# AN INVESTIGATION INTO BURNOUT AMONG EMERGENCY CARE PROVIDERS AT A PRIVATE AMBULANCE EMERGENCY MEDICAL SERVICE IN GAUTENG

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

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DECLARATION OF ORIGINALITY

I, Thulani Thomas Sibanda, declare that this research project is my own unaided work. It is being submitted in fulfilment of a Masters in Health Science: Emergency Medical Care at the Durban University of Technology. It has not been submitted for any other degree or examination at this or any other university.

Mr. Thulani Thomas Sibanda

Signed

Date: 17 September 2018

# ABSTRACT

## Introduction

Being a healthcare provider can be stressful as the job places demands on healthcare practitioners' physical, emotional and mental functioning. The stress emergency care providers experience is unique and severe because they are exposed to an array of occupational stressors in their everyday lives. They deal with the very sick and dying, respond to emergencies that put their lives and the public's lives at risk, they are even sometimes the victims of crime while they perform their duties. All of these occupational stressors create a risk of burnout for the emergency care provider. Emergency care providers who suffer from burnout are more likely to make clinical errors when treating patients and no longer have the ability to show empathy to their patients. Severe burnout may result in depression and suicidal behaviour.

## Aim of this study

The aim of this study was to investigate the burnout of emergency care providers at a private ambulance emergency medical service in Gauteng to understand the extent and impact of burnout on emergency care providers. The objectives of the study were to assess burnout among emergency care providers using the Copenhagen Burnout Inventory (CBI), to establish whether the levels of burnout vary among different emergency care providers, and to establish if there is a relationship between burnout and the demographic variables gender, marital status and qualification. A further objective was to establish if there is a relationship between variables and distractor questions.

## Methodology

This study was a quantitative study in the form of a cross-sectional survey utilizing the CBI as the burnout measurement tool.

**Results**

The findings of the study highlight that burnout is high among emergency care providers. Thirty percent of emergency care providers who participated in the study suffered from burnout. Most of the emergency care providers experienced higher levels of ‘personal burnout’ and ‘work burnout’ when compared with ‘burnout related to patient care’.

**Conclusion**

These findings are cause for concern, not only for the patients they attend to but also for the emergency care providers themselves.

## DEDICATION

This dissertation is dedicated to:

- My mom, who has played two roles in my life. She has been a mother and a father at the same time, and that was not easy. She always supported me in my career. When I cried, complained and moaned, she would say, “Kuzolunga (it is going to be okay) and pray for my son.” She is a pillar of strength and I am where I am today because of her.
- My late aunt, Betty Nkhoma, you were a source of good, unbiased advice and provided support where needed when mom was unable and sick. I never thought I would be anything, but here I am. I know you are looking down on me proudly.
- Mrs. D Muhlbauer, if it were not for you, I would not be here today. During my academic years as an EMC student at UJ, I struggled financially and was not eating well. You came to my rescue and helped me tremendously, not only when I was an EMC student at UJ, but throughout my career. Words will never be enough to express my gratitude.
- To Ndlunkulu thank you for the love and support that you have provided. I know it was not easy at times, but you were able to understand that I am doing this to better myself.
- To Ndaloenhle, you have made me stronger, better and more fulfilled than I could have ever imagined. You are a gift from God.
- Lastly, I dedicate this to my friends, Teddy, Bongani, Peekay, Londiwe, Thuli and many more. Thank you for the support and understanding that I was busy trying to finish my masters.

## Acknowledgments

- First and foremost, I would like to express my sincere gratitude to my co-supervisor Mrs. D Muhlbauer, for her continuous support in the course of my master's study. She had patience and provided motivation when I had lost hope. She checked up on me and made sure I was still working on my dissertation. Her guidance helped me throughout the writing of this thesis. I could not have imagined a better co-supervisor and mentor for my studies. I appreciate the fact that she has always been honest with me and would never let me submit a project of poor standards. We need such people in our lives.
- Secondly, I would like to thank Prof B.J Pillay. Your guiding hand and motivation throughout the process, as well as your excellent supervision, was much appreciated. You came in the middle of my project and I can only imagine that is not an easy thing to do but you were able to guide me throughout until completion.
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## ETHICS CLEARANCE

This is to certify that the research contained in this dissertation carries the approval of the Institutional Research Ethics Committee of the Durban University of Technology in KwaZulu-Natal.

The allocated ethics clearance number is: REC86/16

Candidate's name: Thulani Thomas Sibanda

Signed:

Date: 27 July 2018

# ABBREVIATIONS

| | |
|---|---|
| ALS | Advanced Life Support |
| BAA | Basic Ambulance Assistance |
| CBI | Copenhagen Burnout Inventory |
| ECP | Emergency Care Practitioner |
| ECT | Emergency Care Technician |
| EMC | Emergency Medical Care |
| EMS | Emergency Medical Services |
| ILS | Intermediate Life Support |
| HPCSA | Health Professions Council of South Africa |
| PBEC | Professional Board for Emergency Care |

# GLOSSARY OF TERMS

**Advanced life support:**

Advanced Life Support refers to a level of care that consists of invasive lifesaving procedures including, but not limited to, advanced airway management, mechanical ventilation, intravenous access and fluid administration, emergency cardiovascular care, administration of various medications according to predetermined protocols, electrocardiogram (ECG) interpretation and management of life-threatening dysrhythmias, manual defibrillation and transcutaneous pacing. An advanced life support paramedic refers to the individual who is trained and employed to administer such care. The level of care provided within the scope of practice of paramedics, emergency care technicians or ECPs is determined by the Health Professions Council of South Africa in terms of the Health Professions Act (56 of 1974) (Caverley, Cunningham and MacGregor 2007; Department of Health 2016).

**Basic ambulance assistant:**

A Basic Ambulance Assistant is a person who provides a level of emergency medical care within the BAA scope of practice as determined by the Health Professions Council of South Africa in terms of the Health Professions Act (56 of 1974) (Department of Health 2016).

**Copenhagen Burnout Inventory:**

The CBI is a 19-item questionnaire that measures three burnout sub-dimensions, namely personal burnout, work-related burnout, and client-related burnout. These three sub-dimensions form one questionnaire but were designed in such a way that they can be applied in different domains (Borritz *et al.* 2005; Milfont *et al.* 2008).

**Emergency Care Practitioner:**

An Emergency Care Practitioner is an individual that is able to treat patients that need urgent medical care by performing advanced prehospital medical procedures. ECPs are also trained to handle technical rescue operations such as extrication, water

rescue and search and rescue. Emergency medical care practitioners are independent practitioners and are registered with the Health Professions Council of South Africa (Department of Health 2014, 2016).

**Emergency care provider:**

Emergency care providers are personnel who are registered with the Health Professions Council of South Africa under the auspices of the Professional Board for Emergency Care. It can be a person or a nominee representing a company or an association of persons or an organ of the state registered with the HPCSA , who establishes, extends, conducts, maintains or renders an emergency medical service (Department of Health 2016)**.**

**Emergency Care Technician:**

An Emergency Care Technician is a person registered with the Professional Board for Emergency Care, which forms part of the Health Professions Council of South Africa, in terms of the Health Professions Act (56 of 1974). ECTs are viewed as mid-level workers in the emergency care profession (Bezuidenhout, Jansen van Vuuren and Vincent-Lambert 2014; Department of Health 2014).

**Emergency medical services:**

Any private or state organization dedicated, staffed and equipped to operate an ambulance or primary response vehicle to offer emergency medical care at mass gatherings or high-risk events. The organization should be able to offer:

- Prehospital medical treatment and the transport of the ill and/or injured;
- Inter-health establishment referral of patients requiring medical treatment *en route*;
- Prehospital EMS for events; and
- The medical rescue of patients from a medical rescue situation (Department of Health 2014, 2016).

**Intermediate life support:**

Intermediate Life Support refers to a level of emergency medical care provided within the scope of practice of ambulance emergency assistance as determined by the Health Professions Council of South Africa in terms of the Health Professions Act (56 of 1974) (Department of Health 2016).

# CHAPTER ONE
# OVERVIEW OF THE STUDY

## 1.1. Introduction

This chapter provides some background to the study, followed by the rationale behind the study, problem statement, aims, and objectives. The researcher also shares his interest in the research topic and concludes with a discussion of the limitations of the study.

## 1.2. Background

Stress affects everyone, but research shows that people working in the health sector (e.g. doctors, nurses, emergency care providers) are more likely to suffer from stress-related difficulties (Hammer *et al.* 1986). Hammer *et al.* (1986) points out that the emergency care profession is the most stressful compared to the other healthcare professions as it takes a toll on the individual's physical, emotional and mental capacities. Due to the stressful nature of the job, emergency care providers are more prone to suffer from burnout, especially if the stress is prolonged and not managed appropriately (Hammer *et al.* 1986; Collopy, Sean and Scott 2012). Burnout negatively affects emergency care providers and affects the care of their patients. Studies have shown that emergency care providers with high levels of stress and burnout are more likely to make clinical errors while treating their patients. This is detrimental to patient outcomes, as errors such as administering the incorrect drug or dosing errors could be fatal (Collopy, Sean and Scott 2012). Emergency care providers have reported that burnout leads to less thorough evaluation and intervention with patients, less tolerance or care for patients, poor communication and listening skills and decreased empathy for patients (Vettor and Kosinski 2000). Emergency care providers who experience burnout have high absenteeism, presenteeism and frequently report an intention to leave their jobs. The actual turnover among emergency care providers is high (27%) compared to other healthcare professionals (Medeiros *et al.* 2010). Doctors have a turnover rate of 25.8% and nurses 20% (Medeiros *et al.* 2010; Asegid, Belachew and Yimam 2014). Emergency care providers with burnout who remain in the profession have lower levels of productivity and effectiveness (Maslach, Schaufeli and Leiter 2001; Webster 2004). Furthermore, burnout is reported to have financial costs for companies because of absenteeism, early retirement and high levels of complaints. Burnout also contributes to the health cost of patients in terms of the risks associated with poor quality of care. In addition, patients and/or their families are further burdened by having to find alternative

means of transport to the hospital because of absenteeism of emergency care providers, which results in insufficient ambulance services being available (Kakunje 2011).

As part of their daily job, emergency care providers are frequently exposed to traumatic events, which place them at risk of developing serious mental health disorders such as posttraumatic stress disorder (PTSD). Most patients with PTSD have comorbid psychiatric disorders such as anxiety, depression and alcohol abuse (Pillay 2000).

Managing stress is important and starts with identifying possible causes. If emergency care providers are unable to manage their own stress, they should seek professional help and/or communicate the challenges that they are experiencing to their managers. Managing stress is important for preventing the development of burnout. In addition, emergency care providers should seek professional help when they experience traumatic events to prevent the development of mental disorders and burnout.

### 1.3. The rationale for the study

A study on the work conditions and experiences of EMS personnel in the Departments of Health of the Gauteng and North West provinces revealed that emergency care providers are vulnerable to stress. They are frequently exposed to factors such as death, especially of children, physically abused children, mass casualties and drug abuse (Vettor and Kosinski 2000; Sibanda 2013a). Not only are these factors significant stressors, but the study suggests that the accumulation of these stressors leads to burnout. In another study on burnout among ALS emergency care providers in South Africa, 63% of the participants studied had some degree of burnout and 30% had total burnout – a finding that is much higher than burnout levels reported in international literature. The mean burnout scores for medical professionals internationally is 11% for occupational physicians, 9% for teachers, 8% for general practitioners and 7% for social workers (Schaufeli 2007). Another study on the prevalence and associated factors of burnout among doctors in Yemen found that 12% had a high degree of burnout (Romani and Ashkar 2014).

To date, research on the prevalence of burnout among emergency care providers in South Africa has been restricted to ALS emergency care providers. The present study expands the investigation of the prevalence of burnout among emergency care providers to include participants with other qualifications, namely BAAs and ambulance emergency assistants.

## 1.4. Problem statement

The nature of emergency care providers' jobs makes them susceptible to burnout. Burnout among emergency care providers has serious consequences for emergency care providers' careers and for patient outcomes. Burnout results in overall poor work performance, which impacts on patient care and leads to poor patient outcomes. If burnout is identified early, it can be treated, and all the negative outcomes of burnout can be avoided. Currently, there is a paucity of information about the prevalence of burnout among emergency care providers.

## 1.5. Aim of the study

This study aims to investigate burnout among emergency care providers at a private ambulance emergency medical service in Gauteng in order to understand the extent and impact of burnout on emergency care providers.

## 1.6. Objectives of the study

- To assess burnout among emergency care providers using the CBI. A total burnout score greater than 50 on the CBI indicates burnout.
- To establish whether the levels of burnout varies among the different emergency care providers namely BLS, ILS, and ALS;
- To establish if there is a relationship between burnout and the demographics variables gender, marital status and qualification; and
- To establish if there is a relationship between burnout variables and distractor questions.

## 1.7. The researcher's interest in the study

The researcher's interest in this study stems from his personal experience of the effects of burnout. As a newly qualified emergency care practitioner, he worked for a private ambulance emergency service. During his year of employment, he was working unreasonable hours. For instance, on weekdays, he would be at work during the day and from 5pm, he would be on standby. On his off days, he would work additional shifts on the helicopter emergency medical services (HEMS). As a result of being on duty with little to no rest, he suffered burnout. The researcher identified the need for counselling and went for counselling and he finally left the private ambulance emergency services. He completely stopped working as an operational

emergency care provider for a period of four months, and then took up a position at a private ambulance emergency service training college. Several of his very close friends and colleagues have also suffered from burnout. Tragically, one committed suicide.

By studying burnout among ambulance service personnel, the researcher hopes to increase awareness about burnout in this cohort. Generating new knowledge through academic research. When EMS organizations and emergency care providers read this thesis they will have an understanding about burnout, its meaning, signs and symptoms and impact it has on emergency care providers. Further, researching burnout may also contribute to vicarious traumatization in the researcher. Given the researcher's past experience, he took good care of himself by getting enough rest, eating healthy and exercising. In addition, support from family and friends together with change of jobs and environment helped. He also discussed cases with his supervisors so that if he needed professional intervention or debriefing, he would be advised for him to seek it.

## 1.8. Dissertation structure

The structure of the remaining chapters of this dissertation is as follows:

- Chapter 2 presents a literature review of the available literature relevant to the study.
- The research design and methodology of the study are contained in Chapter 3. The chapter provides a discussion on the research design, study setting, study target, and sample population, inclusion and exclusion criteria, data collection criteria and ethics considerations.
- The results are presented in Chapter 4, and the chapter includes a number of tables and figures.
- The discussion of the findings of the study is presented in Chapter 5.
- Chapter 6 offers a succinct conclusion and makes several recommendations based on the findings of the study.

# CHAPTER TWO
# LITERATURE REVIEW

## 2.1. Introduction

This literature review begins with a brief discussion of occupational stress and the types of occupational stress emergency care provider's experience. This is followed by a definition of burnout and a discussion of its aetiology and the effects of burnout. Thereafter, mental health disorders and its links to burnout are considered. Lastly, the tool used to assess burnout, the CBI, is discussed.

## 2.2. Occupational stress

The world we live in is constantly changing, placing people under stress. Irrespective of age, gender, religion, socioeconomic status and profession, stress affects everyone (Ozkan and Ozdevecioğlu 2013). Stress is defined as a psychological and physical response of the body that occurs because of changing conditions. These conditions can be real or perceived, positive or negative. It is inevitable and affects everyone, but the effects depend on how a person reacts to stress. Some people may be severely affected by stress, whereas others may be calm and collected at all times (Mark Le, Jonathan and Gregory 2003). Moreover, not all stress is bad. Stress may be broadly divided into *eustress* and *distress* (Mark Le, Jonathan and Gregory 2003).

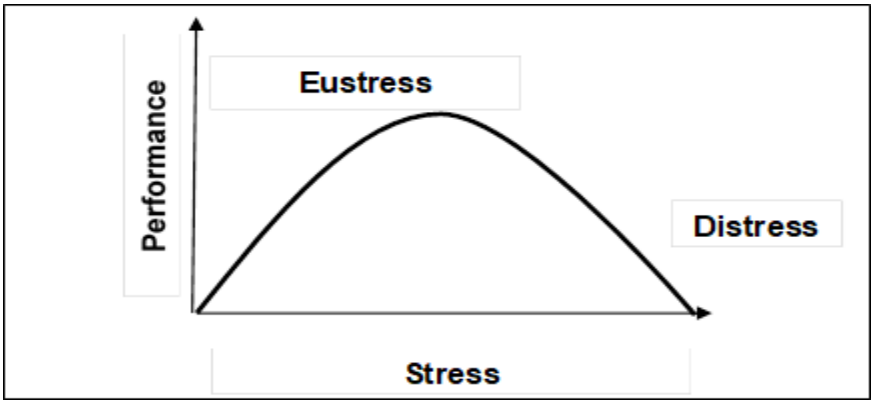


**Figure 1: The stress curve (Swartz *et al.* 2008)**

*Eustress*, also known as positive stress, has a beneficial impact on the individual's health, motivation, emotional wellbeing, and performance. It is the type of stress that motivates people

to achieve their goals or perform at optimal levels. As shown in Figure 1, positive stress is associated with high performance. This type of stress is important and useful when performing tasks under pressure with the idea that there would be positive outcomes at the end. Experiences associated with positive stress are normally enjoyable and have no harmful effects physically or psychologically (Mark Le, Jonathan and Gregory 2003).

However, when stress is excessive, it will affect a person's health and job performance negatively, in some cases seriously so (Kakunje 2011). This type of stress is referred to as *distress* and it the most common type of stress (Mark Le, Jonathan and Gregory 2003; Gibbons, Dempster and Moutray 2008). In Figure 1, when the stress increases, performance decreases. This type of stress is harmful and demotivates individuals from achieving their goals. It has long-term negative effects both mentally and physically. Individuals suffering from distress are prone to illnesses such as stress ulcers, tension headaches, and cardiac ischemia. As a result, affected individuals become prone to diseases like upper respiratory tract infections especially during stressful times, e.g. during exams. Excessive stress precipitates conditions such as heart attacks and tension headaches (Mark Le, Jonathan and Gregory 2003; Gibbons, Dempster and Moutray 2008).

The stress caused by a person's work or employment is termed occupational stress or workplace stress. Occupational stress or workplace stress is defined as an individual's adaptive reaction to external conditions that cause physical, psychological and behavioural irregularities (Ozkan and Ozdevecioğlu 2013). Occupational stress in the EMS may be broadly divided into two types – chronic stress and critical incident stress (Donelly 2012).

### 2.2.1. Chronic stress

According to Donelly (2012), chronic stress refers to relatively long-lasting problems, arguments or conflicts, and threats that people face in their daily lives. In EMS, the chronic stressors include conflict with managers, supervisors or colleagues, lack of support from colleagues and inadequate salaries (Donelly 2012). Research has shown that ALS emergency care providers are not satisfied with their salaries (Hackland and Stein 2011; Stassen, Van Nugteren and Stein 2013). In a study that was done on burnout among ALS providers in Johannesburg, with a response rate of 40. Thirty-three out of 40(84%) respondents felt that their salaries were inadequate when compared with other professions (Stassen, Van Nugteren and Stein 2013).

Chronic stress is associated with family problems, long-term illness and job strain (Mustafa *et al.* 2015).

### 2.2.2. Critical incident stress

Critical incident stress (CIS) is stress that is associated with providing care to patients and can be defined as follows: any traumatic event that causes powerful emotional reactions in people who are exposed to those events (Donelly 2012). According to Harvey *et al.* (2018), the term critical incidence stress refers to "cognitive, physical, emotional and behavioural responses that may correspond to the critical incident" (Harvey and Tapp 2018: pg.1). In emergency medical services CIS, is defined as "personal loss or injury, traumatic stimuli, mission failure or human error and often imply contact with dead or severely injured children" (Jacobsson *et al.* 2015: pg.100). During a traumatic event, emergency care providers will experience unusual and strong emotions that have the potential to interfere with their ability to function at that moment on the scene or later (Halpern *et al.* 2009; Donelly 2012). Critical incidences are stressful and people involved in such situations may need effective crisis intervention in order to minimise the risk of burnout. (Harvey and Tapp 2018).

Critical incidents that emergency care providers are exposed to include, motor vehicle collisions (MVC), burned bodies, life-threatening situations, suicides, knowing of a victim and witnessing the death of a co-worker especially while performing their duties such as being involved in a MVC while responding to an incident, or trapped in a building that is burning as a result they die (Jacobsson *et al.* 2015).

The signs and symptoms of CIS can be physical, emotional, cognitive or behavioural. In addition, the physiological and psychological impact from work-related CIS may extend beyond their occupation and may influence their working environments, the health care system and the quality of care they provide to patients (Harvey and Tapp 2018). Physical signs and symptoms include fatigues, chills, unusual thirst, chest pain, headaches, and dizziness (Donelly 2012). Cognitive signs and symptoms include uncertainty, confusion, nightmares, poor attention and poor ability to make decisions. Emergency care providers may also have difficulty in concentrating and poor problem-solving ability. Emotionally, these emergency care providers will be in constant grief, have intense anger easily irritable and will have chronic anxiety (Donelly 2012; Halpern *et al.* 2014). Lastly behavioural, they are antisocial and have an inability to rest. There is also increased alcohol consumption with loss of appetite (Donelly 2012).

Both occupational stress and CIS have been linked to the development of burnout and PTSD (Hatch *et al.* 2011; Collopy, Sean and Scott 2012). Continuous exposure to chronic stress produces physical responses called general adaptation syndrome (GAS), first described by Hans Selye. It consists of three stages as shown in Figure 2 (Selye 1950).

