



University of Fort Hare
Together in Excellence

**Prevalence of burnout among allied healthcare workers employed a state
tertiary hospital in the Eastern Cape, South Africa**

By

Leigh Tovell

201415805

Mini-Research Dissertation

Submitted for the degree of Master of Public Health

University of Fort Hare
Together in Excellence

Public Health in the

Faculty of Health Sciences

at the

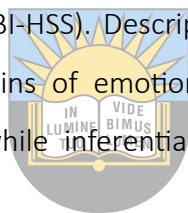
University of Fort Hare

Supervisor: Prof. Liezel Cilliers

2025

ABSTRACT

Burnout has emerged as a significant occupational health concern among healthcare professionals globally, with particularly severe consequences in resource-constrained health systems such as South Africa's public sector. Despite extensive research on burnout among doctors and nurses, limited evidence exists regarding its prevalence among allied healthcare workers, who form a critical yet understudied component of the health workforce. This study investigated the prevalence and determinants of burnout among allied healthcare professionals employed at a tertiary state hospital in the Eastern Cape Province. Using a quantitative, cross-sectional design, data was collected from 83 permanently employed allied healthcare workers, including physiotherapists, occupational therapists, dietitians, social workers, radiographers, speech therapists, audiologists, and orthotists/prosthetists, through a self-administered questionnaire comprising demographic variables and the Maslach Burnout Inventory–Human Services Survey (MBI-HSS). Descriptive statistics were used to determine burnout prevalence across the domains of emotional exhaustion, depersonalisation, and reduced personal accomplishment, while inferential analyses examined associations with demographic and work-related factors.



University of Fort Hare
Together in Excellence

Findings revealed a high prevalence of burnout within the study population, with emotional exhaustion and depersonalisation prominently elevated, aligning with global and national patterns observed in health professionals operating under high workload and resource limitations. Several demographic and occupational variables, including age, gender, years of experience, marital status, overtime work, weekend/public holiday duties, and engagement in recreational or religious activities, were shown to correlate significantly with burnout scores. Consistent with international literature, younger professionals and those with fewer years of experience demonstrated higher vulnerability to burnout, likely due to limited autonomy and coping resources. Organisational factors such as staff shortages, excessive workloads, administrative burden and poor resource availability emerged as substantial contributors, reflecting systemic challenges characteristic of South Africa's public healthcare environment.

The study highlights critical implications for individual health and wellbeing, including increased risk of mental health conditions such as depression, anxiety and suicidal ideation. Burnout was also shown to compromise patient safety and care quality, contributing to medical errors,

reduced empathy, impaired communication and diminished rehabilitation outcomes. At a systems level, burnout exacerbates healthcare workforce instability through absenteeism, reduced productivity, and increased staff turnover, factors that further strain already fragile public health services. These findings underscore the urgent need for targeted, multi-level interventions addressing both individual coping strategies and broader organisational determinants. Recommendations include improved staffing and workload management, strengthened supervision and mentorship for young professionals, enhanced mental health support, and routine monitoring of burnout as part of institutional quality and risk-management processes.

This research contributes to the limited empirical literature on allied health burnout in South Africa and provides essential evidence to guide policy, institutional reforms and staff wellbeing initiatives. Mitigating burnout among allied health professionals is vital not only for workforce sustainability, but also for improving patient outcomes and strengthening the resilience of the public health system.



Keywords:

Allied health professionals; Burnout; Emotional exhaustion; Public healthcare; South Africa

University of Port Hare
Together in Excellence

ACKNOWLEDGEMENTS

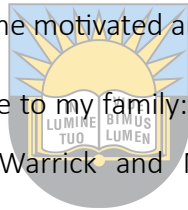
I wish to express my sincere gratitude to my supervisor, Prof Liezel Cilliers, whose invaluable guidance, constructive feedback and steady encouragement have supported me throughout this Master of Public Health journey. It has been a privilege to work under her supervision.

I would also like to thank Mrs Joy Scholl, former Clinical Support Services Manager at Frere Hospital, for her continuous support and motivation.

I am especially grateful to the allied healthcare professionals who participated in this study. Despite demanding workloads and time pressures, they generously shared their experiences, without which this research would not have been possible.

My heartfelt thanks go to my colleagues and friends, particularly Kim Pettifer Bellamy and the extended Dietetics Department, for their encouragement, practical help and many cups of tea – from statistics assistance to keeping me motivated and on track.

Finally, I owe a special debt of gratitude to my family: to my dad, Graeme, for his unwavering belief in me, and to my children, Warrick and Morgan, for their patience, love and understanding throughout this journey.



University of Fort Hare
Together in Excellence

DECLARATION OF OWNERSHIP, AUTHORSHIP, AND ETHICAL CLEARANCE

I, Leigh Tovell, student number 201415805, now declare that I am fully aware of the University of Fort Hare's policy on plagiarism, and I have taken every precaution to comply with the regulations. I now declare that this master's dissertation is my original work submitted to the University of Fort Hare to fulfil the requirements for the degree Masters: Information Systems in the Faculty of Management and Commerce. Where other authors' works have been consulted, due acknowledgement has been given in-text and in the reference list at the end. In addition, I affirm that I am fully aware of and have followed every precaution to comply with the University of Fort Hare's policy on research ethics. The University of Fort Hare's research ethics committee has given me ethical clearance, and my reference number is Ref # 2020=01=003=TrollopeLT.



Signature



University of Fort Hare
Together in Excellence

09 December 2025

Date

TABLE OF CONTENTS

ABSTRACT	2
Keywords:	3
ACKNOWLEDGEMENTS	4
DECLARATION OF OWNERSHIP, AUTHORSHIP, AND ETHICAL CLEARANCE.....	5
CHAPTER 1	12
INTRODUCTION.....	12
1.1 Background and rational	12
1.2 Literature review.....	14
1.3 Problem statement	17
1.4 Aim & objectives	18
1.5 Research questions	18
1.6 Significance of the study	18
1.7 Methodology	19
1.7.4 Data collection tool	19
1.7.5 Data analysis.....	20
1.7.6 Ethics.....	20
1.8 Expected outputs.....	21
1.9 Summary	21
CHAPTER 2	22
LITERATURE REVIEW	22
2.1 Introduction.....	22
2.2 Defining burnout.....	22
2.3 Dimensions of burnout.....	23
2.1.1 Emotional exhaustion.....	23
2.1.2 Depersonalisation	24
2.1.3 Reduced personal accomplishment	26
2.2 Healthcare in South Africa.....	26
2.3 Causes of burnout.....	28
2.3.1 Theoretical model	28
2.3.2 Environmental and organisational determinants of burnout	30
2.3.3 Personal risk factors as determinants of burnout.....	32
2.4 Severity and extent of burnout in healthcare.....	33



University of Fort Hare
Together in Excellence

2.5	Consequences of burnout	35
2.5.1	Implications for the individual healthcare worker	36
2.5.2	Implications for patient care.....	36
2.5.3	Implications for the health system.....	36
2.6	Burnout prevention and interventions for healthcare workers.....	37
2.6.1	Individual-level strategies.....	37
2.6.2	Organisational level interventions	38
2.6.3	System and policy-level interventions.....	38
2.7	Recovery from burnout.....	39
2.7.1	Individual Approaches.....	39
2.7.2	Organisational Changes.....	40
2.8	Conclusion	40
CHAPTER 3		42
METHODOLOGY		42
3.1	Introduction.....	42
3.2	Research Paradigm	42
3.3	Research Approach	43
3.4	Population and sampling.....	44
3.5	Data collection tool.....	45
3.6	Data collection	47
3.7	Data Analysis.....	47
3.8	Trustworthiness of data	48
3.9	Reliability	48
3.10	Validity	48
3.11	Construct validity	48
3.12	Internal and external validity	49
3.13	Statistical validity	49
3.14	Inclusion criteria	49
3.15	Ethics.....	49
3.16	Ethical approval	50
3.17	Informed consent	50
3.18	Conclusion	50
CHAPTER 4.....		52
PRESENTATION AND DISCUSSION OF FINDINGS		52



University of Fort Hare
Together in Excellence

4.1	Introduction.....	52
4.2	Response rate	52
4.3	Demographic details of the respondents	52
4.4	Prevalence of burnout.....	54
4.5	Correlation between MBI scores and other variables measured.....	59
4.5.1	MBI score and gender	59
4.5.2	MBI score and age	62
4.5.3	MBI score and marital status	64
4.5.4	MBI score and dependents.....	66
4.5.5	MBI score and educational level.....	67
4.5.6	MBI score and work experience.....	69
4.5.7	MBI score and experience in current position	70
4.5.8	MBI score and income.....	71
4.5.9	MBI score and weekend & public holiday work.....	73
4.5.10	MBI score and overtime	75
4.5.11	MBI score and leisure/sporting activities	77
4.5.12	MBI score and religious activities.....	79
4.5.13	MBI score and social/recreational activities	81
4.6	Symptoms experienced by allied health care workers on a weekly basis	83
4.7	Conclusion	85
CHAPTER 5		87
CONCLUSION AND RECOMMENDATIONS.....		87
5.1	Introduction.....	87
5.2	Overview of the research problem	87
5.3	Research questions and summary of findings	88
5.3.1	Research question.....	88
5.4	Recommendations	90
5.5	Limitations of the research.....	91
5.7	Summary	92
6.	REFERENCES.....	94



University of Port Hare
Together in Excellence

LIST OF APPENDICES

APPENDIX 1 ETHICAL CLEARANCE – UFH.....	108
APPENDIX 2 DEPARTMENT OF HEALTH APPROVAL.....	110
APPENDIX 3 PERMISSION FROM T DU PLESSIS TO USE STUDY DESIGN.....	111
APPENDIX 4 INFORMED CONSENT & QUESTIONNAIRE	112
APPENDIX 5 TURNITIN REPORT.....	120



University of Fort Hare
Together in Excellence

LIST OF TABLES

Table number	Title	Page number
Table 4.1	Response rate	50
Table 4.2	Distribution of respondents by demographic characteristics	51
Table 4.3	Prevalence rate with mean, median and standard deviation for each burnout dimension	54
Table 4.4	Categorisation of MBI score	55
Table 4.5	Responses to questions related to burnout	56
Table 4.6	Association between gender and EE, DP and PA	59
Table 4.7	Association between age and EE, DP and PA	60
Table 4.8	Association between marital status and EE, DP and PA	63
Table 4.9	Association between dependents and EE, DP and PA	64
Table 4.10	Association between educational level and EE, DP and PA	65
Table 4.11	Association between work experience and EE, DP and PA	67
Table 4.12	Association between experience in current position and EE, DP and PA	68
Table 4.13	Association between income and EE, DP and PA	70
Table 4.14	Association between working weekends and public holidays and EE, DP and PA	72
Table 4.15	Association between overtime and EE, DP and PA	74
Table 4.16	Association between leisure/sporting activities and EE, DP and PA	75
Table 4.17	Association between religious and EE, DP and PA	77
Table 4.18	Association between social/recreational activities and EE, DP and PA	

LIST OF FIGURES

Figure number	Title	Page number
Figure 2.1	Job Demands-Resources (JD-R) model	27
Figure 4.1	MBI subscales scores	53
Figure 4.2	Comparison of MBI scores between current study and private practice allied healthcare workers	54
Figure 4.3	Symptoms experienced by allied healthcare workers	84



University of Fort Hare
Together in Excellence

CHAPTER 1

INTRODUCTION

1.1 Background and rational

Burnout has become a major global concern among healthcare workers. Burnout is defined by the World Health Organization as a syndrome that results from chronic workplace stress that has not been successfully managed, and is characterised by emotional exhaustion, depersonalisation and reduced personal accomplishment (WHO, 2019). Recent evidence shows that burnout is increasing worldwide. A review by Jain and Sarfraz (2024) found that between 12.6% and 58% of healthcare workers experience burnout, and around one-third show symptoms of depression.

In South Africa, the situation appears even more severe because public hospitals, including tertiary referral facilities, face chronic shortages of staff, medicines and other resources, together with overcrowding and high workloads that compromise quality of care (Khunou & Jiyane, 2023; Moses et al., 2024). A study in three public hospitals in the Eastern Cape recorded a burnout prevalence of 78% among medical doctors during the COVID-19 pandemic (Khan et al., 2024). A national review also showed that burnout among South African doctors ranged from 58.9% to 78% in the pandemic and post-pandemic period (Khan, Ntatamala & Adams, 2024). Although research on allied health workers is limited, these workers often face similar pressures, such as heavy caseloads, emotional demands and resource constraints.

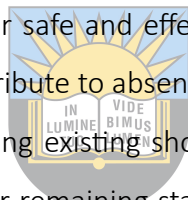
Burnout is closely linked to depression and suicidal thoughts, forming a progression where chronic stress contributes to burnout, which may then develop into depression and increase the risk of suicidal ideation (Chen et al., 2024; Jain & Sarfraz, 2024). Evidence shows that female healthcare workers may be especially vulnerable, with suicide risk up to four times higher than non-medical counterparts (Jain & Sarfraz, 2024). Depression is also a significant predictor of suicidal ideation among healthcare professionals (Li et al., 2024). A systematic review further reported that 3.4% of healthcare workers experienced frequent suicidal thoughts within a two-week period (García-Iglesias et al., 2022). These findings show the seriousness of burnout and its potential to affect both mental health and safety.

Stigma is a major barrier to healthcare professionals recognising and acting on burnout or depression. Within the health professions there is often a strong expectation of resilience and self-reliance, and mental health problems can be viewed as a sign of weakness or professional failure (Ng, 2024). Many doctors and other healthcare workers worry that disclosing distress will damage their reputation or affect their career progression. This can result in reluctance to seek formal psychological help (Ng, 2024; Huang et al., 2025). In a South African survey of healthcare workers using a national mental health support service, it was found that 80% identified fear of judgement by colleagues and managers as the main reason for delaying or avoiding help (Miric, 2022; South African Society of Psychiatrists, 2024).

Burnout and poor mental health among healthcare workers also have important consequences for patient care and the wider healthcare system. A large meta-analysis found that burnout was linked to poorer patient safety, more medication errors, increased patient falls and lower patient satisfaction (Li et al., 2024). Burnout can reduce concentration, empathy and communication, which are essential for safe and effective care (Chen et al., 2024). In South Africa, high levels of staff burnout contribute to absenteeism, turnover and early exit from the workforce (Khan et al., 2024), worsening existing shortages. This can lead to longer waiting times for patients, higher workloads for remaining staff and reduced quality of care. Burnout has also been recognised as a contributing factor in the rise of medico-legal claims in South Africa, which place additional financial pressure on provincial health departments (Prisen., 2023). For allied health workers, burnout may affect rehabilitation outcomes, discharge planning and interprofessional collaboration, which can negatively influence patient recovery and system efficiency.

Allied healthcare workers interactions with patients are usually therapy based. Therapy and rehabilitation require getting to know the patient well over an extended period of time and establishing a relationship based on trust. Appointments are longer and more frequent than those of a typical doctors' appointment (Singh et al., 2023; Heredia-Callejón et al., 2023). The treatment often involves the patients' family members. As a result, allied healthcare workers often form a close relationship with their patients and their families, making poor outcomes or the death of a patient, all the more traumatic (Phillips et al., 2025).

Allied healthcare workers also rely heavily on availability of resources. From wheelchairs and crutches to food parcels and splinting material, most of the therapy and rehabilitation cannot



University of Fort Hare
Together in Excellence

be performed without the necessary tools. Budget and procurement issues in the State sector are a constant problem, often resulting in insufficient resources and the subsequent trauma of healthcare workers having to turn patients away untreated (Zuma, 2022; Malematja, Nkosi & Nene, 2025).

The increasing prevalence of burnout, its strong link with depression and suicide risk and its impact on patient care and the health system highlights the need to study burnout in the lesser researched group of health professionals, allied healthcare workers. To manage and prevent burnout, it is important to understand the extent of the problem and what factors contribute to the situation. For this reason, the present study aims to determine the prevalence of burnout among allied healthcare workers at a state referral hospital in the Eastern Cape, South Africa.

1.2 Literature review

While there has been extensive research published on burnout, dating as far back as 1974, the concept of burnout has always been met with some degree of stigma and controversy (Freudenberger, 1974). In the medical field, burnout has historically had a reputation as being seen as a weakness and inability to cope with the demands of the job, placing the 'blame' on the medical professional (Suran & Sheridan, 1985). Multiple recent reviews and large multicentre studies have demonstrated that healthcare workers are at high risk for developing depression, anxiety and substance abuse (Al Maqbali et al., 2024; Kasew et al., 2024; Too et al., 2025)

Recent evidence shows that burnout is very common among healthcare workers worldwide. A 2023 systematic review of studies conducted during the first year of the COVID-19 pandemic reported that up to half of healthcare workers had moderate to high levels of burnout (Agata et al., 2023). In South Africa, a recent review of studies on doctors working in public and private facilities found burnout prevalence ranging from 4% to 84% before the COVID 19 pandemic and 58.9% to 78.0% during and after the pandemic (Khan, Ntamatla & Adams, 2024).

Although there is less available research for the allied healthcare worker population, they appear to be as vulnerable to burnout as other healthcare workers. A 2024 systematic review and meta-analysis of musculoskeletal allied health practitioners (including physiotherapists and occupational therapists) reported a prevalence of approximately 40% for high emotional exhaustion, 26% for high depersonalisation and 25% for low personal accomplishment (Clarke,

Frecklington & Stewart, 2024). A separate review of physiotherapists found moderate to high burnout in many settings and linked this to high workloads, role conflict and limited professional recognition (Venturini et al., 2024). Dietitians and other rehabilitation professionals working in hospitals and community services have also reported substantial emotional exhaustion and cynicism, particularly when they manage complex caseloads with limited resources (Alhaj et al., 2024).

There is also growing concern about the link between burnout and suicidal risk in healthcare workers. A review pooling data from many studies showed that physicians, nurses and other clinicians have a higher risk of suicide than the general population, with female clinicians particularly affected (Jain et al., 2024). This suggests that burnout is not just about being tired or dissatisfied at work and that, in combination with other factors, can contribute to serious mental health outcomes, including suicide (Nguyen et al., 2025; Jain et al., 2024).

In May 2019, the World Health Organization (WHO) announced that burnout would be allocated its own specific ICD (International Classification of Diseases) code in its 11th revision. Burnout is now recognized as an occupational phenomenon, and the ICD-11 specifically states that 'burnout is occupation specific and should not be applied to describe experiences in other areas of life'. WHO defines burnout as a syndrome resulting from chronic workplace stress that has not been successfully managed (World Health Organization, 2019; p. 1).

The WHO's decision is significant as it highlighted that burnout is not a disease but an occupational phenomenon. Burnout is now seen as a result of the work environment, particularly when the available resources and the volume of work prevent a person from performing their duties in a meaningful way (Khammissa et al., 2022; Bianchi, 2023).

This definition of burnout helps to shift some of the responsibility away from employees and moves it on to the organisations that employ them. The concept of 'fixing' the workplace, rather than 'fixing' the worker may help to destigmatise burnout and allow for effective treatment and prevention strategies.

Healthcare worker burnout has significant consequences for the overall healthcare system. Poor emotional well-being and the high risk of suicide are the immediate results of untreated burnout in healthcare workers, but there is also a substantial body of research available on the effects of healthcare worker burnout and quality of care delivered to their patients.

Large meta-analyses and multi-country studies quantify the impact of burnout on patient care. Higher nurse and physician burnout scores are associated with more medical errors, adverse events, nosocomial infections, patient falls and missed care, together with lower patient satisfaction and poorer clinician-rated quality of care (Hodkinson et al., 2022; Li et al., 2024; Aiken et al., 2023). Burnout has also been found to contribute to staff turnover and loss of experienced staff (Hodkinson et al., 2022).

There is also growing evidence that burnout is very costly. In the United States, physician burnout alone is estimated to cost the health system at least US\$4.6 billion each year, mainly because burnt-out doctors are more likely to cut back their hours or leave the job (Khullar, 2023). More recent modelling suggests that when burnout and disengagement are considered across the whole workforce, organisations can lose millions of dollars in productivity and health-related costs (Martinez et al., 2025).

The cost of care is affected in the following ways:

- Directly, through staff turnover, early retirement or permanent exit, sickness absence and reduced productivity (Shin et al. 2023; Martinez et al. 2025) and
- Indirectly, through increased medical errors and other patient-safety incidents, avoidable investigations and hospital use, and associated medico-legal costs (Hodkinson et al. 2022; Li et al. 2024).

The Job Demands–Resources (JD-R) model provides the overarching conceptual framework for understanding how burnout develops in healthcare workers. Bakker, Demerouti and Sanz-Vergel (2023) explain that the model proposes that every job can be described in terms of job demands, (e.g. high workload, time pressure, emotionally challenging patient interactions, staff shortages and role conflict) and job resources e.g. adequate staffing, autonomy, supervisory support, team cohesion and opportunities for recovery and development. When job demands are chronically high and resources are insufficient, a health-impairment process is triggered that depletes energy and contributes to emotional exhaustion, depersonalisation and reduced personal accomplishment. Sufficient resources create a motivational process that encourages work engagement and protects against burnout (Bakker, Demerouti & Sanz-Vergel, 2023; Wójcik et al., 2022).

