a sample of Australian government employees. *BMC Public Health*, 4 (1)

149. Paterson, J. L., Sofianopoulos, S. and Williams, B. 2014. What paramedics think about when they think about fatigue: Contributing factors. *Emergency Medicine Australasia*, 26 (2): 139-144.

150. Patterson, P. D., Higgins, J. S., Van Dongen, H. P. A., Buysse, D. J., Thackery, R. W., Kupas, D. F., Becker, D. S., Dean, B. E., Lindbeck, G. H., Guyette, F. X., Penner, J. H., Violanti, J. M., Lang, E. S. and Martin-Gill, C. 2018. Evidence-Based Guidelines for Fatigue Risk Management in Emergency Medical Services. *Prehospital Emergency Care*, 22 (sup1): 89-101.

151. Patterson, P. D., Weaver, M. D., Weaver, S. J., Rosen, M. A., Todorova, G., Weingart, L. R., Krackhardt, D., Lave, J. R., Arnold, R. M., Yealy, D. M. and Salas, E.

2012. Measuring Teamwork and Conflict among Emergency Medical Technician Personnel. *Prehospital Emergency Care*, 16 (1): 98-108.

152. Pecino, V., Mañas, M. A., Díaz-Fúnez, P. A., Aguilar-Parra, J. M., Padilla-Góngora, D. and López-Liria, R. 2019. Organisational Climate, Role Stress, and Public Employees' Job Satisfaction. *International Journal of Environmental Research and Public Health*, 16 (10): 1792.

153. Perona, M., Rahman, M. A. and O'Meara, P. 2019. Paramedic judgement, decision-making and cognitive processing: a review of the literature. *Australasian Journal of Paramedicine*, 16

154. Phiri, M. M., Makepeace, E., Nyali, M., Kumwenda, M., Corbett, E., Fielding, K., Choko, A., Macpherson, P. and Macpherson, E. E. 2021. Improving pathways to care through interventions cocreated with communities: a qualitative investigation of men's barriers to tuberculosis care-seeking in an informal settlement in Blantyre, Malawi. *BMJ Open*, 11 (6): e044944.

155. Prottengeier, J., Keunecke, J. G., Gall, C., Eiche, C., Moritz, A. and Birkholz, T. 2019. Single mission workload and influencing factors in German prehospital emergency medicine - a nationwide prospective survey of 1361emergency missions. *Scand J Trauma Resusc Emerg Med*, 27 (1): 75.

156. Puterman, E., Lin, J., Blackburn, E., O'Donovan, A., Adler, N. and Epel, E. 2010. The Power of Exercise: Buffering the Effect of Chronic Stress on Telomere Length. *PLoS ONE*, 5 (5): e10837.

157. Rabenu, E., Tziner, A. and Sharoni, G. 2017. The relationship between work-family conflict, stress, and work attitudes. *International Journal of Manpower*, 38 (8): 1143-1156.

158. Raemer, D., Anderson, M., Cheng, A., Fanning, R., Nadkarni, V. and Savoldelli, G. 2011. Research regarding debriefing as part of the learning process. *Simul Healthc*, 6 Suppl: S52-57.

159. Ramey, S., MacQuarrie, A., Cochrane, A., McCann, I., Johnston, C. W. and Batt, A. M. 2019. Drowsy and dangerous? Fatigue in paramedics: an overview.

160. Rashtchi, V., Soleymani, M., Amini, K. and Fallah, R. 2020. Investigating the Relationship between Teamwork and Professional and Demographic Factors of Emergency Medical Technicians (EMTs) in Zanjan Province in 2019. *Preventive Care In Nursing and Midwifery Journal*, 9 (4): 31-38.

161. Razzak, J. A. and Kellermann, A. L. 2002. Emergency medical care in developing countries: is it worthwhile? *Bull World Health Organ*, 80 (11): 900-905.

162. Regehr, C. and LeBlanc, V. R. 2017. PTSD, Acute Stress, Performance and Decision-Making in Emergency Service Workers. *J Am Acad Psychiatry Law*, 45 (2): 184-192.

163. Regehr, C. and Millar, D. 2007. Situation Critical: High Demand, Low Control, and Low Support in Paramedic Organizations. *Traumatology*, 13 (1): 49-58.

164. Reinecke, C. R. 2017. BEYOND VICARIOUS TRAUMA: EXPLORING ADVERSARIAL GROWTH IN A SAMPLE OF SOUTH AFRICAN PARAMEDICS (Full

Thesis). PhD, Stellenbosch University. Available: http://hdl.handle.net/10019.1/100803 (Accessed 18 August 2021).