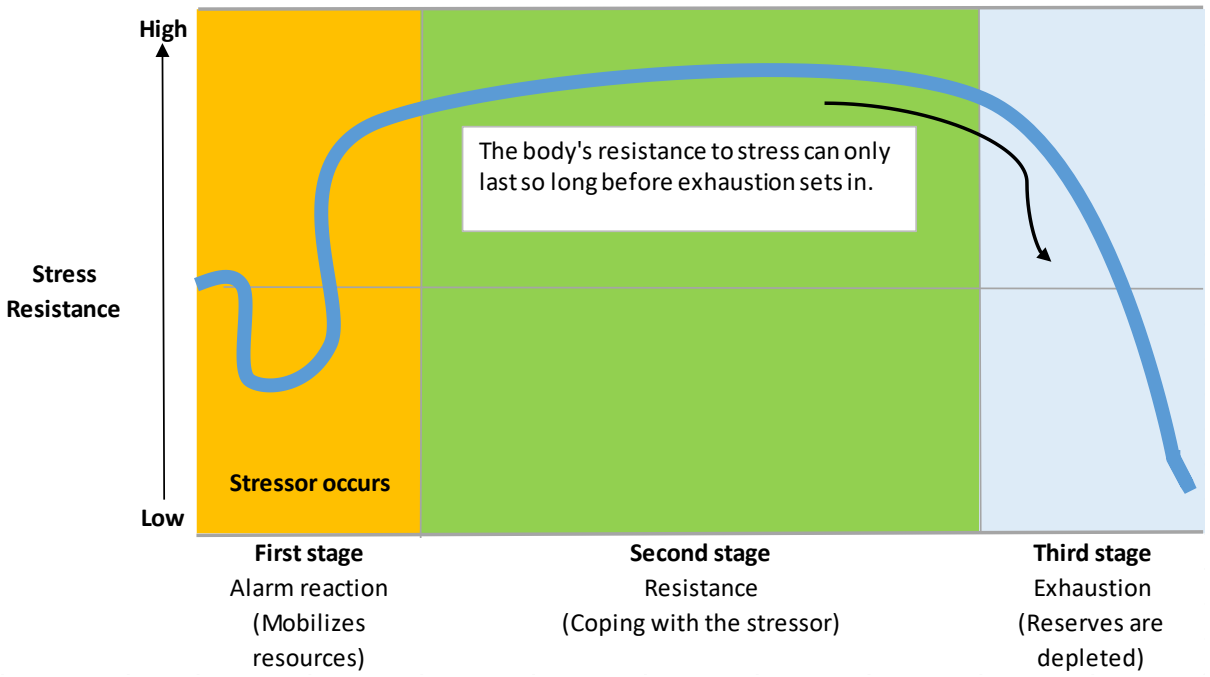


***Figure 2: General adaptation syndrome (Cunanan et al. 2018)***

The first stage is known as the ***alarm reaction stage***. This stage is of short duration and the individual is mobilized to meet the threat. During this stage, the sympathetic nervous system is activated by the hypothalamus to activate the adrenal functions. Adrenal functions include increasing the heart rate, increasing blood flow to the brain, the heart and muscles of the body to prepare for a fight or flight response. It is during this stage that the affected individual experiences fear, anger, anxiety, panic, and restlessness. The alarm stage helps us overcome a stressor, but if the stressor is not removed, this stage will continue until the body's resources become depleted, leading to stage two (Selye 1950; Mustafa *et al.* 2015).

Staying in the alarm phase for a prolonged period is not conducive to optimal health and body function. As a result of prolonged stress, the body tries to counteract the physiological changes that are occurring during the alarm phase and stimulates the parasympathetic nervous system. This adaptation is referred to as the ***resistance stage*** (stage 2). In this stage, the body adapts

to the continuing presence of a stressor as it stabilizes bodily functions and decreases adrenal output and tries to cope with the stressor (Mustafa *et al.* 2015; Burgess 2017).

The third and final stage of GAS is ***exhaustion***. In this stage, the body energy reserves are depleted because of extended exposure to chronic stress. The body has reached a stage of hypoadrenia where the body does not have the capacity to adapt to stress. This leads to high blood pressure, heart attacks, chronic fatigue, psychosis, tiredness, and symptoms of depression (Selye 1950; Mustafa *et al.* 2015; Burgess 2017).

It must be noted that not all three stages necessarily occur before a person reaches GAS. Only stressors that are severe lead to the third stage of GAS, exhaustion (Selye 1965; Porter 2013). The idea that prolonged stress can produce mental disorders and physical diseases is widely accepted. Increased stress over time can have detrimental effects on physical wellbeing and mental functioning (Selye 1950).

Another well-accepted theory on psychological stress and coping is the transactional model of coping, which is a theory about appraisals. The theory of appraisals asserts that an individual first determines whether an event or situation is stressful or not. If the situation is deemed stressful, the individual makes an appraisal to determine whether there are enough resources surrounding him or her to successfully manage the stress. The availability of the resources and experiences are taken into account when they make a decision. If the individual judges that they have enough resources to cope, stress will not occur, or it may occur at a minor level. If there are no resources for the individual to cope, stress will occur (Porter 2013).

Within the transactional model of coping with stress, there are two stages of the judicial process, known as a primary appraisal and secondary appraisal. These stages are different and when a stressful event takes place, an individual will usually go through the two appraisal stages (Porter 2013).

Primary appraisal is when an event manifests itself and the individual has to engage in a process of the primary appraisal to determine what is at stake or the meaning of the event. It is during this stage where the individual understands and makes sense of the event and whether or not to respond, and if so, how to respond. Events are evaluated in terms of their meaning and importance. The event may be appraised as positive, neutral or negative in their consequence. Events that have potential effects are further appraised for their possible harm, threat or challenge (Folkman 2013; Porter 2013).

Harm is the assessment of the damage that has already been done by the event (Folkman 2013; Porter 2013). An example of harm would be when an emergency care provider is robbed while performing his duties in an emergency. This emergency care provider may perceive harm in terms of the fact that they were not safe and lost their possessions while treating a patient with the possibility of losing their lives also.

The threat is also the assessment of the possible future damage that may be brought about by an event. The emergency care provider that was robbed may anticipate problems with being robbed, assaulted and even killed when going to scenes when they are dispatched. A primary appraisal of events as threats has important effects on the physiological responses to stress. Blood pressure and the heart rate is raised if the threat is high (Folkman 2013; Porter 2013).

Events may be appraised in terms of their challenge, with the potential to overcome the event. For example, emergency care providers may request a police escort each time they are dispatched to unsafe areas, in that way they may overcome their challenges. Challenge appraisals are associated with positive outcomes and the ability to cope with the stressful event. Benefits include favourable emotional reactions to the event and lower blood pressures and heart rate (Folkman 2013).

Every individual has a different way of evaluating events. Some individuals are able to cope and manage multiple stressors at one time, whereas others reach their breaking point with one stressful event. A variety of factors may have an influence on our ability to evaluate whether we can manage stress or not. These factors include family and living conditions, working conditions, social conditions and working hours. An individual who has support from family and a good understanding of their workplace is more likely to feel that they have the ability to respond appropriately (Folkman 2013).

Other factors that play a role in an individual's ability to deal with or manage stress include age, gender, and personality. Whether a person is single, married, has children and the support of loved ones also influence how they manage stress (Lazarus and Folkman 1984).

Similarly, there are many factors that affect stress appraisal itself. Factors linked to the person and the event or situation all play a role in whether the situation would be deemed stressful. Personal factors include motivation, intellect and personality characteristics. An individual with high self-confidence is likely to believe that they have resources available to them and will be less inclined to stress, whereas an individual who has low self-esteem is less likely to have

resources and is more likely to experience stress in the same situation (Lazarus and Folkman 1984).

Personal characteristics play an important role in the perception and control of the situation or event. Individuals who are confident are able to control a situation that is traumatic more successfully than those who believed they are controlled by external forces. Individuals who believe they can overcome a stressful event are more likely to succeed (Porter 2013). Findings have suggested that emergency care providers who feel that they are in control of their situation are more likely to handle the situation or event successfully (Lazarus and Folkman 1984; Porter 2013)

During the primary appraisal of a stressful event, a secondary appraisal is also initiated. The subjective experience of stress is a balance between primary and secondary appraisals. A secondary appraisal is the assessment of one's coping ability and resources (Lazarus and Folkman 1984). The individual assesses whether the resources will be sufficient to meet the harm, threat, and challenge of the event. During the secondary appraisal, the individual determines whether there are enough coping resources to deal with the event appropriately (Lazarus and Folkman 1984; Taylor 2012). The affected individual explores various coping options, including accepting the problem or situation, getting more information about the situation or holding back on acting immediately (Porter 2013).

According to Hobfoll *et al.*, coping has two major facets. The first deals with the actual problem that is causing the distress and is known as problem-focused coping (Hobfoll, Schwarzer and Chon 1998). The second is emotion-focused coping and deals with regulating emotions. During every stressful encounter, individuals use both types of coping (Hobfoll, Schwarzer and Chon 1998).

Problem-focused coping includes aggressive personal efforts to try and change the stressful situation. As an example, a person ma, for instance, start an argument with a colleague or make deliberate efforts to solve the problem in a manner that ensures that there would be no fight (Porter 2013).

Emotion-focused coping includes self-control, seeking social support, distancing, accepting responsibility and positive reappraisal. According to Porter 2013, "cognitive appraisals and coping are transactional variables in that they rely on the integration between the person and the environment in any given stressful situation" (Porter 2013, p27).

One particular coping variable is the availability of social support for emergency care providers (Lazarus and Folkman 1984; Porter 2013). This would include social support from the family and friends of emergency care providers; support from emergency medical service organizations, which includes managers and supervisors; and support from colleagues. This has been shown to play an important role in stressful situations. Social support from family, friends, and peers has been shown to assist emergency care providers to deal more effectively with stressful situations. If an emergency care provider has positive relationships with family and friends, they are less likely to suffer from symptoms of stress (Porter 2013).

Conversely, if there are negative relationships and no social support from friends and family, an emergency care provider is more likely to suffer from stress (Porter 2013). Therefore, emergency care providers must always maintain and have positive relationships with their family and friends. Social support has been found to have a positive impact on emergency care providers and on organizational outcomes. Research has shown that psychological wellbeing is positively influenced when individuals from emergency service organizations feel supported by their colleagues and peers (Porter 2013).

## 2.3. Stress in emergency medical services

Providing healthcare can be stressful because of the demands it places on the practitioners' physical, emotional and mental functioning. This is even truer for emergency care providers because they are exposed to an array of occupational stressors in their everyday life at work. Apart from the variables that cause stress for the general public, emergency care providers are prone to stress because of the peculiarities of their work situation and the expectations at large (Gregov, Kovačević and Slišković 2011; Kakunje 2011).

These workers are exposed to high levels of trauma and numerous occupational stressors, which makes them especially vulnerable to stress (Donelly 2012; Sibanda 2013a). Furthermore, the type of stress that emergency care providers experience involves perceptual, cognitive and affective mediating processes (Hammer *et al.* 1986). A study was done on occupational stress among 374 emergency care providers from Chicago and the results showed that emergency care providers experience a higher degree of job-related stress compared to other healthcare workers (Hammer *et al.* 1986).

EMS involves taking care of other people's lives, so mistakes or errors could be costly and sometimes irreversible. Patient expectations (the anticipation or belief about what will happen

during a consultation or in the healthcare system) contribute to the stress. Patients, their family members and/ or the public usually have a preconceived idea about how acutely sick or injured patients should receive treatment. Unmet expectations can range from disappointment to anger and contribute to an enormous amount of stress for both parties (Gregov, Kovačević and Slišković 2011; Lateef 2011). Stressed emergency care providers may make inaccurate decisions, see patient complaints as trivial and have significant deficits in relationship skills (Hammer *et al.* 1986).

Decision making during emergencies also contributes to the pressures emergency care providers experience, since many of these decisions can translate into the survival or demise of the patient. These decisions may include having to choose which patients to treat first in a mass casualty, especially when resources and equipment are limited (Collopy, Sean and Scott 2012; Sibanda 2013a). Such decisions put pressure on emergency care providers because they have to take responsibility for another person's life (Hammer *et al.* 1986).

Inadequate resources and support also add to the stress. The transportation of patients from mass casualty incidents to appropriate hospitals depends on the ability of the medical team to carry on with the treatment of this patient. In most cases, the receiving hospital does not have the capacity in terms of training and resources to treat multiple injured patients (Sibanda 2013a). As a result, emergency care providers are turned away with the patient and must find an alternative hospital. The lack of appropriate support at the receiving hospital also sometimes adds to the pressures. Frequently, the emergency care provider will resuscitate the patient/s and achieve a return of spontaneous circulation, only to have the patient die because of incompetent nurses and doctors who are not familiar with emergency protocols (Sibanda 2013a). Such situations frustrate the emergency care provider because of all of the hard work and effort to save the patient's life (Sibanda 2013a).

Emergency care providers also face horrific traumatic situations, including deaths, decapitated bodies or bodies that are badly disfigured. The emergency care providers have to declare the deaths of these patients that they have witnessed dying or whose decapitated bodies they had to assess (Murphy *et al.* 1994; Sibanda 2013a). Chronic occupational stress results in emergency care provider burnout if it is not resolved (Wu *et al.* 2007).

Burnout among emergency care providers results in a number of complications in the workplace, including poor work performance, a sense of isolation and high absenteeism. The workload increases and yet the salary stays the same, and this exacerbates the problem. This

places the emergency care providers who are at work at risk of developing stress and burnout (Lloyd 2004; Jahn 2011). Another aspect related to absenteeism among emergency care providers is presenteeism. Presenteeism is a situation where an employee goes to work and performs his or her duties but is less productive due to being sick or having medical problems. Common sicknesses associated with presenteeism include migraines, tension headaches, allergies, gastrointestinal problems, depression, and asthma or other condition related to breathing difficulty (Caverley, Cunningham and MacGregor 2007). Even though these emergency care providers are sick, they may still show up ill due to the love of the job or feeling of moral obligation or job insecurity (Johns 2010).

Burnout not only affects emergency care providers but also EMS supervisors and managers as well. The main reason EMS supervisors and managers experience burnout is because of the lack of support from administrators and employees (Lloyd 2004; Jahn 2011).

## 2.4. Emergency medical providers' ability to cope with stress

Despite the training that they receive at training academies and institutions, emergency care providers may fall victim to the stressors created by the work that they do (Raphael, Meldrum and O'Toole 1991). Various studies have looked at how emergency care providers cope with the stress caused by traumatic incidences. These studies found cognitive coping methods such as trying to find the meaning of the event (Raphael, Meldrum and O'Toole 1991), reframing it as less important, (Durham, McCammon and Allison 1985) or avoidance (Clohessy and Ehlers 1999).

Avoidance may be important and necessary for emergency care providers who need to concentrate on the job at hand and therefore need to suppress fear and anxiety (Clohessy and Ehlers 1999). Other coping methods that emergency care providers use include excessive drinking as an attempt to dampen distress, to forget, or to be able to sleep (Raphael, Meldrum and O'Toole 1991).

Family relationships and marriages often suffer, especially if the spouse also needs support and the worker remains locked in his or her experience (Raphael, Meldrum and O'Toole 1991). Some emergency care providers use cognitive coping methods by saying things like, "things could be worse"; "let's be realistic about it"; "what did I fear could really happen?"; and "what is the meaning of the event" (Durham, McCammon and Allison 1985: p.75).

In other cases, emergency care providers may have resilience or hardiness. Resilience is an individual difference when discussing the stressors encountered by emergency care providers. Resilience or hardiness is the capacity to recover quickly from stress or difficulties, and some emergency care providers have resilience (Porter 2013). Emergency care providers with a resilient personality are less likely to display general psychopathology, burnout or even posttraumatic stress symptoms (Porter 2013).

Research on other trauma has suggested that some coping styles may be less beneficial than others in processing traumatic incidents successfully and may be related to the development of PTSD (Clohessy and Ehlers 1999). Therefore, one coping style may be beneficial for one person, and the same coping style may not be beneficial for another emergency care provider (Clohessy and Ehlers 1999).

However, with that said, the use of social support, making sense of the trauma and support from peers may be helpful in overcoming the emotional impact of traumatic events. Conversely, suppression of emotions for an extended period of time has been suggested to be maladaptive, meaning that the persons do not adjust adequately to the stress, situation or environment (Clohessy and Ehlers 1999).

Cognitive avoidance, denial and wishful thinking are commonly observed after a traumatic incident and may be adaptive at the time of trauma, but they impede the recovery process by interfering with emotional processing (Clohessy and Ehlers 1999).

## 2.5. Burnout and emergency care services

The concept of *burnout* was first described by Freudenberg in 1974. He borrowed the term from the illicit drug scene where it colloquially referred to the devastating effect of chronic drug abuse. He described the term burnout as gradual emotional depletion, loss of motivation and reduced commitment among volunteers at the St Marks free clinic in New York (Schaufeli, Leiter and Maslach 2009).

These free clinics for drug abusers and homeless people had a higher number of people seeking assistance than the number of people available to take care of them. As a result of this, the volunteers were overwhelmed and overloaded with work and this led to them experiencing burnout. During his employment as a psychiatrist, Freudenberg himself fell victim to burnout

twice, which increases his credibility in spreading the message about burnout (Schaufeli, Leiter and Maslach 2009).

In 1974, Christina Maslach and her colleagues explored the term burnout in California while interviewing a variety of social workers. Maslach, a psychologist, was interested in how social workers coped with their emotional arousal using cognitive strategies such as detached concern. During the interviews that she conducted, she learned that these workers often felt emotionally exhausted and that they developed negative perceptions and feelings about their patients. Maslach and her colleagues then described what they observed in the social workers as the burnout syndrome (Schaufeli, Leiter and Maslach 2009).

Maslach and her colleagues described burnout as a clinical syndrome consisting of emotional exhaustion, depersonalization and feelings of little personal accomplishment (Schaufeli, Leiter and Maslach 2009). High levels of stress and poor management of stress are key contributors to the development of burnout. In order to diagnose burnout, the person must have problems in all three areas: emotional exhaustion, depersonalization and feelings of little personal accomplishment (Murphy *et al.* 1994).

### 2.5.1. Emotional exhaustion

Emotional exhaustion is the one dimension of burnout and is described as “the feeling of being emotionally overextended and exhausted in one’s work” (Maslach and Jackson 1981a: p.101). Emotional exhaustion occurs as a result of excessive psychological and emotional demands at the workplace. It is characterized by feelings of helplessness, feelings of a lack of accomplishment, low self-esteem and development of negative attitudes towards patients, their jobs, the organization and themselves (Rutherford *et al.* 2011). Symptoms include feeling drained, lacking the desire to interact with others and having negative attitudes (Collopy, Sean and Scott 2012).

### 2.5.2. Depersonalization

Depersonalization is the second dimension of burnout and it is described as detachment from an organization and patients as individuals. In depersonalization the perceptions staff have of their jobs change from meaningful and important to meaningless, unpleasant and unrewarding (Rutherford *et al.* 2011). Staff experience depersonalization, distance and detach themselves from sources of emotional strain. A more typical pattern is a negative shift in the view on

overtime work where staff members come to hate working overtime because they despise working with patients, they perceive patients as a source of stress (Lernihan and Sweeney 2010).

### 2.5.3. Low personal accomplishment

The final dimension of burnout is a low personal accomplishment. This dimension has to do with feelings of professional competence and self-assessment. When they perceive themselves as lacking, emergency care providers feel that they are ineffective and inadequate in the workplace.

Workers suffering from burnout also feel that their formal training did not prepare them for the reality of their work, and this subsequently affects their personal functioning. They view their achievements as less important and lose confidence in their ability to carry out the roles and responsibilities associated with their jobs (Lernihan and Sweeney 2010).

## 2.6. Burnout among emergency care providers

There are two distinct causes of burnout. The first cause is a persistent imbalance of demands over resources and the second relates to the motives of employees (Murphy *et al.* 1994; Schaufeli, Leiter and Maslach 2009).

Prehospital emergency medical care in South Africa has developed in the last 20 years, but in for instance rural areas, organizations remain resource constrained. Currently, South Africa has the highest proportional annual death rate in the world (Sun *et al.* 2014a).

South Africa has a population of about 55.6 million (StatsSA 2017). When compared to other countries, it has the highest injury rate (Sun *et al.* 2014a). The prevalence of human immune deficiency virus/acquired immune deficiency virus (HIV/AIDS) and tuberculosis are increasing (Sun *et al.* 2014a).

HIV/AIDS remains a prominent health concern in South Africa and one in eight South Africans is HIV positive (Chariatte 2017). According to the 2015 United Nations data, there are 7 million South Africans who live with the disease. The prevalence is 19% and it most affects the age group between 15 and 49. In 2015, about 380 000 people were infected. In addition, 180 000 people died from AIDS. These figures may be salient as South Africa has the largest

antiretroviral therapy programme worldwide with about 3.4 million people receiving antiretrovirals in the year 2016 (Chariatte 2017).

The prevalence of HIV/AIDS among South African women is nearly as twice as high as among men. A young woman between the ages of 15 and 24 is four times at risk of contracting the virus compared to her male peers. The great difference in the HIV/AIDS prevalence among the different genders is attributed to the fact that more woman are affected by poverty, women have lower social status, gender-based violence, and rape (Dartnall and Jewkes 2013; Chariatte 2017).

There is also a disproportionate distribution of the epidemic by population group, socioeconomic status, and locality type. African and coloured South Africans have a greater chance of being infected than their white counterparts. This is partly due to structural and economical inequalities shaped by colonialism and apartheid (Chariatte 2017).

People who have the lowest income bracket are seven times more likely to be HIV positive than individuals with the highest income bracket. Living in urban informal settlements also puts individuals at a higher risk of contracting HIV/AIDS (Chariatte 2017). This has the potential to increase the workload for the EMS (Sun *et al.* 2014b).

With the adoption of a more western lifestyle and increasing urbanization, South Africans are at more of a risk of developing chronic conditions such as heart disease and cancer. All of these have the potential to increase the load on the EMS (Sun *et al.* 2014b).

This increased load is problematic as many parts of SA have inadequate or non-existent prehospital emergency medical care and are faced with an overload of cases (Schaufeli, Leiter and Maslach 2009). In addition, the emergency care providers in the urban areas already experience a high call volume. It is not uncommon for the public to sometimes call the EMS as a means of transport to a doctor’s appointment. Emergency care providers employed at the Memphis Fire Department in the United States of America reported that one of the most frustrating things of their work is being called for non-emergency incidents such as influenza, headaches or to be transported for a doctor’s appointment. These non-emergency calls increase the call volume (Vettor and Kosinski 2000).