This evidence shows that healthcare worker burnout is not only harmful for staff well-being, but also contributes to poorer patient outcomes, reduced patient safety and higher costs for the health system. This highlights the importance of preventing burnout and addressing it early when it occurs.

1.3 Problem statement

Numerous studies have demonstrated the high prevalence of burnout in healthcare workers, specifically in doctors and nurses (Agata et al., 2023; Khan, Ntamatamala & Adams, 2024). However, there is a scarcity of data relating to the incidence of burnout in South African healthcare workers, specifically in allied healthcare workers (Grace and Moodley, 2024).

Allied healthcare workers are therapy based. Appointments are longer and more frequent than those of regular doctor and nurse interactions. As a result, allied healthcare workers often form close relationships with their patients and their families, possibly putting this group of professionals at even greater risk for burnout. The reasons for the developing burnout may also be different to those of other healthcare workers (Singh et al., 2023; Heredia-Callejón et al., 2023).

Considering the devastating effects of burnout to the individual healthcare worker, the patients they treat and the healthcare system at large, it is vital that employers of healthcare workers can quantify the degree to which their employees are affected and to have effective and targeted strategies in place to manage this devastating condition.

Most of the published research available has concentrated on doctors and nurses, with the majority of these investigations being conducted in high-income or international settings rather than in African contexts (Guastello et al., 2024; Jan and Keenoo, 2024; Nyirigira et al., 2025).

A local research study measured the prevalence of burnout amongst South African allied healthcare workers working exclusively in the private healthcare setting (Grace & Moodley, 2024). The results of this study found that the burnout rates were as high, and higher, than those measured in other studies conducted on similar populations internationally. The researchers postulated that results in allied healthcare workers working in the South African state sector could be higher, due to the poor working conditions in state facilities.

By investigating the prevalence and cause of burnout in state facilities, one would gain a deeper understanding of this complex phenomenon which could assist in the development of more effective burnout management strategies for this unique group of healthcare workers. This would benefit the healthcare worker, patient and healthcare system at large.

1.4 Aim & objectives

The aim of this study is to evaluate and determine the prevalence of burnout among allied healthcare workers in a tertiary hospital in the Eastern Cape Province.

The objectives of the study are:

- 1.1. To determine the prevalence of burnout in allied healthcare workers in a tertiary hospital in the Eastern Cape Province.
- 1.2. To identify potential determinants of burnout among allied healthcare workers at a tertiary hospital in the Eastern Cape Province.
- 1.3. To examine the relationship between demographic factors and burnout among allied healthcare workers in a tertiary hospital in the Eastern Cape Province



1.5 Research questions

What is the prevalence of burnout in allied healthcare workers in a tertiary hospital in the Eastern Cape Province?

What are the determinants of burnout among allied healthcare workers in a tertiary hospital in the Eastern Cape Province?

Is there any relationship between demographic factors and burnout among allied healthcare workers in a tertiary hospital in the Eastern Cape Province?

1.6 Significance of the study

Since reliable data on the burden and causes of burnout are lacking in the allied healthcare workers in the Eastern Cape province, South Africa, this study may enable accurate prediction of prevalence rates of burnout within the healthcare workers which may inform preventive interventions and/or health policy aimed at reducing morbidity and mortality.

The research would be of immediate benefit to the facility, providing details regarding the incidence of burnout in the allied healthcare work force. It would also allow the institution to

implement targeted interventions to manage and prevent burnout, possibly reducing sick days and staff turnover, and could also result in improved quality of care.

1.7 Methodology

1.7.1 Research paradigm

This study adopted a positivist paradigm, which assumes that social phenomena can be objectively observed, measured and analysed using standardised tools and statistical techniques (Ryan, 2022; Thanh & Thanh, 2022). Positivism was appropriate because the aim was to quantify levels of burnout and test measurable relationships between burnout scores and demographic/work variables, rather than explore subjective meanings in depth.

1.7.2 Research approach

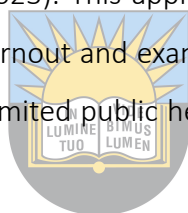
A quantitative, cross-sectional survey design was used, with all variables measured at a single point in time using a self-administered questionnaire that included the Maslach Burnout Inventory (Sedgwick, 2023; Ghanad, 2023). This approach was appropriate as it allowed the study to estimate the prevalence of burnout and examine associations between burnout and other factors in a cost-effective, time-limited public health setting (Setia, 2022; Queirós, Faria & Almeida, 2022).

1.7.3 Population and sampling

The study population comprised allied healthcare professionals (e.g. dietitians, physiotherapists, occupational therapists, speech therapists, audiologists, social workers, orthotists/prosthetists and radiographers) employed at a 920-bed, tertiary hospital in East London (Casteel & Bridier, 2021; Hospital Clinical Support Services Directorate, 2022). Because the total number of allied health staff was relatively small (n=83), a census approach was used and all eligible staff were invited to participate, which was appropriate to maximise power and representativeness in this single-site study (Raosoft, 2025).

1.7.4 Data collection tool

Data was collected using a self-administered questionnaire consisting of a demographic section adapted (with permission (see Appendix 3) from du Preez's (2012) tool and the MBI to measure emotional exhaustion, depersonalisation and personal accomplishment (du Preez, 2012; Maslach et al., 2018). This combination was appropriate because it provided standardised,



University of Fort Hare
Together in Excellence

validated measures of burnout with key demographic and work-related variables, enabling subgroup analysis and comparison with previous allied health burnout studies.

1.7.4.1 Maslach Burnout Inventory

The MBI is a 22 question, self-administered scale scored on a Likert-type frequency range, assessing emotional exhaustion, depersonalisation and reduced personal accomplishment, with high EE and DP and low PA indicating higher burnout (Juliana Pontes Soares et al., 2023; Elbarazi et al., 2017). The tool has demonstrated good internal consistency, with Cronbach's alpha coefficients above 0.70 for all three subscales (Maslach et al., 2018), making it appropriate for this study as a reliable and widely used instrument in healthcare settings, including allied health professionals.

1.7.5 Data analysis

MBI subscale scores were calculated and categorised into low, moderate and high levels according to the MBI manual. Questionnaire and demographic data were coded in Excel and analysed using SPSS. Descriptive statistics (frequencies, percentages, means and standard deviations) were used to summarise the data, while inferential statistics, specifically t-tests, were used to explore associations between burnout and demographic/work-related variables, with a p-value of 0.05 set for statistical significance (Setia, 2022; Wang & Cheng, 2020). This analytical strategy was appropriate as it directly aligned with the study objectives of estimating prevalence and identifying statistically significant relationships between burnout and potential determinants.

1.7.6 Ethics

Ethical principles of confidentiality, anonymity and voluntary participation were upheld. No identifying information was collected on questionnaires, data sheets were stored securely, and electronic data was password-protected. Data will be destroyed after publication or within three years (Zimmerman, 2024). The study adhered to the Declaration of Helsinki, protecting participants' autonomy, dignity and privacy (Gelling, 2022), which was appropriate given the sensitive nature of burnout and mental health in a workplace setting and helped to safeguard both ethical and methodological integrity.

1.8 Expected outputs

- The results of the study will be presented to the executive management team of the Hospital where the research is to be conducted.
- Advocacy for the implementation of evidence-based interventions in the facility, based on the results of the study will be pursued.
- The researcher is planning to present at relevant Congresses and publish in a peer-reviewed journals.

1.9 Summary

Chapter 1 has outlined the growing global and South African concern regarding burnout among healthcare workers, with particular attention to the under-researched group of allied healthcare professionals employed in the public sector. It has highlighted how chronic work-related stress, resource shortages, heavy caseloads and the emotional demands of long-term therapeutic relationships contribute not only to burnout, but also to depression, suicidal risk and poorer patient outcomes. The chapter identifies a gap in the literature on burnout among allied healthcare workers in state facilities in South Africa, despite evidence that their risk may be comparable to, that of doctors and nurses.

The chapter has set out the problem statement, aim, objectives and research questions that will guide the study, and briefly described the cross-sectional analytical design, study setting, population, sampling approach, measurement tools and ethical considerations. By quantifying the prevalence of burnout and exploring associated demographic and work-related factors in allied healthcare workers at a tertiary hospital in the Eastern Cape, this study aims to generate evidence that can inform targeted interventions, support staff wellbeing and strengthen the quality and sustainability of care within the public health system.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

Globally, burnout has emerged as a critical occupational health concern among healthcare professionals, with significant implications for both workforce well-being and patient care outcomes. Burnout has been conceptualised as a multidimensional syndrome involving emotional exhaustion, depersonalisation and reduced personal accomplishment (Maslach & Leiter, 2022). Healthcare workers are particularly vulnerable due to the high emotional demands, long working hours, and often inadequate resources associated with their roles. Recent studies highlight that burnout not only reduces professional performance and job satisfaction but also compromises the quality and safety of patient care, thereby posing a systemic challenge to healthcare delivery (Shanafelt et al., 2022). Evidence shows that burnout in healthcare workers is linked to more medical errors, poorer patient safety and quality of care, reduced productivity, lower job satisfaction and higher turnover intentions (Hodkinson et al., 2022; Amer et al., 2022; Li et al., 2024). Burnout's formal recognition in the ICD-11 as an occupational phenomenon, and the growing debate this has generated, highlight burnout as a key issue for health systems research and practice rather than just an individual problem (Bianchi & Schonfeld, 2023).

This chapter will explore the definition of burnout, along with the individual components that make up this complex condition. It will also examine burnout within the unique South African healthcare context, with attention being paid to the affects the Covid-19 pandemic had on healthcare worker wellbeing. In order to gain a better understanding of burnout, the causes and consequences will be studied, and the extent of the problem will be investigated. Finally, the latest research on recovery will be presented, along with the identified strategies to effectively manage and prevent burnout.

2.2 Defining burnout

Burnout is defined as a work-related syndrome characterised by chronic occupational stress that has not been successfully managed, with core dimensions of emotional exhaustion, depersonalisation and reduced personal accomplishment (World Health Organization, 2019; Maslach & Leiter, 2022). The World Health Organization (WHO, 2022) formally recognises

burnout in the International Classification of Diseases (ICD-11) as an occupational phenomenon rather than a medical condition. This definition frames burnout specifically within the workplace context, distinguishing it from mental health disorders such as depression.

The literature on burnout has increasingly found that burnout develops as a consequence of sustained imbalances between job demands and available resources, resulting in cumulative psychological strain (Shanafelt *et al.*, 2022; Demerouti & Bakker, 2023; Bakker, Demerouti & Sanz-Vergel, 2023). Importantly, burnout is not only represents an individual's response to these sustained pressures, but is also reflective of the failings of the working environment (Maslach & Leiter, 2022; Gabriel & Aguinis, 2022; Pladdys, 2024).

The World Health Organization's definition of burnout in ICD-11 aligns closely with the three-domain concept that underpins the Maslach Burnout Inventory (MBI). Burnout is described as a work-related syndrome resulting from chronic workplace stress (World Health Organization, 2019; Bianchi & Schonfeld, 2023). The MBI operationalises this framework into its three measurable domains (emotional exhaustion, depersonalisation and reduced personal accomplishment). The MBI has become the most extensively used instrument for assessing burnout, helping to establish it as a quantifiable concept in the scientific literature (Maslach & Leiter, 2022; Hewitt *et al.*, 2020; Bianchi & Schonfeld, 2023). In summary, the WHO definition provides a formal classification of burnout as an occupational phenomenon, whereas the Maslach/MBI definition offers a psychological model and measurement tool for understanding how burnout manifests in individual workers.

2.3 Dimensions of burnout

Maslach and Jackson (1981) identified emotional exhaustion, depersonalisation and reduced personal accomplishment as the main components of burnout. These components remain the most generally accepted elements of burnout and will thus be discussed further.

2.1.1 Emotional exhaustion

Emotional exhaustion (EE), often regarded as the most significant component of burnout, is typically described as feeling emotionally overextended and depleted of one's emotional resources (Edú-Valsania, Laguía & Moriano, 2022). Koutsimani and Montgomery (2022) report that emotional exhaustion significantly impairs professional efficacy and contributes to deteriorating patient care. There are multiple studies that have consistently linked emotional

exhaustion to decreased job satisfaction, increased absenteeism, and compromised patient care amongst health care workers (Nagle *et al.* 2024)).

Recent literature describes nurses attributing emotional exhaustion due to extended patient contact and limited autonomy (Muller *et al.*, 2023; Barnard *et al.*, 2023). Dimitrui *et al* (2021) found that female healthcare workers experienced higher levels of EE. This was explained by the traditional domestic roles women are often expected to perform in the home, in addition to their professional responsibilities.

Additional factors found to strongly correlate with increased levels of EE, include, lack of support within the healthcare organisation, excessive workload, and poor leadership (Al Sabei *et al.*, 2025)

Studies using the MBI consistently report high EE scores as the first and most persistent symptom of burnout among healthcare professionals (Koutsimani & Montgomery, 2022). This component often precedes depersonalisation and reduced personal accomplishment, making it a critical early indicator of workforce distress.

2.1.2 Depersonalisation

Depersonalisation is another key component of burnout. According to Maslach and Jackson's (2022) conceptualisation of burnout, depersonalisation manifests as a negative, cynical, or excessively detached response, often seen in those working in emotionally demanding roles such as healthcare. In the context of clinical care, depersonalisation not only affects the well-being of healthcare workers but can also affect the quality of care delivered to patients.

Research indicates that depersonalisation develops as a maladaptive coping strategy in response to emotional overload. Exposure to suffering, death and patient dissatisfaction can lead to some healthcare workers emotionally distancing themselves from patients, to preserve their own mental health (Morgantini *et al.*, 2020). Several studies show that depersonalisation is linked to reduced empathy, poorer patient care, and increased error rates (Zhou *et al.*, 2025; Dobešová Cakirpaloglu *et al.*, 2024; Delgado *et al.*, 2023). It has been found that in organisations where depersonalisation is widespread, team dynamics are affected and can contribute to a toxic work environment, compounding the stress experienced by staff.



University of Fort Hare
Together in Excellence

Evidence suggests that healthcare workers, particularly those in high-intensity roles such as emergency medicine, intensive care, and allied health professions, experience high rates of depersonalisation. Allied health professionals, including physiotherapists, occupational therapists, and radiographers, often report feelings of detachment due to limited patient interaction time and administrative overload (Craig et al., 2021).

In South Africa, Purbrick et al (2024) found very high levels of depersonalisation (DP) among community service doctors with 94% indicating that they experience this in the workplace. This detachment was linked to unhealthy coping methods such as alcohol use, more frequent reports of past mental illness and stronger intentions to leave the public health sector. Nurses at a private hospital in Johannesburg reported that DP was linked to higher depression scores (Dyasi *et al.*, 2024). Research in emergency departments has also shown that DP leads to less empathy and more strained relationships with patients, lowering both quality of care and staff satisfaction (Naidoo & Schoeman, 2023). In a national survey conducted by Barnard and Coetzee (2025) it was found that DP contributed to patient errors, as emotional detachment resulted in a more mechanical approach to care and reduced attention to detail.

The COVID-19 pandemic further intensified the depersonalisation experienced by healthcare workers, particularly in low- and middle-income countries like South Africa. Research conducted during and after the pandemic has highlighted an increase in emotional exhaustion and detachment, particularly among frontline and allied healthcare professionals (Naidoo & Schoeman, 2023). The necessity to rapidly adapt to new roles, personal protective equipment reducing patient connection, and the emotional toll of witnessing preventable deaths exacerbated the sense of disengagement and depersonalisation (Meira-Silva et al., 2022; Shanafelt et al., 2022; Li et al., 2024).

Current literature highlights the importance of recognising depersonalisation not as an isolated psychological response, but as an indicator of broader organisational and systemic dysfunction within the healthcare environment (Maslach & Leiter, 2022; Khan, Ntamatamala & Adams, 2024). Maslach and Leiter (2022) emphasise that depersonalisation often results from workers lack autonomy, insufficient recognition, and conflicts within their roles.

2.1.3 Reduced personal accomplishment

The third dimension, reduced personal accomplishment, reflects a decline in self-efficacy and satisfaction with one's professional achievements (Maslach & Leiter, 2023). Healthcare workers experiencing reduced personal accomplishment may feel incompetent or unappreciated, despite their efforts (De Kock et al., 2021). This can lead to decreased motivation and higher staff turnover, adding additional strain to the healthcare system (Barello et al., 2022).

In the South African context, the healthcare system faces unique challenges that exacerbate burnout among workers, including nurses and allied health professionals. Evidence from South African studies shows that limited staffing and resources, along with heavy workloads and weak leadership are associated with higher burnout and intensified feelings of personal accomplishment. It was reported that many healthcare workers felt undervalued and unable to meet patient care demands, leading to diminished job satisfaction and a sense of professional inadequacy (Moses et al., 2024; Khan et al., 2024; Barnard et al., 2023; Ditlopo et al., 2024; Van Zyl-Cillié et al., 2024).

Moses et al, (2024) found that healthcare workers experiencing low personal accomplishment are at a higher risk of disengagement from their roles, which can undermine team dynamics and negatively impact patient outcomes.



University of Fort Hare
Together in Excellence

A reduced sense of personal accomplishment can lead to adverse effects on mental health. Health professionals experiencing feelings of inadequacy often suffer from anxiety and depression, leading to decreased performance and increased absenteeism (Dyasi et al., 2024; Maddock, 2024; Dūdiņa & Martinsone, 2025).

A recent study identified that allied health workers with lower perceptions of personal accomplishment reported higher levels of anxiety and depressive symptoms, impacting their ability to provide optimal patient care (Clark et al., 2024). Mental health struggles among healthcare workers not only affect their well-being but can also lead to safety risks in clinical settings, where mental fatigue can impair judgment and decision-making (Hueto Madrid et al, 2025).

2.2 Healthcare in South Africa

South Africa operates within a two-tiered healthcare system, consisting of what is known as the 'public sector' and the 'private sector'. The public sector is described as resource constrained

while serving approximately 84% of the population, while the well-resourced private sector, caters to the remaining 16% of the population (Gray & Vawda, 2019).

The allocation of financing is different for the two different sectors. A report prepared by National Treasury in 2022 stated that the public sector is responsible for approximately 48% of total health expenditure, with most of the funding being made available through government funding. The private sector receives 52% of total healthcare funding consisting of medical aid contributions and out of pocket payments. This imbalance results in severe underfunding of public hospitals and clinics, leading to shortages of healthcare workers, medical supplies, outdated equipment, and overcrowded facilities (National Treasury, 2022).

The disparity in funding has significant consequences for professionals working within the South African healthcare system. The underfunding of public healthcare sector has resulted in staff shortages of these healthcare facilities. This has led to high patient to staff ratios and excessive workloads (Matahela, Adekola & Mavhandu-Mudzusi, 2023). Healthcare professionals working in the private sector are offered better salaries and work in facilities with superior infrastructure, less equipment failures, consistent supply of consumables and more manageable workloads (Ngobeni, Breitenbach & Aye, 2020). Many clinical staff move from government institutions into the private sector, and many more move abroad for better pay and improved working conditions (Govender, 2024).

In response to a parliamentary question asked in the National Assembly, the Health Minister Dr Aaron Motsoaledi reported that between 2013 and 2024, approximately 12,745 doctors and 58,897 nurses resigned from public health facilities, averaging nearly 5,900 resignations annually (Parliamentary Monitoring Group, 2025). This excludes the number of healthcare professionals that left public service due to retirement or death.

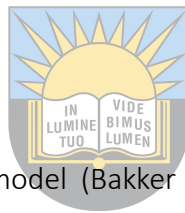
The loss of healthcare workers has critical implications, weakening staff retention while adversely affecting patient care services. Ongoing resignations and migration among clinicians reduce available personnel and exacerbate the challenges faced by an overburdened public health system. (Gray & Vawda, 2019). This loss creates a vicious cycle, where remaining staff face even greater workloads, increasing burnout and attrition rates. Patients experience longer waiting times, reduced access to specialised care, and poorer service quality (Naidoo & Schoeman, 2023). Additionally, the loss of skilled and experienced clinicians undermines health

system resilience and hinders progress toward universal health coverage and the effective implementation of the National Health Insurance (NHI) scheme (Rispel, 2022). Although largely supportive of universal healthcare, South African healthcare workers have raised concerns regarding its proposed funding model, lack of consultation with healthcare providers and the governments' ability to implement the programme effectively (Mkhwanazi, 2024; Narain & Mathye, 2025).

Understanding the background of the South African healthcare system is important as it provides the context of the unique and different environments that clinicians are working in, and why burnout may present differently in those working in the different settings.

2.3 Causes of burnout

Burnout among healthcare workers is a multifactorial phenomenon shaped by both personal vulnerabilities and systemic stressors. While burnout is not classified as a medical condition, its determinants are embedded in both individual susceptibility and broader workplace environments (WHO, 2022).



2.3.1 Theoretical model

The Job Demands–Resources (JD-R) model (Bakker & Demerouti, 2023) provides a useful framework, suggesting that burnout arises when high occupational demands consistently outweigh available resources, creating a sustained imbalance that compromises well-being and professional performance.