165. Renkiewicz, G. K. and Hubble, M. W. 2021. Secondary Traumatic Stress in Emergency Services Systems (STRESS) Project: Quantifying Personal Trauma Profiles for Secondary Stress Syndromes in Emergency Medical Services Personnel With Prior Military Service. *J Spec Oper Med*, 21 (1): 55-64.

166. Rodger, D. and Atwal, A. 2018. How to mitigate the effects of peri-operative death on nursing staff. *Nursing Times*, 114 (8): 26-29.

167. Saunders, M., Lewis, Philip., Thornhill, Adrian. 2016. *Research Methods for Business Students*. Edinburg Gate, Essex, England: Pearson Professional Limited.

168. Schaufeli, W. B. 2017. Applying the job demands-resources model. *Organizational Dynamics*, 2 (46): 120-132.

169. Schutte, N. S. and Malouff, J. M. 2016. The Relationship Between Perceived Stress and Telomere Length: A Meta-analysis. *Stress Health*, 32 (4): 313-319.

170. Sebela, R. P. S. 2016. The experiences of emergency medical care practitioners (EMCP) after exposure to fatal motor vehicle accidents scene (Mini-Dissertation). Master of Social Work in Health Care, University of Pretoria. Available: https://repository.up.ac.za/bitstream/handle/2263/60421/Sebela_Experiences_2016.pdf?sequence=1&isAllowed=y (Accessed 03 March 2020).

171. Sedlár, M. 2021a. Work-related factors, cognitive skills, unsafe behavior and safety incident involvement among emergency medical services crew members: relationships and indirect effects. *International Journal of Occupational Safety and Ergonomics*: 1-10.

172. Sedlár, M. 2021b. *Work-related factors, cognitive skills, unsafe behavior and safety incident involvement among emergency medical services crew members: relationships and indirect effects*. Available: http://search.ebscohost.com/login.aspx?direct=true&db=mnh&AN=33557717&site=eds-live (Accessed 2021-08-16).

173. Selye, H. 1950. Stress and the General Adaptation Syndrome. *BMJ*, 1 (4667): 1383-1392.

174. Sen, A. 2008. Violence, Identity and Poverty. *Journal of Peace Research*, 45 (1): 5-15.

175. Setlack, J., Brais, N., Keough, M. and Johnson, E. A. 2021. Workplace violence and psychopathology in paramedics and firefighters: Mediated by posttraumatic cognitions. *Canadian Journal of Behavioural Science/Revue canadienne des sciences du comportement*, 53 (3): 211.

176. Sharit, J. and Salvendy, G. 1982. Occupational Stress: Review and Reappraisal. *Human Factors*, 24 (2): 129-162.

177. Sitole, K. J. 2019. *South African Police Service Annual Crime Report 2018/2019* (Annual Crime Report). Pretoria, South Africa: Crime Registrar. Available: https://www.saps.gov.za/about/stratframework/annual_report/2018_2019/annual_crime_report_2020.pdf (Accessed 11 April 2020).

178. Smith, E., Walker, T. and Burkle, F. M. 2019. Lessons in Post-Disaster Self-Care From 9/11 Paramedics and Emergency Medical Technicians. *Prehosp Disaster Med*, 34 (3): 335-339.

179. Smith, E. C. and Burkle Jr, F. M. 2018. Working towards wellness: Lessons from 9/11 paramedics and emergency medical technicians for Australian ambulance services. *Australasian Journal of Paramedicine*, 15 (4)

180. Smith, T. D., Dejoy, D. M., Dyal, M.-A. and Huang, G. 2019. Impact of work pressure, work stress and work–family conflict on firefighter burnout. *Archives of Environmental & Occupational Health*, 74 (4): 215-222.

181. Sobuwa, S. and Christopher, L. D. 2019. Emergency care education in South Africa: past, present and future. *Australasian Journal of Paramedicine*, 16

182. Sofianopoulos, S., Williams, B. and Archer, F. 2012. Paramedics and the effects of shift work on sleep: a literature review. *Emerg Med J*, 29 (2): 152-155.

183. Soomro, A. A., Breitenecker, R. J. and Shah, S. A. M. 2018. Relation of work-life balance, work-family conflict, and family-work conflict with the employee performance-moderating role of job satisfaction. *South Asian Journal of Business Studies*,

184. Spangler, D., Edmark, L., Winblad, U., Colldén-Benneck, J., Borg, H. and Blomberg, H. 2020. Using trigger tools to identify triage errors by ambulance dispatch nurses in Sweden: an observational study. *BMJ Open*, 10 (3): e035004.