When work demands exceed the available resources, it does not only frustrate and negatively affect the performance of the employees, they also become less motivated to work. This work behaviour pattern, in turn, irritates managers and they become more likely to take disciplinary

action against their employees. This leads to a working environment that is not conducive to either the employees or managers. As a result, workers are absent without leave more or take more unnecessary leave (Schaufeli, Leiter and Maslach 2009; Sibanda 2013a).

This situation contributes to more overtime being offered to employees who are called to fill in the gaps created by either sick employees or those that have left the service. Already over-burdened personnel are then required to work extra shifts, resulting in insufficient opportunities to rest or time to regenerate depleted energy, thus contributing to risk of burnout (Lloyd 2004; Schaufeli, Leiter and Maslach 2009; Sibanda 2013a; Sun *et al.* 2014b).

Another contributor to burnout is the motives of employees. The 21st-century employee views the strategic planning frameworks of organizational visions, missions, and values with scepticism. Often the employee's personal values differ from that of the organizations. For example, an emergency care provider may want to provide appropriate quality care to a patient rather than to meet the set financial targets of the organization. In order for private ambulance services to make a minimal profit and cover their expenses, they set operational quotas and targets for their emergency care providers based on the nature and number of calls they service each month. These targets put unnecessary pressure on these emergency care providers. Such pressure leads to practices such as upgrading calls and patient management to achieve targets. Upgrading a call means upgrading the care of a patient from a lower level to a higher level of care. The care of the patient would then be upgraded from either basic life support or intermediate life support to ALS. These emergency care providers then provide unnecessary treatment to the patient to meet their monthly quotas and to increase the financial gain of the private emergency medical service they work for (Schaufeli, Leiter and Maslach 2009; Vincent-Lambert and Jackson 2016b).

In a pilot study among paramedics on their experiences with financial medicine practices in the prehospital environment, one participant mentioned that the pressure that they received from their employer resulted in them becoming personally involved in financial medicine practices. Financial medicine “refers to the delivery of health-related services where the generation of financial gain or ‘profit’ takes precedence over the provision of care that is reflective of evidence-based best practice”(Vincent-Lambert and Jackson 2016b: p.104). Practicing financial medicine leads to feelings of shame and negativity. The participant mentioned that practicing financial medicine made him very negative and conflicted his values and beliefs. The participant also mentioned that “he was practicing medicine he did not believe in and that is not the reason he

got into the industry" (Vincent-Lambert and Jackson 2016b: p.106). As time goes by and value conflicts continue to occur, emergency care providers are subjected to stress and if the stress is not relieved, burnout occurs (Schaufeli, Leiter and Maslach 2009; Halpern *et al.* 2014; Vincent-Lambert and Jackson 2016b).

## 2.7. Incidence of burnout

The incidence of burnout among health professionals has consistently been high, more in particular in emergency medical services (Simpson, Thyer and Van Nugteren 2018). Three studies were conducted in the United States of America (USA) on emergency care providers. One study, conducted in Michigan, using the CBI had 1482 ALS and 1168 BLS, reported a work-related prevalence of burnout of 30% in advanced life support and 19% in BLS emergency care providers. The authors also reported that the ALS emergency care providers experienced 14.4% burnout related to patient care and scored 38,3% on personal burnout. BLS emergency care providers scored 5.5% on burnout related to patient care and 24.9% on personal burnout (Crowe *et al.* 2017). Another study, conducted in the state of Ohio in Columbus, using the Oldenburg Burnout Inventory (OBI), reported burnout to be less than 19% (n:102). However this study only focused on advanced life support emergency care providers (Fragoso *et al.* 2016; Crowe *et al.* 2017). The third study was conducted in Minnesota and used the Maslach burnout inventory (MBI). This study reported an 18% prevalence of burnout.

In Netherlands the prevalence of burnout was estimated to be 8.6% (n:123) (van der Ploeg and Kleber 2003). A Scottish ambulance company in the United Kingdom (UK) reported a 36% (n:110) of burnout among emergency care providers (Alexander and Klein 2001). The Australian ambulance service reported a burnout of 55.9% in 893 emergency care providers that were included in their study (Simpson, Thyer and Van Nugteren 2018). The Australian ambulance emergency services also reported that emergency care providers scored 43.4% on burnout related to patient care, 62,7% work-related burnout and 69.1% personal-related burnout (Simpson, Thyer and Van Nugteren 2018). In the Australian and Michigan study cited above, the emergency care providers had higher work and personal burnout and lower burnout related to patient care.

The prevalence of burnout among advanced life support emergency care providers in South Africa has been said to be 30% (Stassen, Van Nugteren and Stein 2013). Twenty-three percent of the participants experienced patient-related burnout, 38% experienced work-related burnout and 53% experienced personal-related burnout (Stassen, Van Nugteren and Stein 2013). The

findings of the study by Stassen *et al* (2013), are similar to other studies where more emergency care providers experienced higher personal and work-related burnout than on patient-related burnout. However, in the Stassen *et al*. (2013) study the sample was advanced life support emergency care providers in Johannesburg, Gauteng. Thus, less is known about the prevalence of burnout in the other levels of emergency care providers as well as the other general determinants of burnout of emergency care providers in South Africa.

## 2.8. Demographic factors associated with burnout

When it comes to burnout and gender, several studies have reported that burnout is more prevalent in females than in males. Stassen *et al.* (2013) in his study found that female emergency care providers had higher burnout scores than their male counterparts. Another study, Haque *et al.* (2011) found that males are more prone to burnout than females (Haque and Aslam 2011).

Maslach *et al.* (2001) argue that the demographic variable of gender should not be used as a strong predictor of burnout, despite some arguments that females experience burnout more. They point out conflicting results from international studies where some studies say burnout is more prevalent in males than females. What is more, the older you are and the more experience you have, the less prone you are to burnout (Maslach, Schaufeli and Leiter 2001).

According to Maslach *et al.* (2001), burnout has been reported to be higher among younger employees than among those who are between the ages of 30 or 40. The variable of age is confounded by experience, meaning that burnout appears to be more of a risk earlier in one's career. One could also argue that emergency care providers who are young and newly qualified in the profession and who suffer from burnout early quit their jobs, leaving behind survivors who exhibit low levels of burnout (Maslach, Schaufeli and Leiter 2001).

Concerning marital status, emergency care providers who are not married, especially men, seem to be more prone to burnout than those who are married. Single emergency care providers seem to experience even higher burnout levels than those who are divorced (Vredenburgh, Carlozzi and Stein 1999; Maslach, Schaufeli and Leiter 2001).

Emergency care providers with higher levels of education have been reported to have higher burnout levels than those who are less educated (Maslach, Schaufeli and Leiter 2001). Farshi *et al. (*2014) agree with Maslach *et al.* (2001) that high levels of burnout are associated with

highly-educated emergency care providers compared to poorly-educated emergency care providers (Farshi and Omranzadeh 2014). Managers seem to have higher burnout scores when compared to entry-level workers (Stassen, Van Nugteren and Stein 2013).

## 2.9. Effect of burnout on emergency care providers

According to Lloyd (2004) emergency care providers experiencing burnout make mental mistakes when treating patients and they show little to no sympathy while treating their patients once they are exhausted (Lloyd 2004).

Burnout affects emergency care providers physically and psychologically. The physical suffering includes lack of sleep, heavy workloads, and exposure to infectious diseases (Lloyd 2004). Physical exhaustion, which is a component of burnout, disturbs the body's ability to cope with challenges and to resist illness. Being exposed to violent situations contributes to the risk of suffering emotionally and psychologically. Witnessing and caring for a victim who has been subjected to an act of cruelty and violence can put a huge emotional strain on an emergency care provider (Lloyd 2004). In addition, when emergency care providers are subjected to acts of crime while on duty, it adds to the emotional strain they experience (Lloyd 2004).

Perhaps the most horrific effect of burnout on emergency care providers is suicidal behaviour. A study conducted in Australia on emergency workers, including police, firefighters and emergency care providers, noted that suicide among emergency workers is high and that every six weeks, a policeman, firefighter or emergency care provider commits suicide (Knowles 2015). In Australia, 110 deaths were reported involving emergency workers, of which 26 involved emergency care providers and occurred between 2000 and December 2012. Most of the suicides involved men between the ages of 30 to 39. These suicides took place mainly at their homes and the most commonly used method was poisoning (Knowles 2015).

In South Africa, emergency care providers are exposed to acute stressors because of the nature of the job they do, such as making life and death decisions within seconds for the patients they care for. They are also concerned with their safety while giving care to patients in the prehospital setting and often they have been subjected to crime where they are victims of crime (Woods 2007; Holgate 2015). Emergency care providers are leaving South Africa due to working conditions related to stress (Govender *et al.* 2012). Another reason that causes an emergency care provider to leave South Africa includes physical security (Govender *et al.* 2012; Holgate

2015). In addition, to stressors, emergency care providers may not be earning sufficient money for the long additional hours, which they work (Holgate 2015).

It is therefore important to recognize and treat burnout timeously to prevent the disastrous effects and complications that may occur. In order to effectively take care of others, emergency care providers must be able to take good care of themselves. The need for emergency care providers to be emotionally stable and in control of worries and anxieties is therefore critical.

## 2.10. Mental disorders and emergency care workers

Emergency care providers, in general, show a higher prevalence of mental disorders when compared to the general population because of repeated exposure to critical incidents. The mental health of emergency care providers may be compromised by the nature of work they do and will be compounded by shorter recovery times (Fjeldheim *et al.* 2014a). The mental health conditions which they are likely to develop include major depressive disorder, anxiety, somatic symptom disorders and PTSD (Jones 2017).

The Diagnostic and Statistical Manual of Mental Disorders 5$^{th}$ edition (DSM-5), describes the major depressive disorder (MDD) as loss of pleasure or being in a depressed mood that occurs most of the day, almost every day and it is indicated either by subjective report such as the person saying that they feel sad, empty and hopeless or by observation made by others e.g. appears tearful (American Psychiatric Association 2013: pg.55) . Emergency care providers suffering from MDD may present with symptoms that include loss of appetite, weight changes, sleeping problems and it can be either insomnia or in severe cases will have hyper-insomnia. Symptoms also include low energy or fatigue, psychomotor agitation or mental retardation, feelings of guilt or worthlessness, decreased concentration and reoccurring thoughts of death or suicide (Jones 2017).

Depression commonly occurs with other mental health disorders such as substance-related disorders, panic disorder, obsessive compulsive disorder, anorexia nervosa, bulimia and borderline personality disorder (American Psychiatric Association 2013). In addition to comorbidity, depression may also occur with PTSD. When depression and PTSD occur together the symptoms are severe and is associated with suicidality. The prevalence rates of comorbidity vary between 21% and 95% and are often predicted by severity of trauma exposure. Continuous exposure to critical incidences increases the risk of developing PTSD, depression and

suicidality among this emergency care providers (Spinhoven *et al.* 2014). In a study conducted in the UK, researchers found that 10% out of 574 emergency care providers were suffering from depression and 22% met the criteria for PTSD (Fjeldheim *et al.* 2014a). A study conducted in the United States of America reported 11% out of 112 emergency care providers had symptoms of indicative of mild to moderate depression. In this very same group, it was reported that emergency care providers had sleep deprivation (59%), binge (58%) and hazardous drinking behaviours (14%) and poor mental wellbeing (21%) (Carey *et al.* 2011). Bentley *et al*. (2013) conducted a study on assessment of depression, anxiety and stress among nationally certified EMS professionals and in his study; he had sample size of 34,340 emergency care providers that participated. The prevalence rate of depression reported on this study is 6.8% with increased odds in those with greater than 16 years of services and anxiety rates at 6% (Bentley *et al.* 2013). Emergency care providers who are depressed have higher suicidality (Jones 2017).

In 2015 Stanley *et al.*(2015) conducted a study on emergency care providers and he reported that between the current (n=917) and retired firefighters 46.8% had suicidal ideation, 19 per cent reported having attempted suicide and 16.4% reported non-suicidal self-injurious-behaviour. Factors associated with increased risk of suicidal ideation include fewer years on the job, lower rank and a history of responding to a suicide attempt or death (Stanley *et al.* 2015).

The Diagnostic and Statistical Manual of Mental Disorders, defines anxiety and worry occurring more than not for at least six months, about a number of events or activities such as work (Jones 2017). Anxiety and stress for emergency care providers is when they are responding to an emergent call and the anxiety is perceived to be an important contributor to patient safety. In emergency medical services, providing care during critical events has been recognized as a source of stress, anxiety and in severe cases it results in PTSD (Berger *et al.* 2012).

Emergency care providers may also experience somatic symptom disorder. The DSM-5 defines somatic symptom disorder as “one or more symptom that are distressing or result in significant disruption of daily life” (American Psychiatric Association 2013: pg.331). The mental disorder manifest as physical symptoms that suggest an injury or illness but cannot be explained fully by a general medical condition or by direct effect of substance and are not attributable to another mental disorder. Symptoms may be specific, e.g. localized pain or they may be relatively non-specific e.g. fatigue. Somatic symptoms without an evident medical explanation are not sufficient to make this diagnosis. Somatic form disorders are associated with high rates of

comorbidity with medical disorders as well as anxiety and depressive disorders. The comorbidity of somatic symptom disorders with other mental health conditions increases the degree of impairment than it would have been expected if it was occurring alone (American Psychiatric Association 2013).

The DSM-5 defines PTSD as “an exposure to actual or threatened death or serious injury that results in associated symptoms that last longer than 1 month” (American Psychiatric Association 2013: pg.271). Criteria includes intrusive symptoms, persistent avoidance of stimuli associated with the event, negative alterations in cognitions and mood, and marked alterations in arousal and reactivity (Jones 2017). It is important to note that lower rates of PTSD in the general population are expected because they are not exposed to daily trauma as part of their job (Streb, Häller and Michael 2014; Rybojad *et al.* 2016). In South Africa, the lifetime prevalence of PTSD is estimated to be 2.3% (Swain, Pillay and Kliewer 2017). Emergency care providers (14.6%) show a much higher prevalence of PTSD than the 1.3–3.5% reported in the general population (Streb, Häller and Michael 2014). According to Luftman *et al.* (2017), about 35% of prehospital providers scored positive for PTSD, which is higher than that of in-hospital providers, which was 23% (Luftman *et al.* 2017). Other studies put the prevalence of PTSD in emergency care providers at 40% (Rybojad *et al.* 2016). Collopy *et al.* (2012) report the prevalence of burnout among emergency care providers to be between 18% to 30% (Collopy, Sean and Scott 2012).

Luftman *et al.* (2017) explain that the more intimate the healthcare provider is with the patient or situation, the more they are likely to screen positive for PTSD. Emergency medical technicians (EMT), paramedics and flight paramedics screened positive at nearly twice the rate compared to those in the operating room or intensive care units (ICU) (Luftman *et al.* 2017). Emergency care providers work in a prehospital environment and literature shows that working in a situation of irregular and frequent exposure to high levels of traumatic stress or events may lead to the development of PTSD (Rybojad *et al.* 2016).

In South Africa, Fjeldheim *et al.* (2014) found the prevalence of PTSD among emergency care workers to be 16%, which is high when compared to other healthcare providers (Fjeldheim *et al.* 2014b). In the past few years, emergency care providers in South Africa also have been subjected to armed robberies and rape while treating patients (IOL 2011). In one incident, an emergency medical care provider subsequently went through a divorce. It was reported that her husband could not make ‘peace with himself’ for his wife being raped. The incident left the

emergency care worker traumatized and hopeless. She was unable to work effectively, could not sleep and when she is on duty, was unable to respond to any emergency cases in informal settlements as it reminded her of her trauma and she feared being raped again (IOL 2011).

Of interest, none of the articles reporting on the robberies and rape of the emergency care providers in South Africa make mention of any form of counselling or psychological help (IOL 2011; Masinga 2015; SAPA 2015). In 2017, an emergency care provider was shot in the abdomen while on duty during an armed robbery in Tshwane. Three days later, he succumbed to his injuries. The three other emergency care providers that were working with him had to undergo counselling for PTSD (Raborife 2017).

Ryobojad *et al.* (2016) conducted a study on "Risk factors for Posttraumatic stress in Polish Paramedics" (Rybojad *et al.* 2016: p 270). In her study, she said risk factors for PTSD include being an emergency care provider, level of education, gender and years of service. Being an emergency care provider has been seen as a risk factor because of the amount of trauma these workers are exposed to compared to other healthcare providers, such as doctors and nurses (Rybojad *et al.* 2016).

Emergency care providers who have degrees have a lower prevalence of PTSD than those who have certificates. This is because emergency care providers who are more educated have greater awareness and self-confidence during professional activities due to their qualifications and training (Rybojad *et al.* 2016). Men are at a greater chance of developing PTSD because of more exposure to traumatic events than women (Rybojad *et al.* 2016).

A link between the number of years an individual has been employed in an ambulance service and the development of PTSD is also reported (Collopy, Sean and Scott 2012; Donelly 2012). The more years an emergency care provider spends in-service, the more likely they are to develop PTSD (Collopy, Sean and Scott 2012). Lastly, in one study emergency care providers who provide aid to victims of mass casualties, child victims of violence, including sexual abuse, victims of brutal violence and members of their own family or friends in a life-threatening situation more often had symptoms of PTSD than did other emergency care providers (Rybojad *et al.* 2016).

Other PTSD risk factors that have been identified specific to emergency care providers include separation or divorce, previous EMS experience, previous job leading them to the EMS and previous war experience (Collopy, Sean and Scott 2012).

The impact of PTSD on emergency care providers' health has been the subject of several studies (Alexander and Klein 2001; van der Ploeg and Kleber 2003; Bennett *et al.* 2004; Jones 2017). Emergency care providers who are suffering from PTSD often have other problems such as sleeping problems, eating behaviour, nutrition and obesity. In addition they are at a high risk of cardiovascular diseases (Hegg-Deloye *et al.* 2014).

Sleeping disorders have been noted among emergency care providers and more than 80% of them suffering from PTSD will report difficulty sleeping after a shocking event and 70% after 6 months (Hegg-Deloye *et al.* 2014). The classification of sleep disorders includes ten disorders or disorder groups, including insomnia. These disorders present with poor quality, timing and amount of sleep and can cause daytime distress and impairments. They often accompany anxiety and depression but if they are not addressed they pose an increased risk of developing mental health and substance use disorders (Jones 2017).

Sleeping disorders usually occur early after traumatic after a traumatic event and are associated with increased risk of PTSD. The effect of shift work on sleep identified a high proportion of emergency care providers reporting fatigue, work stress, low job satisfaction and poor mental and physical health (Hegg-Deloye *et al.* 2014). Emergency care providers in South Africa work shifts, are subjected to work stress and often work in unsafe and hazardous areas (Hackland and Stein 2011) and those stresses can subject them difficulty sleeping (Hegg-Deloye *et al.* 2014).

Emergency care providers have diverse eating behaviours because of the shifts they work. Their work involves unpredictable emergency callouts and variable waiting periods between calls and that is associated with irregular meal timing. Regular eating plans influences satiety and helps with prevention of weight gain and in emergency medical services, this is not always the case because of irregular eating plans and proximity of fast foods during shifts. There is a high prevalence of obesity and lack of leisure time among emergency care providers (Hegg-Deloye *et al.* 2014).

Obesity, physical inactivity and irregular meal timing has been associated with increased risk for cardiovascular diseases. The combination of high demands and cardiovascular risk factors may contribute to sudden death of in this population (Maguire *et al.* 2002)

## 2.11. Conclusion

Emergency care providers are subjected to high stress given the nature of the job. Further, the high levels of stress and poor management of their stress will contribute to burnout. Burnout in this study was defined as a clinical syndrome consisting of emotional exhaustion, physical exhaustion, and feelings of little personal accomplishment. Burnout is caused by a persistent imbalance of demands over resources and motives of employees in relation to their workplace.

International studies suggest that emergency care providers who suffer from burnout make more mental or cognitive errors when providing care to patients and that they tend to show little to no empathy when treating their patients. In South Africa, the effect of burnout on emergency care providers is poorly understood. In addition to burnout, emergency care providers may be exposed to extreme traumatic events that may contribute to them experiencing PTSD. PTSD among emergency care providers has been found to be high when compared to other healthcare providers like doctors, nurses, and others.

The following chapter presents the research methodology.

# CHAPTER 3
# RESEARCH METHODOLOGY

## 3.1. Introduction

This chapter discusses the research design and methodology of the study by focusing on the setting, population, data collection procedure, data analysis and ethics considerations.

## 3.2. Research design

A quantitative method emphasizes objective measurements and the statistical, mathematical, or numerical analysis of data collected through questionnaires and surveys by manipulating pre-existing statistical data with the aid of a computer software. A cross-sectional survey allows for participants to be evaluated at one point in time, allowing conclusions about phenomena across a wide population to be drawn (Aldous, Rheeder and Esterhuizen 2013). A quantitative, cross-sectional study was considered most appropriate for this study.

## 3.3. Study setting

The study was conducted at a private ambulance emergency medical service in Gauteng. The survey took place at 17 ambulance emergency medical service bases, at the head office and one training academy. The training academy formed part of the private ambulance emergency medical service.

Before participating in the study, participants were given a letter of information (Appendix A) informing them of the purpose of the study. All the participants who volunteered to take part in the study were asked to complete a consent form (Appendix B). No identifying data were collected, and participants were not required to write their names on the answer sheet that was provided. After participants consented, they were handed the questionnaire to complete. Participants were not allowed to remove questionnaires from the room where the survey was being conducted or to take the questionnaires to complete elsewhere. Participants were allowed to withdraw from the study at any time if they so wished until they handed their questionnaire to the researcher. In addition, once they handed in their completed questionnaire, the researcher assigned a unique number to each answer sheet for the purpose of identifying the case when capturing the data.

## 3.4. Study target and sample population

### 3.4.1. Target population

The target population consisted of emergency care providers employed by one particular private ambulance service where data was collected. This population consisted of all levels of emergency care providers, that is from Basic Life Support to Advanced Life Support emergency care providers, employed by one private ambulance emergency medical service in Gauteng Province, South Africa. This private ambulance emergency service has ambulance bases in various areas, a training academy and call centre at the head office. The anonymity of the participants was paramount and permission to access emergency care providers from the private ambulance emergency service was obtained (Appendix J).