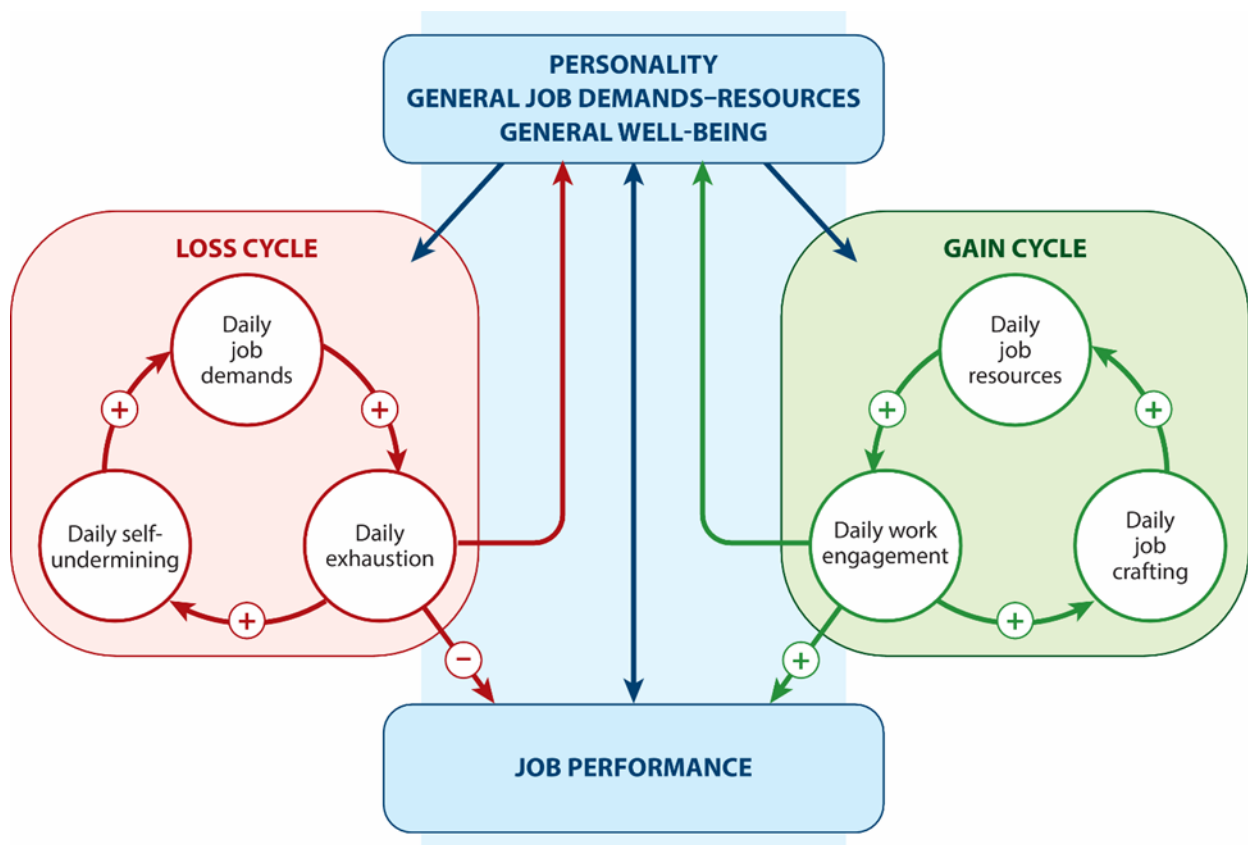


Figure 2.1: Job Demands–Resources (JD-R) model (Bakker & Demerouti, 2023)

The JD-R model describes burnout as the result of an imbalance between job demands and job resources, as is demonstrated in Figure 2.1 (Bakker et al, 2023).

Job demands are aspects of work that require sustained physical, emotional or cognitive effort, such as high patient loads, time pressure, long shifts, emotional labour and administrative burdens (demonstrated in the red block, as losses). These demands deplete energy, leading to exhaustion and eventually burnout (Bakker, Demerouti & Sanz-Vergel, 2023).

Job resources are factors that help workers cope with demands, such as supportive supervision, adequate staffing, professional autonomy, training and recognition (demonstrated in the green block, as gains). Resources buffer the negative effects of demands and promote engagement (energy, motivation, and commitment (Bakker, Demerouti & Sanz-Vergel, 2023).

The Job Demands–Resources (JD-R) model was first proposed by Demerouti and colleagues in the early 2000s to explain burnout. Over time, the model has evolved into a comprehensive JD-R theory that describes two main processes (Demerouti & Sanz-Vergel, 2023):

- a health-impairment process, where chronic job demands drain energy and contribute to burnout and other health problems, and
- a motivational process, where sufficient job resources encourage work engagement and positive outcomes.

Recent reviews describe JD-R as moving from an initial burnout-focused model to a broader framework for understanding both negative outcomes (burnout, ill-health, turnover) and positive outcomes (engagement, performance and retention) (Bakker, Demerouti & Sanz-Vergel, 2023).

Because of this flexibility, the JD-R model has been applied in many sectors, including education, social services and healthcare. In the healthcare setting it is used to examine how combinations of high demands and constrained resources shape burnout and related outcomes. Studies using the JD-R framework among health professionals have shown that high emotional and cognitive demands, workload and time pressure, combined with limited autonomy, weak organisational support and inadequate staffing or equipment, are associated with higher levels of burnout and poorer wellbeing (Mijakoski et al., 2023; Wei et al., 2024).

In the context of this dissertation, the JD-R model provides a framework that links specific variables such as workload, staffing shortages, organisational support, autonomy, infrastructure and administrative tasks to the development of emotional exhaustion, depersonalisation and reduced personal accomplishment among allied healthcare workers in a resource-constrained public sector hospital.

2.3.2 Environmental and organisational determinants of burnout

The JD-R framework locates the roots of burnout primarily in environmental and organisational design, with personal factors acting as modifiers rather than sole causes (Bakker & Demerouti, 2023; Shanafelt et al., 2022). Studies on burnout have consistently identified the following as environmental and organisational risk factors:

2.3.2.1 Workload and Staffing Shortages

A consistent determinant of burnout across healthcare systems is excessive workload combined with chronic staff shortages. High patient-to-provider ratios, long shifts, and extended on-call schedules increase physical and emotional strain, feeding into exhaustion and depersonalisation (Shanafelt et al., 2022). In low- and middle-income countries, including South

Africa, systemic underfunding and uneven workforce distribution exacerbate these pressures, with rural hospitals suffering even more severe staff shortages (Moses et al., 2024).

2.3.2.2 Organisational Support and Autonomy

The degree of support from supervisors and colleagues, along with professional autonomy, has been shown to significantly influence burnout risk. Healthcare workers who lack the power to make decisions or feel excluded from organisational processes are more likely to experience cynicism and disengagement (Nagle et al., 2024). In contrast, supportive leadership and recognition function as protective resources, building resilience and increasing job satisfaction. South African studies highlight limited supervisory guidance in community service placements as a predictor of emotional exhaustion among junior clinicians and allied health professionals (Struwig & van Stormbroek, 2023).

2.3.2.3 Workplace Climate and Safety

Toxic workplace culture, poor communication, and exposure to violence or harassment are environmental drivers of burnout. Workplace violence is an under-recognised but significant determinant in high-pressure environments such as emergency departments, where South African surveys report widespread exposure to threats and assaults (Nkadimeng et al., 2024). These types of unsafe conditions undermine a sense of control and professional efficacy.

2.3.2.4 Infrastructure, Resources and Administrative Burden

Poor infrastructure, shortages of medical supplies and lack of suitable equipment add to the development of burnout by impairing workers' ability to provide safe, timely care. This is particularly evident in South Africa's public sector, where clinicians frequently cite inadequate equipment and overcrowded facilities as contributors to moral distress (Khan & Davids, 2024). In high-income settings, by contrast, administrative overload and electronic health record (EHR) tasks are more salient, with evidence linking digital documentation burdens to higher rates of cognitive fatigue and burnout (Budd et al., 2023).

Environmental and organisational determinants, ranging from staffing and resource allocation to workplace culture and administrative systems, are central to the aetiology of burnout in healthcare professionals. While personal factors modulate vulnerability, it is these systemic and structural exposures that most strongly shape outcomes (Maslach & Leiter, 2022).

2.3.3 Personal risk factors as determinants of burnout

Although seen to have more of a modifying role in the development of burnout in healthcare professionals, personal risk factors are important determinants to consider as they influence individual susceptibility to burnout, as well as its progression (Bakker, Demerouti & Sanz-Vergel, 2023).

2.3.3.1 Experience

Multiple studies have demonstrated that newly qualified clinicians, such as interns and community service officers, face a disproportionately high risk of burnout due to limited autonomy, role ambiguity and insufficient coping resources (Krishnan et al., 2022; Khan et al., 2024; Purbrick, Morar & Kooverjee, 2024). International evidence shows that trainee doctors report some of the highest burnout levels in the profession. In the United Kingdom, a 2024 national survey found that 63% of trainees were at moderate or high risk of burnout, the highest rates recorded since monitoring began, with unsustainable workloads, lack of supervisory support, and unclear responsibilities identified as major contributors (General Medical Council, 2024). Similar trends have been reported in nursing, where role ambiguity is significantly correlated with emotional exhaustion and work alienation (Zhang et al., 2023). Newly qualified nurses in Norway and Sweden also identified poor mentorship and unclear expectations as critical stressors during training (Tast, 2024).

In South Africa, this risk is amplified due to systemic resource shortages and inequities in workforce distribution. Newly qualified clinicians often find themselves working without the recommended supervision. A national study of community service doctors reported that 89% experienced high emotional exhaustion, 94% high depersonalisation, and 97% low professional accomplishment, with lack of managerial support, overwhelming caseloads, and financial strain cited as key stressors (Purbrick et al., 2024). A local study conducted in Gqeberha found that being a medical intern or community service officer was associated with over six times higher odds of burnout, largely attributable to role conflict, unclear responsibilities, and limited support structures (Khan & Davids, 2024). Among newly qualified allied health professionals, similar findings are observed. Occupational therapists in community service posts report that poor supervision and low job satisfaction are strong predictors of burnout (Struwig & van Stormbroek, 2023). These South African findings echo international evidence but are intensified by the country's chronic resource constraints.

2.3.3.2 Gender

Gender has also been consistently identified as a significant determinant in the prevalence and manifestation of burnout among healthcare professionals. Women in healthcare tend to report higher levels of emotional exhaustion, whereas men more often present with depersonalisation or cynicism (Karakcheyeva et al., 2024). This aligns with gendered expectations and professional roles, with women often shouldering a disproportionate burden of emotional labour, caregiving responsibilities outside of work and higher exposure to harassment or discrimination in clinical environments (Shanafelt *et al.*, 2022). These psychosocial pressures contribute to an elevated risk of emotional strain and fatigue in female healthcare workers.

South African studies mirror international findings, showing that female clinicians are more likely to report emotional exhaustion, particularly in the public sector where workloads are intense and resources scarce. A study of rural healthcare providers in Mpumalanga reported significantly higher burnout scores in women, associated with heavier workloads, limited professional autonomy and added family responsibilities (Moses et al., 2024). Among community service occupational therapists, women highlighted poor supervision and limited role clarity as contributors to high emotional strain (Struwig & van Stormbroek, 2023).

2.4 Severity and extent of burnout in healthcare

Burnout rates among healthcare professionals escalated significantly during the COVID-19 pandemic. While prevalence has declined somewhat in the aftermath, the proportion of clinicians affected remains notably high (Zhu et al., 2023; Macaron et al., 2023; Zhou et al., 2022).

Through repeated national surveys conducted in 2011, 2014, 2017, 2020, 2021, and 2023, Shanafelt et al. (2025) recorded physician burnout trends in the United States, revealing both long-term patterns and the disruptive influence of the COVID-19 pandemic. Burnout was measured using the Maslach Burnout Inventory (MBI) tool. Results demonstrated significant fluctuations with physician burnout rising sharply in 2014 (54.4%), falling in 2017 (43.9%), rising substantially again in 2021 during the pandemic (62.8%), with a partial decline again in 2023 (45.2%). While 2023 levels demonstrated an improvement from the pandemic peak, they remain higher than baseline figures from 2011 (45.5%).



University of Fort Hare
Together in Excellence

A meta-analysis by Alanazy et al. (2023) examined the prevalence of burnout among emergency medical clinicians, incorporating 29 studies with a combined sample of 16,619 healthcare workers. The findings revealed a high overall prevalence of burnout at 43%, with 35% of clinicians identified as being at high risk. Analysis of the individual domains of the Maslach Burnout Inventory (MBI) showed that 39% reported high emotional exhaustion (EE), 43% high depersonalisation (DP), and 36% low personal accomplishment (PA). Importantly, the prevalence of burnout was significantly higher during the COVID-19 pandemic compared with the pre-pandemic period. Moreover, the type of profession, for example nurses, physicians, or paramedics, substantially influenced burnout prevalence and its domain-specific pattern.

A separate meta-analysis focusing exclusively on physiotherapists reported a pooled burnout prevalence of 8%. When broken down by the dimensions of the Maslach Burnout Inventory (MBI), prevalence estimates were 27% for emotional exhaustion (EE), 23% for depersonalisation (DP) and 25% for low personal accomplishment (PA). Importantly, both overall burnout and domain-specific prevalence appeared higher in studies conducted in developing countries, though these differences did not reach statistical significance. The review included 32 studies, encompassing a total of 5,984 physiotherapists across 17 countries (Venturini et al., 2024).



University of Fort Hare

In a review done by Nagarajan et al. (2024), the results of 8 studies on burnout prevalence were pooled, with a total number of 215,787 healthcare workers investigated. The authors concluded that 39% of the clinicians investigated were suffering from burnout. Once again, it was found that surveys done during the COVID 19 pandemic resulted in higher levels of burnout, when compared to those conducted pre pandemic.

In the South African context, the burden of burnout appears particularly pronounced. Among emergency care workers, prevalence rates are notably higher than many global estimates. Naidoo et al. (2023) conducted a cross-sectional survey at Tygerberg Hospital in Cape Town using the Maslach Burnout Inventory (MBI) and reported that 57.9% of doctors and 50.0% of nurses were experiencing burnout. Even more concerning, 71.6% of these healthcare workers were identified as being at high risk of either emotional exhaustion or depersonalisation.

In a national cross-sectional study using the Maslach Burnout Inventory (MBI), Purbrick et al. (2024) surveyed 208 community service doctors and reported exceptionally high burnout

scores. There was found to be an overall burnout prevalence of 83% amongst this group. Prevalence was 89% for emotional exhaustion, 94% for depersonalisation, and 97% for low personal accomplishment. Key contributors included overwhelming patient loads, long working hours and female gender. Supportive hospital management, acceptable working hours and taking over the counter medication emerged as protective factors.

A cross-sectional study during the COVID-19 pandemic at a public hospital in Gqeberha found a 78% prevalence of burnout among public-sector doctors. Burnout was more common in junior staff (interns and community service doctors), with role conflict and ambiguity increasing risk, while supportive workplaces, job satisfaction, and resilience acted as protective factors (Khan & Davids, 2024).

The available evidence on burnout prevalence among allied healthcare professionals in South Africa is limited, however, the available studies indicate that burnout is present and, in some cases, substantial. For example, community-service occupational therapists have shown high rates of emotional exhaustion, while frontline physiotherapists reported elevated levels of burnout during the COVID-19 pandemic. Preliminary research in radiography also points to meaningful prevalence in public facilities, although findings remain early. A further challenge is that the studies conducted have not consistently used the same assessment tools (e.g., the Maslach Burnout Inventory), making it difficult to directly compare prevalence estimates across professions or with international data. For dietitians, local prevalence figures remain unavailable; nonetheless, international research suggests that their risk of burnout is comparable to that of other healthcare clinicians.

These findings emphasise the vulnerability of allied health professionals and the urgent need for more standardised, profession-specific research in the South African context (Struwig & van Stormbroek, 2023; de Andrade et al., 2024; Bemath et al., 2023; Saul et al., 2024; van den Berg et al., 2024; Alhaj et al., 2024; Grace & Moodley, 2024).

2.5 Consequences of burnout

Burnout has far-reaching consequences that extend beyond the individual clinician, undermining patient care and straining the healthcare system at large. Its manifestations are multidimensional, encompassing psychological, physical, and professional repercussions that feed into a cycle of diminished quality and sustainability of healthcare (Hodkinson et al., 2022).

2.5.1 Implications for the individual healthcare worker

Burnout is closely linked to adverse mental health outcomes, including depression, anxiety, sleep disturbances and suicidal ideation (Shanafelt *et al.*, 2022; Nazeema et al., 2023). Chronic exposure to stress contributes to physical health risks, such as cardiovascular disease, metabolic syndrome, musculoskeletal disorders and increased susceptibility to infections (Karakcheyeva et al., 2024).

From a professional perspective, burnout reduces job satisfaction and increases absenteeism, especially among junior staff (Purbrick et al., 2024; Khan & Davids, 2024). In South Africa, a survey at Charlotte Maxeke Johannesburg Academic Hospital revealed that 46.2% of doctors screened positive for burnout and 53.7% for depression, with younger clinicians and those in high-stress specialties most vulnerable (Nazeema et al., 2023).

2.5.2 Implications for patient care

Burnout has been shown to compromise the safety and quality of healthcare delivery. Clinicians experiencing emotional exhaustion and depersonalisation have been found to be more likely to make diagnostic and medication errors, along with increased mistakes in procedural care (Shanafelt *et al.*, 2022). These errors are particularly dangerous in high-pressure environments such as emergency departments, where delays in treatment or incorrect interventions can be life-threatening. A systematic review of emergency department staff worldwide reported that burnout was significantly associated with reduced patient safety and poorer communication outcomes (Alanazy et al., 2023).

Li et al (2024) reports that patients described impaired communication, reduced trust and lower satisfaction when being treated by burnt-out healthcare professionals. This demonstrates the reduced experience of quality care.

2.5.3 Implications for the health system

At a health system level, burnout threatens the stability, efficiency and financial sustainability of healthcare. High levels of burnout exacerbate workforce attrition and migration, particularly in newly qualified professionals, resulting in increased recruitment and training costs (Purbrick et al., 2024; Moses et al., 2024).

Productivity is also negatively affected, as burnt-out staff are more likely to take sick leave, reduce their clinical hours, and demonstrate lower efficiency in their roles (Nagle et al., 2024).

In resource-limited settings such as South Africa, burnout intensifies existing challenges. Staff shortages are worsened as clinicians leave the public sector or migrate abroad, undermining service delivery capacity. Furthermore, burnout-related errors contribute to increased medico-legal litigation, which already represents a major financial burden to the South African health system (Khan & Davids, 2024). Collectively, these outcomes undermine the resilience of healthcare systems, reduce access to safe, equitable care, and perpetuate health disparities.

2.6 Burnout prevention and interventions for healthcare workers

Healthcare worker burnout results from a complex interaction between the demands of healthcare organisations and the individual vulnerabilities of clinicians (Khan, Ntatamala & Adams, 2024). Therefore, effective interventions must operate across multiple levels rather than targeting a single dimension of the problem (Gabriel & Aguinis, 2022). Historically, strategies to prevent or manage burnout have been directed primarily at the individual, emphasising personal resilience and coping mechanisms, yet growing evidence shows that this approach is insufficient on its own (Bianchi & Schonfeld, 2023; Society of Occupational Medicine, 2023). Sustainable and effective interventions require an integrated model that combines individual self-care and resilience training with organisational redesign and policy-level reforms, addressing both the systemic drivers of burnout and the personal capacity of healthcare workers to respond to workplace stressors (Maslach & Leiter, 2022; Office of the Surgeon General, 2022; Society of Occupational Medicine, 2023).

2.6.1 Individual-level strategies

Programs that aim to help individual healthcare workers often focus on stress reduction, mindfulness, exercise, and peer support. Recent reviews show that mindfulness-based interventions (MBIs) can improve stress and lower emotional exhaustion, at least in the short term (Ong et al., 2024). A 2024 study found that a short, five-hour training session helped staff feel less burnt out, although the effects were not long-lasting unless staff kept practicing these skills (Sexton et al., 2024). Peer-support programs have also shown some promise. A study by Meridith et al (2024) study found that peer “stress first aid” helped reduce overall distress in some groups, but it did not always reduce burnout directly.

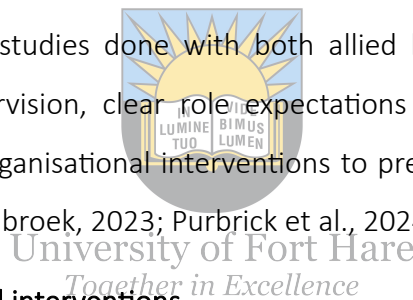
In South Africa, studies suggest that structured supervision and social support are especially important for early-career healthcare workers, such as community service doctors and allied

health professionals, as these factors can protect against burnout (Struwig & van Stormbroek, 2023).