185. Sterud, T., Ekeberg, Ø. and Hem, E. 2006. Health status in the ambulance services: a systematic review. *BMC Health Services Research*, 6 (1)

186. Straud, C., Henderson, S. N., Vega, L., Black, R. and Van Hasselt, V. 2018. Resiliency and posttraumatic stress symptoms in firefighter paramedics: The mediating role of depression, anxiety, and sleep. *Traumatology*, 24 (2): 140.

187. Tiwari, R., Naidoo, R., English, R. and Chikte, U. 2021. Estimating the emergency care workforce in South Africa. *African Journal of Primary Health Care & Family Medicine*, 13 (1)

188. Tong, A., Sainsbury, P. and Craig, J. 2007. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*, 19 (6): 349-357.

189. Tracy, E. A. 2017. Workplace Critical Incident Response: An Exploratory Study of Critical Incident Responders and Their Perspective of Applied Practice. Union Institute and University.

190. Traynor, M. D., Laing, G. L., Bruce, J. L., Hernandez, M. C., Kong, V. Y., Rivera, M., Zielinski, M. D. and Clarke, D. L. 2020. Mob Justice in South Africa: A comparison of blunt trauma secondary to community and non-community assaults. *Injury*, 51 (8): 1791-1797.

191. Turok, I. and Borel-Saladin, J. 2014. Is urbanisation in South Africa on a sustainable trajectory? *Development Southern Africa*, 31 (5): 675-691.

192. Twani, S. V. 2019. Challenges in the implementation of a community police forum constitution: a case study of the beacon bay community police forum in the Eastern Cape.

193. Ugwu, C. V., Medows, M., Don-Pedro, D. and Chan, J. 2020. Critical Event Debriefing in a Community Hospital. *Cureus*,

194. Ulfah, M. and Prastiwi, D. 2020. POLICY ANALYSIS AND IMPLEMENTATION OF EMPLOYEE MUTATION AND PLACEMENT ON EMPLOYEE'S PERFORMANCE AND CAREER DEVELOPMENT.

195. Vaismoradi, M., Jones, J., Turunen, H. and Snelgrove, S. 2016. Theme development in qualitative content analysis and thematic analysis. *Journal of Nursing Education and Practice*, 6 (5)

196. Van Der Ploeg, E. 2003. Acute and chronic job stressors among ambulance personnel: predictors of health symptoms. *Occupational and Environmental Medicine*, 60 (>90001): 40i-46.

197. Vanyoro, K. P. 2019. 'When they come, we don't send them back': counter-narratives of 'medical xenophobia' in South Africa's public health care system. *Palgrave Communications*, 5 (1)

198. Villani, M., Nehme, Z., Burns, S., Ball, J. and Smith, K. 2021. Detailed post-resuscitation debrief reports: A novel example from a large EMS system. *Resuscitation*, 162: 70-72.

199. Vincent-Lambert, C. 2015. International Perspectives: South African Ambulance Services in 2020. In. Springer International Publishing, 175-183. Available: https://dx.doi.org/10.1007/978-3-319-18642-9_15 (Accessed

200. Vincent-Lambert, C. and Wade, G. 2018. Challenges relating to the inter-facility transport of high acuity paediatric cases. *Afr J Emerg Med*, 8 (1): 29-33.

201. Vincent-Lambert, C. and Westwood, R. 2019. Students' views on the need for hostile environment awareness training for South African emergency medical care students. *African Journal of Health Professions Education*, 11 (1): 12.

202. Vining, R. F., McGinley, R. A., Maksvytis, J. J. and Ho, K. Y. 1983. Salivary Cortisol: A Better Measure of Adrenal Cortical Function than Serum Cortisol. *Annals of Clinical Biochemistry*, 20 (6): 329-335.

203. Wagner, S. L., White, N., White, M., Alden, L. E., Carey, M. G., Fyfe, T., Randall, C., Regehr, C., Buys, N., Corneil, W., Matthews, L. R. and Krutop, E. 2020. Ambulance Personnel: Systematic Review of Mental Health Symptoms. *Traumatology*,

204. Ward, C. L. 2006. Critical incident exposure in South African emergency services personnel: prevalence and associated mental health issues. *Emergency Medicine Journal*, 23 (3): 226-231.

205. Weimann, E. and Stuttaford, M. C. 2014. Consumers' Perspectives on National Health Insurance in South Africa: Using a Mobile Health Approach. *JMIR mHealth and uHealth*, 2 (4): e49.