### 3.4.2. Sample

All emergency care providers working for private ambulance emergency medical service, within the Gauteng region, were included. The emergency care provider registration categories include Basic Ambulance Assistant (BAA), Ambulance Emergency Assistant (AEA), ECT, Paramedic (Critical Care Assistant and National diploma) and ECP. A total of 188 emergency care providers were invited to participate in the study and all 188 volunteered.

### 3.4.3. Sampling method

A non-probability sampling method used was. Non-probability sampling refers to sampling that does not rely on the use of randomized techniques to select members (Acharya *et al.* 2013). In non-probability sampling, you have convenient sampling where participants are selected based on the convenience of the participants and the researcher (Acharya *et al.* 2013). In this study, the sample was emergency care providers from a particular facility who were available to participate when data was collected. In addition, the sampling method enabled the researcher to achieve a suitable sample size.

## 3.5. Inclusion and exclusion criteria

#### 3.5.1. Inclusion criteria:

- Emergency care providers who are involved in road operations

- Managers and shift leaders who are emergency care providers
- Other emergency care providers (i.e. those in administration and those who work in the emergency operations centre – EOC)
- Emergency care providers (lecturers) who work at the training academy

### 3.5.2. Exclusion criteria:

- Emergency care providers not registered with the HPCSA
- Emergency care providers on a contract and volunteers

Emergency care providers who were not registered with the HPCSA were excluded because they are not licensed to work with patients. Emergency care providers who were on a contract were hired for a specific day to cover for an emergency care provider who was sick or absent. Further, contract workers were not regular staff or permanent employees and would not be subjected to the same stressors as permanent employees. With regard to volunteers they were not paid and as a result, many of them were not fully committed because they worked elsewhere in order to sustain a living and often did not pitch-up for their volunteer shifts. Further, it would be difficult for the researcher to establish which volunteers was committed. Hence a decision was taken decided to exclude all volunteers.

Out of the 188 participants who volunteered, two were on contract and was exclude. The total sample was N=186.

## 3.6. Data collection procedure

### 3.6.1. Instruments

The CBI (Appendix C) was used to measure burnout. Participants in this study were not informed of what specific condition was being tested for, as this may have created predictable and biased answers. In order to limit any bias, the term “burnout” was not utilized in the questionnaire. Instead, a neutral name was given to the questionnaire that is not suggestive of what was being evaluated and that would ensure reliable results (Schaufeli, Leiter and Maslach 2009). The questionnaire was called “The Emergency Care Provider Wellness Questionnaire” (*ECP-WQ*) (Appendix D). In order to compile the ECP-WQ, questions from the CBI were combined and interspersed with distractor questions, using the same Likert-type scale as used in the CBI. The researcher, in consultation with experts in the field, devised the distractor

questions. The addition of distractor questions ensured a greater reliability by avoiding stereotyped responses. (Schaufeli, Bakker and Salanova 2006; Schaufeli, Leiter and Maslach 2009; Stassen, Van Nugteren and Stein 2013). Other studies support the use of distractor questions or adding item lie scales. The ECP-WQ consisted of 51 questions and it was divided into three sections. This measure has shown to be highly reliable with significant face validity for healthcare professionals (Woods 2007).

Section A comprised of the demographic questions developed by the researcher. The purpose of the demographic questions was to help the researcher determine certain aspects of the target population, such as gender, ethnicity, age, marital status, and qualification. It also included the number of years for which the emergency care provider had been registered, years of service, employment status, region and their occupation (road operations, management, emergency operations centre, training, HEMS or intensive care unit bus/ambulance).

Section B was CBIS. The CBIS (Borritz *et al.* 2005) was considered most suitable for the current study. It is a 19-item questionnaire measuring three burnout sub-dimensions, namely: personal burnout, work-related burnout, and client-related burnout. Permission to utilize the CBIS was obtained from Dr. Jan Hyld Pejtersen, who is a senior researcher at the Danish National Centre for Social Research: Trials Unit, in Denmark (Appendix E).

The *personal burnout* subscale consists of six questions that measure the degree of physical and psychological fatigue as well as exhaustion experienced by any person regardless of their participation in the workforce. On the personal burnout subscale, the response categories were always, often, sometimes, seldom, never/almost (Borritz *et al.* 2006).

The *work-related burnout* subscale has seven questions and measures the degree of physical and psychological fatigue related to work. The focus on work-related burnout is the individual's own attribution of symptoms to their work. On this subscale, the response categories for the first three questions were to a very high degree, to a high degree, somewhat, to a low degree. The last four questions had the following response categories always, often, sometimes, seldom, and never/almost (Borritz *et al.* 2006).

The *client-related* burnout subscale has six questions and measures the degree of physical and psychological fatigue experienced by people who work with clients. The term "client" is broad and includes patients, inmates, children, students or even residents. The word client was changed to the patient for this study to make the questionnaire contextually relevant. This

change is recommended by the authors of the scale (Borritz *et al.* 2005; Milfont *et al.* 2008). For the burnout related to patient subscale, the response categories for the first four questions were to a very high degree, to a high degree, somewhat, to a low degree. The response categories for the last two questions were always, often, sometimes, seldom, never/almost never (Borritz *et al.* 2005; Milfont *et al.* 2008).

All items had five response categories and the responses were rescaled to a 100-0 metric. When all the questions had been answered, an average burnout score was calculated (Borritz *et al.* 2006). A total burnout score was also calculated by averaging the scores of all three sections and a total burnout score was then obtained. A score greater than 50 was considered as a diagnosis for burnout (Borritz *et al.* 2006). If fewer than three questions had been answered, the respondent was classified as a non-responder. Participants who scored 50 or more in one or two burnout domains were said to exhibit some degree of burnout (Borritz *et al.* 2006).

The CBIS has acceptable reliability. It has a high internal consistency and homogeneity, as well as factorial and criterion-related validity. In the PUMA (Project on Burnout, Motivation and Job Satisfaction) study, the response rate of individuals on individual items was very low (Borritz *et al.* 2005; Borritz *et al.* 2006). Many of the respondents said it was easy to understand and answer questions and the scales have high validity. It has been tested on more than 15 occupations and has been found to have high reliability and validity (Borritz *et al.* 2005; Milfont *et al.* 2008). The Cronbach's alpha of this study on personal and work burnout was 0.87 and burnout related to client care was 0.85, which means internal reliability was high (Borritz *et al.* 2005).

A Chinese study on the psychometric properties of the CBIS said that it demonstrates "high internal consistency and correlated well with other health, job characteristics and perception of work measures" (Fong, Ho and Ng 2014: 126). The Cronbach's alpha was .86 for personal, work and client-related burnout (Fong, Ho and Ng 2014).

Another study conducted utilizing the CBI confirms that the CBI demonstrates good degrees of internal consistency and validity. In addition, the authors say that the CBI is "a more straightforward measurement of burnout in the population of medical professionals compared to the MBI"(Chou, Li and Hu 2014).

Section C included work-related questions. These items referred to associated risk factors for burnout. The questions were formulated by the researcher as follows: Do you work overtime? Do you feel that a 12-hour shift is long? Do you get enough sleep? Do you feel that the vehicle you are working with is unsafe and not road worthy? Do you feel that you are short-staffed? Do you have the appropriate equipment to effectively treat patients? Do you get along with your colleagues and do you feel that your job is secure? The response categories were always (100), often (75), sometimes (50), seldom (25) and almost/never (0). The higher the score, the more the situation was perceived as a risk factor for burnout.

Participants were given a consent form (Appendix C) prior to participating in the study. The researcher physically collected the data from the various locations, which included the emergency bases, the head office, and the training academy. All the data collected were locked in a safe storage area, namely in a cabinet that only the researcher could access.

### 3.7. Data analysis

The service of a professional statistician was used to analyse the raw data using SPSS version 24.0 (IBM Corp 2016). The statistical analyses comprised of descriptive and inferential statistics.

Descriptive statistics provide a concise summary of data with the objective of describing what occurred in the sample. They are numerical procedures or graphical techniques such as bar charts, pie charts or histograms used to organize, present and describe the characteristics of a sample. They seek to describe the midpoint of the spread of scores, called the measure of central tendency, and the spread of scores, called dispersion. Variance is an example of dispersion. Descriptive statistics aim to summarise a group of data using a combination of the tabulated description, which includes tables, a graphical description, which includes graphs and charts, and statistical commentary, which includes discussion of the result (Fisher and Marshall 2009; Marshall and Jonker 2010).

Inferential statistics make inferences about populations using data drawn from the population. Instead of using the whole population to gather data, the statistician will collect a sample or samples of participants and make inferences. An inference is a conclusion or an idea reached based on evidence and reasoning. Inferential statistics try to reach conclusions that extend beyond our immediate data (Gupta 2012).

Inferential statistics were used to infer from the sample's data what the population might think. This branch of statistics often makes use of hypothesis testing, points estimation and confidence intervals. Hypothesis testing involves *p*-values (Gupta 2012).

A hypothesis test is a statistical test that is used to determine whether there is enough evidence in a sample to conclude that a certain condition is true for the entire population. Hypothesis testing involves two opposing hypotheses about a specific population. The null hypothesis and an alternative hypothesis. The null hypothesis says there is no difference or no effect at all. The alternative hypothesis is the opposing statement the researcher wants to conclude is true. Based on the data sample, the test determines whether the null hypothesis is rejected or not. The aim of the test is to calculate "probability," also known as the p-value. If the p-value is less or equal to the level of significance ($P<0.05$), then the null hypothesis can be rejected and we can conclude that the findings are statistically significant. Rejecting the null hypothesis means that the findings are likely to have arisen by chance, rejecting the idea that there is no difference (Gupta 2012).

## 3.8. Ethical considerations

The study was conducted in line with the ethics guideline of the Faculty of Health Sciences, Durban University of Technologies on conducting research. The principles of the protection of human rights, beneficence, and justice were observed throughout the duration of this research project.

- The principle of beneficence refers to the moral obligation on the part of the researcher to maximize the benefits to others and to minimise the risk of harm to any persons or organizations partaking in the study. Results from the study will help give employers a better understanding of the stressors involved in EMS. This would enable them to take measures to identify burnout a lot sooner and to prevent its effects (Jahn 2011).
- Respect for human dignity is an essential principle of modern research ethics. This principle aims to protect the bodily, psychological, and cultural integrity of the research participants. During this study, there was no violation of life, body or dignity of any persons. Participants were treated as human beings and with respect (*Code of ethics* 2011).

- The principle of justice obliges us to equitably distribute benefits, risk, cost, and resources. Each participant was treated fairly and equally (Jahn 2011).

- The principle of autonomy allows the participant to make their own decisions without being controlled by anyone else (Campbell 2017). Participants in the study were allowed to volunteer to participate and they were allowed to withdraw from the study at any time they so wished.

All participants were required to sign a consent form (Appendix B) prior to participation in the study. No identifying data were collected from participants and participants did not write their names on the questionnaire. Participation was voluntary. All recorded details were kept on a password-protected computer throughout the study and thereafter.

Participants in this study were not informed about the specific condition which was tested (i.e. the stress questionnaire as recommended by the authors) and in this regard the name of the questionnaire was changed as well. This was done to ensure the validity and reliability of the research. The National Health Research Ethics (NHRE) of the Republic of South Africa states that "the participants are asked to consent and remain uninformed as to the purpose of some procedures until the research is complete" (Department of Health Republic of South Africa 2015: p. 48). In other cases, participants are not told that some information is being withheld until the research has been completed (Department of Health Republic of South Africa 2015). In this study, participants were not informed about what condition is being tested for and once the research is completed, a copy of the research report will be provided to the gatekeeper's research committee. The private ambulance emergency medical service may make implementations on any recommendations of the study.

In research, deception is not permitted where deception has a possibility of causing significant harm to participants (Clarke 1999). In this study, there were no risks and thus participants were not informed about what condition was being tested for. Another strategy that has been suggested to reduce harm associated with deception is to ensure that research participants understand that they have the option of withdrawing from an experiment or study at any stage, exercising autonomy (Clarke 1999; Elms and Baumrind 2007). Participants were allowed to withdraw from the study at any point until their answer sheet was submitted to the researcher and this was stated in the information letter that was handed to the participants before they could participate in the study.

Research participants were able to exercise free power of choice without any intervention of any element of force, fraud, duress, over-reaching, or another ulterior form of constraint. There

was no force or threats made in order for them to participate in research. Participation in this study was on a voluntary basis.

Therapeutic misconception is a term used in research bioethics to describe a situation where participants believe they are going to receive therapy and do not recognize that they are enrolled in a clinical study (McConville 2017). McConville (2017) states that when" subjects fail to either understand or incorporate into their own expectation the distinction in nature and purpose of personally responsive therapeutic care which characterizes the typical relationship between a patient and physician, and the generic relationship between the subject and the investigator who is constrained by research protocols" (McConville 2017: pg.713). Therapeutic misconception mostly applies to clinical studies and this study was not a clinical study. There was no therapeutic intervention promised to participants. In addition, the participants were informed and read in the information letter that there is no foreseeable risk nor direct benefit to them.

The Declaration of Helsinki requires a high standard of ensuring that research participants understand the information given to them before consenting to participate. Failing short of this standard, the misunderstandings caused by therapeutic misconception means that the research participant has a distorted representation of the research project and making a decision about something that is different from the actual research project (McConville 2017). In this study, participants were not promised any treatment and this was not a clinical trial. They also read the consent letter and consented to participate in the study. They were given equal opportunity to withdraw from the study at any given point exercising autonomy until the questionnaire was handed over to the researcher where it would be combined with other answered questionnaires where it would be difficult to withdraw. All this information was discussed with the participants and was included in the information letter and in the consent form.

### 3.9. Management of anticipated and unanticipated events

During the collection of the data, if the participants experienced any problems and could not address these with the researcher, they were given details of whom they should contact. Arrangements were made for participants who experienced an adverse event during the collection of data to be referred to a psychologist for intervention. In addition, the private ambulance emergency medical service has an employee wellness programme to which participants were to be referred to should the need arise. Further, once the research was completed a copy of the research report would be provided to the gatekeeper's research

committee. Based on the report the company would consider the findings of the study and implement appropriate interventions or changes.

The chapter that follows contains the results. The results are presented in the form of tables and graphs, and key findings and trends are highlighted in the discussion.

# CHAPTER FOUR
# RESULTS

## 4.1. Introduction

This chapter presents the results of the data collected by means of the Emergency Care Provider Wellness Questionnaires (ECP-WQ) and the findings that we can derive from these results. The demographics of respondents are first presented, followed by the results on burnout and differences between the burnout scores on the different domains. The results of the chi-square test, multivariate ANOVA and univariate ANOVA are also presented. Lastly, the participants' responses to the distractor questions are presented.

It is important to note that when using questionnaires several factors may have an effect on how people answer questions in a survey (Bertrand and Mullainathan 2001). Respondents may make a little effort in answering questions such as by not attempting to recall all the relevant information presented or they may not even read the whole list of response presented to them. There are some ways to minimize these effects, such as , ordering of response alternatives, since the participants may simply pick the first or last available alternatives in a list they have been provided with (Bertrand and Mullainathan 2001; Fayers 2003). However, in this study, there was no reason to believe that participants were endorsing the questionnaire in a particular way. No response patterns were identified. This was monitored for all the questions.

## 4.2. Demographics of the participants

Table 1 below provides a summary of the demographic details of the participants. A total of 188 emergency care providers working for a private ambulance emergency service volunteered to participate in the study.

**Table 1: Demographics of participants (N=188)**

| Demographics of the study sample | *n* | *%* |
|---|---|---|
| **Gender** | | |
| Male | 117 | 62.23 |
| Female | 71 | 37.76 |
| **Ethnicity** | | |
| Black | 78 | 42.48 |
| White | 95 | 50.05 |
| coloured | 9 | 5.00 |
| Indian | 6 | 3.00 |
| **Age group** | | |
| 18-24 years old | 22 | 12.00 |
| 25-34 years old | 104 | 55.31 |
| 35-44 years old | 56 | 30.00 |
| 45-54 years old | 6 | 3.00 |
| **Marital status** | | |
| Single | 86 | 45.00 |
| Married or domestic partnership | 91 | 48.40 |
| Divorced | 11 | 6.00 |
| **Levels of care** | | |
| BLS | 69 | 36.00 |
| ILS | 55 | 30.00 |
| ALS | 64 | 34.00 |
| **Years of service** | | |
| 5 years or less | 87 | 46.00 |
| 5-10 years | 73 | 39.00 |
| 10-15 years | 22 | 12.00 |
| Greater than 15 years | 6 | 3.00 |
| **Division** | | |
| Road operations | 143 | 76.00 |
| Management | 7 | 4.00 |
| Emergency operation centre | 14 | 8.00 |
| Training | 8 | 4.00 |
| HEMS | 3 | 2.00 |
| ICU Bus | 12 | 6.00 |
| **Region** | | |
| Gauteng North | 22 | 12.00 |
| Gauteng West | 111 | 59.00 |
| Gauteng East | 55 | 29.00 |

There were more male 117 (62%) participants than female participants. This reflects the profession whereby emergency medical services are still male dominated. More than half of the

participants were white 95 (50%), followed by Africans 76 (42%), who made up the second largest number of participants. Coloured 9 (5%) and Indians 6 (3%) made up the remainder of the study participants. Even though a majority of the participants were white, this is not a true reflection of race distribution of emergency care personnel in the private ambulance emergency service.

More than half of the participants 104 (55%) were between 25 and 34 years and predominantly male 62 (61%). As previously discussed, emergency medical services are male dominated and the majority of the participants were young. This may reflect the view that older emergency care providers either go to management, leave the company or they leave the profession. There were fewer participants in the 45 to 54 age group. Ninety-one (48%) of the participants were married or living in a domestic partnership, followed by the group that was single and has never been married 86 (45%). Of the female participants, 34 (18%) were married, compared to 57 (30%) males. There were 29 (16%) female participants that were single, whereas 55 (30%) male participants were single. There were 6 (3%) female participants that were divorced and 5 (3%) male participants.

The level of care with the highest number of participants was BLS emergency care providers with 69 (36%) participants, followed by ALS emergency care providers 66 (34%). ILS 55 (30%) formed the remainder of the participants. Currently, there is an overabundance of BLS in emergency medical services.

Regarding years of service, half of the respondents, 87 (46%), had been employed for less than five years, 73 (39%) had five to ten years of service, 22 (12%) had between ten to 15 years of service and 6 (3%) more than 15 years of service. A majority of the participants have less than five years with the private ambulance emergency medical service. This may reflect the trend that older emergency care providers leave to find better employment opportunities elsewhere or moved into management.

One hundred and forty-three (76%), were working in road operations, followed by 14 (8%) in the emergency operations centre.

Most of the participants 111 (59%) were based in the Gauteng West region, followed by 55 (29%) in the Gauteng East region and 22 (12%) in the Gauteng North region. Gauteng west is the biggest region and busiest compared to other regions. In addition, the head office and training academy was in that region.

## 4.4. Burnout scores

The following sections review the results of the burnout scores using the CBI.

### 4.4.1. Burnout mean scores for participants on the CBI

Table 2 presents the average burnout scores of the participants on the CBI.

**Table 2: Burnout mean scores for participants on the CBI**

| Burnout Dimensions | *M* | *SD* | *95% CI* |
|---|---|---|---|
| Personal burnout | 47 | 18 | 49.72-44.67 |
| Work burnout | 48 | 16 | 50.61-46.08 |
| Patient-care related burnout | 32 | 17 | 34.23-29.45 |
| Total burnout | 42 | 14 | 43.91-39.91 |

*SD=standard deviation; CI=95% confidence interval*

All burnout dimensions were significant. Work burnout had the highest mean (47), followed by personal burnout (47) and patient-care with the lowest mean (32).

### 4.4.2. Mean total burnout scores according to demographic status

Table 3 summarises the burnout scores for the various demographic profiles of the participants.

**Table 3: Mean total burnout scores according to demographic status**

| | | *n* | *%* | *M(SD)* | *p* |
|---|---|---|---|---|---|
| **Gender** | Male | 36 | 64% | 59 (8,00) | **0,705** |
| | Female | 20 | 36% | 58 (6,00) | |
| **Ethnicity** | African | 26 | 46% | 61 (8,00) | **0,468** |
| | Coloured | 2 | 4% | 63 (2,00) | |
| | Indian/Asian | 2 | 4% | 50 (0) | |
| | White | 26 | 46% | 57 (6,00) | |
| **Marital status** | Single, Never married | 24 | 43% | 60 (8,00) | **0,832** |
| | Married or domestic partnership | 29 | 52% | 58 (6,00) | |
| | divorced | 3 | 5% | 57 (5,00) | |
| **Age** | 18-24 | 5 | 8% | 54 (3,00) | **0,346** |
| | 25-34 | 36 | 64% | 58 (7,00) | |
| | 35-44 | 15 | 26% | 60 (8,00) | |
| | 45-54 | 1 | 2% | 53 (0) | |
| **Levels of care** | BLS | 21 | 28% | 59 (8,00) | **0,959** |
| | ILS | 16 | 28% | 57 (6,00) | |
| | ALS | 19 | 34% | 58 (6,00) | |
| **Years of experience** | <5 | 21 | 46% | 57 (6,00) | **0,360** |
| | 5-10 | 29 | 39% | 59 (7,00) | |
| | 10-15 | 4 | 12% | 59 (8,00) | |
| | >15 | 2 | 3% | 56 (1,00) | |
| **Years of service** | <5 | 28 | 50% | 57 (5,00) | **0,515** |
| | 5-10 | 17 | 30% | 60 (9,00) | |
| | 10-15 | 9 | 16% | 58 (6,00) | |
| | >15 | 2 | 4% | 60 (9,00) | |
| **Division** | Road operations | 43 | 76% | 57 (7,00) | **0,501** |
| | ICU Ambulance | 3 | 6% | 57 (8,00) | |
| | Training | 2 | 4% | 54 (2,00) | |
| | EOC | 7 | 8% | 59 (6,00) | |
| | Management | 1 | 4% | 67 (0) | |
| **Region** | Gauteng west | 40 | 71% | 59 (7,00) | **0,028** |
| | Gauteng East | 14 | 25% | 58 (7,00) | |
| | Gauteng North | 2 | 4% | 58 (1,00) | |

*[1] BAA= Basic Ambulance Assistant; AEA= Ambulance Emergency Assistant; ALS= Advanced Life Support. [2] EOC=Emergency Operations Centre; HEMS=Helicopter Emergency Medical Services.[3] CBI= Copenhagen Burnout Inventory SD=Standard deviation.*

****p<0,05***

Males had higher burnout scores than females. Coloured emergency care providers had higher mean CBI scores compared to other ethnic groups. Those in the 35 to 44 age group, followed by 25 to 34 years, had the highest burnout scores. Participants that had been in the service between 5 and 10 years and longer than 15 years also had higher burnout rates when compared to participants with fewer years of service. With regard to the different divisions in which the emergency care providers worked, the emergency care providers in management and in the emergency operations centre had the highest burnout scores compared to the other divisions. Lastly, participants from the Gauteng West region reported higher levels of burnout compared to other regions.