2.6.2 Organisational level interventions

The available literature on prevention and intervention for healthcare worker burnout, demonstrates that changes at the organisational level are the most effective. This includes better staffing, fairer workloads and supportive leadership. A 2023 review found that when hospitals improved nurse-to-patient ratios and gave staff more control over their work, levels of burnout dropped (Lee & Cha, 2023). Another review looking at doctors found that schedule redesign, workload redistribution and improved supervision were more effective than individual-level strategies alone (Kiratipaisarl et al., 2024). Two separate studies demonstrated that reducing administrative burdens, such as not having to respond to emails while away from work and improved functionality of electronic health records, effectively reduced burnout (Holmgren et al., 2024; Sinsky et al., 2024)

In South African specifically, studies done with both allied healthcare workers and junior doctors suggested that supervision, clear role expectations and reliable access to senior support would be effective organisational interventions to prevent burnout and reduce staff turnover (Struwig & van Stormbroek, 2023; Purbrick et al., 2024).



2.6.3 System and policy-level interventions

In 2022, the World Health Organisation published guidelines on Mental Health at Work, providing an evidence-based plan that prioritises prevention. This is done through organisational risk control (mitigating excessive workload, low job control, managing bullying and harassment), manager training to recognise and address psychosocial hazards, and delivery of worker training and access to care within paid work time (WHO, 2022; Malik, 2023). The guidelines recommend routine measurement of psychosocial risks. This could include assessments such as the MBI, that would assist organisations in establishing the prevalence of burnout allowing for suitable interventions to be put into place.

In South Africa, the National Mental Health Policy Framework and Strategic Plan 2023–2030 recognises workplace mental health as a priority (NdoH, 2023). The following aspects are covered by this policy:

- (i) financing and staffing policies that stabilise the work force (vacancy management, equitable distribution across levels of care)
- (ii) retention measures for rural and high-pressure facilities (housing, safe transport, study leave)
- (iii) medico-legal and administrative burden reduction
- (iv) protected wellbeing infrastructure (on-site counselling, peer support with clinical supervision)

Although this policy is promising, challenges remain in ensuring resources and monitoring are in place to fully implement and sustain these recommendations (NDoH, 2023).

2.7 Recovery from burnout

Burnout in healthcare workers is recognised by the WHO as an occupational condition linked to chronic workplace stress, rather than a medical disorder. Consequently, treatment is not about medication but about assisting clinicians recover through skills training, workplace changes, and supportive policies (WHO, 2022). Recent studies show that no single solution is sufficient, the most effective treatments are as a result of combining individual supports (like stress management and mindfulness) with changes in the organisation and work environment (Adam et al., 2023; Al-Busaidi et al., 2025).

2.7.1 Individual Approaches

Many programmes aim to help healthcare workers directly by improving their ability to cope with stress. Mindfulness-based interventions (MBIs) and cognitive behavioural approaches have been shown to reduce emotional exhaustion and stress, but only in the short term. A 2024 review of 27 randomised trials found that mindfulness programmes assisted healthcare workers feel less stressed and less burnt out, although the effects tended to fade if the practice was not continued (Ong et al., 2024). Another large trial showed that a short five-hour training course improved emotional exhaustion and work–life balance for staff, but mainly in the weeks after the programme (Sexton et al., 2024). Coaching and peer support also help. For example, a 2024 trial found that peer coaching reduced burnout and improved job satisfaction among physicians (Kiser et al., 2024).

2.7.2 Organisational Changes

While individual programmes help, sustainable recovery usually requires changes in the workplace itself. A 2023 meta-analysis found that changes to schedules, workload and supervision led to small but significant reductions in burnout. These benefits were amplified when combined with individual strategies (Bes et al., 2023). The literature shows that technology is a considerable role player. Studies demonstrated that poor electronic health record (EHR) systems increase frustration and burnout. When organisations improve usability, burnout levels decreased (Holmgren et al., 2024; Sinsky et al., 2024).

Reviews focusing on nurses and resident doctors demonstrated that individual interventions assisted with the recovery from burnout, but that organisational redesign and supportive leadership are crucial for long-term improvement (Lee & Cha, 2023; Kiratipaisarl et al., 2024). In South Africa, research on treatment is still limited, but studies highlight the importance of supervision, mentorship and role clarity as protective factors that could support recovery (Purbrick et al., 2024).



2.8 Conclusion

The literature on burnout in healthcare professionals has been reviewed in this chapter. In 2022, the WHO formally recognised burnout by including it in the International Classification of Diseases (ICD-11). The WHO defines burnout as a work-related syndrome arising from chronic occupational stress that has not been successfully managed, characterised by three core dimensions: emotional exhaustion, depersonalisation, and reduced personal accomplishment. This definition aligns closely with the framework of the Maslach Burnout Inventory (MBI), which, despite some debate, remains the gold standard and most widely applied instrument for assessing burnout.

The COVID-19 pandemic brought unprecedented attention to the issue of burnout among healthcare workers, sparking a surge in global research. Evidence consistently shows a high prevalence of burnout, with significant consequences not only for the well-being of healthcare providers but also for patient safety and the overall performance of health systems. Recognising, managing, and preventing burnout in clinicians is therefore vital for ensuring the sustainability of high-quality healthcare delivery. A thorough understanding of its causes, as well as of protective factors, is essential for equipping healthcare managers with the tools to respond effectively to this challenge.

Globally, the severity and extent of burnout are substantial, but its impact is even more pronounced in resource-constrained environments. In South Africa's public healthcare system, where workforce shortages and high patient loads are persistent challenges, prevalence rates are particularly concerning. Addressing burnout will be critical for strengthening workforce resilience, and for the successful implementation of reforms such as the National Health Insurance, which depends on a stable and supported healthcare workforce.



University of Fort Hare
Together in Excellence

CHAPTER 3

METHODOLOGY

3.1 Introduction

This cross-sectional, analytical study was conducted at a tertiary Hospital in East London. A cross-sectional design was chosen because it is widely used in public health research to measure the prevalence and associations of health-related outcomes at a single point in time, offering efficiency and feasibility in resource-limited settings (Setia, 2022).

Participation in the study was voluntary, in line with ethical principles of autonomy and informed consent (Gelling, 2022). All permanently employed allied healthcare workers at the facility were invited to take part, allowing for the collection of data from a defined population, which strengthens external validity in descriptive and analytical studies (Sedgwick, 2023).

A self-administered questionnaire was used as it is a cost-effective tool for gathering standardised, quantifiable data from larger groups, it reduces interviewer bias and is well suited to measuring subjective constructs such as burnout (Memon et al., 2023).

This chapter focuses on the study paradigm, approach and design, data collection and data analysis. Reliability of the data and ethical issues relating to the investigation was also discussed in the last sections of the chapter.

3.2 Research Paradigm

This study adopted a positivist paradigm, which was appropriate given that the research was quantitative in design and made use of a structured questionnaire to measure burnout.

Positivism assumes that social phenomena can be objectively observed and measured, making it well suited for identifying prevalence rates, testing relationships, and producing generalisable findings (Ryan, 2022). In the context of this research, which sought to quantify levels of burnout among healthcare professionals in South Africa, positivism allowed for the collection of standardised data that could be subjected to statistical analysis. This ensured objectivity, reduced researcher bias, and provided empirical evidence.

In contrast, an interpretivist approach would have been less suitable, as it prioritises subjective meaning and qualitative insights rather than the measurable patterns and associations central to this study's aims (Thanh & Thanh, 2022). While valuable for in-depth understanding, interpretivism would not have supported the structured, numerical measurement and statistical analysis required for this research. An interpretivist paradigm was not chosen for this study, as it is better suited to qualitative research methods such as interviews or focus groups exploring the lived experiences of the participants. This study aimed to quantify levels of burnout and identify measurable patterns among healthcare professionals, and thus positivism was a better fit than interpretivism because it aligns with the study's design, objectives, and methods.

3.3 Research Approach

Cross-sectional surveys are the preferred method for measuring the prevalence of disease and medical conditions (Sedgwick, 2023). The use of the Maslach Burnout Inventory (MBI) as the principal measurement tool informed the survey-style research design. This was a cross-sectional study, with all variables investigated at a single point in time using a self-administered data collection method.



The data collected for this study was done using a scale measurement tool (MBI). As a result, the data was numerically quantifiable and statistical methods was used for data analysis, which is in line with a quantitative study approach (Ghanad, 2023).

Quantitative research allows for reciprocity and generalisation, since standardised tools such as structured questionnaires provide consistent measurements across large groups of respondents (Setia, 2022). This level of objectivity and precision is valuable in public health research, where decision-making often depends on measurable evidence that can inform policies and workforce planning (Queirós, Faria & Almeida, 2022). By contrast, qualitative methods are more interpretive and context-bound, making them less suitable for the aims of this study, which focused on quantifying burnout prevalence among allied healthcare professionals in a South African hospital setting.

Surveys and questionnaires are particularly useful in public health research because they enable the collection of standardised data from a defined population in a cost-effective and efficient manner. They are able to capture data on both subjective experiences (such as feelings

of emotional exhaustion) and objective variables (such as demographic characteristics), making them versatile tools for assessing psychosocial outcomes like burnout (Memon et al., 2023). Questionnaires also reduce interviewer bias by allowing participants to respond privately, which may increase honesty when reporting sensitive information such as stress, fatigue, or dissatisfaction (Sedgwick, 2023). Furthermore, surveys are easily replicable, which strengthens reliability and allows for future studies to track changes in outcomes over time.

The additional demographic data collected alongside burnout measures allows for subgroup analysis and the generation of new hypotheses, which can guide further research. Repetition of the same survey on the same population at different time points (a serial cross-sectional design) would enable the monitoring of changes in burnout incidence and severity, providing valuable insights into trends over time (Wang and Cheng, 2020).

3.4 Population and sampling

The aims of the study were to determine the prevalence of burnout in allied health care professionals at the selected health care facility, to identify any potential determinants of burnout, and to examine the relationship between burnout and demographic factors. This was done by measuring the variables of burnout using the Maslach Burnout Inventory- Human Services Survey (MBI-HSS) along with the demographic questionnaire (Appendix 4).

Casteel and Bridier (2021) describe research populations as the individuals or groups that are being investigated and to whom the results of the study could be generalised. Defining the population in research is important as it assists in containing the scope of the study and it also provides environmental and context cues. The setting for this study is a state referral hospital in East London, Eastern Cape, South Africa which has 920 beds and services the population of the greater Central Region of the Eastern Cape Province. The facility offers specialised (tertiary) services and employs various allied health care workers to support this mandate.

The population of interest in this study were all the allied health care workers employed at the hospital, working at the facility at the time of the data collection.

All allied health care workers at the hospital are permanently employed and work a minimum of a 40-hour week. Some services are available over weekends and public holidays and these are covered by an on-call system. Patients are seen on both an in-patient and outpatient basis,

with a total of 159 705 patients being treated by allied health workers in 2022 (Hospital, Clinical Support Services Directorate, 2022).

In addition to treating patients, staff are expected to perform administrative functions, attend meetings, participate in quality improvement projects and provide education to other healthcare professionals. Some departments are accredited university student training sites and have students in their departments on a regular basis. Outreach to other healthcare facilities is also offered by some of the above-mentioned sections.

All departments have a manager (or acting manager), but each allied healthcare professional works autonomously, managing and treating their own patients as they see fit.

There was a total of 83 permanently employed allied health care workers at the hospital. Due to the limited size of the population, a sample of the group was not used, instead all staff were invited to participate in the study. Using the raosoft calculator, a minimum of 69 employees would need to respond in order for the research to be statistically significant. This was calculated using a 95% confidence level and a 5% margin of error (Raosoft, 2025). The professions that make up the cadre 'allied healthcare workers' included:

- Dietitians
- Physiotherapists
- Social workers
- Speech Therapists
- Audiologists
- Occupational Therapists
- Orthotists and prosthetists
- Radiographers



University of Fort Hare
Together in Excellence

3.5 Data collection tool

A self-administered questionnaire was used for data collection. The questionnaire comprised of two parts: the first part of the questionnaire comprised of demographic questions, with the second part being the Maslach Burnout Inventory (MBI) Human Services Survey.

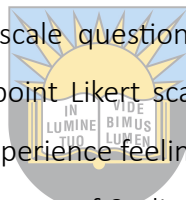
- Demographic questionnaire

The questionnaire was an existing validated instrument that was used previously in a different setting. Du Preez (2012) investigated the prevalence of burnout in allied healthcare workers, working at various facilities within the Life Health care group. Permission was obtained to make use of the instrument for the purposes of this study. This section of the questionnaire was used to establish the demographic, employment and social details of the allied healthcare professionals participating in the study.

- Maslach Burnout Inventory (MBI) Human Services Survey

The Maslach Burnout Inventory (MBI) Human Services Survey was used to measure the prevalence of burnout in the target population. The questionnaire can be scored by hand and takes approximately 15 minutes to complete.

The MBI is a commonly used psychometric tool used to measure burnout in various professions. It is a self-administered scale questionnaire, containing 22 questions, where responses are measured using the 6-point Likert scale (Juliana Pontes Soares et al., 2023). Questions relate to how participants experience feelings in their working environment, from 0 (never) to 6 (every day) (Elbarazi, Loney, Yousef & Elias)



University of Fort Hare
Together in Excellence

The MBI includes 3 subscales:

- emotional exhaustion (EE)- feeling physically, emotionally or mentally drained from work.
- depersonalization (DP)- developing a cynical or detached attitude toward work or the people you work with
- reduced personal accomplishment (PA) - feeling incompetent or a reduced sense of achievement in one's work

High scores in EE and DP and low in PA correspond to high levels of burnout.

The MBI tool has shown both high reliability and validity. The reliability of the indicators was demonstrated when the MBI was assessed by the alpha Cronbach coefficient, scoring above 0.70 (0.930, 0.792 and 0.895 respectively) for the above-mentioned components of the questionnaire (Maslach et al, 2018).

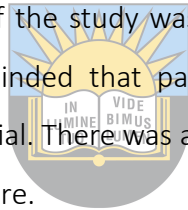
As this research was done in a healthcare setting, it was appropriate to use the Human Services Survey, using the subgroup medical health workers for the scoring. Other occupational subgroups include teachers, educators and mental health workers (Maslach et al, 2018), but were not suitable for this particular study population.

- Pilot questionnaire

The data collection tool was piloted prior to the start of the study. The pilot study was conducted on allied healthcare worker assistants, working at the same institution. The pilot questionnaire was well received and well understood. It was noted that the average time taken to complete the question was approximately 15 minutes. No changes to the questionnaire were required.

3.6 Data collection

The researcher met with all the allied healthcare professionals in the institution, one Department at a time. The purpose of the study was explained, and the questionnaire was distributed. Staff members were reminded that participation was voluntary, and that all information shared would be confidential. There was an opportunity for questions and to seek clarity on any aspect of the questionnaire.



University of Fort Hare
Together in Excellence

Consent forms were distributed prior to the questionnaire, once submitted, the demographic questionnaire as well as the Maslach Burnout Inventory (MBI) were completed by the participants (see Appendix 4). The researcher was available to assist where necessary.

3.7 Data Analysis

Once the MBI scores for all the submissions were calculated they were classified as high, moderate or low according to the scoring table provided in the MBI manual.

The responses from the questionnaire, along with the demographic data were coded and captured on Excel to allow for ease of use. As the questionnaire was anonymous, each response was allocated a unique case number.

Statistical analysis was done using the Statistical Package for Social Sciences (SPSS) (SPSS Inc, Chicago, IL, USA). Data will be presented by means of charts and graphs.

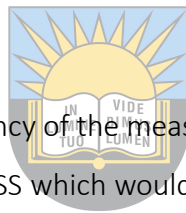
Data was analysed using a combination of descriptive and inferential statistics. Descriptive statistics were used to summarise the entire data set, and results were presented as frequency counts, percentages, means and standard deviations (SD). Student t-tests were applied to compare differences between males and females across all variables. Chi-square tests were used to examine whether significant relationships existed between the variables investigated and the MBI scores. Statistical tests were applied according to the data distribution and the homogeneity of variances between comparison groups. A p-value of 0.05 was set as the threshold for statistical significance. All statistical analyses were carried out using the Statistical Package for Social Sciences (SPSS), version 22.0 for Windows (SPSS Inc., Chicago, IL, USA).

3.8 Trustworthiness of data

Reliability and validity are essential in research because they ensure that information is of a high quality and is credible (Olmsted, 2024). It also helps to ensure that results are reproducible in similar situations.

3.9 Reliability

Reliability specifically refers to consistency of the measure. In this specific study, the tool being used to measure burnout is the MBI-HSS which would need to be considered to be reliable in order to produce a set of data that can be trusted.



University of Fort Hare
Together in Excellence

The reliability of the MBI-HSS has been assessed using the alpha Cronbach co-efficient. The subscales, namely emotional exhaustion, depersonalisation and reduces professional achievement were measured separately. The Cronbach co-efficients were 0.930 (EE), 0.792 (DP) and 0.895 (PA). All sections measured above 0.7 and are therefore considered reliable (du Preez, 2012).

3.10 Validity

Research validity refers to whether or not the measure can produce accurate results.

3.11 Construct validity

Construct validity ensures that the data collection tool and the theoretical construct align. For this study specifically, the research paradigm used is positivism. Positivism often used within social science research as it serves to validate the study of human organisation (Langran et al., 2022). It aims to establish 'cause-and-effect relationships' and prioritizes measurable and

objective data, thus better suited to quantitative investigations. The MBI-HSS is a tool that is quantitative in nature and thus aligns well with the study's objectives as well as the tool selected to measure burnout in allied healthcare professionals.

3.12 Internal and external validity

Internal and external validity establish causal relationships between variables. They also determine if the findings can be generalized to other situations. This type of validity can be affected by sample size. Some investigations may be done on populations that are too small and therefore the results cannot be extrapolated to a larger, more representative, population (Olmsted, 2024).

3.13 Statistical validity

To ensure statistical validity, it is essential to ensure that the types of statistical tests used to test the data are correct and appropriate.

3.14 Inclusion criteria

All full time, permanently employed allied health care workers working at the hospital, at the time of data collection, were invited to participate in the study. This included staff on both day and night duty.



University of Fort Hare

Student allied healthcare professionals and allied healthcare worker assistants were excluded from the study but assisted by participating in the pilot study.

3.15 Ethics

All research data was kept strictly confidential and anonymous. No identifying information such as names, persal numbers or departmental codes were collected on the questionnaires, ensuring that individual participants could not be linked to their responses. This anonymity encouraged open and honest participation, especially given the sensitive nature of burnout (Zimmerman, 2024). The original paper-based data sheets were accessible only to the researcher, and all electronic data was password-protected and stored securely on an encrypted drive. In accordance with good research practice, both the original data sheets and electronic files will be destroyed following publication of the findings or within three years of data collection, whichever comes first.

In line with the Declaration of Helsinki, respect for autonomy and dignity in health research were maintained (Gelling, 2022). Participants' privacy was protected and this ensured that personal information was not disclosed beyond the researcher. These procedures ensured that participants could contribute candid responses without fear of personal or professional repercussions, thereby upholding both ethical and methodological integrity.

3.16 Ethical approval

Ethical approval was obtained from the Health Research Ethics Committee of the University of Fort Hare (Appendix 1). An ethics application was also submitted to, and then approved by, the Hospital ethics committee for permission to conduct the research at the facility (Appendix 2).

3.17 Informed consent

All participants in the study attended a briefing session where the aims and objectives of the study were described. It was emphasised that participation was both voluntary and anonymous. At no time would the identity of the participants be disclosed.

Written informed consent was obtained from all staff members who agreed to participate (Appendix 4).



3.17.1 Psychological support

University of Fort Hare
Together in Excellence

For participants who felt they required psychological support, a list of appropriate mental health professionals was distributed along with the questionnaire. This included service providers who offered counselling free of charge, both within the facility and those offered privately. All participants were aware of the services of the Employee Wellness Programme (EAP). This programme is available to all staff members, at the facility, at no cost. It provides the services of a qualified social worker, who is available to counsel staff and refer them to various relevant professionals, should the need arise.

3.18 Conclusion

The aim of the researcher was to determine the prevalence of burnout in the allied health care workers at the hospital. This was done using the MBI-HSS burnout tool, along with a demographic questionnaire. This resulted in a quantitative data set from a total of 69 participants, out of a study population of 83 allied healthcare workers.

The scoring of the MBI-HSS was done according to the standardised scoring protocol, and data was analysed and presented accordingly. The investigator endeavoured to comply with all the relevant ethical standards expected at this level of research.



University of Fort Hare
Together in Excellence

CHAPTER 4

PRESENTATION AND DISCUSSION OF FINDINGS

4.1 Introduction

This chapter presents the results of the research findings. Data collected from the respondents will be presented according to the objectives of the study, specifically the prevalence of burnout among allied healthcare workers at a tertiary hospital in the Eastern Cape, along with the factors associated with burnout in this sample.

4.2 Response rate

Response rate is defined as the proportion of eligible respondents who complete a survey or other data-collection instrument, and it is expressed as a percentage (Taherdoost & Madanchian, 2024).

The response rate for this investigation is displayed in the below table 4.1.

Table 4.1: Response rate



	Sample size	Responses	Response rate
Respondents	83	71	85.5%

Wilson et al (2024) recommend researchers aim for a response rate of 67% or higher to support generalisability and minimise bias. The 85.5% response rate in this investigation is above the recommended rate of 67% and can be considered to be suitably representative of the study population.