206. Wendsche, J., Ghadiri, A., Bengsch, A. and Wegge, J. 2017. Antecedents and outcomes of nurses' rest break organization: A scoping review. *International Journal of Nursing Studies*, 75: 65-80.

207. Werry, J. 2016. Informal debriefing: Underutilization in critical care settings. *Canadian Journal of Critical Care Nursing*, 27 (4): 22-26.

208. Wheeler, B. and Dippenaar, E. 2020. Physiological and psychological components of paramedic wellbeing. *International Paramedic Practice*, 10 (2): 33-40.

209. Witkin, D. and Litt, A. 2018. Proposition 11: Emergency Ambulance Employees Safety and Preparedness Act. *California Initiative Review (CIR)*, 2018 (1): 11.

Woodall, J., McCarthy, M., Johnston, T., Tippett, V. and Bonham, R. 2007. Impact of advanced cardiac life support-skilled paramedics on survival from out-of-hospital cardiac arrest in a statewide emergency medical service. *Emerg Med J*, 24 (2): 134-138

210. Zana, T. 2019a. COMPETENCIES NEEDED TO PREPARE INTERMEDIATE LIFE SUPPORT (ILS) PARAMEDICS IN GAUTENG TO MANAGE TRAUMATIC STRESS IN THE WORK ENVIRONMENT. Master of Philosophy, University of Cape Town. Available: https://open.uct.ac.za/handle/11427/31338 (Accessed 10 November 2020).

211. Zana, T. 2019b. Competencies needed to prepare intermediate life support (ils) paramedics in Gauteng to manage traumatic stress in the work environment. Available: http://hdl.handle.net/11427/31338 (Accessed

212. Zerbo, A., Delgado, R. C. and González, P. A. 2020. Vulnerability and everyday health risks of urban informal settlements in Sub-Saharan Africa. *Global Health Journal*, 4 (2): 46-50.

213. Ziraba, A. K., Mills, S., Madise, N., Saliku, T. and Fotso, J.-C. 2009. The state of emergency obstetric care services in Nairobi informal settlements and environs: Results from a maternity health facility survey. *BMC Health Services Research*, 9 (1): 46.

214. Žukauskas, P., Vveinhardt, J. and Andriukaitienė, R. 2018. Philosophy and paradigm of scientific research. InTech. Available: https://dx.doi.org/10.5772/intechopen.70628 (Accessed 15 June 2021).

1. Annexure A: Research Questions

The use and effectiveness of the tools designed to reduce emergency medical care personnel workplace stress: A critical analysis.	
Demographic and inclusion process	
Are you registered with HPCSA	**Yes / No**
Have you been (acting as or) a manager for more than 3 months with GPG?	**Yes / No**
If marked no on the above you do not need to proceed, if yes continue	
What is your age?	
What is your gender?	
What is your clinical?	BLS/ ILS/ Paramedic/ ECP
What is your highest qualification?	
How long have you been with GPG	

Research question 1.a- For Managers	**How are strategies in place for reducing work-related stress implemented for Emergency Medical Care Personnel?**
Semi-Structured Interview questions for managers.	
1.1	*In your own understanding what is work related stress?*
1.2	*How do your team experience work related stress?*
1.3	*When your team experiences work related stress how do you help them deal with it?*
1.4	*Tell me about any formal tools that you use to manage work-related stress?*
1.5	*If you have a new team member; how will s/he be introduced to resources or tools that are in place for managing work related stress?*
1.6	*If you have a new team member, how would you assist him/her in reducing or preventing the amount of work-related stress they experience in the organisation.*
1.7	*What are other informal tools that you normally recommend to EMCPs.*
1.8	*How do you assist EMCPs to practically us these tools?*
1.9	*How do you know if the tools you have used have worked?*
1.10	*When you have used the tools and they seem not to be working what do you do?*
Snowball application	*Can you think of anyone who might be able to contribute their thoughts to this study? Please pass my details on to other potential participant to get in touch with me.*

Demographic and inclusion Process

Are you registered with HPCSA	**Yes / No**
Have you been working for GPG for more the 3 months?	**Yes / No**
If marked no on the above you do not need to proceed, if yes continue	
You are not a manager?	
What is your age?	
What is your gender?	
What is your clinical?	BLS/ ILS/ Paramedic/ ECP/_____
What is your highest qualification?	
How long have you been with GPG?	