### 4.4.3. CBI Burnout domains

Table 4 presents the participants who scored greater than 50 on the CBI in each burnout domain.

**Table 4: Participants who scored greater than 50 on the CBI in each burnout domain**

| CBI domains | *n* | *%* |
|---|---|---|
| Personal burnout | 54 | 29 |
| Work burnout | 51 | 27 |
| Patient-care related burnout | 26 | 14 |
| Some degree of burnout | 56 | 30 |
| Total burnout | 56 | 30 |

Of the total sample, 56 (30%) scored greater than 50 when all three burnout domains were added together, and 56 (30%) had some degree of burnout. Personal burnout 54 (29%) was highest among the different burnout domains, followed by work burnout 51 (27%). Emergency care providers had low burnout scores in burnout related to patient care 26 (14%). The remaining 74 (40%) participants did not experience burnout.

### 4.4.4. Burnout by levels of care

Table 5 presents the prevalence of burnout by dimension and the different levels of care.

**Table 5: Burnout by levels of care**

| | Levels of care | | |
|---|---|---|---|
| CBI domains | BLS *n (%)* | ILS *n (%)* | ALS *n (%)* |
| Personal burnout | 19 (35%) | 16 (30%) | 19 (35%) |
| Work burnout | 20 (37%) | 16 (30%) | 17(32%) |
| Patient-care related burnout | 15 (53%) | 8 (29%) | 5 (18%) |
| Total burnout | 21 (37%) | 16 (29%) | 19 (34%) |

In personal burnout, advanced life support and basic life support emergency care providers not only had equal 19 (35%) but also higher burnout in comparison to the intermediate life support emergency care providers. In work burnout 20 (39%) and burnout related to patient care 13 (50%), BLS emergency care providers had higher burnout scores compared to the other emergency care providers.

The second group to have high burnout scores related to work burnout were the ALS 17 (33%), and lastly intermediate life support 14 (28%) emergency care providers. In burnout related to patient care, ILS 8 (31%) were the second level of care to have higher burnout scores in that domain. Advanced life support emergency care providers 5 (18%) had the lowest burnout scores in the burnout related to patient care domain.

### 4.4.5. Prevalence of burnout according to region

Table 6 presents the prevalence of burnout in different Gauteng regions.

**Table 6: Prevalence of burnout according to region**

| Region | *n* | % | *p* |
|---|---|---|---|
| Gauteng North | 2 | 4 | |
| Gauteng East | 14 | 25 | 0,016 |
| Gauteng West | 40 | 71 | |

****p<,05***

Emergency care providers in the Gauteng West region had higher burnout scores 40 (71%) when compared to the other regions. The second region was Gauteng East, with 14 (25%) and lastly Gauteng North with 2 (4%).

### 4.4.6. Prevalence of burnout in relation to gender and burnout

Table 7 presents the prevalence of burnout in relation to the gender of the participants and burnout domains, including total burnout.

**Table 7: Prevalence of burnout in relation to gender and burnout domains**

| | Gender | |
|---|---|---|
| CBI domains | Male | Female |
| Personal burnout | 34 (18%) | 20 (10%) |
| Work burnout | 35 (19%) | 18 (9%) |
| Patient-care related burnout | 19 (10%) | 8 (4%) |
| Total burnout | 36 (64%) | 20 (36%) |

There were 34 (18%) males and 20 (10%) females that experienced personal burnout. There were 35 (19%) males and 18 (9%) females that experienced work burnout. Lastly, there were 19 (10%) males and 8 (4%) females that experienced burnout related to patient care. Males

scored higher across all three of the burnout domains. Males 36 (64%) also had higher total burnout than their female 20 (36%) counterparts.

### 4.4.7. Responses to the CBI

Table 8 presents the results from responses to the CBI.

**Table 8: Responses to the CBI**

| | *Always [a] or To a very high degree [b] (scoring 100%)* | *Often [a] or To a high degree [b] (Soring 75%)* | *Sometimes [a] Or Somewhat [b] (Scoring 50%)* | *Seldom [a] or To a low degree [b] (Scoring 25%)* | *Never/Almost never [a] or To a very low degree [b] (Scoring 0%)* |
|---|---|---|---|---|---|
| **Personal burnout (α .87) (N=186)** | | | | | |
| How often do you feel tired? [a] | 20 | 71 | 81 | 12 | 2 |
| How often are you physically exhausted? [a] | 13 | 56 | 85 | 26 | 6 |
| How often are you emotionally exhausted? [a] | 7 | 45 | 71 | 44 | 19 |
| How often do you think: I can't take it anymore? [a] | 8 | 18 | 60 | 36 | 64 |
| How often do you feel worn out? [a] | 10 | 48 | 74 | 46 | 8 |
| How often do you feel weak and susceptible to illness? [a] | 10 | 25 | 68 | 56 | 27 |
| **Work burnout (α .71) (N=186)** | | | | | |
| Is your work emotionally exhausting? [b] | 23 | 60 | 64 | 16 | 23 |
| Do you feel burn-tout because of your work? [b] | 16 | 39 | 60 | 55 | 16 |
| Does your work frustrate you? [b] | 14 | 30 | 61 | 56 | 25 |
| Do you feel worn out at the end of the working day? [a] | 16 | 47 | 86 | 30 | 7 |
| Are you exhausted in the morning at the thought of another day at work? [a] | 7 | 31 | 70 | 50 | 28 |
| Do you feel that every working hour is tiring for you? [a] | 4 | 15 | 59 | 74 | 34 |
| Do you have energy for family and friends during leisure time? [a] | 39 | 38 | 72 | 30 | 7 |
| **Patient-care related burnout (α .73) (N=186)** | | | | | |
| Do you find it hard to work with patients? [b] | 3 | 11 | 29 | 71 | 71 |
| Do you find it frustrating to work with patients? [b] | 8 | 9 | 39 | 66 | 64 |
| Does it drain your energy to work with patients? [b] | 5 | 8 | 52 | 70 | 51 |
| Do you feel that you give more than you get back when you work with patients? [b] | 25 | 47 | 67 | 28 | 19 |
| Are you tired of working with patients? [a] | 3 | 3 | 30 | 62 | 88 |
| Do you sometimes wonder how long you will be able to continue working with patients? [a] | 14 | 27 | 63 | 52 | 30 |

*The possible score range for all scales is 0-100. a. response categories for items denoted with [a]. b. Response categories for items denoted with [b].*

With respect to personal burnout, 81 (44%) participants said that they sometimes feel tired and 85 (46%) said they often feel physically exhausted. Seventy-one (38%) participants also said they are sometimes emotionally exhausted. Sixty-four (34%) participants said they never feel like they cannot take it anymore, whereas 74 (40%) of the participants said that they sometimes feel worn out. Lastly, 68 (37%) of the participants said they sometimes feel weak and susceptible to illness.

With relation to work burnout, 64 (34%) participants said that their work is somewhat exhausting and 60 (32%) said they feel somewhat burned out because of their work. Sixty (32%) participants said that they somewhat feel that their work is frustrating. Eight-six (46%) participants said that they sometimes feel exhausted at the end of a working day and 70(38%) participants said that they are sometimes exhausted in the morning at the thought of another working day. Seventy (38%) participants said that they seldom feel that every working hour is tiring and 70 (38%) said that they sometimes have the energy for family and friends during leisure time.

With respect to burnout related to patient care, 71 (38%) participants said that they find it hard to work with patients to a low degree and 71 (38%) of the participants said they find it hard to work with patients to a very low degree. Sixty-six (32%) participants said that they find it frustrating to work with patients to a low degree and said that they seldom find it draining to work with patients. Sixty-seven (32%) participants said that they somewhat feel that they give more than what they get when they work with patients. Eighty-eight (47%) participants said that they never get tired of working with patients. Sixty-three (34%) participants said that they sometimes wonder how long they will be able to continue working with patients.

## 4.5. Independence tests on demographics and burnout domains

Chi-square tests were performed to determine examine the differences between categorical variables in the same population. Chi-square test were used to analyse cross tabulations of the survey response data. Cross tabulations reveal the frequency and percentage of responses to questions by various segments or categories of respondents such as age, gender, occupation, qualification etc (see appendix M). There was a significant relationship between region and total burnout ($p< 0.028$). The region from which the respondent came played a significant role in burnout. Although there were more males than females, there was no statistically significant relationship between the burnout domains and gender.

## 4.6. Variations on demographics

Table 9 presents the results of the multivariate regression test used for the various demographic variables associated with burnout.

**Table 9: Multivariate test results for the demographic variables**

| | *Wilks' Lambda* | *F* | *df* | *Error df* | *P* |
|---|---|---|---|---|---|
| Gender | 0.924 | 3.230[b] | 4 | 156 | 0.014* |
| Ethnicity | 0.912 | 0.91 | 16 | 477.225 | 0.558 |
| Age group | 0.94 | 0.818 | 12 | 413.029 | 0.632 |
| Marital status | 0.965 | .708b | 8 | 312 | 0.685 |
| Levels of care | 0.922 | 1.077 | 12 | 413.029 | 0.378 |
| Years of qualification | 0.908 | 1.278 | 12 | 413.029 | 0.229 |
| Years of service | 0.916 | 1.159 | 12 | 413.029 | 0.311 |
| Division | 0.841 | 1.387 | 20 | 518.343 | 0.122 |
| Region | 0.865 | 1.447 | 16 | 477.225 | 0.115 |

p<.05

Wilks' Lambda was used to determine the significance of the interaction. The scores were significantly influenced by gender (*p*<.014).

## 4.7. Associations between dependent and independent variables

In order to determine how the dependent variables differ from the independent variables, the table with the tests of between-subjects effects inspected (see appendix N). Univariate ANOVA was used to examine the effect of the independent variables on dependent variables. Personal burnout scores were significantly influenced by years of service (p<0.012. The scores for work burnout were significantly influenced by region (p<0.021). The scores for burnout related to patient care were significantly influenced by gender (p<0.015) and division (p <0.036). The

scores for burnout related to patient care were significantly influenced by gender ($p<0.015$). Lastly, the scores for total burnout were significantly influenced by region ($p<0.022$).

## 4.8. Participants' responses to distractor questions in the Emergency Care Provider Questionnaire.

Appendix O presents responses to the distractor items that were rated "never", "seldom", "sometimes", "often" and "always".

One hundred and fifty-four (83%) emergency care providers said they never think of causing harm to themselves when they are stressed. Seventy-nine (42%) said they sometimes debrief after every traumatic call. More than half of the participants 117 (63%) said they never sought counselling after a stressful or traumatic call. Fifty-nine (33%) said that they never felt that life is unfair to them. Seventy-five said they sometimes consume alcohol. Sixty-six (35%) reported that they ate healthily.

Hundred and one (61%) emergency care providers said that they are never paid enough and 53 (20%) said they sometimes work overtime. Seventy-five (40%) said they sometimes feel that a 12-hour shift is long while 65 (35%) said they never get enough sleep. More than half of the participants said they never feel that the vehicle they are working is not safe and not road worthy. Fifty-seven (31%) felt that they are short-staffed and 130 (70%) said they always have appropriate equipment to effectively treat patients. Eighty-six (46%) emergency care providers said that they always get along with their colleagues and 58 (31%) said that they sometimes feel that their job is secure.

Appendix P presents responses to the distractor items that was rated "to a very low degree, to a low degree, somewhat, to a high degree and to a very high degree".

Emergency care providers felt that they 58 (31%) find it somewhat easy to talk to their boss. They were asked if their colleagues are supportive and 71 (38%) of the emergency care providers said that they find that their colleagues are supportive to a high degree. More than half 124 (67%) of the emergency care providers said they feel very good after saving someone's life. Seventy-one (38%) reported that patients abused emergency medical services to a very high degree. Seventy-two (39%) of the emergency care providers seek professional advice after experiencing a traumatic call to a low degree.

## 4.9. Conclusion

The chapter initially presented the demographic information of the participants followed by the average burnout scores of participants on the CBI. Thirty percent of the participants had total burnout and 30% had some degree of burnout. Out of all the burnout domains, personal burnout ranked the highest while burnout related to patient care was the lowest. The results are discussed and contextualized in the following chapter.

# CHAPTER 5
# DISCUSSION

In this chapter, the results of the study are discussed in reference to the aim of the study. The aim of the study was to investigate burnout among emergency care providers at a private ambulance emergency medical service in Gauteng to understand the extent and impact that burnout has on emergency care providers.

In this study, the Cronbach's alpha was .84 for personal burnout, .71 for work burnout and .73 for burnout related to patient care. It has a relatively high internal consistency for personal burnout and has an acceptable internal consistency for work burnout and burnout related to patient care.

Of the total participants, 117 (63%) were males and 69 (37%) females. Historically, EMS has been dominated by male practitioners. However, over the years there has been an increase in the number of women who have entered the profession. Women who enter the profession are required to demonstrate that they are able to work in emergency medical services. Some still struggle with equality with their male counterparts (Sibanda 2013b; Sporer 2016; StatsSA 2017). According to HPCSA statistics, there is a total of 57 761 emergency care providers. Thirty-two thousand, two hundred and fifty-seven are males and 25 504 are females in South Africa (Health Profession Council of South Africa 2018). Therefore, the emergency medical services in South Africa is still male dominated which explains why there more males than females that participated in the study.

More than half of the participants were white 95 (51%), followed by Africans 76 (41%). Nine Coloureds (5%) and six Indians (3%) made up the remainder of the study participants. Ninety-one (49%) of the participants were married or living in a domestic partnership, followed by those who were single and never married 84 (45%). Of the female participants, 34 (18%) were married compared to 57 (30%) of the males. There were 29 (16%) female participants that were single, whereas there were 55 (30%) male participants that were single. There were 6 (3%) female participants that were divorced and 5 (3%) male participants.

One hundred and two (55%) participants were between 25 and 34 years old and were predominantly males 62 (61%). There were fewer participants 1 (2%) in the 45 to 54 age group. The level of care with the highest number of participants 68 (36%) were the BLS emergency care providers. Over the years there has been an oversupply of BLS emergency care providers

with training providers producing about 10 000 BLS practitioners annually. The private sector employed 11 291 BLS in 2017 (NDoH 2017). According to the HPCSA statistic report there a total of 43,221 BLS and the second level of care with highest number of providers was ILSs' with 10,726 emergency care providers. Other emergency care providers were less than 2000 and that includes ALS and Operational Emergency Care orderly (Health Profession Council of South Africa 2018). Hence the high representation of BLS participants in the study. The BAA course was a four-week course that produced an individual that was capable of administering basic life support to patients. Historically, the BAA course was quite an easy point of access into the emergency medical services, as applicants for the course did not have to have a Grade 12 certificate prior to 2012 and even after 2012, applicants only needed a Grade 12 certificate with no set subjects and/or grades (Ambutek 2016). The second level of care with the higher number of participants were the ALS providers with 63 (34%) and lastly the ILS with 55 (30%) participants.

One hundred and forty-two (76%) of the participants were working in road operations, followed by those who worked in the emergency operations centre 14 (8%). One hundred and nine participants (59%) were based in the Gauteng West region. The second largest portion of participants was based in the Gauteng East region 45(24%). The region with the least number of participants was the Gauteng North region 22 (12%). Gauteng is South Africa's smallest province but has the largest population and economy in the country. It includes most of the towns from the East Rand to the West Rand i.e. from Springs in the far East Rand to Randfontein in the west to the Vaal in the south and Pretoria which is north of Gauteng. This implies that with a larger population there is a greater chance of incidents and increased utilization of the emergency medical services in Gauteng (Stein, Wallis and Adetunji 2015).

### 5.1. Burnout among emergency care providers

Thirty percent of the emergency care providers who participated in the study reported burnout. These results are higher than other international studies. A study done on stress, workload, burnout, and satisfaction among paramedics in Israel reported that 16% of emergency care providers had overall burnout (Nirel *et al.* 2008). Also, a local study, conducted in Johannesburg, South Africa, reported similar results to our study i.e. 30% burnout (Stassen, Van Nugteren and Stein 2013). Although a limitation of the other South African study was that it was limited to advanced life support emergency care providers, had a smaller sample size and utilized the CBI (Stassen *et al.* 2013).

The burnout of emergency care providers identified in this study is concerning. When emergency care providers suffer from burnout, they shift from a positive caring role to a negative and uncaring role (Maslach 2003). Burnout has negative effects on the emergency care provider's personal health and contributes to poor performance and efficiency at work. It also results in high turnover and reduced productivity (Wongtongkam 2017). Burnout increases the risk for anxiety, sleep disturbances, depression increased alcohol and drug misuse, marital dysfunction as well as premature retirement (Kumar 2016). Several authors have asserted that the most serious risk associated with burnout is the suicide of the providers (Lloyd 2004; Knowles 2015; Kumar 2016).

The emergency care providers in this study had higher burnout scores in the personal domain 54 (29%), followed by work burnout 51 (27%) and they had low burnout scores in the burnout related to patient care domain. They also had higher mean burnout scores on work burnout *M*=48 (SD 18,00), followed by personal burnout *M*=47 (SD 16,00) and lastly work-related burnout *M*=32 (SD 17). Stassen *et al.* (2013) reported similar results to this current study where emergency care providers had higher burnout in personal burnout, followed by work burnout and lastly burnout related to patient care, which was the lowest. Other international studies found similar results on the CBI (Crowe *et al.* 2017).

According to Vettor *et al.* (2000), the personality of an emergency care provider plays an important role in the experience of job-related stress and burnout. Individuals who are anxious, depressed and unable to deal with the stressors are the same individuals who experience personal burnout and work-related burnout (Vettor and Kosinski 2000). Stassen *et al.* (2013) claim that emergency care providers may be experiencing work-related burnout because of poor remuneration for the long hours they work and that they do not get much support in the working environment from their supervisors.

South Africa has a large burden of infectious diseases, including a high percentage of adults with HIV (Marks 2002). This coupled with a high prevalence of injury particularly interpersonal violence, means that EMS tend to be under-resourced for the large populations and high call volume especially in densely populated urban areas like Johannesburg (Stassen, Van Nugteren and Stein 2013). Prolonged exposure to such environments described above can be a source of high emotional stress among emergency care providers. This situation might aggravate the already existing stressful environments of the prehospital emergency medical care field. This may have an impact on burnout related to patient care, personal and work-related burnout

(Stassen, Van Nugteren and Stein 2013). Even though this study indicated lower levels of burnout related to patient care to personal and work burnout, patient-care burnout is still high and thus is a major concern especially since the core of emergency medical services involves the care of patients (Crowe *et al.* 2017).

This study showed that male emergency care providers were more frequently subjected to burnout compared to female emergency care providers. Males had higher burnout scores in all of the burnout domains: personal (34, 18%), work burnout (35, 19%), burnout related to patient care (19, 10%) and total burnout (36, 64%). The burnout scores for females in all burnout domains were 20 (10%) for personal burnout, 18 (9%) for work-related burnout (18%), 8 (4%) for burnout related to patient care 20 (36%) and 20 (36%) for total burnout.

Several international studies have also asserted that males working in emergency medical services are more at risk of developing burnout than females (Maslach and Jackson 1981a; Maslach and Jackson 1985; Mousavy and Nimehchisalem 2014; Verweij *et al.* 2017). Possible explanations as for why the male emergency care providers in this study experienced higher levels of burnout include the notion of gender roles and expectations in society. Males are conditioned towards expectations for success; male role models achieve identity through work and engage fiercely in various forms of competition. These traits are fairly universal in men and when they manifest in a sphere such as emergency medical care, they can lead to burnout (Maslach and Jackson 1985). Whereas a female role, on the other hand, emphasizes caring, nurturing and concern for other people and their wellbeing (Haque and Aslam 2011). Women emergency care providers are hampered not only by working in a male-dominated profession with a strong masculine ethos but also by sex-based stereotypes, expectations, and roles. Burnout in female emergency care providers is affected by these sex-based stereotypes, expectations, and roles (Ahola *et al.* 2006). Woman responds to people and their problems in a manner influenced by their personal feelings (Sporer 2016). As a result, female emergency care providers in this study experienced less burnout compared to males. The findings in this study were similar to research conducted in other countries as they also suggested that burnout is more prevalent in males than females.

Burnout among the ethnicity groups also varied. Coloured emergency care providers (*M*= 63; SD 2,00) had higher mean burnout scores, followed by African *(M*=61; SD 8,00) and Whites *(M*=57; SD 6,00). Because of poor representation of ethnic groups in international studies, a conclusion on burnout based on ethnicity is difficult to establish (Maslach and Jackson 1981a;

Maslach, Schaufeli and Leiter 2001; Sirsawy, Steinberg and Raubenheimer 2016). The number of coloured emergency care providers that participated in the study meant that this ethnic group was poorly represented when compared to the other ethnic groups. This may have skewed the results, so no conclusion on burnout and ethnicity could be drawn.

Single emergency care providers had higher mean burnout scores, followed by the married or domestic partnership (*M*=58; (SD 6,00) and those who were divorced had lower mean burnout scores. Several international studies have asserted that single emergency care providers would have higher burnout scores, especially if they are males (Vredenburgh, Carlozzi and Stein 1999; Maslach, Schaufeli and Leiter 2001; Ahola *et al.* 2006). This study found similar results and supports international literature that single emergency care providers are more prone to burnout than married providers are.