4.3 Demographic details of the respondents

The study population consisted of 9 (12.7%) males and 62 (87.3%) females, with an almost equal number of married (47.5%) and not married (46.5%) respondents. The average age of respondents was 33 years old, the youngest being 22 years old and the oldest, 61 years old. The majority of the respondents were radiographers (22.5%) with the minority being split equally between speech therapists and audiologists, each representing 7% of the group. Most of the allied healthcare workers who completed the questionnaire had more than 11 years' experience (35.2%). Just over half (54.9 %) of the respondents earned between R25001 – R30000 per month. The full demographic characteristics are provided in Table 4.2 below.

Table 4.2 Distribution of respondents by demographic characteristics

Characteristic	Category	Frequency	Percentage
Gender	Male	9	12.7%
	Female	62	87.3%
Marital status	Never	33	46.5%
	Married	34	47.9%
	Divorced	3	4.2%
	Separated	1	1.4%
Occupation	Physiotherapist	10	14.1%
	Occupational therapist	10	14.1%
	Social worker	6	8.5
	Dietician	10	14.1
	Speech therapist	5	7.0
	Audiologist	5	7.0
	Radiographer	16	22.5
	Orthotist / Prosthetist	9	12.7
Total experience	0-1y11m	14	19.7
	2-4y11m	15	21.1
	5-6y11m	5	7.0
	7-8y11m	2	2.8
	9-10y11m	10	14.1
	>11 years	25	35.2
Experience (current position)	0-1y11m	17	23.9
	2-4y11m	18	25.4
	5-6y11m	8	11.3
	7-8y11m	5	7.0
	9-10y11m	10	14.1
	>11 years	13	18.3
Income bracket	R10 001-R15 000	1	1.4
	R15 001-R20 000	3	4.2

	R20 001- R25 000	10	14.1
	R25 001- R30 000	39	54.9
	R30 001- R35 000	8	11.3
	> R35 001	10	14.1

4.4 Prevalence of burnout

Burnout is commonly conceptualised as a work-related syndrome comprising of three components: emotional exhaustion, depersonalisation and reduced personal accomplishment (Maslach & Leiter, 2022; Edú-Valsania, Laguía & Moriano, 2022). The Maslach Burnout Inventory (MBI) has become the gold standard for assessing burnout in health professionals, providing separate, validated subscale scores for each of these domains (Maslach & Leiter, 2022). Recent evidence indicates that allied health and rehabilitation professionals experience substantial levels of burnout on all three MBI domains. Systematic reviews report that approximately one in four to one in three physiotherapists and other musculoskeletal allied healthcare workers present with high emotional exhaustion, high depersonalisation or low personal accomplishment according to standard cut-offs (Venturini et al., 2024; Clarke, Frecklington & Stewart, 2024). These findings highlight the value of using a robust, theory-based tool such as the MBI to quantify burnout in allied healthcare workers and to inform the development of targeted interventions in this group. As discussed in Chapter Three, burnout in this study was also measured using the MBI with the three subscales Emotional Exhaustion (EE), Depersonalization (DP) and Personal Accomplishment (PA). Results for these three subscales are reported separately. In both EE and DP, high scores are considered adverse, conversely low scores in the personal accomplishment domain (PA) are considered adverse.

Figure 4.1 illustrates the scores of the respondents, separated by the individual MBI domains. Emotional Exhaustion was the dimension of burnout where the allied healthcare workers demonstrated the highest levels of burnout. Of the 71 respondents, 43 presented in the high range (60.56%) for EE. This indicates substantial fatigue and emotional depletion from work demands.

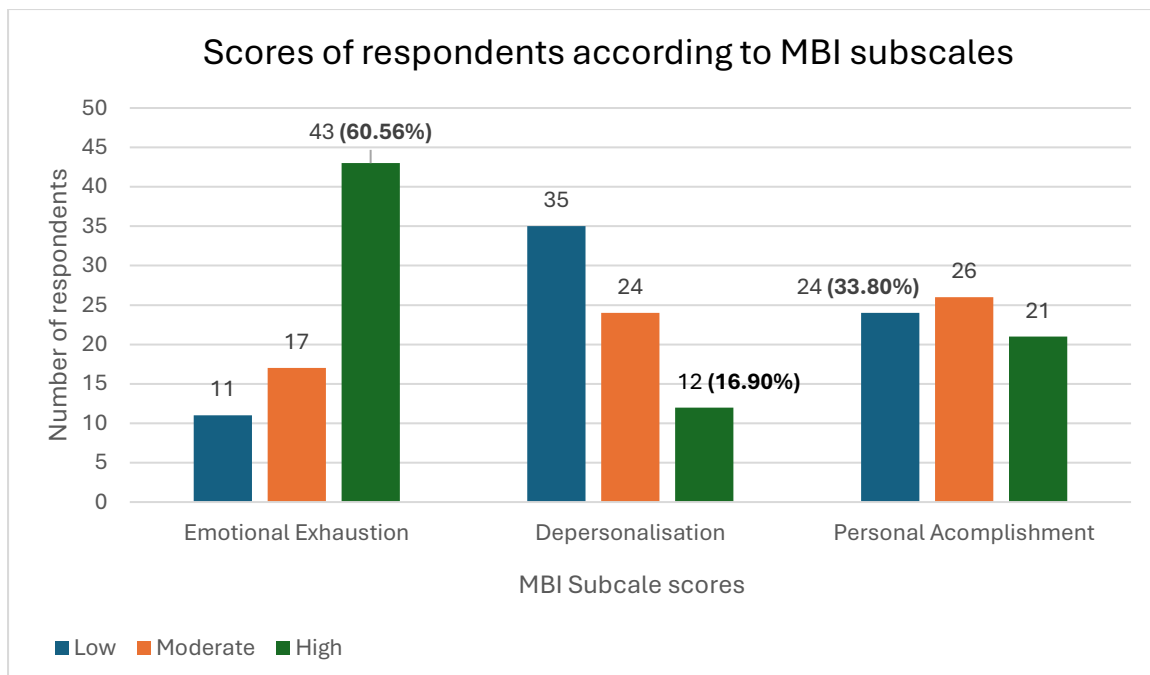


Figure 4.1 MBI subscales scores of respondents

This aligns with international evidence that EE tends to manifest first and most strongly in healthcare workers (Makina-Zimalirana et al., 2023). Depersonalization levels were comparatively low (16.90%), implying that emotional distancing had not become widespread among the allied healthcare workers at the investigation site. Reduced personal accomplishment affected approximately one third of the respondents (33.80%), indicating some job satisfaction and/ or self-efficacy. Grace and Moodley (2024) reported a study among South African allied healthcare workers in private practice, where scores for high emotional exhaustion was found to be 57.14% while depersonalization had a score of 20.40% and a score of 38.77% was reported for a low degree of personal accomplishment. Figure 4.2 demonstrates how the scores of those in the private practice compare to those of the current study.

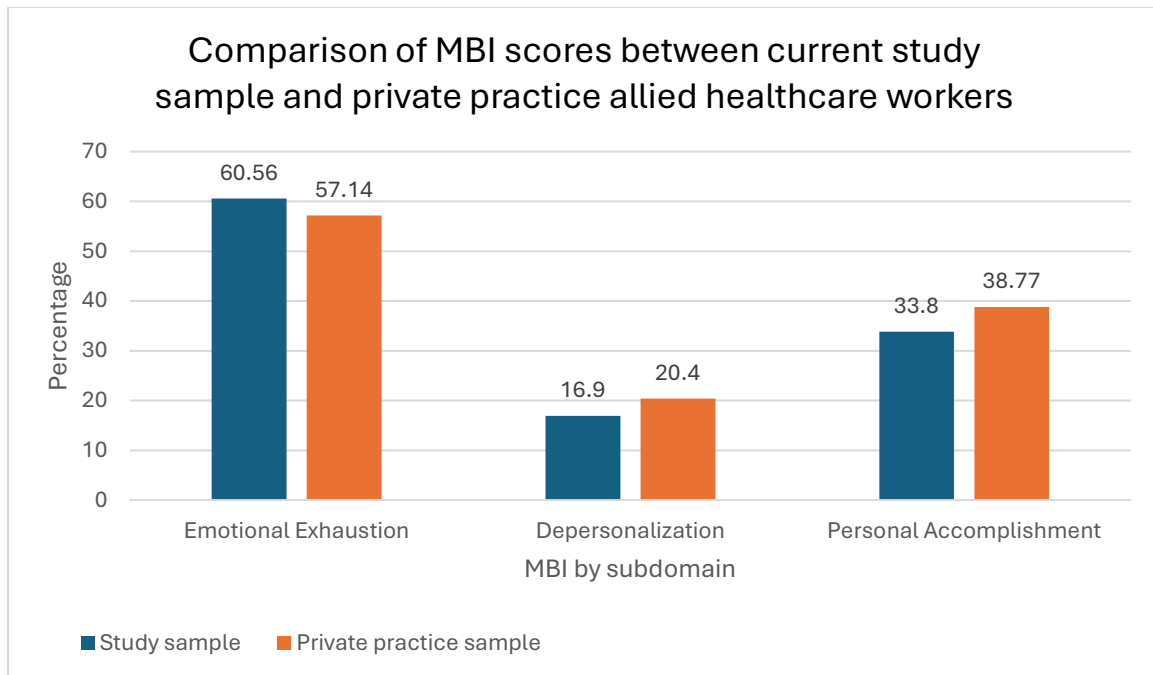


Figure 4.2 Comparison of MBI scores between current study sample and private practice allied healthcare workers

Figure 4.2 demonstrates that the prevalence of burnout between allied healthcare workers in this study and those in the private practice study, are very similar across all the domains of the MBI. The current study sample shows a slightly higher level of emotional exhaustion and slightly lower levels of depersonalization. The private practice sample shows a slightly higher level of depersonalization.

The mean, median and standard deviation for the different dimensions of burnout (Emotional Exhaustion (EE) Depersonalization (DP) and Personal Accomplishment (PA)) are displayed in Table 4.3.

Table 4.3 provides a summary of the burnout scores, along with each domains individual mean, median and variability (standard deviation). The last column provides the prevalence rate for each domain, where respondents score in the high range.

Table 4.3 Prevalence rate, with mean median and standard deviation for each burnout dimension

Variable	N	Mean	Median	Std deviation	Prevalence rate
Emotional Exhaustion	71	27.71	30	10.25	60.56 %

Depersonalization	71	7.86	7	5.69	16.90 %
Personal Accomplishment	71	34.02	35	6.52	33.80 %

Using the burnout categorization as published by Morar et al (2022) in Table 4.4, the prevalence of burnout was determined for the respondents in this study. For the most effected domain, EE, both the mean (27.71) and median (30) fall within the range for high levels of burnout. The SD of 10.25 shows a considerable spread, indicating that the intensity of burnout varies among the respondents.

Table 4.4 Categorization of MBI scores (Morar et al, 2022)

	Range of experienced burnout		
MBI subscales	Low	Average	High
Emotional Exhaustion	≤18	19-26	≥27
Depersonalization	≤5	6-9	≥10
Personal Accomplishment	≥ 40	39-34	≤33

Approximately 14 (17%) of respondents scored in the high range for depersonalization. With 59 of the 71 respondents (83%) scoring in either the low or moderate range, it demonstrates that most respondents still maintained empathy and personal connection with their patients.

Although 28 (34%) of respondents, approximately one third, reported a feeling of low PA, the mean is relatively high (34.02), implying that most respondents still felt effective and competent in their jobs.

Table 4.5 summarizes the respondents' responses to the questionnaire that addressed issues relating to burnout. Most respondents felt that they had an adequate social network and support system, in addition to well-developed strategies to cope with stress. Most respondents indicated that they feel both competent (n=63; 88.8%) and confident (n= 65; 91.6%) in their jobs.

None of the respondents felt that their workload or patient load was too small. Only 15 (18.3%) of the respondents described their workload as being just enough, with most indicating it was either a bit much (n= 39; 54.9%) or overwhelming (n=19; 26.7%). Time pressure was also found

to be common, 33 (46.5%) respondents felt they 'often' felt time pressure, and 14 (19.7%) said they 'always' felt time pressure in their jobs.

Table 4.5 Respondents responses to questions related to burnout

Question		Not at all	A little	Fairly good	Excellent	
I have an adequate social network and support system	n %	0 0%	15 21.1	41 57.8	15 21.1%	
I have well developed strategies to cope with stress	n %	0 0%	21 29.6%	46 64.8%	4 5.6%	
I feel competent in my job	n %	1 1.4%	7 9.9%	43 60.6%	20 28.2%	
I feel confident in my job	n %	0 0%	6 8.5%	43 60.6%	22 31.0%	
		Too small	Just enough	Bit much	Overwhelming	
My workload is	n %	0 0%	13 18.3%	39 54.9%	19 26.7%	
My patient load is	n %	0 0%	22 31.0%	31 43.7%	18 25.4%	
		Never	Seldom	Often	Always	
I experience time pressure in my job	n %	2 2.8%	22 31.0%	33 46.5%	14 19.7%	
I am unsure of my role in the team	n %	29 48.9%	26 36.6%	12 16.9%	4 5.6%	
I experience conflict with colleagues	n %	19 26.8%	43 60.6%	7 9.8%	2 2.8%	
I experience conflict with patients	n %	28 39.4%	37 52.1%	6 8.5%	0 0.0%	
I tend to postpone contact with patients	n %	36 50.7%	31 43.7%	4 5.6%	0 0.0%	
		None	A little	Fairly	Completely	
I have the authority to make my own decisions regarding my work	n %	3 4.2%	20 28.2%	37 52.1%	11 15.5%	
My job / profession is seen as prestigious	n %	10 14.1%	24 33.8%	29 40.8%	8 11.3%	
I experience job satisfaction	n %	7 9.9 %	22 31.0%	35 49.3%	7 9.9%	
		None	Under 25%	25%-50%	50%-70%	Over 70%
On average, what part of your day is spent on administrative duties?	n %	1 1.4%	38 53.5%	22 31.0%	5 7.0%	5 7.0%

4.5 Correlation between MBI scores and other variables measured

This section presents the results of the MBI scores for the study sample, along with each of the socio-demographic and work-related variables measured. The results for each variable are reported with the scores for each sub scale (EE, DP and PA), along with the categorization of the score into low, moderate or high levels of burnout.

4.5.1 MBI score and gender

Table 4.6 shows that 43 (60.56%) of the total sample demonstrated high levels of emotional exhaustion (EE). However, high levels of EE were much more prevalent in female respondents. Two males (22%) and 41 females (66.13%) presented with high EE scores. Emotional Exhaustion (EE) showed a clear, strong, and statistically significant gender disparity, with females more affected ($t=3.22$; $p < 0.05$). There was no significant gender difference in the depersonalization category, implying that male and female respondents display similar detachment patterns. For personal accomplishment the results suggest that females experience a higher degree of low PA when compared to men (35.5% vs 22.2%), but this finding was not statistically significant.

These findings are supported by previous studies. Female healthcare workers are consistently found to report higher Emotional Exhaustion (EE) on the Maslach Burnout Inventory than men, even when overall “burnout” differences are mixed. A 2024 systematic review of healthcare workers concluded that EE and lower personal accomplishment were more common in women, whereas men more often reported depersonalization (Nagle et al., 2024). This is often attributed to women’s increased exposure to emotional labour and work–family role strain, which can intensify feelings of exhaustion and reduced achievement, while men are more likely to cope with stress through emotional distancing and detachment from patients, which is reflected in higher depersonalisation scores (Fountopoulou et al., 2024; Kramer et al., 2024).

Research conducted in allied healthcare workers specifically, shows similar findings. A 2024 meta-analysis of physiotherapists reported pooled MBI subscale prevalences of EE at 27%, depersonalisation at 23%, and low personal accomplishment at 25%, confirming that EE is a prominent problem in rehabilitation services (Venturini et al., 2024). Complementing this, a 2024 systematic review and meta-analysis of musculoskeletal allied-health clinicians (physiotherapy and related disciplines) found elevated risk across MBI dimensions, emphasizing

the profession-specific nature of EE exposure (Clarke et al., 2024). Altaf et al (2022) also found higher burnout levels among female rehabilitation clinicians.

Although evidence for South African allied healthcare workers remains limited, emerging local studies among occupational therapists and broader rural healthcare providers describe high EE and stressors that align with gendered roles (Weir et al., 2023; Moses et al., 2024).



University of Fort Hare
Together in Excellence

Table 4.6 Association between gender and EE, DP and PA

Gender				
	Emotional Exhaustion			
	Low	Medium	High	Total
Male (M) n out of 71 % of whole sample – n/71 % within variable (M) – n/9 % within column – M vs F				
	6	1	2	9
	8.45%	1.41%	2.82%	12.68%
	66.67%	11.11%	22.22%	
	54.55%	5.88%	4.65%	
Female n out of 71 % of whole sample – n/71 % within variable (F) – n/62 % within column – M vs F				
	5	16	41	62
	7.04%	22.54%	57.75%	87.32%
	8.06%	25.81%	66.13%	
	45.45%	94.12%	95.35%	
Total	11	17	43	71
	15.49%	23.94%	60.56%	100.00%
Depersonalisation				
Male (M) N out of 71 % of whole sample – n/71 % within variable (F) – n/62 % within column – M vs F				
	6	2	1	9
	8.57%	2.86%	1.43%	12.86%
	66.67%	22.22%	11.11%	
	17.14%	8.70%	8.33%	
Female (F) N out of 71 % of whole sample – n/71 % within variable (F) – n/62 % within column – M vs F				
	29	22	11	62
	40.85%	30.99%	15.49%	85.92%
	46.77%	35.48%	17.74%	
	82.86%	91.30%	91.67%	
Total	35	24	12	71
	49.30	33.80	16.90	100.00
Personal accomplishment				
Male (M) N out of 71 % of whole sample – n/71 % within variable(M) – n/62 % within column – M vs F				
	2	2	5	9
	2.82%	2.82%	7.04%	12.68%
	22.22%	22.22%	55.56%	
	8.33%	7.69%	23.81%	
Female (F) N out of 71 % of whole sample – n/71 % within variable (F) – n/62 % within column – M vs F				
	22	24	16	62
	30.99%	33.80%	22.54%	87.32
	35.48%	38.71%	25.81%	
	91.67%	92.31%	76.19%	
Total	24	26	21	71
	33.80%	36.62%	29.58%	100.00%

4.5.2 MBI score and age

Table 4.7 demonstrates how high emotional exhaustion was most prevalent among younger age groups, particularly those aged 20–39 years, who accounted for nearly 50% of all high EE cases (22.5% for 20–29 years & 26.8% for 30–39 years). By contrast, only 7.0% of 40–49-year-olds and 1.4% of those aged 50 and above reported high EE. This trend demonstrated that emotional exhaustion decreased with age, suggesting that younger allied healthcare workers were more vulnerable to work-related fatigue and emotional strain. Statistical testing ($p > 0.05$) revealed a near-significant association between age and EE, indicating a meaningful but not conclusive relationship. These findings align with international evidence showing that emotional exhaustion appears first and most strongly among healthcare professionals, especially those in the earlier stages of their careers (Makina-Zimalirana et al., 2023; Venturini et al., 2024). Emotional exhaustion (EE) is often the first dimension of burnout to manifest in healthcare workers because roles involve responsibility for patient outcomes and time pressure which lead to depletion of emotional resources before attitudinal changes, such as depersonalisation (Edú-Valsania, Laguía & Moriano, 2022). This finding has been particularly prevalent in high-intensity settings such as hospitals and emergency care (Kovalchuk et al., 2023; Ruotsalainen et al., 2023).

Depersonalisation showed a less obvious age pattern, though slightly higher levels were again observed among younger groups (7.0% in 20–29 years; 9.9% in 30–39 years). Scores were notably lower among workers aged 40 years and above. The relationship between DP and age was not statistically significant ($t=19.01$; $p>0.05$).

High personal accomplishment scores were most common among younger respondents, particularly those aged 20–29 years (14.1%). This may reflect early-career enthusiasm and a stronger sense of achievement before sustained exposure to systemic stressors takes its toll. While PA decreased slightly with age, differences were not statistically significant ($t=0.66$; $p>0.05$).

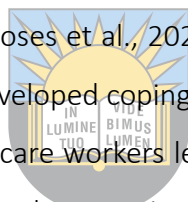
Table 4.7 Association between age and EE, DP and PA

Age				
	Emotional Exhaustion			
	Low	Medium	High	Total

20-29				
N out of 71	6	10	16	32
% of whole sample	8,45	14,08	22,54	
30-39				
N out of 71	2	1	2	23
% of whole sample	2,82	1,41	28,17	
40-49				
N out of 71	2	2	5	9
% of whole sample	2,82	2,82	7,04	
50-59				
N out of 71	1	2	1	4
% of whole sample	1,41	2,82	1,41	
60-69				
N out of 71	0	1	2	2
% of whole sample	0,00	1,41	1,41	
Total	11	16	43	71
	15,49	22,54	60,56	100,00
	Depersonalisation			
20-29				
N out of 71	15	12	5	32
% of whole sample	21,13	16,9	7,04	
30-39				
N out of 71	8	9	7	24
% of whole sample	11,27	12,68	9,86	
40-49				
N out of 71	7	2	0	9
% of whole sample	9,86	2,28	0	
50-59				
N out of 71	3	1	0	4
% of whole sample	4,23	1,41	0,00	
60-69				
N out of 71	2	0	0	2
% of whole sample	2,28	0,00	0,00	
Total	35	24	12	71
	49,3	33,8	16,9	100,00
	Personal accomplishment			
20-29				
N out of 71	9	13	10	32
% of whole sample	12,68	18,31	14,08	
30-39				
N out of 71	12	10	2	24
% of whole sample	16,90	14,08	2,82	

40-49				
N out of 71	1	2	6	9
% of whole sample	1,41	2,82	8,45	
50-59				
N out of 71	2	0	2	4
% of whole sample	2,82	0,00	2,82	
60-69				
N out of 71	0	1	1	2
% of whole sample	0,00	1,41	1,41	
Total	24	26	21	71
	33.80	36.62	29.58	100.00

Overall, the data demonstrates a clear age-related pattern in burnout, with younger healthcare professionals experiencing higher levels of emotional exhaustion and depersonalisation, while older staff reported lower burnout risk overall. This pattern is consistent with both South African and international literature, which identifies age under 40 years as a major predictor of burnout among healthcare workers (Moses et al., 2024; Nagle et al., 2024). This is attributed to younger professionals having less developed coping skills, irregular hours and less flexibility. It is suggested that more senior healthcare workers learn to anticipate and manage stressors and have greater autonomy, buffering them against burnout (Youssef et al., 2022; Khan, Ntatamala & Adams, 2024).