Research question 1.b-For EMCPs and Managers.	**How are the strategies identified in 1.A implemented by EMCP?**
Semi-Structured Interview questions for EMCP:	
1.1	*In your own understanding what is work related stress?*
1.2	*What brings stress in your work workplace?*
1.3	*When you experience work related stress, what do you do?*
1.4	*Tell me about any formal tools that you use to manage work-related stress in your workplace?*
1.5	*In your period of employment, when were those resources introduced to you?*
1.6	*Let's talk about stress prevention measures in your workplace, how-do think work related stress is prevented in your workplace?*
1.7	*Apart from the formal tools, are there any informal ways that you use to reduce your stress in the workplace?*
1.8	*With regards to informal tools, how do you practically action them?*
1.9	*How do you know if these tools you have used have worked?*
1.10	*If the tools you have used, and it seem not to be working what do you do?*

The next series of interview questions will answer research question 2 by closely focusing on each supporting strategy in place. Each strategy will be assessed if it has any impact in work related stress management. Each tool or strategy mentioned in question 1.4 or 1.7 will be focused on in an attempt to understand their impact. The questions below are an example of how the tool/strategy of "debriefing" might be further explored, if a participant was to suggest this as a stress-mitigation approach.

Similar questions will be asked relating to the other tools and strategies they propose, as well.

Research question 2	**What impact do work-related stress supporting strategies have on the EMCP?**
Semi-Structured Interview questions for EMCP to answer research question 2 (using the example of "debriefing" as a stress mitigation tool):	
2.1	What do you think is the purpose of debriefing?
2.2	Can you tell me about the last debriefing session: □ who did the session, □ how long ago the session was, □ why did you do the session, □ and how did it go?

2

2.3	How did the debriefing change how you do things?
2.4	What impact did the debriefing session have on the work-related stress?
2.5	What goals did you reach by doing the debriefing session?
2.6	Do you think the debriefing achieved its purpose?
Snowball application	***Can you think of anyone who might be able to contribute their thoughts to this study? Please pass my details on to other potential participant to get in touch with me.***

All the tools given will be further analysed to assess impact following this pattern in question 2, they cannot be listed as they are not currently known to the researcher. They will be informed by Question one.

Annexure B: Ethical Approval

Institutional Research Ethics Committee
Research and Postgraduate Support Directorate
2nd Floor, Berwyn Court
Gate 1, Steve Biko Campus
Durban University of Technology

P O Box 1334, Durban, South Africa, 4001

Tel: 031 373 2375
Email: lawishad@dut.ac.za
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www.dut.ac.za

14 April 2021

Mr M R Mtetwa
6 Padyn Street
Freeway Park
Boksburg
1459

Dear Mr Mtetwa

The use and effectiveness of the tools designed to reduce emergency medical care personnel workplace stress: A critical analysis
Ethical Clearance number IREC 169/20

The Institutional Research Ethics Committee acknowledges receipt of your gatekeeper permission letter.

Please note that FULL APPROVAL is granted to your research proposal. You may proceed with data collection.

Any adverse events [serious or minor] which occur in connection with this study and/or which may alter its ethical consideration must be reported to the IREC according to the IREC Standard Operating Procedures (SOP's).

Please note that any deviations from the approved proposal require the approval of the IREC as outlined in the IREC SOP's.

Yours Sincerely

[redacted]

Professor J K Adam
Chairperson: IREC

Annexure C: Gate Keeper Letter of Approval

GAUTENG PROVINCE
HEALTH
REPUBLIC OF SOUTH AFRICA

Mr. M Mtetwa
Faculty of Health Sciences
Department of Emergency Medical Care and Rescue
Durban University of Technology

13 April 2021

SUBJECT: APPLICATION TO CONDUCT RESEARCH

Dear Mr. Mtetwa

Thank you for your application requesting permission to conduct research with GPG EMS employees as potential participants in your study. We have reviewed your proposal "The use and effectiveness of the tools designed to reduce emergency medical care personnel workplace stress: A critical analysis" and Ethical clearance letter "IREC-169/20" and are happy to approve your request.

Please share your final study findings with us so that we can include it in our future decision making processes regarding stress management of our employees.

This approval letter is valid for 1 year. Please reapply for an extension one month before this date.

Enquiries may be directed to Mr. N. Ravhandalala
Telephone : (012) 356 8054
Email : Ndotenda.Ravhandalala@gauteng.gov.za

Regards

Mr. N. Ravhandalala
Acting Principal LCOEC
Gauteng department of Health
Date: 13/04/2021

Annexure D: Editor Declaration