Emergency care providers between the age group 35 and 44 had higher mean burnout scores (*M*=60; SD 8,00) followed by emergency care providers between the age group of 25-34 (*M*=58; SD 7,00). Whereas emergency care providers who were between 45 and 54 had lower means (M=53; SD 0). Ahola *et al.* (2006) suggest that burnout is more frequently observed in young employees than those aged above 45 years. Burnout seems to occur rather early on in one's work career, after which it takes time to develop and the symptoms of exhaustion are persistent over time (Ahola *et al.* 2006). Older and more experienced emergency care providers develop special professional coping skills that protect them from burning out from demanding non-reciprocal relationships (Vredenburgh, Carlozzi and Stein 1999; Ahola *et al.* 2006).

Individuals who had five to 10 years of service and those who had greater than 15 years of service had high but equal mean burnout scores of *(M*=60 (SD 9,00). The number of years of service is related to higher burnout levels.

Another local study also showed this pattern (Stassen, Van Nugteren and Stein 2013). Conversely, Maslach *et al. (2001)* said burnout ought to occur early in an emergency care provider's career rather than later, provided they stay in the profession. Those who suffer burnout usually change professions (Maslach, Schaufeli and Leiter 2001). Changing jobs but remaining in the same profession does not mean that an individual would experience the same type of stressor. It only means that you would still experience the same type of stressor at different levels of intensity. Changing from one profession to another means there is a switch from one set of a stressor for another, which is why emergency care providers who suffer burnout usually leave the profession for another profession (Drummond 2015). The results from

this study support international studies and suggest that burnout can occur at any time in the course of a career, but tends to occur early more often.

Emergency care providers in management positions (*M*=67; SD 0) had higher mean burnout scores followed by emergency care providers working in the EOC (*M*=59; 6,00). Literature suggests that emergency care providers who are in management positions have higher burnout scores (Stassen, Van Nugteren and Stein 2013). Managers experience burnout because of the greater administrative load, low wages, and paperwork. There is also a lack of support from upper-level management, which also contributes to higher burnout rates among this group of emergency care providers (Grigsby and Knew 1988; Vettor and Kosinski 2000). These managers not only experience stress from the office, but they also experience stress in the field of treating patients. A study conducted in Johannesburg found that emergency care providers who are in management positions had higher burnout scores compared to the other emergency care providers who are in more junior positions (Stassen, Van Nugteren and Stein 2013).

The region also appeared to influence burnout scores. Emergency care providers working in Gauteng West had higher mean burnout scores (*M*=59; SD 7,00). Gauteng East and North had equal mean burnout scores (*M*=58; SD 7) and (*M*=58; SD 1) respectively. Approximately eight million people live in Johannesburg and environs (StatsSA 2017). All these areas are densely populated urban areas that tend to utilize emergency medical services more frequently (Stein, Wallis and Adetunji 2015). When diseases spread, they spread more rapidly, and there are many more cases of violence in densely populated areas (Stein, Wallis and Adetunji 2015). Over the past few years, emergency care providers in Johannesburg have at times fallen victim to crime while performing their operational duties. Emergency care providers in Johannesburg work in areas with security concerns, which is a chronic stressor that could lead to burnout (Naude and Rothmann 2003).

These study results suggest that Johannesburg, specifically the western parts of Gauteng, is one of the most stressful regions to work in.

### 5.2. Levels of care and burnout

The second objective of the study was to assess whether there was a difference in burnout scores among ECP based on their level of qualifications. Basic life support and ALS emergency care providers had higher levels of burnout compared to AEAs who had the lowest levels. Twenty-one (37%) BLS, 19 (34%) ALS and 19 (34%) ILS emergency care providers reported

burnout. Another study also found that emergency care providers at an ALS level had higher burnout scores when compared to the emergency care provider who was BLS and ILS qualified (Crowe *et al.* 2017).

The short courses in emergency medical care training, such as the BLS four-week course, do not provide any mental health training (NDoH 2017). Alexander *et al.* (2001) emphasize the value of good training and preparation for emotionally challenging duties (Alexander and Klein 2001). Good training on mental health and wellness becomes a prophylactic against the development of burnout and other mental health conditions (Alexander and Klein 2001; Ambutek 2016). The results in this study suggest that when training did not include mental health training, the emergency care providers were not well equipped to handle stress and burnout.

Other reasons for burnout include lack of support from superiors or managers, too much overtime and too much paperwork. It also includes an imbalance between work and family life and low pay. Many of the basic life support emergency care providers work excessive overtime because of the low remuneration. This creates an imbalance between work and family life. It also means that they do not get enough time to rest because on their off days they are working (Nirel *et al.* 2008). There is a limited number of operational advanced life support providers, as a result, this adds to the burden on the BLS forcing BLS to make a decision beyond their level of care (Campbell and Campbell 2010). They work 12-hour shifts and they do most of the calls compared to other levels of care. The lack of promotional and career opportunities, lack of support from managers and pay inequality results in stress and burnout (Grigsby and Knew 1988).

In addition, one of the stressors that have raised concerns among the BLS emergency care providers is future career progression. Previously, emergency care providers were able to progress from basic life support to intermediate life support and finally onto advanced life support short courses (Farshi and Omranzadeh 2014). With the recent closure of the short courses, this may be contributing to the stress among these providers (Stein 2012; Farshi and Omranzadeh 2014). The Professional Board for Emergency Care in conjunction with the National Department of Health have proposed a three-tiered Emergency Care Qualifications Framework (ECQF), which resulted in the discontinuation of all of the short courses. This three-tiered ECQF includes the following National Qualification Framework (NQF)-aligned programmes: a higher certificate in emergency care assistant (entry-level course), a diploma in

emergency medical care (mid-level) and a professional bachelor's degree in emergency medical care.

More than 50% of the incidents to which emergency care providers are dispatched are allocated to the BLS and ILS emergency care providers (Braun, McCallion and Fazackerley 1990; MacFarlane, Loggerenberg and Kloeck 2005). This could be one of the reasons why BLS emergency care providers experience higher burnout scores. They see a much higher number of patients in a shift when compared to the ILS and ALS emergency care providers.

The ALS was the second level of care to experience high burnout scores. Crowe *et al.* (2017) suggested that the more qualified an emergency care provider is the more prone they are to burnout (Crowe *et al.* 2017). In this study, we noted different results as the lower levels of care suffered more burnout when compared to the higher levels of care.

The differences identified between this local study and the international study which was conducted in the United States of America (USA) may be due to a number of reasons. The type of incidents and patients seen in the USA are very different from those seen in South Africa. When compared to the USA, South Africa has a high rape and murder rate (Stein, Wallis and Adetunji 2015). In addition, it has a higher burden of disease such as HIV/AIDS (Stein, Wallis and Adetunji 2015; Clements 2018). These differences may have accounted for the variation in the burnout scores among the levels of care.

Furthermore, emergency care providers who are highly qualified experience burnout may be in this position because of their increased job responsibilities among ALS, coupled with treating the critically sick and injured patient population. Emergency care providers with higher levels of education have great expectations for the future and what they will achieve in life (Crowe *et al.* 2017).

Great expectations include having a job with benefits and perks such as having medical and life insurance. Some benefits include continuing education programmes, training opportunities, advancement opportunities and job security (Collins 1998). When these job expectations are not met, stress and burnout occur.

In addition, getting a degree is viewed as a way to secure well-remunerated employment and achieve elevated status and influence. People view it as a guaranteed ticket to a job with a great salary, great reputation, and power (Maslach and Jackson 1981b; Maslach and Jackson 1985). If the actual job fails to meet those expectations, the individual may be unhappy, feeling

dissatisfied and stressed. If the stress progresses and it is unresolved then burnout occurs (Maslach and Jackson 1981b; Maslach and Jackson 1985; Stassen, Van Nugteren and Stein 2013; Crowe *et al.* 2017). In addition, most of the critical patients or high acuity patients are managed by ALS (Stein, Wallis and Adetunji 2015). Most of the emergency care providers experience burnout before they graduate. In a study conducted on burnout among paramedic students enrolled for a four-year bachelor's degree at the University of Johannesburg, it was noted that the final year emergency medical care students were burned out before they even qualified (Stein and Sibanda 2016).

Lastly, According to Ahola *et al.* (2008) middle care workers do not experience burnout as compared to seniors and junior staff. This study report that ILS who are in the middle in terms of the level of care experienced lower levels of burnout when compared to the BLS and ALS.

Possible reasons why they experience lower levels of burnout include the fact that most of the patients are transported by the BLS, most of the critical or high acuity cases are treated by the ALS, and ILS are not under as much pressure from management (Ahola *et al.* 2006). In addition, they are better remunerated than the BLS and they do not have to work as much overtime as the BLS emergency care providers (Ahola *et al.* 2006; Nirel *et al.* 2008).

The BLS and ALS providers had equal levels of burnout in the personal burnout domain 19(35%) whereas the ILS had the lowest with 16 (30%). In work burnout, the BLS and ALS still had higher levels of burnout in that domain than the ILS, with 16 providers experiencing burnout in that domain.

Interestingly enough, when it comes to burnout related to patient care, the BLS and ILS had higher burnout levels in that domain with scores of 15(53%) and 8 (29%). ALS is the lowest level of care, and providers who experienced burnout in that domain numbered 5 (18%).

In other studies by Crowe *et al.* (2017) and Stassen *et al.* (2013), it was reported that emergency care providers had lower burnout scores on in the burnout related to patient care domain (Stassen, Van Nugteren and Stein 2013; Crowe *et al.* 2017). The results of this study are similar to the research conducted locally and internationally.

As previously mentioned, the core of the EMS is patient care and burned out providers are at risk of making poor clinical decisions and display unfriendly attitudes towards patients. They also make medical errors, which could be detrimental to patient care and safety, and they have difficult relationships with co-workers (Kumar 2016).

### 5.3. To establish if there is a relationship between burnout and demographics variables gender, marital status and qualification

Gender had a significant influence on burnout. Multivariate analysis ($F$ =3.230, $p$<0.014) scores on burnout were significantly influenced by gender. Specifically, the univariate scores for burnout related to patient care 26 (14%) were significantly influenced by gender ($F$=6.009,p<0.015). Male gender is significantly associated with burnout. Findings of this study have shown that male emergency care providers experienced more burnout compared to female emergency care providers. Statistical significance was achieved taking into account that there is an unequal distribution of gender in emergency medical services and in this study, there were more males than females. According to the HPCSA statistics, there are a total of 57,761 emergency care providers in the country. There are 25,504 female emergency care providers and 32,257 male emergency care providers (Health Profession Council of South Africa 2018). Therefore, emergency medical services in South Africa is still male dominated.

The years of service of the participants also significantly influenced personal burnout ($F$=3.764). This was especially evident in individuals who had 5 to 10 years and more than 15 years of service. Univariate scores on burnout and years of service did not show any significant influence. Crowe *et al.* (2017) suggest that emergency care providers who have five to 15 years of service are at a greater risk of experiencing burnout. Burnout is ought to occur anytime in one's career and those that burnout early in their career usually changes profession or jobs.

Further, Crowe *et al.* (2017) reported that emergency care providers working for a private ambulance emergency medical service are more at risk of experiencing work-related burnout compared to those who work for state ambulance emergency medical services. The main focus of private ambulance services in South Africa is on the ability and desire to generate income in order to exist, cover costs and profit. Thus, a minimum call volume or caseload is required. As a result, private companies set quotas relating to the number and nature of calls they must service each month. The set targets put pressure on emergency care providers and they are more inclined to upgrade calls to achieve their set quotas. However, this has led to feelings of shame and negativity among practitioners because they are practicing financial medicine, medicine that they do not believe in (Vincent-Lambert and Jackson 2016a). The resultant lack of motivation and feelings of negativity have been shown to cause stress and burnout (Grigsby and Knew 1988). Emergency care providers may be experiencing higher burnout because of

the demands in private companies to practice financial medicine and they are unable to meet the set quotas.

Personal burnout was significantly influenced by division ($F$=2.446, p<0.036). The personality traits of emergency care providers play a role in determining whether they will experience burnout or not. Personality traits that have been identified include negativity, extraversion, conscientiousness, and agreeableness (Idar Wallin 2010). Emergency care providers are already negative when they suffer work-related burnout and they are therefore more likely to experience personal burnout. The division that they work in is also likely to result in personal burnout.

According to Susan *et al.* (2000), the personality of an emergency care provider plays an important role in the experience of job-related stress and burnout. Individuals who are anxious, depressed and unable to deal with the stressors are the same individuals who experience personal burnout and work-related burnout (Vettor and Kosinski 2000).

Finally, the region that the practitioners worked in contributed to work burnout ($F$ =2,972, p<0.021) as well as total burnout ($F$=2,942, p<0.022). The findings of the study suggest that working in west Gauteng, Johannesburg, as an emergency care provider is one of the most stressful regions and could subject emergency care providers to burnout.

### 5.4. Burnout and distractor questions

The last objective of the study was to see if there was a correlation between burnout and the distractor questions. Emergency care providers were asked if they debrief after a traumatic or stressful call. Seventy-nine percent said that they debrief ‘sometimes’. Exposure to traumatic events and stressors forms part of the job of an emergency care provider anywhere in the world. Traumatic events are critical incidents that emergency care providers are exposed to such as death or life-threatening injury. Critical incidents are associated with mental health and behavioural problems associated with such traumatic exposure (Antai-Otong 2001; Ward, Lombard and Gwebushe 2006; Minnie, Goodman and Wallis 2015). Emergency care providers play an important role in any society but play a more important role in a country such as South Africa because of very high crime and violence rate and burden of disease. Injury mortality rates are six times higher when compared to the global rate (Ward, Lombard and Gwebushe 2006; Minnie, Goodman and Wallis 2015).

Debriefing after critical incidents was originally developed for emergency care providers to cope with the aftermath of trauma. It is aimed at helping emergency care providers contextualize their experience of trauma or stressful events, thus preventing them from developing PTSD. Debriefing is not psychotherapy but rather an opportunity to deal with and process the experiences and put them into perspective (Antai-Otong 2001; Irving and Long 2001). If emergency care providers do not debrief after experiencing a stressful or traumatic event, they run a risk of developing mental health problems. Chronic stress, CIS, and PTSD, if not managed will result in burnout (Johnsson, Segesten and Mattsson 2003; Halpern *et al.* 2009; Donelly 2012).

About 61% of the emergency care providers that experienced burnout in this study said that they had never sought counselling after a stressful or traumatic call. None of them said that they always seek counselling. Seeking counselling after traumatic or stressful incidents on the spot seems to offset future psychological problems (CPJ 2004). Studies suggest that emergency care providers often suppress their emotions and feelings so as to live up to this image of being strong and resilient. They are therefore reluctant to seek counselling during times of personal emotional crisis (Minnie, Goodman and Wallis 2015). Debriefing and seeking counselling after a traumatic incident help with counteracting the psychological effects of traumatic stress and should always be done after a traumatic call (Antai-Otong 2001; Minnie, Goodman and Wallis 2015).

This study suggests that the failure of emergency care providers to debrief routinely or go for counselling after stressful or traumatic calls creates the risk of burnout. Regarding remuneration, 61% of the participants said that they never get paid enough. Remuneration seems to play a role in dissatisfaction and causes withdrawal from operational practice among emergency care providers. Some studies conducted in South Africa suggest that remuneration is the biggest cause of turnover in emergency medical services (Hackland and Stein 2011; Govender *et al.* 2012). Poor remuneration is associated with stress and that seems to play an important role in the prevalence of burnout among emergency care providers (Stassen, Van Nugteren and Stein 2013).

Emergency care providers were asked if they get enough sleep. About 35% of the participants said that they ‘sometimes get enough sleep’. This question related to them getting enough sleep during their on and off shift days. Sleep deprivation disturbs the normal circadian rhythm for humans. It creates an environment for chronic as well as short term sleep deprivation with subsequent consequences (Dees 2009). In South Africa, most shifts are 12-hour shifts and some emergency care providers may work day- or night shifts depending on their cycle. In some of the South African emergency medical services, the shifts may be based on a long week short week schedule. In a short week, emergency care providers work only two days (a Wednesday and Thursday). If it is a long week, they work Monday, Tuesday, Friday, Saturday and Sunday. Whereas in other emergency medical services, the emergency care providers work a four-day cycle (Van Huyssteen 2017).

Four-day cycles consist of two-day shifts and two-night shifts followed by four days off shift. Sleep deprivation has been identified as a health threat to not only emergency care providers but also to the patient. Lack of sleep poses an increased risk of serious medical conditions such as obesity, heart disease, and high blood pressure. It also increases the risks of personal injuries and medical mistakes made by emergency medical care providers when providing care to the patient which is a serious concern (Dees 2009). A study reported that shift work is associated with burnout i.e. as the emergency care providers have increased years of work as a shift worker, that resulted in increased burnout. Adequate time off and adequate sleeping have been found to decrease burnout among shift workers (Wisetborisut *et al.* 2014).

In other studies, serious motor vehicle accidents that occurred during the early hours of the morning were fully attributed to either fatigue and/or sleep deprivation (Dees 2009). Emergency care providers in this study not only are at risk for burnout but also reported sleep deprivation. Sleep deprivation and burnout will result in poor care of patients (Dees 2009; Stassen, Van Nugteren and Stein 2013).

Emergency care providers were asked if they think patients abuse emergency medical services. Thirty-eight percent agreed to patient abuse of emergency medical services. Ambulance misuse is widely reported worldwide in well-developed countries such as Canada, Sweden, England and the United States of America. In those countries, they reported ambulance misuse to be between 40% to 50%. One study demonstrated high ambulance misuse by medical aid patients (Brown and Sindelar 1993). Other studies reported high misuse of emergency medical services by the elderly patient above the age of 65 (Gerson and Skvarch 1982; Brown and Sindelar 1993). The problem with the misuse of emergency medical services is that it increases the demand and when supply does not meet the demand, stress ensues. Stress continues to increase with demand and low supply. If not resolved the stress on the practitioner will result in burnout. Misuse of ambulance emergency medical services causes burnout because of the continuous increase in demand and no supply but there are not enough vehicles or staff to service the calls (Schaufeli, Leiter and Maslach 2009).

# CHAPTER SIX
# LIMITATIONS OF THE STUDY AND CONCLUSIONS

## 6.1. Introduction

As with all research, this study encountered certain limitations and challenges. This chapter concludes the study by discussing the limitations and offering suggestions for future research.

## 6.2. Limitations to the study

- A major limitation of the study was that it was limited to emergency care providers working in one private ambulance emergency medical service. Other private services, municipal and government emergency medical services in Gauteng Province and other provinces in the country were not included.
- The sample size was N=186; it would have been beneficial to have a larger sample size.
- Another limitation was the sampling strategy, non-probability convenient sampling was used. Some emergency care providers were not available, they were either off, on duty or lecturing. The study was also a cross-sectional in design as a result it cannot be used to analyse behaviour over time and did not help to determine the cause and effect of burnout.

## 6.3. Significance of the study

The physical, emotional, and mental exhaustion associated with burnout is concerning for a number of reasons. The wellbeing of emergency care providers is at risk and in turn affects the quality of care emergency care providers give their patients. It is important to address burnout in emergency medical services since the mental health of the providers is excrement important not only in decision making, quality of care and the minimizing of risks but also to sustain the profession. Addressing burnout early is important and can help prevent development of other mental health conditions such as depression, anxiety, somatic symptom disorders, sleeping problems and PTSD. Private ambulance emergency medical services can use these findings to identify causes of stress and burnout of emergency care providers as well as identify possible solutions to reduce the burnout of emergency care providers.

## 6.4. Suggestions for future research

- Most of the studies on burnout are based on international studies, so more research in other healthcare professions is needed in order to understand the extent of burnout across different professions in South Africa especially in the prehospital setting.
- Future research should focus on the causes of burnout among emergency care providers and ways to mitigate them. Knowing the causes of burnout could result in mitigation of the causes and a possible reduction in the prevalence of burnout among the emergency care providers. Patients would then have better care and good service delivery of emergency medical services.

## 6.5. Conclusion

- By virtue of their profession, emergency medical care providers are at a risk of developing burnout. Thirty percent of the emergency care providers sampled in this study reported burnout. They experienced personal, work and burnout related to patient care. In addition, BLS and ALS had higher but equal burnout levels in personal burnout. Basic life support emergency care providers scored higher on all three burnout domains. ILS had the lowest levels of burnout in general. BLS had higher burnout scores due to multiple factors such as low remuneration and as a result having to work more overtime to earn more money to live. Other factors include lack of support from managers, lack of promotional and career progression and opportunities. Advanced life support emergency care providers had the second highest levels of burnout. Their reasons for burnout may be attributed to greater administrative demand, long working hours, poor support from managers and poor interpersonal relationships due to work-family conflicts. The high level of burnout in emergency care providers is concerning and will continue to grow as more healthcare reforms and financial constraints are imposed on private ambulance emergency services and their employees. Private ambulance emergency medical service organizations need to seek solutions and interventions in order to reduce burnout among their staff.

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**APPENDICES**

## Appendix A – Letter to participate/information letter

Dear Mam/Sir

You are invited to take part in a research study that is being conducted in the MTECH Emergency Medical care programme at the Durban University of Technology. The research letter of information is provided below.

**LETTER OF INFORMATION**

Title of the Research Study:

THE EMERGENCY CARE PROVIDER WELLNESS QUESTIONNAIRE

Principal Investigator/s/researcher: Thulani Sibanda:

B.Tech: EMC

Co-Investigator/s/supervisor/s:

Prof Duncan Cartwright (Ph.D.: Psychology)

Dagmar Muhlbauer (MTech: EMC)

**Brief Introduction and Purpose of the Study:**

Emergency medical services are one of the jobs that have high levels of stress and could affect your career as well as your life outside work. Sometimes emergency medical providers may respond to traumatic situations which may overload their coping mechanisms. These traumatic situations include the death of a child, death of a co-worker, multiple casualties or death of a family member. Stress has a significant psychological strain that results in lower performance and wellbeing for employees. Stress has also been related to significant health problems. This

means that stressed emergency care providers are not able to perform their duties if stressed. The purpose of this study is therefore to investigate the wellness of an emergency care provider at a private ambulance emergency medical service.

**Outline of the Procedures:**

Respondents are invited to participate in the study, upon invitation they will be given a consent form to fill. Upon completion of the consent form, they shall be given a questionnaire which they are required to complete. The questionnaire should take no longer than 30mins to complete. Once the questionnaire has been completed then it will be collected and stored in a file. Participants are not allowed to take questionnaires away or home.