University of Fort Hare
Together in Excellence

4.5.3 MBI score and marital status

Table 4.7 shows that the marital status of respondents was not significantly associated with any MBI domain. A higher proportion of married people showed high EE (37.21% single vs 62.79% married) and low PA (41.67% single and 58.33% married), but this was not found to be statistically significant ($t=21.25$; $p>0.05$).

These findings are supported by Arslanoğlu et al (2024) who similarly found in a cross-sectional study performed in 602 healthcare workers, that no statistically significant relationship could be found between marital status and MBI outcomes. Recent research in South African Occupational Therapists describes relationship strain and work–family pressures as part of the burnout experience, but marital status specifically was not linked to burnout (Weir et al., 2024). This suggests that the quality of relationships and specific work-family dynamics are more significant in the development of burnout, rather than marital status alone. The demographic

label of married / unmarried is too simplified to reflect real life relationship dynamics and its influence on burnout.

Table 4.8 Association between marital status and EE, DP and PA

Marital status				
	Emotional Exhaustion			
	Low	Medium	High	Total
Single				
n out of 71	7	10	16	33
% of whole sample – n/71	9.86	14.08	22.54	46.48
% within variable (S) – n/33	21.21	30.30	48.48	
% within column – S vs M	63.64	58.82	37.21	
Married				
n out of 71	4	7	27	38
% of whole sample	5.63	9.86	38.03	53.52
% within variable (M)	10.53	18.42	71.05	
% within column	36.36	41.18	62.79	
Total	11	17	43	71
	15.49	23.94	60.56	100.00
Depersonalisation				
Single				
n out of 71	15	14	4	33
% of whole sample	21.43	20.00	5.71	46.48
% within variable (S)	45.45	42.42	12.12	
% within column	42.86	60.87	33.33	
Married				
n out of 71	20	10	8	38
% of whole sample	28.17	14.08	11.27	53.52
% within variable (M)	52.63	26.32	21.05	
% within column	57.14	39.13	66.67	
Total	35	24	12	71
	49.30	33.80	16.90	100.00
Personal accomplishment				
Single				
n out of 71	10	10	13	33
% of whole sample	14.08	14.08	18.31	46.48
% within variable (S)	30.30	30.30	39.39	
% within column	41.67	38.46	61.90	
Married				
N out of 71	14	16	8	38
% of whole sample	19.72	22.54	11.27	53.52
% within variable (M)	36.84	42.11	21.05	
% within column	58.33	61.54	38.10	

Total	24	26	21	71
	33.80	36.62	29.58	100.00

4.5.4 MBI score and dependents

Having dependents was not found to be statistically significantly associated with any of the domains of burnout (Table 4.8). Results lean slightly towards lower DP in those with dependents, but not significantly so. While direct studies of dependent status are still relatively sparse, recent research provides relevant insights into “double-duty caregiving” (i.e., combining professional care-work with family care duties) and its association with higher job strain and burnout risk. For example, Urban et al. (2024) found in a sample of 466 Italian healthcare workers that have dependents dual-caregiving tasks were associated with distinct patterns of burnout and job dissatisfaction; though the effect sizes were modest, the analysis highlighted that overtime, unused vacation days and caregiving roles contributed to higher burnout risk in this group (Urban et al., 2024).



Table 4.9 Association between having dependents and EE, DP and PA

Dependents				
	Emotional Exhaustion			
	Low	Medium	High	Total
Yes				
N out of 71	7	8	18	33
% of whole sample	9.86	11.27	25.35	46.48
% within variable (Y)	21.21	24.24	54.55	
% within column	63.64	47.06	41.86	
No				
N out of 71	4	9	25	38
% of whole sample	5.63	12.68	35.21	53.52
% within variable (N)	10.53	23.68	65.79	
% within column	36.36	52.94	58.14	
Total	4	9	25	38
	5.63	12.68	35.21	53.52
Depersonalisation				
Yes				
N out of 71	19	11	4	34
% of whole sample	26.76	15.49	5.63	47.88
% within variable (Y)	55.88	32.35	11.76	
% within column	54.29	43.48	33.33	
No				

N out of 71	16	13	8	37
% of whole sample	22.86	18.57	11.43	52.12
% within variable (N)	43.24	35.14	21.62	
% within column	45.71	56.52	66.67	
Total	35	24	12	71
	49.30	33.80	16.90	100.00
Personal accomplishment				
Yes				
N out of 71	10	12	11	33
% of whole sample	14.08	16.90	15.49	46.48
% within variable (Y)	30.30	36.36	33.33	
% within column	41.67	46.15	52.38	
No				
N out of 71	14	14	10	38
% of whole sample	19.72	19.72	14.08	53.52
% within variable (N)	36.84	36.84	26.32	
% within column	58.33	53.85	47.62	
Total	24	26	21	71
	33.80	36.62	29.58	100.00



4.5.5 MBI score and educational level

Table 4.9 shows that educational level of the respondents in this study was not shown to have a relationship with any of the MBI burnout domains. As most respondents in the study have the same level of education, this is to be expected. Most degrees for allied healthcare workers are 3 years, or 3 years with an additional postgraduate year. A few may have gone on to study for a master's degree, but due to the small number of respondents and the 'at least 3 years' and 'more than 3 years' option, it does not allow for accurate interpretation of this.

Table 4.10 Association between educational level and EE, DP and PA

Educational level				
	Emotional Exhaustion			
	Low	Medium	High	Total
At least 3 years				
N out of 71	2	7	14	23
% of whole sample	2.82	9.86	19.72	32.39
% within variable (L)	8.70	30.43	60.87	
% within column	18.18	41.18	32.56	
More than 3 years				
N out of 71	9	10	29	48
% of whole sample	12.68	14.08	40.85	67.61

% within variable (M)	18.75	20.83	60.42	
% within column	81.82	58.82	67.44	
Total	11	17	43	71
	15.49	23.94	60.56	100.00
Depersonalisation				
At least 3 years N out of 71 % of whole sample % within variable (L) % within column				
	12	9	3	24
	16.90	12.68	4.23	33.81
	50.00	37.50	12.50	
	34.29	34.78	25.00	
More than 3 years N out of 71 % of whole sample % within variable (M) % within column				
	23	15	9	47
	32.86	21.43	12.86	66.19
	48.94	31.91	19.15	
	65.71	65.22	75.00	
Total	35	24	12	71
	49.30	33.80	16.90	100.00
Personal accomplishment				
At least 3 years N out of 71 % of whole sample % within variable (L) % within column				
	7	7	9	23
	9.86	9.86	12.68	32.39
	30.43	30.43	39.13	
	29.17	26.92	42.86	
More than 3 years N out of 71 % of whole sample % within variable (M) % within column				
	17	19	12	48
	23.94	26.76	16.90	67.61
	35.42	39.58	25.00	
	70.83	73.08	57.14	
Total	24	26	21	71
	33.80	36.62	29.58	100.00

Healthcare professionals' level of formal education (e.g., diploma vs bachelor vs postgraduate degree) have been examined in association with burnout, but no clear pattern has emerged. In a comprehensive scoping review of healthcare-worker burnout (n = 38 studies) published in 2024, individual socio-demographic factors such as educational level were noted to be understudied (Nagle et al., 2024). The review did not find consistent evidence that higher or lower education is reliably associated with any of the domains of the MBI.

In a 2025 cross-sectional study from Ethiopia among healthcare workers, "educational level" was reported as a factor but did not emerge as a key independent predictor of burnout after

multivariable modelling (Yesuf et al., 2025). Thus, while education is included in many sociodemographic variable sets, the evidence linking it to burnout remains vague.

4.5.6 MBI score and work experience

The results presented in Table 4.10 show that EE demonstrates a notable borderline ($t=19.79$; $p>0.05$) increase among those respondents with ≥ 5 years of experience. DP and PA showed no significant association between work experience and burnout.

Table 4.11 Association between work experience and EE, DP and PA

Work experience				
	Emotional Exhaustion			
	Low	Medium	High	Total
Under 5 years				
N out of 71	7	8	14	29
% of whole sample	9.86	11.27	19.72	40.85
% within variable (L)	24.14	27.59	48.28	
% within column	63.64	47.06	32.56	
At least 5 years				
N out of 71	4	9	29	42
% of whole sample	5.63	12.68	40.85	59.15
% within variable (M)	9.52	21.43	69.05	
% within column	36.36	52.94	67.44	
Total	11	17	43	71
	15.49	23.94	60.56	100.00
Depersonalisation				
Under 5 years				
N out of 71	14	11	5	30
% of whole sample	19.72	15.49	7.04	42.25
% within variable (L)	46.67	36.7	16.67	
% within column	40.00	43.48	41.67	
At least 5 years				
N out of 71	21	13	7	41
% of whole sample	30.00	18.57	10.00	57.75
% within variable (M)	51.22	31.71	17.07	
% within column	60.00	56.52	58.33	
Total	35	24	12	71
	49.30	33.80	16.90	100.00
Personal accomplishment				
Under 5 years				
N out of 71	7	11	11	29
% of whole sample	9.86	15.49	15.49	40.85
% within variable (L)	24.14	37.93	37.93	

% within column	29.17	42.31	52.38	
At least 5 years				
N out of 71	17	15	10	42
% of whole sample	23.94	21.13	14.08	59.15
% within variable (M)	40.48	35.71	23.81	
% within column	70.83	57.69	47.62	
Total	24	26	21	71
	33.80	36.62	29.58	100.00

International studies report a positive association between increased years of work experience and increased risk of burnout among healthcare professionals. A cross-sectional study in Uganda found that healthcare workers with more than ten years working experience had approximately twice the odds of experiencing high overall burnout compared to those with fewer years (OR 2.04; 95% CI 1.12–3.73; $p = 0.020$) (Kabunga et al., 2024). Similarly, a study in Rwanda among hospital staff indicated that “years of experience” emerged as a significant predictor of burnout and low professional fulfilment (Nyirigira et al., 2025). These findings suggest that as cumulative exposure to workplace stressors increases over time, emotional exhaustion, depersonalisation and reduced personal accomplishment may become more likely, possibly reflecting a “wear and tear” effect within the JD-R (Job Demands–Resources) framework.

4.5.7 MBI score and experience in current position

Table 4.10 demonstrates that EE shows a modest, non-significant increase among staff ≥ 5 years in their current position; DP showed no difference, while PA indicates a worsening pattern with ≥ 5 years, but the finding was not significant. The available literature appears to focus only on overall years of experience and not years within their current role (Park et al, 2025). This is an important gap as it could have implications for areas such as career pathway, job satisfaction and earning potential.

Table 4.12 Association between experience in current position and EE, DP and PA

Experience in current position				
	Emotional Exhaustion			
	Low	Medium	High	Total
Under 5 years				
N out of 71	7	9	19	35
% of whole sample	9.86	12.68	26.76	49.30

% within variable (L)	20.00	25.71	54.29	
% within column	63.64	52.94	44.19	
At least 5 years				
N out of 71	4	8	24	36
% of whole sample	5.63	11.27	33.80	50.70
% within variable (M)	11.11	22.22	66.67	
% within column	36.36	47.06	55.81	
Total	11	17	43	71
	15.49	23.94	60.56	100.00
	Depersonalisation			
Under 5 years				
N out of 71	16	14	6	36
% of whole sample	22.55	19.72	8.45	50.72
% within variable (L)	44.44	38.89	16.67	
% within column	45.71	56.52	50.00	
At least 5 years				
N out of 71	19	10	6	35
% of whole sample	27.14	14.29	8.57	49.28
% within variable (M)	54.29	28.57	17.14	
% within column	54.29	43.48	50.00	
Total	35	24	12	71
	49.30	33.80	16.90	100.00
	Personal accomplishment			
Under 5 years				
N out of 71	10	14	11	35
% of whole sample	14.08	19.72	15.49	49.30
% within variable (L)	28.57	40.00	31.43	
% within column	41.67	53.85	52.38	
At least 5 years				
N out of 71	14	12	10	36
% of whole sample	19.72	16.90	14.08	50.70
% within variable (M)	38.89	33.33	27.78	
% within column	58.33	46.15	47.62	
Total	24	26	21	71
	33.80	36.62	29.58	100.00

4.5.8 MBI score and income

Table 4.11 shows that no statistically significant association could be found for income and any of the MBI domains. This contrasts with the findings of Khan et al (2024), which found low income and inadequate remuneration correlates with higher levels of burnout among healthcare workers. The cross-sectional study of public-sector doctors in Gqeberha reported nearly 11-fold higher odds of burnout in the lowest income band. Supporting this, an analytic

cross-sectional study of Tanzanian healthcare workers identified remuneration as a critical factor contributing to burnout risk (Mfuru et al., 2024). Other studies reinforce that compensation structures and perceived pay inequity heighten exhaustion and attrition intentions (Nagle et al., 2024; Kim et al., 2025, Efa et al., 2024). Collectively, this pattern is consistent with Job Demands-Resources theory, when rewards (e.g., salary) are not aligned to sustained job demands, emotional exhaustion and overall burnout increase (Bakker & Demerouti, 2023).

Specific literature relating to burnout in allied healthcare and income remains sparse. A systematic review by Clarke et al (2024) showed that remuneration was frequently used as a leverage for retention among allied healthcare workers demonstrating burnout and intention to leave. Currie et al (2025) report physiotherapists and occupational therapists highlighted financial pressures, workload and role constraints as perceived contributors to burnout and intend to leave. In LMIC settings, including South Africa, lower salary bands may compound structural stressors (staffing shortages, high caseloads), plausibly amplifying Emotional Exhaustion in allied-health teams even when not isolated as a standalone predictor (Moses et al., 2024; Efa et al., 2024).

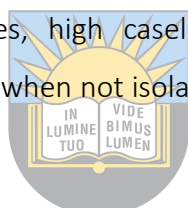


Table 4.13 Association between income and EE, DP and PA

Income				
	Emotional Exhaustion			
	Low	Medium	High	Total
< R25 000 (1)				
N out of 71	3	1	10	14
% of whole sample	4.23	1.41	14.08	19.72
% within variable (1)	21.43	7.14	71.43	
% within column	27.27	5.88	23.26	
R25 001 – R30 000 (2)				
N out of 71	6	13	20	39
% of whole sample	8.45	18.31	28.17	54.93
% within variable (2)	15.38	33.33	51.28	
% within column	54.55	76.47	46.51	
> R30 000 (3)				
N out of 71	2	3	13	18
% of whole sample	2.82	4.23	18.31	25.35
% within variable (3)	11.11	16.67	72.22	
% within column	18.18	17.65	30.23	

Total	11	17	43	71
	15.49	23.94	60.56	100.00
Depersonalisation				
< R25 000 (1) N out of 71 % of whole sample % within variable (1) % within column				
	9	3	2	14
	12.86	4.29	2.86	19.72
	64.29	21.43	14.29	
	25.71	13.04	16.67	
R25 001 – R30 000 (2) N out of 71 % of whole sample % within variable (2) % within column				
	17	16	7	40
	23.94	22.54	9.86	56.34
	42.50	40.00	17.50	
	48.57	65.22	58.33	
> R30 000 (3) N out of 71 % of whole sample % within variable (3) % within column				
	9	5	3	17
	12.86	7.14	4.29	23.94
	52.94	29.41	17.65	
	25.71	21.74	25.00	
Total	35	24	12	71
	49.30	33.80	16.90	100.00
Personal accomplishment				
< R25 000 (1) N out of 71 % of whole sample % within variable (1) % within column				
	3	5	6	14
	4.23	7.04	8.45	19.72
	21.43	35.71	42.86	
	12.50	19.23	28.57	
R25 001 – R30 000 (2) N out of 71 % of whole sample % within variable (2) % within column				
	15	13	11	39
	21.13	18.31	15.49	54.93
	38.46	33.33	28.21	
	62.50	50.00	52.38	
> R30 000 (3)				
N out of 71	6	8	4	18
% of whole sample	8.45	11.27	5.63	25.35
% within variable (3)	33.33	44.44	22.22	
% within column	25.00	30.77	19.05	
Total	24	26	21	71
	33.80	36.62	29.58	100.00

4.5.9 MBI score and weekend & public holiday work

Table 4.12 shows that among those who reported working weekends or public holidays, 18 respondents (69.23%) experienced high emotional exhaustion compared to 25 (55.6%) among

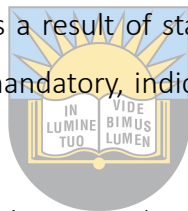
those who did not. High depersonalization was reported by 6 (24%) of respondents who worked weekends or public holidays versus only 13% of those who did not. Although working weekends and public holidays are suggestive of higher emotional exhaustion, it was not found to be statistically significant, whereas higher levels of depersonalisation due to working weekends and public holidays was found to be statistically significant ($t=8.85$; $p>0.05$).

Table 4.14 Association between weekends & public holiday work and EE, DP and PA

Weekends & public holiday work				
	Emotional Exhaustion			
	Low	Medium	High	Total
Yes				
N out of 71	2	6	18	26
% of whole sample	2.82	8.45	25.35	36.62
% within variable (Y)	7.69	23.08	69.23	
% within column	18.18	35.29	41.86	
No				
N out of 71	9	11	25	45
% of whole sample	12.68	15.49	35.21	63.38
% within variable (N)	20.00	24.44	55.56	
% within column	81.82	64.71	58.14	
Total	11	17	43	71
	15.49	23.94	60.56	100.00
Depersonalisation				
Yes				
N out of 71	7	12	6	25
% of whole sample	10.00	17.14	8.57	35.21
% within variable (Y)	28.00	48.00	24.00	
% within column	20.00	52.17	50.00	
No				
N out of 71	28	12	6	46
% of whole sample	39.44	16.90	8.45	64.79
% within variable (N)	60.87	26.09	13.04	
% within column	80.00	47.83	50.00	
Total	35	24	12	71
	49.30	33.80	16.90	100.00
Personal accomplishment				
Yes				
N out of 71	10	10	6	26
% of whole sample	14.08	14.08	8.45	36.62
% within variable (Y)	38.46	38.46	23.08	
% within column	41.67	38.46	28.57	

No N out of 71 % of whole sample % within variable (N) % within column				
	14	16	15	45
	19.72	22.54	21.13	63.38
	31.11	35.56	33.33	
Total	58.33	61.54	71.43	
	24	26	21	71
	33.80	36.62	29.58	100.00

In the literature, data on weekend and public holiday work are often combined with overtime, which obscures important conceptual differences between these variables. As can be seen in the current study (Table 4.13), these work patterns are associated with differing levels of burnout. Working weekends and public holidays refers to scheduled shifts that occur outside standard weekday hours but form part of the routine roster or shift system. Although these hours are not “extra,” they are essential for maintaining 24-hour hospital operations. In contrast, overtime involves working beyond the contracted number of hours, usually in addition to rostered shifts. Overtime is often as a result of staff shortages, emergencies, or elevated workloads, and may be voluntary or mandatory, indicating workload pressure or inadequate staffing capacity.



Weekend and public holiday work, also known as ‘unsocial-hour work’, disrupts normal social patterns and recovery opportunities, increasing the risk of work–family conflict (Nagle et al., 2024). Evidence indicates that shift work and irregular scheduling are associated with higher levels of burnout among healthcare professionals (Dall’Ora et al., 2023; Batanda et al., 2024). In the South African context, Naidoo (2023) similarly identified unsocial-hour work and irregular scheduling as major contributors to emotional distress and burnout among emergency-department personnel. The proposed cause being that working during weekends and holidays reduces opportunities for rest and social engagement, heightening social strain and diminishing recovery capacity (Batanda et al., 2024).

4.5.10 MBI score and overtime

Table 4.13 shows that of the respondents who reported working overtime, 17 (85.0%) experienced high emotional exhaustion, compared to 26 (51.0%) of those who did not. Overtime was found to be strongly associated with higher EE ($t=21.21$; $p>0.05$). Although the overall prevalence of high exhaustion remained substantial in both groups, the pattern suggests that overtime contributes to an increased emotional strain within the workforce. Similarly,

higher levels of depersonalisation ($t=41.22$; $p>0.05$) were observed among those working overtime 6 participants (30.0%) compared to those who did not (11.7%), indicating that extended working hours may foster emotional distancing and reduced empathy toward patients. Levels of personal accomplishment were not found to be significantly associated with overtime.