**Risks or Discomforts to the Participant:** This research study has no anticipated risks or adverse events for participants.

**Benefits:** There are neither foreseeable risks nor direct benefit for any of the participants, however, result of the study may indicate where further research in this area of the EMS is necessary and this may eventually lead to benefits for the whole profession as a whole. The results of this study will be published.

Reason/s why the Participant May Be Withdrawn from the Study:

The researcher will withdraw participants who do not meet the inclusion criteria of the study. Since participation in this study is on a voluntary basis, respondents are free to withdraw from the study of their own accord at any time prior to completing the questionnaire. There will be no adverse consequences should participants choose to withdraw from the study. Once the questionnaire has been filled and submitted, participants will not be able to withdraw from the study.

**Remuneration:** There is no remuneration or reward for participating in this research study.

**Costs of the Study:** There are no associated costs to participate in this research study, other than the participant's time.

**Confidentiality:** The ethical considerations of protection of human rights, beneficence and justice will be observed throughout the duration of this research project. The anonymity of the respondents will be strictly adhered to and all data collected will be stored and locked in a safe storage compartment.

**Persons to Contact in the Event of Any Problems or Queries:**

My Supervisor/s:

Prof Duncan Cartwright (e-mail: cartwrightd@ukzn.ac.za contact number: 031 260 2507)

Dagmar Muhlbauer (e-mail: dagmarm@dut.ac.za 031 373 5203)

Please contact the researcher:

Thulani Sibanda (e-mail mrttsibanda@gmail.com 0718083451)

The Institutional Research Ethics Administrator on 031 373 2900.

Complaints can be reported to the Director: Research and Postgraduate Support:

Prof S Moyo on 031 373 2577 or moyos@dut.ac.za

## Appendix B – Consent form

**CONSENT**

**Statement of Agreement to Participate in the Research Study:**

- I hereby confirm that I have been informed by the researcher, _____ (name of researcher), about the nature, conduct, benefits and risks of this study - Research Ethics Clearance Number: _____
- I have also received, read and understood the above-written information (Participant Letter of Information) regarding the study.
- I am aware that the results of the study, including personal details regarding my sex, age, date of birth, initials, and diagnosis will be anonymously processed into a study report.
- In view of the requirements of research, I agree that the data collected during this study can be processed in a computerized system by the researcher.
- I may, at any stage, without prejudice, withdraw my consent and participation in the study.
- I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.
- I understand that significant new findings developed during the course of this research which may relate to my participation will be made available to me.

| _____ | _____ | _____ | _____ |
|---|---|---|---|
| **Full Name of Participant** | **Date** | **Time** | **Signature/Right Thumbprint** |

I, _____ (name of the researcher) herewith confirm that the above participant has been fully informed about the nature, conduct and risks of the above study.

| **Full Name of Researcher** | **Date** | **Signature** |
|---|---|---|

| **Full Name of Witness (If applicable)** | **Date** | **Signature** |
|---|---|---|

□ I understand that significant new findings developed during the course of this research which may relate to my participation will be made available to me.

| Full Name of Participant | Date | Time | Signature/Right Thumbprint |
|---|---|---|---|

I, _____ (name of the researcher) herewith confirm that the above participant has been fully informed about the nature, conduct, and risks of the above study.

| Full Name of Researcher | Date | Signature |
|---|---|---|

| Full Name of Witness (If applicable) | Date | Signature |
|---|---|---|

| Full Name of Legal Guardian (If applicable) | Date | Signature |
|---|---|---|

## Appendix C – The Copenhagen Burnout Inventory

Copenhagen Burnout Inventory

**Part one: Personal burnout.**

(First edition. February 2004)

Definition: Personal burnout is a state of prolonged physical and psychological exhaustion.

**Questions:**

1. How often do you feel tired?
2. How often are you physically exhausted?
3. How often are you emotionally exhausted?
4. How often do you think: “I can’t take it anymore”?
5. How often do you feel worn out?
6. How often do you feel weak and susceptible to illness?

Response categories: Always, Often, Sometimes, Seldom, Never/almost never.

Scoring: Always: 100. Often: 75. Sometimes: 50. Seldom: 25. Never/almost never: 0. The total score on the scale is the average of the scores on the items.

If less than three questions have been answered, the respondent is classified as non-responder.

**Part two: Work burnout.**

(First edition. February 2004)

Definition: Work burnout is a state of prolonged physical and psychological exhaustion, which is perceived as related to the person’s work.

**Questions:**

1. Is your work emotionally exhausting?
2. Do you feel burned out because of your work?
3. Does your work frustrate you?
4. Do you feel worn out at the end of the working day?
5. Are you exhausted in the morning at the thought of another day at work?
6. Do you feel that every working hour is tiring for you?
7. Do you have enough energy for family and friends during leisure time?

**Response categories:**

Three first questions: To a very high degree, To a high degree, Somewhat, To a low degree, To a very low

**Degree.**

Last four questions: Always, Often, Sometimes, Seldom, Never/almost never.

(Reversed score for the last question).

Scoring as for the first scale. If less than four questions have been answered, the respondent is classified as non-responder.

**Part three: Client burnout.**

Definition: Client burnout is a state of prolonged physical and psychological exhaustion, which is perceived as related to the person's work with clients*.

*Clients can be patients, students, children, inmates, or other kinds of recipients.

1. Do you find it hard to work with clients?
2. Do you find it frustrating to work with clients?
3. Does it drain your energy to work with clients?

4. Do you feel that you give more than you get back when you work with clients?

5. Are you tired of working with clients?

6. Do you sometimes wonder how long you will be able to continue working with clients?

**Response categories:**

The four first questions: To a very high degree, To a high degree, Somewhat, To a low degree, To a very low degree.

The two last questions: Always, Often, Sometimes, Seldom, Never/almost never.

**Scoring as for the first two scales.**

If less than three questions have been answered, the respondent is classified as non-responder.

## Appendix D - The Emergency Care Provider wellness questionnaire (ECP-WQ)

**Emergency Care Provider wellness questionnaire**

**This questionnaire is divided into three sections, which are:**

**Section A: Demographics**

**Section B: Emergency Care provider wellness questionnaire**

**Section C: Work-related questions**

**Instructions:**

- Please answer all questions.
- Circle the appropriate response that you think is applicable to you.

E.g. if a applies to you, please circle it as indicated below:

Ⓐ

B

- Make sure that your answer is clearly marked.
- The estimated time to complete the questionnaire is 30 mins.

**Section A**

---

Please read each question below and select the appropriate response with an X on the answer sheet provided.

**Demographics**

1. What is your gender?
    a. Male
    b. Female
2. Are you a South African citizen?

a. Yes

b. No

3. What is your ethnicity?

a. African

b. White

c. Coloured

d. Indian

e. Asian

4. What is your age group?

a. 18-24 years old

b. 25-34 years old

c. 35-44 years old

d. 45-54 years old

e. 55-64 years old

5. What is your marital status?

a. Single, never married

b. Married or domestic partnership

c. Widowed

d. Divorced

e. Separated

6. What qualification do you have?

a. BAA

b. AEA

c. CCA

d. N-Dip

e. ECP

f. ECT

7. How long have you been qualified or registered at this level?

a. 5 years or less

b. 5- 10 years

c. 10- 15 years

d. Greater than 15 years

8. Employment status?

a. Permanent

b. Contract

9. How long have you been working for that particular private ambulance emergency medical service?

a. 5 years or less

b. 5-10 years

c. 10-15 years

d. Greater than 15 years

10. Are you in?

a. Road operations

b. Management

c. Emergency Operations Centre

d. Training

e. HEMS

f. ICU bus

11. Which region do you fall into?

a. Pretoria

b. Johannesburg

c. East Rand

d. Roodepoort

e. Vaal

**Section B**

---

**ECP-WQ**

Please read each question below and select an appropriate response by blocking in the corresponding alphabet with an X on the answer sheet provided.

1. How often do you feel tired?

a. Always

b. Often

c. Sometimes

d. Seldom

e. Almost/never

2. When you are stressed, do you sometimes think of committing suicide?

a. Always

b. Often

c. Sometimes

d. Seldom

e. Almost/never

3. Do you debrief after every traumatic call?

a. Always

b. Often

c. Sometimes

d. Seldom

e. Almost/never

4. Do you seek counselling after a stressful/traumatizing call?

a. Always

b. Often

c. Sometimes

d. Seldom

e. Almost/never

5. How often are you physically exhausted?

a. Always

b. Often

c. Sometimes

d. Seldom

e. Almost/never

6. Do you feel like life is unfair to you?

a. Always

b. Often

c. Sometimes

d. Seldom

e. Almost/never

7. How often are you emotionally exhausted?

a. Always

b. Often

c. Sometimes

d. Seldom

e. Almost/never

8. Do you drink alcohol?

a. Always

b. Often

c. Sometimes

d. Seldom

e. Almost/never

9. How often do you think: “I can’t take it anymore”?

a. Always

b. Often

c. Sometimes

d. Seldom

e. Almost/never

10. Do you eat healthy foods?

a. Always

b. Often

c. Sometimes

d. Seldom

e. Almost/never

11. How often do you feel worn out?

a. Always

b. Often

c. Sometimes

d. Seldom

e. Almost/never

12. Do you think you get paid enough?

a. Always

b. Often

c. Sometimes

d. Seldom

e. Almost/never

13. How often do you feel weak and susceptible to illness?

a. Always

b. Often

c. Sometimes

d. Seldom

e. Almost/never

14. Is your boss easy to talk to?

a. To a very high degree

b. To a high degree

c. Somewhat

d. To a low degree

e. To a very low degree

15. Is your work emotionally exhausting?

a. To a very high degree

b. To a high degree

c. Somewhat

d. To a low degree

e. To a very low degree

16. Are your colleagues supportive?

a. To a very high degree

b. To a high degree

c. Somewhat

d. To a low degree

e. To a very low degree

17. Do you feel burned out because of your work?

a. To a very high degree

b. To a high degree

c. Somewhat

d. To a low degree

e. To a very low degree

18. Does your work frustrate you?

a. To a very high degree

b. To a high degree

c. Somewhat

d. To a low degree

e. To a very low degree

19. Do you feel worn out at the end of the working day?

a. Always

b. Often

c. Sometimes

d. Seldom

e. Never/almost

20. Are you exhausted in the morning at the thought of another day at work?

a. Always

b. Often

c. Sometimes

d. Seldom

e. Never/almost

21. Do you feel that every working hour is tiring for you?

a. Always

b. Often

c. Sometimes

d. Seldom

e. Never/almost

22. Do you have enough energy for family and friends during leisure time?

a. Always

b. Often

c. Sometimes

d. Seldom

e. Never/almost

23. Do you find it hard to work with patients?

a. To a very high degree

b. To a high degree

c. Somewhat

d. To a low degree

e. To a very low degree

24. Do you feel good after saving someone's life?

a. To a very high degree

b. To a high degree

c. Somewhat

d. To a low degree

e. To a very low degree

25. Do you find it frustrating to work with patients?

a. To a very high degree

b. To a high degree

c. Somewhat

d. To a low degree

e. To a very low degree

26. Do you enjoy your work?

a. To a very high degree

b. To a high degree

c. Somewhat

d. To a low degree

e. To a very low degree

27. Does it drain your energy to work with patients?

a. To a very high degree

b. To a high degree

c. Somewhat

d. To a low degree

e. To a very low degree

28. Do you think patients abuse emergency medical services?

a. To a very high degree

b. To a high degree

c. Somewhat

d. To a low degree

e. To a very low degree

29. Do you feel that you give more than you get back when you work with patients?

a. To a very high degree

b. To a high degree

c. Somewhat

d. To a low degree

e. To a very low degree

30. Do you seek professional advice after experiencing a traumatic event?

a. To a very high degree

b. To a high degree

c. Somewhat

d. To a low degree

e. To a very low degree

31. Are you tired of working with patients?

a. Always

b. Often

c. Sometimes

d. Seldom

e. Never/almost never

32. Do you sometimes wonder how long you will be able to continue working with patients?

a. Always

b. Often

c. Sometimes

d. Seldom

e. Never/almost never

**Section C**

---

Work-related questionnaire

Please read each question below and select an appropriate response by blocking in the corresponding alphabet with an X on the answer sheet provided.

1. Do you work overtime?

a. Always

b. Often

c. Sometimes

d. Seldom

e. Almost/never

2. Do you feel that a 12-hour shift is long?

a. Always

b. Often

c. Sometimes

d. Seldom

e. Almost/never

3. Do you get enough sleep?

a. Always

b. Often

c. Sometimes

d. Seldom

e. Almost/never

4. Do you feel that the vehicle you are working on is unsafe and not road worthy?

a. Always

b. Often

c. Sometimes

d. Seldom

e. Almost/never

5. Do you feel that you are short-staffed?

a. Always

b. Often

c. Sometimes

d. Seldom

e. Almost/never

6. Do you have the appropriate equipment to effectively treat patients?

a. Always

b. Often

c. Sometimes

d. Seldom

e. Almost/never

7. Do you get along with your colleagues?

a. Always

b. Often

c. Sometimes

d. Seldom

e. Almost/never

8. Do you feel that your job is secured?

a. Always

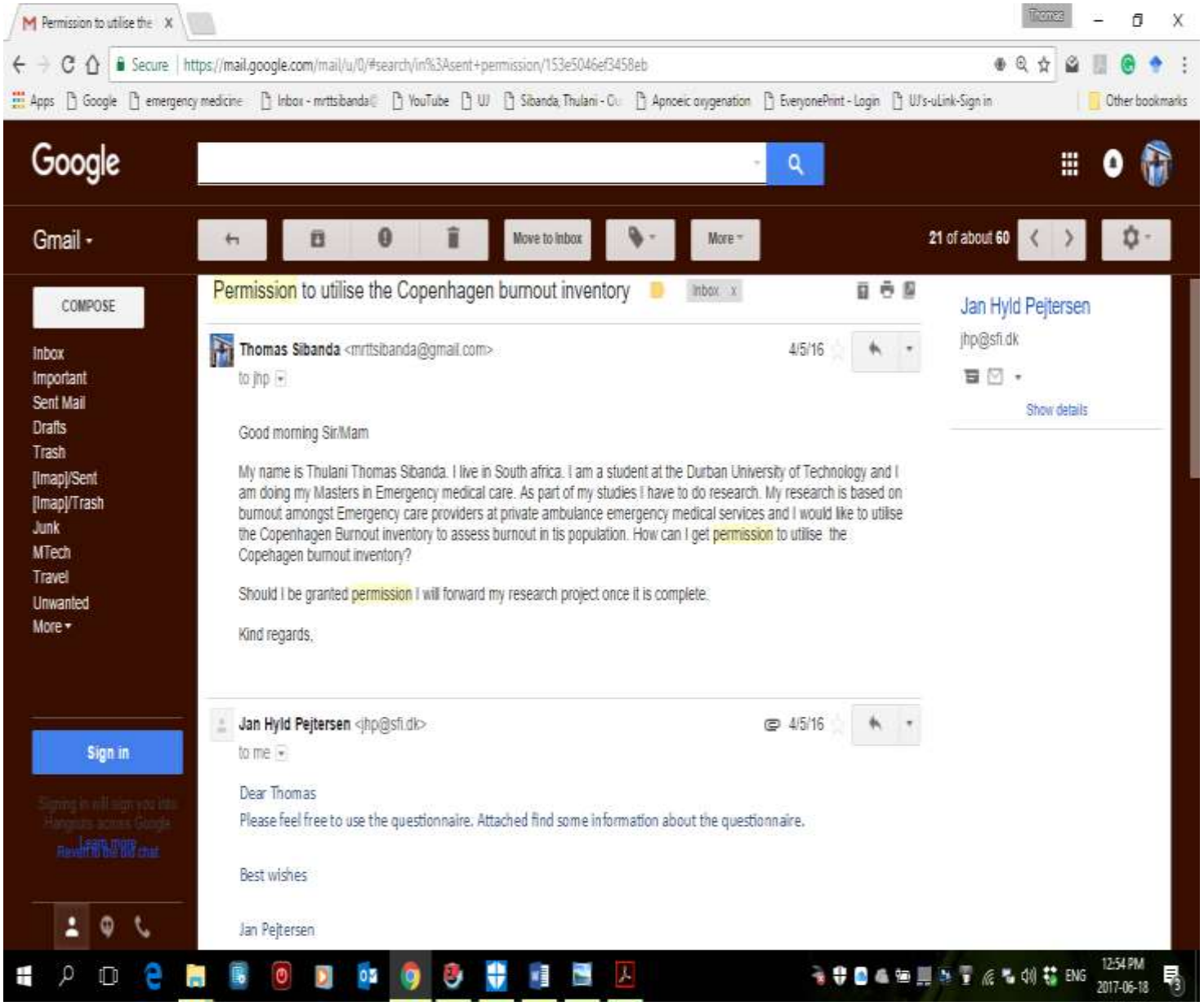
b. Often

c. Sometimes

d. Seldom

e. Almost/never

## Appendix E – Permission to utilize the CBI questionnaire



## Appendix F – Permission to Utilise Private Ambulance Emergency Medical Services Employees as Participants in a Study

533 Whitley Street
Ormonde View
Nasrec
2091

DATE: 13 -10-2015

Private Ambulance Research committee
Gauteng
South Africa
1685

Dear Members

PERMISSION TO UTILIZE PRIVATE AMBULANCE EMERGENCY MEDICAL SERVICES EMPLOYEES AS PARTICIPANTS IN A STUDY

My name is Thulani Thomas Sibanda and my supervisor is Prof Duncan Cartwright. I am currently registered with the Durban University of Technology for a Masters in Technology in Emergency Medical Care. I am doing a study to investigate the prevalence of burnout among emergency care providers at a private ambulance emergency medical services focusing on the Gauteng region. I will be required to assess a certain number of emergency care providers at each of the various levels of practice depending on the population composition and ratios within the private ambulance emergency medical service: BAAs, AEAs, Emergency Care Technicians, Paramedics, and ECPs.

Part of my study involves conducting research and I am asking for permission to have access to the permanently employed emergency care providers within the private ambulance emergency medical service as my participants for this study and to conduct my research at the different bases, head office and training campus in Gauteng. All participants will be required to sign a consent form and they will be allowed to withdraw

from the study at any point up until the questionnaire is handed over. The participants will remain anonymous.

My activities will take place during working hours and it may take 30 minutes per person to complete the questionnaire. There are no foreseeable risks for either the participant or the private ambulance emergency medical service; however, the results of this study may assist the private ambulance emergency medical service with the management of their employees should they be burnout.

I have attached a copy of my proposal to date,

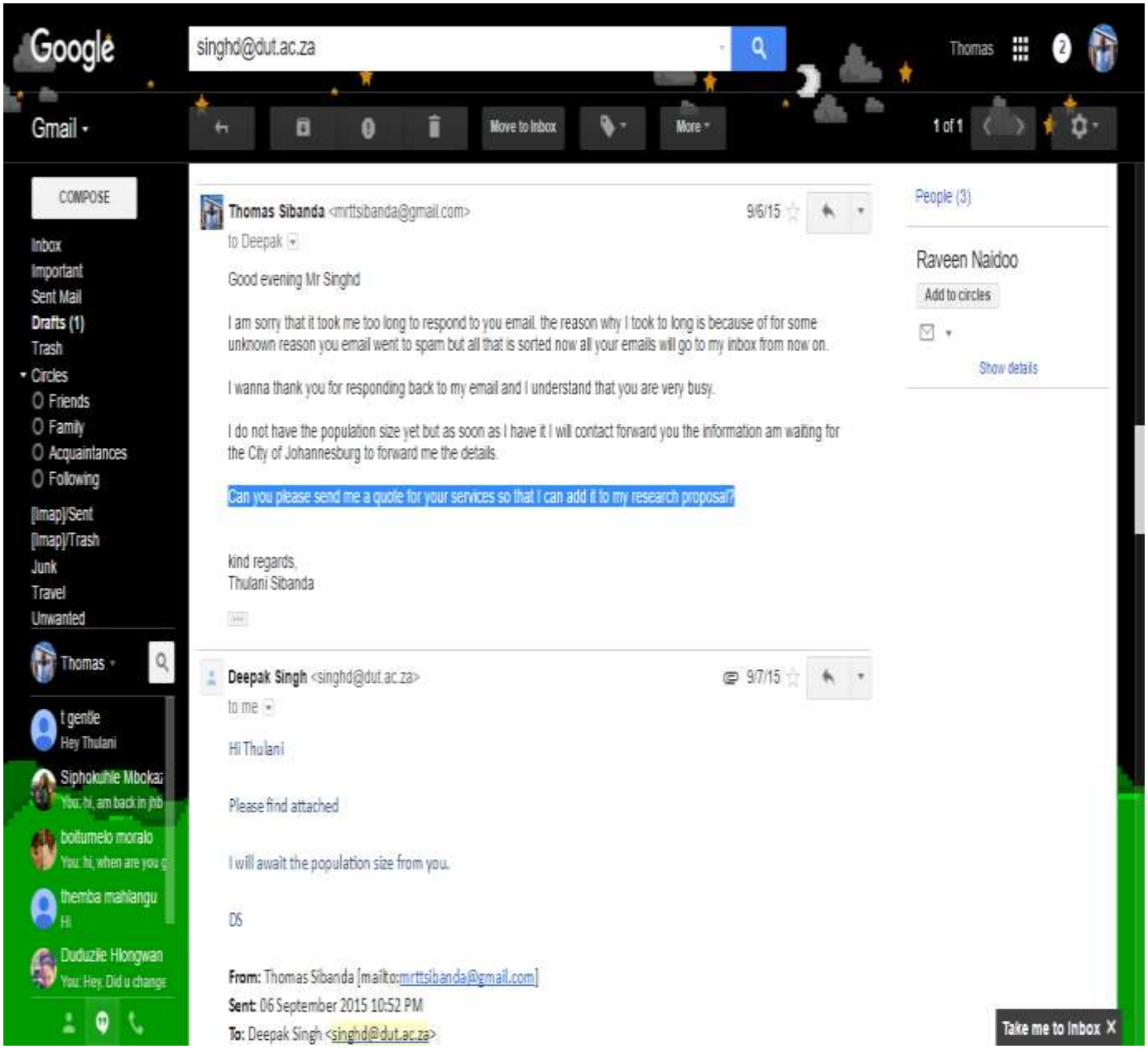
Your assistance will be greatly appreciated.

Yours truly,

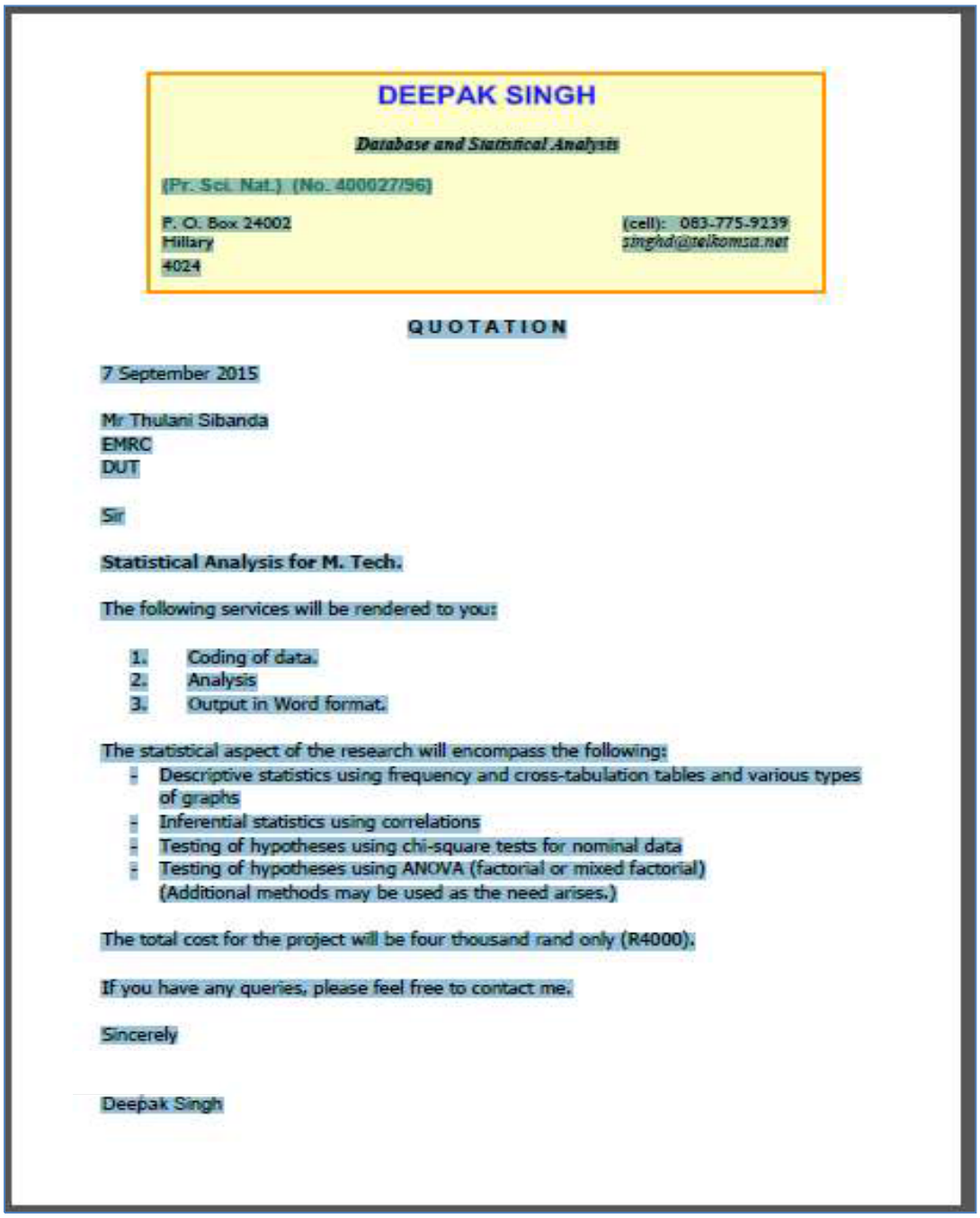
Thulani Thomas Sibanda

Student number: 2155506

## Appendix G – Consultation emails with the statistician



## Appendix H - Quote from a statistician




**DEEPAK SINGH**

*Database and Statistical Analysis*

(Pr. Sci. Nat.) (No. 400027/96)

P. O. Box 24002
Hillary
4024

(cell): 083-775-9239
singhd@telkomsa.net


**QUOTATION**

7 September 2015

Mr Thulani Sibanda
EMRC
DUT

Sir

**Statistical Analysis for M. Tech.**

The following services will be rendered to you:

1. Coding of data.
2. Analysis
3. Output in Word format.

The statistical aspect of the research will encompass the following:

- Descriptive statistics using frequency and cross-tabulation tables and various types of graphs
- Inferential statistics using correlations
- Testing of hypotheses using chi-square tests for nominal data
- Testing of hypotheses using ANOVA (factorial or mixed factorial)

(Additional methods may be used as the need arises.)

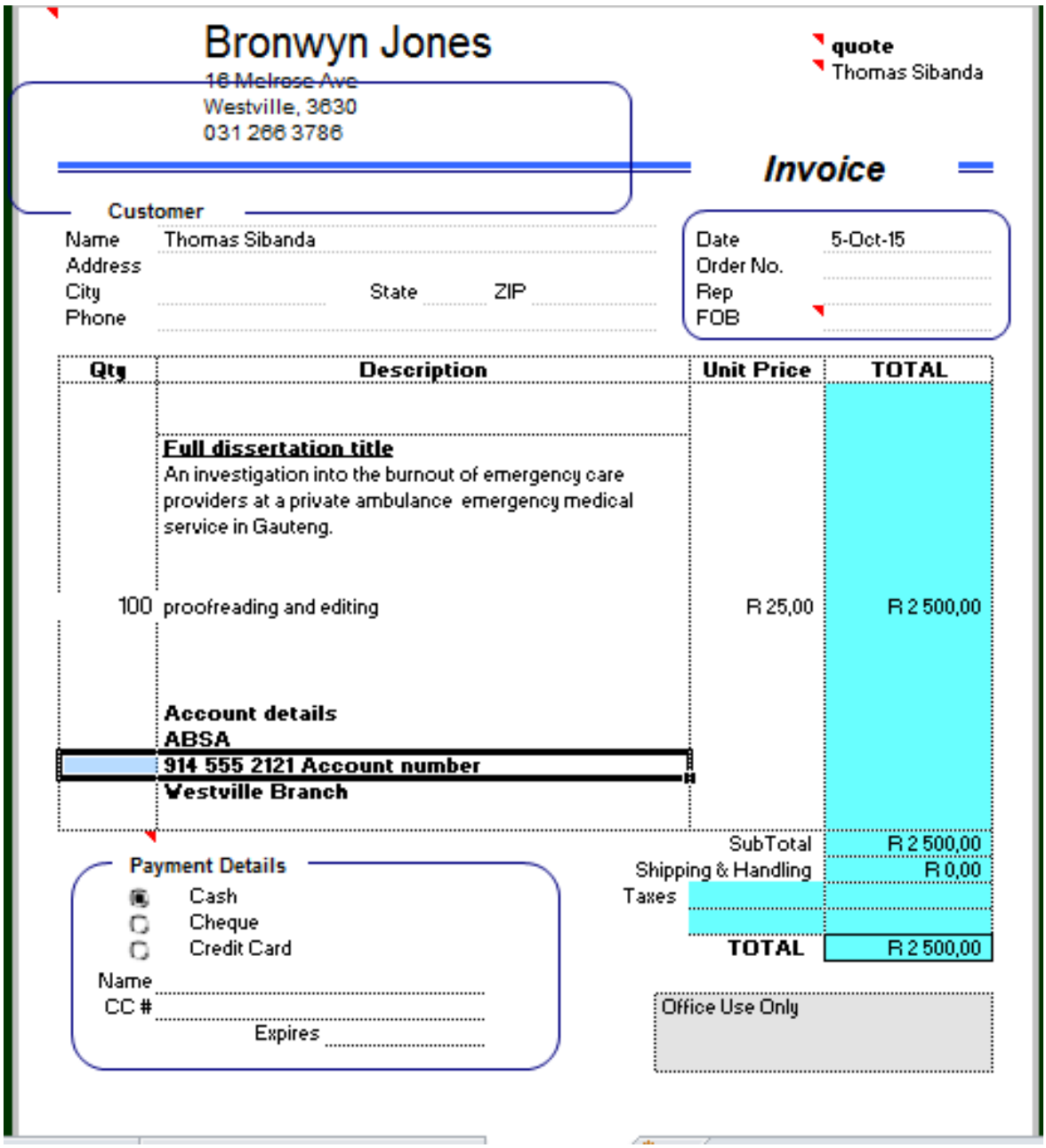
The total cost for the project will be four thousand rand only (R4000).

If you have any queries, please feel free to contact me.

Sincerely

Deepak Singh

## Appendix I – Quotation for language editing and proofreading



Bronwyn Jones
16 Melrose Ave
Westville, 3630
031 266 3786

quote
Thomas Sibanda

**Invoice**

Customer
Name Thomas Sibanda
Address
City State ZIP
Phone

Date 5-Oct-15
Order No.
Rep
FOB

| Qty | Description | Unit Price | TOTAL |
|---|---|---|---|
| | **Full dissertation title** An investigation into the burnout of emergency care providers at a private ambulance emergency medical service in Gauteng. | | |
| 100 | proofreading and editing | R 25,00 | R 2 500,00 |
| | **Account details** **ABSA** **914 555 2121 Account number** **Vestville Branch** | | |
| | | SubTotal | R 2 500,00 |
| | | Shipping & Handling | R 0,00 |
| | | Taxes | |
| | | **TOTAL** | R 2 500,00 |

Payment Details
Cash
Cheque
Credit Card
Name
CC #
Expires

Office Use Only

## Appendix J – Gatekeeper permission letter

**RESEARCH OPERATIONS COMMITTEE FINAL APPROVAL OF RESEARCH**

Approval number: UNIV-2016-0049

Mr TT Sibanda

E mail: mrttsibanda@gmail.com

Dear Mr Sibanda

**RE: AN INVESTIGATION INTO THE BURNOUT OF EMERGENCY CARE PROVIDERS AT A PRIVATE AMBULANCE EMERGENCY MEDICAL SERVICE IN GAUTENG**

The above-mentioned research was reviewed by the Research Operations Committee's delegated members and it is with pleasure that we inform you that your application to conduct this research at Private Emergency Ambulance Services, has been approved, subject to the following:

i) Research may now commence with this FINAL APPROVAL from the Committee.

ii) All information regarding the Company will be treated as legally privileged and confidential.

iii) The Company's name will not be mentioned without written consent from the Committee.

iv) All legal requirements with regards to participants' rights and confidentiality will be complied with.

v) The Company must be furnished with a STATUS REPORT on the progress of the study at least annually on 30th September irrespective of the date of approval from the Committee as well as a FINAL REPORT with reference to intention to publish and probable journals for publication, on completion of the study.

vi) A copy of the research report will be provided to the Committee once it is finally approved by the relevant primary party or tertiary institution, or once complete or if discontinued for any reason whatsoever prior to the expected completion date..

vii) The Company has the right to implement any recommendations from the research.

viii) The Company reserves the right to withdraw the approval for research at any time during the process, should the research prove to be detrimental to the subjects/ Company or should the researcher not comply with the conditions of approval.

ix) APPROVAL IS VALID FOR A PERIOD OF 36 MONTHS FROM DATE OF THIS LETTER OR COMPLETION OR DISCONTINUATION OF THE STUDY, WHICHEVER IS THE FIRST.

We wish you success in your research.

Yours faithfully

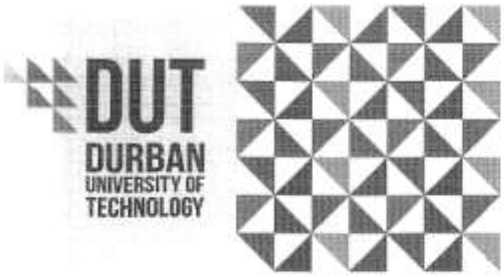
6/9/16

Prof [illegible]
Full member: Research Operations Committee & Medical Practitioner evaluating research applications as per Management and Governance Policy

Shannon Neil
Chairperson: Research Operations Committee
**Date:** 8/9/2016

This letter has been anonymised to ensure confidentiality in the research report. The original letter is available with author of research

## Appendix K – Ethics approval



**Institutional Research Ethics Committee**
Faculty of Health Sciences
Room MS 49, Mansfield School Site
Gate 8, Ritson Campus
Durban University of Technology

P O Box 1334, Durban, South Africa, 4001

Tel: 031 373 2900
Fax: 031 373 2407
Email: lavishad@dut.ac.za
http://www.dut.ac.za/research/institutional_research_ethics

**www.dut.ac.za**

14 September 2016

IREC Reference Number: **REC 86/16**

Mr T T Sibanda
533 Whitley Street
Ormonde View
Nasrec
2019

Dear Mr Sibanda

**An investigation into the burnout of emergency care providers at a private ambulance emergency medical service in Gauteng**

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.

Yours Sincerely,

Professor J K Adam
Chairperson: IREC

## Appendix L – Declaration of Language Editor

cum laude
language practitioners

Director: CME Terblanche - BA (Pol Sc), BA Hons (Eng), MA (Eng), TEFL
22 Strydom Street
Baillie Park, 2531
Tel 082 821 3083
cumlaudelanguage@gmail.com

**DECLARATION OF TRANSLATION**

I, Christina Maria Etrecia Terblanche, hereby declare that I edited the research study titled:

**AN INVESTIGATION INTO BURNOUT AMONG EMERGENCY CARE PROVIDERS AT A PRIVATE AMBULANCE EMERGENCY MEDICAL SERVICE IN GAUTENG**

for Thulani Thomas Sibanda for the purpose of submission as a postgraduate study for examination. Changes were indicated in track changes and implementation was left to the author.

Regards,

CME Terblanche

Cum Laude Language Practitioners (CC)

SATI accreditation no: 1001066 (South African Translators Institute)

Full member of PEG (Professional Editor's Guild)

**Appendix M: Presents results of Chi-square test ( $\chi^2$=*Chi square test)***

| | Personal burnout | | | Work burnout | | | Patient-care related burnout | | | Total burnout | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Demographics | $\chi^2$ | df | p | $\chi^2$ | df | p | $\chi^2$ | df | p | $\chi^2$ | df | p |
| Gender | 0,695 | 1 | 0,404 | 0,204 | 1 | 0,652 | 0,018 | 1 | 0,892 | 0,143 | 1 | 0,705 |
| Citizen | 0,885 | 1 | 0,347 | 1,005 | 1 | 0,316 | 0,191 | 1 | 0,662 | 0,427 | 1 | 0,514 |
| Ethnicity | 2,782 | 4 | 0,595 | 5,261 | 4 | 0,262 | 7,492 | 4 | 0,112 | 3,567 | 4 | 0,468 |
| Age | 6,74 | 3 | 0,081 | 1,619 | 3 | 0,655 | 0,938 | 3 | 0,816 | 3,311 | 3 | 0,346 |
| Marital status | 0,704 | 2 | 0,703 | 0,148 | 2 | 0,928 | 2,56 | 2 | 0,278 | 0,367 | 2 | 0,832 |
| Levels of care | 3,235 | 3 | 0,357 | 5,004 | 3 | 0,171 | 4,481 | 3 | 0,214 | 0,306 | 3 | 0,959 |
| Years of qualification | 1,21 | 3 | 0,751 | 2,339 | 3 | 0,505 | 3,317 | 3 | 0,345 | 3,212 | 3 | 0,36 |
| Employment status | 2,683 | 1 | 0,101 | 3,049 | 1 | 0,081 | 0,579 | 1 | 0,447 | 1,293 | 1 | 0,255 |
| Years of service | 1,541 | 3 | 0,673 | 0,088 | 3 | 0,83 | 0,068 | 3 | 0,995 | 2,29 | 3 | 0,515 |
| Division | 6,142 | 5 | 0,293 | 4,483 | 5 | 0,482 | 1,431 | 5 | 0,921 | 4,345 | 5 | 0,501 |
| Region | 8,056 | 4 | 0,09 | 8,407 | 4 | 0,078 | 4,117 | 4 | 0,39 | 10,86 | 4 | 0,028* |

## Appendix N: Presents Univariate ANOVA

| | Personal burnout | | | | Work burnout | | | | Patient-care related burnout | | | | Total burnout | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **df** | **Mean square** | **F** | **P** | **df** | **Mean square** | **F** | **P** | **df** | **Mean square** | **F** | **P** | **df** | **Mean square** | **F** | **P** |
| Gender | 1 | 123.525 | 0.405 | 0.525 | 1 | 15.122 | 0.06 | 0.806 | 1 | 1595.558 | 6.009 | 0.015* | 1 | 421.554 | 2.13 | 0.146 |
| ethnicity | 4 | 259.009 | 0.849 | 0.496 | 4 | 252.256 | 1.009 | 0.405 | 4 | 432.203 | 1.628 | 0.17 | 4 | 241.274 | 1.219 | 0.305 |
| Age group | 3 | 603.121 | 1.978 | 0.119 | 3 | 132.316 | 0.529 | 0.663 | 3 | 176.782 | 0.666 | 0.574 | 3 | 227.885 | 1.151 | 0.33 |
| Marital status | 2 | 157.193 | 0.516 | 0.598 | 2 | 236.447 | 0.946 | 0.391 | 2 | 96.481 | 0.363 | 0.696 | 2 | 95.526 | 0.483 | 0.618 |
| Levels of care | 3 | 722.769 | 2.37 | 0.073 | 3 | 611.636 | 2.447 | 0.066 | 3 | 261.443 | 0.985 | 0.402 | 3 | 455.049 | 2.299 | 0.079 |
| Years of qualification | 3 | 428.463 | 1.405 | 0.243 | 3 | 439.304 | 1.757 | 0.158 | 3 | 559.03 | 2.105 | 0.102 | 3 | 256.405 | 1.296 | 0.278 |
| Years of service | 3 | 1147.602 | 3.764 | 0.012* | 3 | 194.723 | 0.779 | 0.507 | 3 | 83.671 | 0.315 | 0.814 | 3 | 282.466 | 1.427 | 0.237 |
| Division | 5 | 337.296 | 1.09 | 0.368 | 5 | 337.296 | 1.349 | 0.246 | 5 | 649.459 | 2.446 | 0.036* | 5 | 246.686 | 1.246 | 0.29 |
| region | 4 | 396.681 | 1.301 | 0.272 | 4 | 742.873 | 2.972 | 0.021* | 4 | 241.699 | 0.91 | 0.459 | 4 | 582.309 | 2.942 | 0.022* |

- *p<.05*

**Appendix O: Presents responses to the distractor items that used never, seldom, sometimes, often and always**

| Questions | Never | Seldom | Sometimes | Often | Always |
|---|---|---|---|---|---|
| When you are stressed, do you sometimes think of committing suicide? | 154 (83) | 17 (9%) | 12 (6%) | 2 (1%) | 1 (0) |
| Do you debrief after every traumatic call? | 32 (17%) | 32 (17) | 79 (42%) | 23 (13) | 20 (11%) |
| Do you seek counselling after a stressful/traumatic call? | 117 (63) | 31(17) | 29 (15%) | 7 (4%) | 2 (1%) |
| Do you feel like life is unfair to you? | 59 (33%) | 47 (25) | 56 (30%) | 16 (9%) | 6 (3%) |
| Do you drink alcohol? | 48 (26%) | 36 (19) | 75 (40%) | 17 (9%) | 10 (6%) |
| Do you eat healthy food? | 8 (4%) | 24 (13) | 66 (35%) | 65 (35) | 23 (12%) |
| Do think you get paid enough? | 113 (61%) | 41 (25%) | 25 (4%) | 4 (3%) | 3 (1%) |
| Do you work overtime? | 33 (18%) | 35 (19) | 53 (20%) | 38 (20) | 27 (15%) |
| Do you feel like that a 12-hour shift is long? | 29 (16%) | 42 (22) | 75 (40%) | 18 (10) | 22 (12%) |
| Do you get enough sleep? | 12 (7%) | 53 (28) | 65 (35%) | 39 (21) | 17 (9%) |
| Do you feel that the vehicle that you are working on is unsafe and not roadworthy? | 132 (71) | 25 (13) | 15 (8%) | 3 (2%) | 11 (6%) |
| Do you feel that you are short-staffed? | 53 (28%) | 40 (22) | 57 (31%) | 23 (12) | 13 (7%) |
| Do you have appropriate equipment to effectively treat patients? | 4 (2%) | 5 (3%) | 6 (3%) | 41 (22) | 130 (70) |
| Do you get along with you colleagues? | 3 (2%) | 2 (1%) | 21 (11%) | 74 (40%) | 86 (46%) |
| Do you feel that you job is secure? | 17 (9%) | 11 (6%) | 58 (31%) | 50 (27%) | 50 (27%) |

**Appendix P: Presents responses to the distractor items that used to a very low degree, to a low degree, somewhat, to a high degree and to a very low degree**

| Questions | To a very low degree | To a low degree | Somewhat | To a high degree | To a very high degree |
|---|---|---|---|---|---|
| Is your boss easy to talk to? | 6 (3%) | 15 (8%) | 58 (31%) | 57 (31%) | 50 (27%) |
| Are your colleagues supportive? | 10 (5%) | 13 (7%) | 56 (30%) | 71 (38%) | 36 (19%) |
| Do you feel good after saving someone's life? | 1 (1%) | 1 (1%) | 16 (9%) | 44 (24%) | 124 (67%) |
| Do you enjoy your work? | 4 (2%) | 5 (3%) | 21 (11%) | 82 (44%) | 74 (40%) |
| Do you think patients abuse emergency medical services? | 5 (3%) | 10 (5%) | 56 (30%) | 44 (24%) | 71 (38%) |
| Do you seek professional advice after experiencing a traumatic call? | 60 (32%) | 72 (39%) | 26 (14%) | 18 (10%) | 10 (5%) |