Table 4.15 Association between overtime and EE, DP and PA

Overtime				
	Emotional Exhaustion			
	Low	Medium	High	Total
Yes (Y)				
N out of 71	1	2	17	20
% of whole sample	1.41	2.82	23.94	28.17
% within variable (Y)	5.00	10.00	85.00	
% within column	9.09	11.76	39.53	
No (N)				
N out of 71	10	15	26	51
% of whole sample	14.08	21.13	36.62	71.83
% within variable (N)	19.61	29.41	50.98	
% within column	90.91	88.24	60.47	
Total	11	17	43	71
	15.49	23.94	60.56	100.00
Depersonalisation				
Yes (Y)				
N out of 71	6	8	6	20
% of whole sample	8.57	11.43	8.57	28.16
% within variable (Y)	30.00	40.00	30.00	
% within column	17.14	34.78	50.00	
No (N)				
N out of 71	29	16	6	51
% of whole sample	40.85	22.54	8.45	71.84
% within variable (N)	56.86	31.37	11.76	
% within column	82.86	65.22	50.00	
Total	35	24	12	71
	49.30	33.80	16.90	100.00
Personal accomplishment				
Yes (Y)				
N out of 71	8	7	5	20
% of whole sample	11.27	9.86	7.04	28.17
% within variable (Y)	40.00	35.00	25.00	
% within column	33.33	26.92	23.81	
No (N)				

N out of 71	16	19	16	51
% of whole sample	22.54	26.76	22.54	71.83
% within variable (N)	31.37	37.25	31.37	
% within column	66.67	73.08	76.19	
Total	24	26	21	71
	33.80	36.62	29.58	100.00

Overtime is one of the strongest predictors of emotional exhaustion and overall burnout among healthcare professionals (Chen, 2024; Bae, 2024). Studies indicate that long working hours intensify fatigue, reduce recovery, and impair well-being (Dall’Ora et al., 2023).

A South African study found that high workloads, long hours and insufficient resources were significantly associated with burnout outcomes (Moses et al., 2024). These findings reinforce the conceptual framing of overtime as an indicator of excessive job demands in the Job Demands-Resources (JD-R) model, when resources (time, recovery, staffing) are inadequate relative to demands (extra hours, workload), burnout is more likely to ensue.

4.5.11 MBI score and leisure/sporting activities

Table 4.14 shows that although 46 (64.8%) of respondents participate in leisure / sporting activities, it does not appear to have any significant association with any of the burnout domains. The reasons for this could be due to the structure of the question. Studies that did find a significant relationship between burnout and leisure/sporting activities, captured specific details relating to frequency, intensity, duration and quality of activities (e.g. social vs. solitary) (Grace and Moodley, 2024; De Vries and Bakker, 2022; Mincarone, 2024).

Table 4.16 Association between leisure/sporting activities and EE, DP and PA

Leisure / sporting activities				
	Emotional Exhaustion			
	Low	Medium	High	Total
Yes (Y)				
N out of 71	9	10	27	46
% of whole sample	12.68	14.08	38.03	64.79
% within variable (Y)	19.57	21.74	58.70	
% within column	81.82	58.82	62.79	
No (N)				
N out of 71	2	7	16	25
% of whole sample	2.82	9.86	22.54	35.21
% within variable (N)	8.00	28.00	64.00	

% within column	18.18	41.18	37.21	
Total	11	17	43	71
	15.49	23.94	60.56	100.00
	Depersonalisation			
Yes (Y) N out of 71 % of whole sample % within variable (Y) % within column				
	20	16	9	45
	28.57	22.86	12.86	63.37
	44.44	35.56	20.00	
	57.14	69.57	75.00	
No (N) N out of 71 % of whole sample % within variable (N) % within column				
	15	8	3	26
	21.13	11.27	4.23	36.63
	57.69	30.77	11.54	
	42.86	30.43	25.00	
Total	35	24	12	71
	49.30	33.80	16.90	100.00
	Personal accomplishment			
Yes (Y) N out of 71 % of whole sample % within variable (Y) % within column				
	16	18	12	46
	22.54	25.35	16.90	64.79
	34.78	39.13	26.09	
	66.67	69.23	57.14	
No (N) N out of 71 % of whole sample % within variable (N) % within column				
	8	8	9	25
	11.27	11.27	12.68	35.21
	32.00	32.00	36.00	
	33.33	30.77	42.86	
Total	24	26	21	71
	33.80	36.62	29.58	100.00

A recent systematic review found that healthcare professionals who engaged in regular physical activity had significantly lower levels of burnout, especially in the dimensions of emotional exhaustion and depersonalization (Mincarone et al., 2024). For example, across 21 independent studies, most of which used the MBI, physical activity was inversely associated with burnout risk (Mincarone et al., 2024). In an allied healthcare context, a study of allied health professionals in eThekweni, South Africa found that those engaging in moderate-intensity physical activity had nearly double the odds of experiencing low emotional exhaustion, low depersonalization, and higher personal accomplishment compared to those with less activity (Grace & Moodley, 2024).

Physical activity functions as an important personal resource within the Job Demands–Resources model framework. When job demands are high (e.g., heavy workloads, complex patient care) and resources (e.g., organisational support) are low, burnout is more likely to develop. Regular physical activity may increase resilience, reduce fatigue and improve psychological recovery after work stress (Mincarone et al., 2024).

4.5.12 MBI score and religious activities

Among respondents who reported engaging in religious activities, 28 (62.2%) displayed high levels of emotional exhaustion, compared to 15 (57.7%) of those who did not. Conversely, low EE was slightly more common among religiously active respondents 7(15.6%) compared to non-respondents 4 (15.4%), suggesting only a minor difference. Statistical analysis confirmed no significant association between religious involvement and emotional exhaustion. This indicates that, although religious activity may offer some emotional support or meaning-making benefits, it does not significantly mitigate the exhaustion associated with prolonged occupational stress among healthcare workers. The high EE levels observed in both groups suggest that systemic workplace stressors, such as heavy caseloads, emotional labour, and administrative pressure, outweigh the personal buffering effects of religious engagement.

High levels of depersonalisation were higher among those involved in religious activities, 10 (22.2%) compared to 2 (7.7%) in the non-religious group. This finding was not found to be statistically significant.

Levels of personal accomplishment were broadly similar between religious and non-religious respondents, with 13 (28.9%) of religiously active respondents reporting high PA compared to 10 (30.8%) among non-respondents. The majority in both groups fell within the medium range, suggesting that religious involvement offers minimal influence on the personal accomplishment domain of the MBI in this sample. Again, this finding was not found to be statistically significant.

Table 4.17 Association between religious activities and EE, DP and PA

Religious activities				
	Emotional Exhaustion			
	Low	Medium	High	Total
Yes (Y)				
N out of 71	7	10	28	45
% of whole sample	9.86	14.08	39.44	63.38

% within variable (Y)	15.56	22.22	62.22	
% within column	63.64	58.82	65.12	
No (N)				
N out of 71	4	7	15	26
% of whole sample	5.63	9.86	21.13	36.62
% within variable (N)	15.38	26.92	57.69	
% within column	36.36	41.18	34.88	
Total	11	17	43	71
	15.49	23.94	60.56	100.00
	Depersonalisation			
Yes (Y)				
N out of 71	23	12	10	45
% of whole sample	23.39	16.90	14.08	54.37
% within variable (Y)	51.11	26.67	22.22	
% within column	65.71	47.83	83.1	
No (N)				
N out of 71	12	12	2	26
% of whole sample	17.14	17.14	2.86	37.14
% within variable (N)	46.15	46.15	7.69	
% within column	34.29	52.17	16.67	
Total	35	24	12	71
	49.30	33.80	16.90	100.00
	Personal accomplishment			
Yes (Y)				
N out of 71	14	18	13	45
% of whole sample	19.72	25.35	18.31	63.38
% within variable (Y)	31.11	40.00	28.89	
% within column	58.33	69.23	61.90	
No (N)				
N out of 71	10	8	8	26
% of whole sample	14.08	11.27	11.27	36.62
% within variable (N)	38.46	30.77	30.77	
% within column	41.67	30.77	38.10	
Total	24	26	21	71
	33.80	36.62	29.58	100.00

Studies relating to religious or spiritual activities to burn out in allied healthcare workers are scarce. In a large cross-sectional study of healthcare workers in Brazil, those reporting higher religious/spiritual activities exhibited lower levels of emotional exhaustion and higher personal accomplishment on the MBI, even after adjustment for job demands (Silva et al., 2022).

Similarly, a South African study of hospital clinicians found that quantitative measures of religious activity were associated with reduced depersonalization and improved professional fulfilment, although the effect sizes were small (Nkosi & Mchunu, 2023).

Specific to allied healthcare workers, a 2024 survey of physiotherapists in Australia reported that higher spiritual well-being scores correlated with higher personal accomplishment ($r=0.31$, $p<0.01$), while no significant relationship was found with emotional exhaustion or depersonalisation (Larson et al., 2024).

4.5.13 MBI score and social/recreational activities

Table 4.16 shows that among respondents who reported engaging in social or recreational activities, 19 (48.7%) experienced high emotional exhaustion compared to 24 (75.0%) of those who did not. This indicates that respondents who do not take part in social or leisure activities are more likely to experience higher levels of exhaustion, suggesting a protective effect of recreational engagement. Conversely, only 6 (15.4%) of the socially active group reported low EE compared to (5) 15.6% of the non-active group, indicating that while the benefit is modest, participation in leisure activities may help buffer against emotional fatigue. Statistical testing ($t=13.22$; $p>0.05$) revealed no significant association between social activity and EE, but the trend shows that lack of social engagement correlates with higher emotional strain.

Depersonalisation was slightly more common among respondents without social or recreational activities 5 (16.1%) than those who did engage 7 (17.5%), though the difference is minimal. The majority of respondents in both groups reported low to medium DP, indicating that social activity may have a mild effect, but not enough to achieve statistical significance ($t=6.31$; $p>0.05$). While not significant, the direction of association supports evidence that social connection and meaningful engagement outside of work reduce emotional detachment and cynicism toward patients.

For personal accomplishment, high PA levels were slightly more prevalent among those engaging in social/recreational activities 11 (28.2%) compared to non-respondents 10 (31.3%), with the majority of socially active respondents showing moderate PA 17 (43.6%). These results suggest that while social or leisure involvement does not directly increase feelings of professional efficacy, it may contribute indirectly by enhancing mood, relaxation, and emotional

balance. Statistical analysis ($t=5.25$; $p>0.05$) confirms no significant association between PA and social activity.

Although the results did not reach statistical significance, the data reveal a consistent protective trend: healthcare workers who engage in social and recreational activities report lower emotional exhaustion and marginally higher personal accomplishment.

Table 4.18 Association between social/recreational activities and EE, DP and PA

Social/recreational activities				
	Emotional Exhaustion			
	Low	Medium	High	Total
Yes (Y)				
N out of 71	6	14	19	39
% of whole sample	8,45	19,72	26,76	54,93
% within variable (Y)	15,38	35,90	48,72	
% within column	54,55	82,35	44,19	
No (N)				
N out of 71	5	3	24	32
% of whole sample	7,04	4,23	33,80	45,07
% within variable (N)	15,63	9,38	75,00	
% within column	45,45	17,65	55,81	
Total	11	17	43	71
	15,49	23,94	60,53	100,00
Depersonalisation				
Yes (Y)				
N out of 71	21	12	7	40
% of whole sample	29,58	16,90	9,86	56,34
% within variable (Y)	52,50	30,00	17,50	
% within column	60,00	50,00	58,33	
No (N)				
N out of 71	14	12	5	31
% of whole sample	19,72	16,90	7,04	43,66
% within variable (N)	45,16	38,71	16,13	
% within column	40	50	41,67	
Total	35	24	12	71
	49,30	33,80	16,90	100,00
Personal accomplishment				
Yes (Y)				
N out of 71	11	17	11	39
% of whole sample	15,49	23,94	15,49	54,93
% within variable (Y)	28,21	43,59	28,21	
% within column	45,83	65,38	52,38	

No (N)				
N out of 71	13,00	9,00	10,00	32,00
% of whole sample	18,31	12,68	14,08	45,07
% within variable (N)	40,63	28,13	31,25	
% within column	54,17	34,62	47,62	
Total	24	26	21	71
	33,80	36,62	29,58	100,00

Recent studies show that taking part in social or leisure activities outside of work can help protect healthcare workers from burnout. Spending time on hobbies, creative interests, or social groups allows workers to relax, disconnect from clinical stress, and regain energy. A 2024 study among nurses found that “leisure crafting” was one of the strongest factors linked with lower emotional exhaustion and depersonalisation (Guo et al., 2024). Similarly, research among physicians showed that those who regularly took part in social hobbies had significantly lower burnout scores, suggesting that time spent on meaningful leisure activities helps restore emotional balance and personal fulfilment (Li et al., 2023). These findings support reviews showing that social support and connection, which often arise through leisure participation, are buffers against the emotional strain of healthcare work (Claponea et al., 2023).

Evidence from South Africa and rehabilitation settings shows similar patterns. A Johannesburg study found that team support and social interaction among healthcare providers reduced feelings of isolation and helped prevent burnout (Makina-Zimalirana et al., 2023). Another African study also reported that nurses who had stronger social networks and support systems experienced less burnout overall (Efa et al., 2024). Overall, the literature suggests that social and leisure engagement acts as an important source of recovery and emotional resilience, even if it cannot by itself overcome the effects of high workload and poor work conditions.

4.6 Symptoms experienced by allied health care workers on a weekly basis

Figure 4.3 displays the burnout related symptoms experienced by allied healthcare workers at a tertiary hospital in the Eastern Cape. The following symptoms were experienced by more than 50% of the allied healthcare workers on weekly basis. Exhaustion 81.70%, increased irritability 67.27%, tired all day 62.0%, lack of motivation 57.8%.

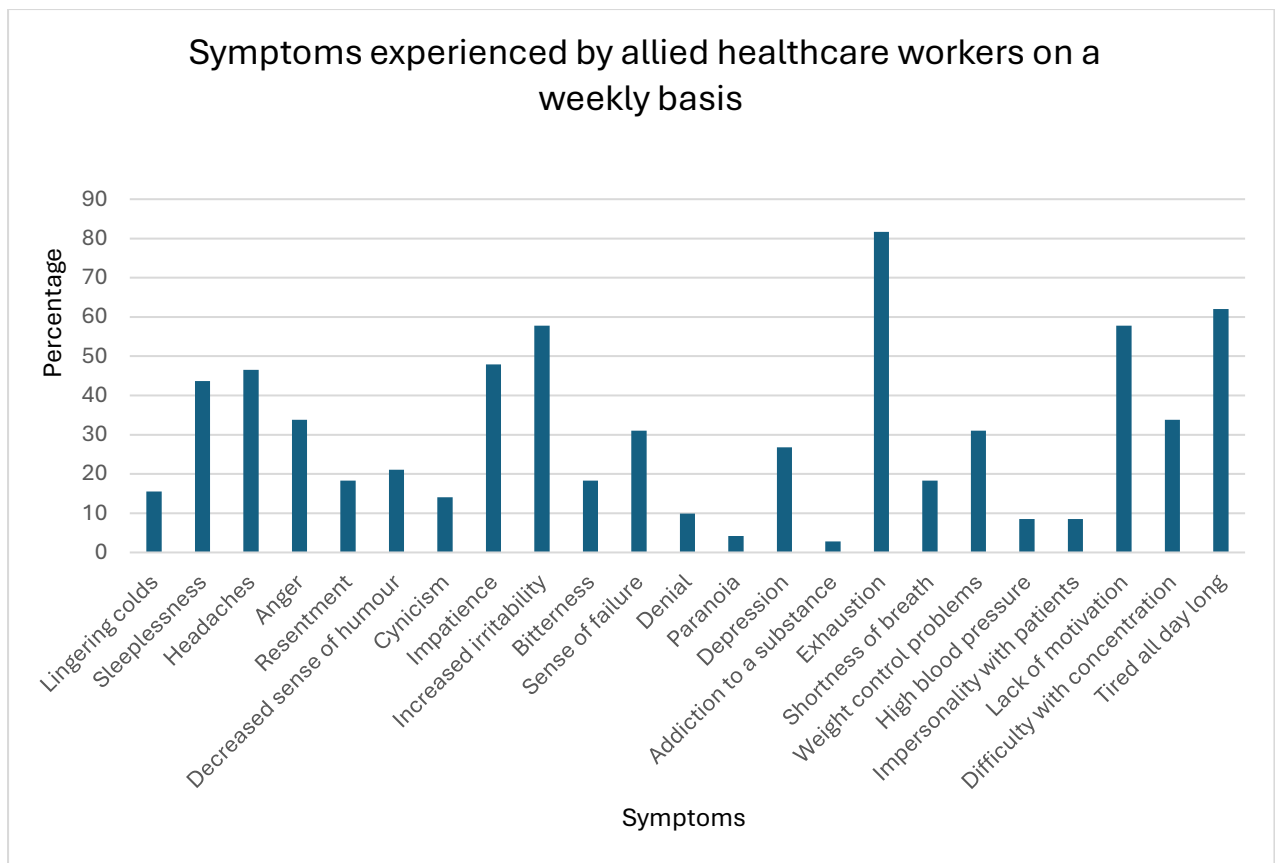


Figure 4.3 Symptoms experienced by allied healthcare workers on a weekly basis

Burnout in healthcare professionals typically presents through a cluster of emotional, cognitive, and physical symptoms that evolve gradually under sustained work-related stress. The most common symptom is emotional exhaustion, often experienced as chronic fatigue, low energy, and a sense of being emotionally drained by patient care (Maslach & Leiter, 2022). Many healthcare workers report irritability, mood swings, and difficulty concentrating, which can lead to increased conflict with colleagues or reduced empathy toward patients. Lack of motivation and a feeling of detachment from work are also characteristic, manifesting as decreased enthusiasm for professional tasks and reduced job satisfaction. These symptoms often coexist with sleep disturbances, including insomnia, early waking, or non-restorative sleep, which in turn exacerbate fatigue and emotional instability (Li et al., 2024). Physiological consequences such as headaches, muscle tension, or gastrointestinal issues may develop, highlighting the complex interplay between psychological and physical health.

The implications of these symptoms are significant for both healthcare workers and the broader healthcare system. Persistent exhaustion and poor sleep reduce cognitive performance, increase the risk of medical errors and compromising patient safety (Shanafelt et al., 2022).

Emotional detachment and irritability can lead to depersonalisation, where staff become cynical or disengaged, negatively affecting therapeutic relationships. Over time, chronic burnout is linked to absenteeism, turnover, and reduced productivity, further straining already understaffed health systems—especially in low- and middle-income countries like South Africa (Moses et al., 2024). From a personal standpoint, burnout increases vulnerability to anxiety, depression, and substance misuse, undermining both mental health and career longevity. Recognising these symptoms early and implementing systemic intervention, such as workload adjustments, peer support, and rest-promoting policies are useful ways of protecting healthcare workers and patient outcomes.

4.7 Conclusion

This chapter presented and discussed the findings of the study examining the prevalence and determinants of burnout among allied healthcare professionals employed at the identified tertiary hospital in the Eastern Cape. Using the Maslach Burnout Inventory (MBI), results revealed that emotional exhaustion (EE) was the most prominent domain, affecting over 60% of respondents, followed by reduced personal accomplishment (PA) in approximately one-third and depersonalisation (DP) in 17%. These results align closely with international literature that identifies EE as the earliest and most severe manifestation of burnout among healthcare professionals (Makina-Zimalirana et al., 2023; Venturini et al., 2024). The prevalence observed in this study mirrors findings from similar South African studies among private-practice allied health professionals (Grace & Moodley, 2024), indicating that burnout is not confined to a specific practice sector but is a systemic occupational health challenge within the allied health workforce.

Demographic analysis demonstrated that younger professionals (particularly those aged 20–39 years) and females were more prone to high emotional exhaustion. These findings are consistent with global patterns where early-career healthcare workers, especially women, report greater vulnerability to exhaustion due to high emotional labour demands and limited organisational autonomy (Nagle et al., 2024; Moses et al., 2024).

Work-related variables revealed that overtime work and weekend/public-holiday shifts significantly correlated with higher emotional exhaustion and depersonalisation, echoing international findings that “unsocial-hour work” disrupts recovery cycles and contributes to chronic stress (Dall’Ora et al., 2023; Batanda et al., 2024). Conversely, engagement in social and

recreational activities showed a protective pattern, with respondents who engaged in such activities reporting lower exhaustion and slightly higher personal accomplishment. Although not statistically significant, this aligns with emerging evidence that social connections and leisure participation enhance resilience and emotional recovery (Guo et al., 2024; Claponea et al., 2023). Religious activity showed no significant association with any burnout dimension, though the direction of findings suggests that spirituality may provide limited emotional buffering in this context (Nkosi & Mchunu, 2023; Larson et al., 2024).

Overall, the findings reinforce the Job Demands–Resources (JD-R) framework, illustrating that burnout arises when high job demands, such as workload, overtime, and emotional labour, are not balanced by adequate job and personal resources like recovery time, social support, or autonomy. The presence of significant emotional exhaustion despite high professional competence and self-reported confidence suggests that individual resilience alone cannot counter systemic pressures.



University of Fort Hare
Together in Excellence

CHAPTER 5

CONCLUSION & RECOMMENDATIONS

5.1 Introduction

This chapter summarises the key findings of the study, links them back to the original research problem, and contextualises it within the broader literature on burnout in healthcare workers. The chapter will discuss recommendations for practice and policy, outline the main limitations of the study, and makes suggestions for future research.

5.2 Overview of the research problem

Burnout is increasingly recognised as a major occupational health concern among healthcare workers globally (characterised by emotional exhaustion, depersonalisation and reduced personal accomplishment), developing when job demands exceed available resources over an extended period (Maslach & Leiter, 2022; Bakker, Demerouti & Sanz-Vergel, 2023). Evidence from recent systematic reviews show high and rising levels of burnout, depression and suicidal risk among healthcare professionals in multiple settings (Venturini et al., 2024; Jain & Sarfraz, 2024).

In South Africa, these risks are heightened by chronic staff shortages, high patient loads, limited resources and multiple systemic challenges in the public sector (Maphumulo & Bhengu, 2019; Khan, Ntamatlala & Adams, 2024). Allied healthcare workers play a critical role in rehabilitation and continuity of care and have historically received less research attention than doctors and nurses. Recent publications have started to document substantial levels of burnout among allied healthcare workers, demonstrating particularly high levels of emotional exhaustion (Clarke, Frecklington & Stewart, 2024; Grace & Moodley, 2024).

Against this background, the present study investigated burnout among allied healthcare workers employed at a tertiary hospital in the Eastern Cape Province. Using the Maslach Burnout Inventory (MBI), it quantified levels of emotional exhaustion (EE), depersonalisation (DP) and personal accomplishment (PA) and explored associations with socio-demographic and work-related factors. The concern being that high burnout in this group may negatively affect worker wellbeing, patient outcomes and the sustainability of public sector services in an already constrained provincial health system.

5.3 Research questions and summary of findings

The overall aim of the study was to determine the prevalence of burnout and its associated factors among allied healthcare professionals at a tertiary hospital in the Eastern Cape.

5.3.1 Research question

What is the prevalence of burnout (EE, DP and PA) among allied healthcare workers at a tertiary hospital in the Eastern Cape, and how is burnout associated with selected socio-demographic and work-related variables?

This question was investigated through descriptive statistics and correlation analyses. Overall, the study found a high burden of burnout, particularly in the emotional exhaustion dimension, with a many of the respondents scoring in the moderate or high range for EE, and significant numbers demonstrating elevated DP and low PA. These findings are consistent with international evidence that emotional exhaustion tends to manifest earliest and most strongly among healthcare workers (Edú-Valsania, Laguía & Moriano, 2022; Kovalchuk et al., 2023).

Research question 1: Prevalence of burnout

To determine the prevalence of burnout in allied healthcare workers at a tertiary hospital in the Eastern Cape Province.



University of Fort Hare

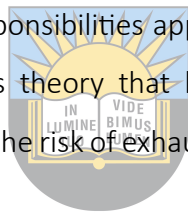
The prevalence and distribution of MBI scores are presented in Chapter 4 and associated tables. The study showed that the prevalence of high emotional exhaustion was considerable among allied healthcare workers, with many respondents meeting the cut-off for moderate or high EE. Depersonalisation levels were generally lower than EE, but a notable number of respondents fell into the high DP category, while a noteworthy proportion demonstrated low PA (indicating higher burnout on that dimension). These results demonstrate that burnout affects a sizable share of the allied health workforce in this setting, aligning with global estimates that approximately one in four to one in three rehabilitation professionals may experience clinically concerning levels of burnout (Venturini et al., 2024; Clarke, Frecklington & Stewart, 2024).

Sub-question 1: Socio-demographic factors

To examine the association between burnout (EE, DP and PA) and selected socio-demographic characteristics.

These results are reported in Chapter 4 and associated tables. The data suggested that younger age (particularly under 40 years) and fewer years of professional experience were associated with higher burnout scores, especially in EE, consistent with available literature showing that younger professionals are at greater risk, possibly due to heavier workloads and less autonomy (Youssef et al., 2022; Jung et al., 2023). Female respondents tended to show higher EE (and sometimes lower PA) than male respondents, while men were more likely to display higher DP scores, similar to global patterns that emotional exhaustion and reduced personal accomplishment are more common in women and depersonalisation more common in men (Edú-Valsania, Laguía & Moriano, 2022).

Marital status was not consistently associated with burnout, which is in line with recent South African research among occupational therapists suggesting that relationship strain and family pressures, rather than marital status specifically, are more important when considering the development of burnout (Weir, Ramano & Balbadhur, 2024). The presence of dependants and associated financial and caregiving responsibilities appeared to contribute to higher burnout, aligning with Job Demands–Resources theory that high demands at work combined with substantial demands at home increase the risk of exhaustion (Bakker, Demerouti & Sanz-Vergel, 2023).



University of Fort Hare

Sub-question 2: Work-related factors *Together in Excellence*

To explore the association between burnout and work-related factors.

These findings are discussed in detail in Chapter 4. In summary, the results suggested that heavier workloads, frequent weekend and public-holiday work and overtime were associated with higher EE and DP. Consistent with the Job Demands–Resources theory, this pattern reflects the cumulative strain of sustained job demands, being those prolonged high demands in the absence of adequate resources, leads to exhaustion and cynicism (Bakker, Demerouti & Sanz-Vergel, 2023).

Income and financial strain appeared to be relevant as respondents in lower income categories reported higher burnout, particularly EE and lower PA. This aligns with recent South African research within the Job Demands–Resources framework showing that poorer financial wellbeing and perceived insufficient rewards are associated with higher burnout (Botha, Fouché & de Beer, 2024). Engagement in social, recreational and religious activities showed a

tendency towards lower burnout scores, suggesting possible protective effects, even where these associations were not always statistically significant. This aligns with emerging evidence that regular physical activity and supportive social networks are associated with lower odds of high EE and DP and higher PA among allied health professionals (Grace & Moodley, 2024).

5.4 Recommendations

Based on the findings of this study, supported by national and international literature, the following recommendations are made:

5.4.1 Address workload and staffing of allied healthcare workers in public hospitals

Excessive workloads and sustained pressure appear to be drivers of the development of high levels of emotional exhaustion in this group of allied healthcare workers. This study recommends that hospital and provincial managers prioritise workload assessment and advocate for additional posts where feasible. This aligns with evidence that high job demands combined with insufficient job resources are key predictors of burnout (Bakker, Demerouti & Sanz-Vergel, 2023).

5.4.2 Strengthen supervision, mentoring and support for younger allied health staff

Given that younger allied health professionals and those with fewer years of experience appeared particularly vulnerable to burnout, targeted support for this group is essential. Structured clinical supervision, mentoring programmes, regular debriefing and facilitated peer-support groups could assist with developing coping skills and management of emotionally demanding cases. Recent South African work among early-career occupational therapists has underscored the high levels of stress and burnout in this group and the importance of supportive work environments (Bruce et al., 2023; de Witt et al., 2024).

5.4.3 Promote mental health support and access for allied health workers

The high burnout levels observed in this study, along with growing evidence of depression and suicide in healthcare workers, highlight the need for proactive mental health promotion and anti-stigma initiatives within health facilities (Jain & Sarfraz, 2024). This study recommends that the facility implements and communicates access to credible and confidential psychological support. The study highlights the importance that leadership, at all levels, has an important role to play in normalising and encouraging mental health support. South African research found that healthcare workers frequently delay seeking help due to fear of judgement and

confidentiality concerns, and that stigma remains a major barrier to care (Watermeyer et al., 2023). Reducing stigma and making support visible and accessible may prevent progression from burnout to more severe mental health outcomes.

5.4.4 Integrate health-promoting and resilience-building interventions into the workplace

The patterns observed around social, recreational and religious activities, together with external evidence, suggest that health-promoting behaviours such as regular physical activity can buffer against burnout. The study therefore recommends that the hospital explore ways to integrate wellbeing interventions into the work environment. Facilitating access to on-site or nearby exercise facilities, promoting walking groups or stretching breaks, and offering workshops on stress management could be realistic examples of how to do this. Grace and Moodley (2024) found that moderate-intensity physical activity was associated with lower odds of high EE and DP and higher PA among South African allied health professionals, supporting the potential value of such interventions in similar settings.

5.4.5 Establish routine monitoring of burnout and organisational risk factors

Finally, it is recommended that burnout assessment be integrated into the annual human resource operational at the hospital. Annual, anonymous MBI surveys would enable the institution to monitor levels of staff burnout, identify high-risk departments and evaluate the impact of interventions. Maslach and Leiter (2022) emphasise that burnout should be considered a systemic issue rather than an individual failing, and Jain and Sarfraz (2024) call for evidence-based organisational interventions to mitigate mental health risks in healthcare workers. There should be an institutional awareness of the degree of burnout, along with necessary interventions to support staff members.

5.5 Limitations of the research

The following limitations should be acknowledged when interpreting the findings of this study:

- 5.5.1 While associations were observed between burnout and various socio-demographic and work-related factors, it is not possible to determine the direction of these relationships or to rule out unmeasured confounding variables.
- 5.5.2 The study was conducted at a single tertiary hospital in the Eastern Cape using a relatively small sample of allied healthcare workers. This limits the generalisability of the findings to other hospitals, provinces or professional groups. Different institutional

cultures, staffing patterns and resource constraints may produce different burnout profiles.

- 5.5.3 Some potentially relevant variables were not measured in detail. For example, the married vs single could have been better investigating by exploring the relationship in more detail, supporting the literature increasingly suggests that these more specific indicators may be important predictors of burnout.

5.6 Suggestions for future research

This research provides important information relating to the levels of burnout in allied health workers at this specific institution and can be used as a foundation for additional investigations. The following suggestions could be considered for future research:

- 5.6.1 Multisite studies involving larger samples of allied healthcare workers across different provinces and levels of care (district, regional, tertiary) would help to clarify the generalisability of the findings and identify context specific versus system-wide risk factors.
- 5.6.2 Repeating the investigation in the same sample population would allow researchers to track changes in burnout over time and measure the impact of any interventions and support programmes.
- 5.6.3 Including qualitative methods, such as interviews and focus groups, would deepen understanding of the subjective experience of burnout and the coping strategies used by allied healthcare workers, adding depth to the growing body of literature on burnout in allied healthcare workers.

5.7 Summary

This chapter has drawn together the main findings of the study and contextualised them within the broader literature on burnout among healthcare workers. The research demonstrated a high burden of burnout, particularly emotional exhaustion, among allied healthcare professionals at a tertiary hospital in the Eastern Cape. It also identified several associated socio-demographic and work-related factors, including younger age, female gender, demanding work schedules and indicators of financial strain. The findings are consistent with Job Demands–Resources theory and with national and international evidence that healthcare



University of Fort Hare
Together in Excellence

workers, including allied health professionals, face substantial risks of burnout with important implications for their wellbeing, patient care and health-system performance.

The chapter has also offered practical recommendations aimed at reducing burnout and supporting allied healthcare workers, acknowledged key limitations of the study and outlined suggestions for future research. Overall, the study contributes to a growing body of evidence that burnout in allied health professionals is a significant concern in the South African public health system and underscores the need for coordinated organisational and policy responses to protect this critical component of the healthcare workforce.



University of Fort Hare
Together in Excellence

6. REFERENCES

- Adam, D., Schellhammer, J., Biallas, B., Stiawa, M., Knaevelsrud, C. & Siegmund-Schultze, E. (2023) 'Interventions to reduce stress and prevent burnout in healthcare professionals supported by digital applications: a scoping review', *Frontiers in Public Health*, 11, 1231266.
- Al Maqbali, M., Alsayed A., Hughes C., Hacker E & Dickens G. (2024) 'Stress, anxiety, depression and sleep disturbance among healthcare professionals during the COVID-19 pandemic: An umbrella review of 72 meta-analyses', *PLOS ONE*, 19(5), e0302597.
- Al Sabei, S., Al-Moamary, M., Al Anazi, A., et al., 2025. Emotional exhaustion among critical care nurses and its association with workload and leadership support: A cross-sectional study. *BMC Nursing*, 24, Article 82.
- Alanazy, A.R.M., Alruwaili, E., Subhan, F., Alanezi, F., Alsharqi, O., Aljahdali, H., & Alghnam, S., 2023. The global prevalence and associated factors of burnout among emergency department healthcare workers and the impact of the COVID-19 pandemic: a systematic review and meta-analysis. *Healthcare*, 11(11), 2220. doi:10.3390/healthcare11112220.
- Al-Busaidi, S., Al-Magrashi, N., Al Amri, U., Al Habsi, N., Al Rasbi, S., Kashoub, M., Al Rawahi, M., Al Kaabi, H. & Al Alawi, A.M. (2025) 'Physician burnout: systemic challenges and individual resilience', *Journal of the Oman Medical Association*, 2(2), 10.
- Amer, S.A.A.M. et al. (2022) 'Occupational burnout and productivity loss: A cross-sectional study', *Frontiers in Public Health*, 10, 861674.
- Bakker, A.B., Demerouti, E. & Sanz-Vergel, A. (2023) 'Job Demands–Resources Theory: Ten Years Later', *Annual Review of Organizational Psychology and Organizational Behaviour*, 10, pp. 25–53.
- Barello, S., Palamenghi, L., & Graffigna, G. (2022) 'Burnout among healthcare workers during the COVID-19 pandemic: A cross-sectional study', *BMC Public Health*, 22(1), pp. 1-12.
- Barnard, N.B. & Coetzee, S., 2025. Understanding the link between nurses' practice environment, emotional exhaustion, compassion satisfaction, and adverse events. *Nursing & Health Sciences*, 27(2), e70132.

Barnard, N.B., Ndlovu, B., Mabe, S. & Masia, T., 2023. Burnout of emergency nurses in a South African context: capability and demands–resources perspectives. *Frontiers in Psychology*, 14, 1119063.

Barnard, N.B., Rothmann, S., De Beer, L.T. and Lubbe, W. (2023) 'Burnout of emergency nurses in a South African context: The role of job demands and resources, and capabilities', *Frontiers in Psychology*, 14, 1119063.

Bianchi, R. & Schonfeld, I.S. (2023) 'Examining the evidence base for burnout', *Bulletin of the World Health Organization*, 101(11), pp. 743–745.

Botha, L.G., Fouché, J. & de Beer, L.T. (2024) 'A model linking financial well-being and burnout in a South African engineering organisation', *SA Journal of Industrial Psychology*, 50, a2190.

Bruce, M. et al. (2023) 'Burnout in inexperienced South African occupational therapists during the COVID-19 pandemic lockdown', *Occupational Therapy in Mental Health*, 39(4), pp. 251–270.

Budd, J., 2023. Burnout Related to Electronic Health Record Use in Primary Care. *Journal of Primary Care & Community Health*, 14(4), pp.1-7.

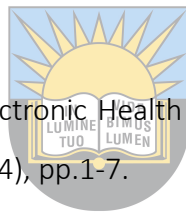
Casteel, A. and Bridier, N. (2021) Describing populations and samples in doctoral student research. *International Journal of Doctoral Studies*, 16(1), pp.339–362.

Chen, C. et al. (2024) 'How can health care organizations address burnout? A multi-level framework for health-systems changes', *American Journal of Public Health*.

Clarke, M., Frecklington, M. & Stewart, S. (2024) 'Prevalence and severity of burnout risk among musculoskeletal allied health practitioners: a systematic literature review and meta-analysis', *Occupational Health Science*, 8(4), pp. 857–882.

Craig, K.J.T., Willis, V.C., Gruen, D., Rhee, K., & Jackson, G.P., 2021. The burden of the digital environment: a systematic review on organization-directed workplace interventions to mitigate physician burnout. *Journal of the American Medical Informatics Association*, 28(5), pp.985-997.

De Andrade, V.M., da Silva, C. & Israel, N., 2024. South African speech-language therapists' and audiologists' professional quality of life. *South African Journal of Communication Disorders*, 71(1), e1042.



University of Fort Hare
Together in Excellence

de Witt, P. et al. (2024) 'Early career South African occupational therapists' experiences of workplace stress and burnout', *Occupational Therapy International*, 2024, 3189429.

Delgado, N., Contreras, D. & Fernández, M., 2023. What is the link between different components of empathy and burnout components in healthcare professionals? A systematic review and meta-analysis. *Psychology Research and Behavior Management*, 16, pp.1887–1905.

Ditlopo, P., Nkabinde, T., Blaauw, D. & Rispel, L.C., 2024. The impact of the nurse practice environment, workload and other factors on nurse outcomes and patient outcomes in South Africa. *Nursing Open*, 11(10), e2859. <https://doi.org/10.1002/nop2.2859>

Dobešová Cakirpaloglu, S., Maierová, E., Zatloukal, J. & Klugar, M., 2024. Strain and serenity: Exploring the interplay of stress, burnout, and work performance in healthcare professions. *Frontiers in Psychology*, 15, 1415996

du Plessis, T. (2012). The prevalence of burnout among therapy staff employed in Life Healthcare Rehabilitation units. MPhil. University of Stellenbosch.

Du Plessis, T. (2014). The prevalence of burnout amongst therapists working in private physical rehabilitation centres in South Africa: a descriptive study. *South African Journal of Occupational Therapy*, 44(2), 11-16.

Dūdiņa, K. & Martinsone, B., 2025. Psychosocial risks and protective factors for healthcare worker burnout during the post-acute phase of the COVID-19 pandemic. *European Journal of Investigation in Health, Psychology and Education*, 15(9), 186.

Dyasi, O., Makhado, L., Matlala, M. & Chukwu, O., 2024. Impact of burnout on depression among nurses at a private hospital in Johannesburg, South Africa. *South African Family Practice*, 66(1), a5795.

Edú-Valsania, S., Laguía, A. & Moriano, J.A. (2022) 'Burnout: A review of theory and measurement', *International Journal of Environmental Research and Public Health*, 19(3), 1780.

Elbarazi, I., Loney, T., Yousef, S. and Elias, A. (2017). Prevalence of and factors associated with burnout among health care professionals in Arab countries: a systematic review. *BMC Health Services Research*, 17(1).



University of Fort Hare
Together in Excellence

Fountopoulou, V.E., Fragkou, D. and Giannakopoulos, G. (2024) 'Burnout in telecommunications contracting projects: aggravating factors and its association with gender', *The Open Public Health Journal*, 17, e18749445356776.

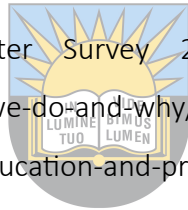
Hospital Clinical Support Services Directorate, 2022. Annual performance report. East London: Frere Hospital.

Freudenberger, H. (1974). Staff Burn-Out. *Journal Of Social Issues*, 30(1), 159-165. doi: 10.1111/j.1540-4560.1974.tb00706.x

Gabriel, K.P. & Aguinis, H. (2022) 'How to prevent and combat employee burnout and create healthier workplaces during crises and beyond', *Business Horizons*, 65(2), pp. 183–192.

García-Iglesias, J.J. et al. (2022) 'Suicidal ideation and suicide attempts in healthcare workers: a systematic review', *Frontiers in Public Health*, 10, 1043216.

General Medical Council, 2024. The state of medical education and practice in the UK: Workplace experiences – Barometer Survey 2024. London: GMC. Available at: <https://www.gmc-uk.org/about/what-we-do-and-why/data-and-research/research-and-insight-archive/the-state-of-medical-education-and-practice-in-the-uk-barometer-survey-2024>



University of Fort Hare
Together in Excellence

Ghanad, A. (2023). An Overview of Quantitative Research Methods. *International Journal of Multidisciplinary Research and Analysis*, [online] 6(8), pp.3794–3803.

Govender, I. (2024). Braindrain in South Africa is affecting health care. *South African Family Practice*, 66(1).

Grace, J.M. & Moodley, L., 2024. Correlation between physical activity and burnout amongst allied healthcare professionals in eThekweni, South Africa. *SAGE Open Medicine*, 12, Article: 20503121241297060

Guastello, A.D., Brunson, J.C., Sambuco, N., Dale, L.P., Tracy, N.A., Allen, B.R. and Mathews, C.A. (2024) 'Predictors of professional burnout and fulfilment in a longitudinal analysis on nurses and healthcare workers in the COVID-19 pandemic', *Journal of Clinical Nursing*, 33(1), pp. 288–303. doi: 10.1111/jocn.16463.

Heredia-Callejón, A. et al. (2023) 'Influence of the therapeutic alliance on the rehabilitation of stroke: A systematic review of qualitative studies', *Journal of Clinical Medicine*, 12(13), 4266. doi:10.3390/jcm12134266.

Hewitt, D.B., Ellis, R.J., Hu, Y.-Y., Cheung, E.O., Moskowitz, J.T., Agarwal, G. and Bilimoria, K.Y. (2020). Evaluating the Association of Multiple Burnout Definitions and Thresholds with Prevalence and Outcomes. *JAMA Surgery*, 155(11).

Hodkinson, A., Zhou, A., Johnson, J., Geraghty, K., Riley, R., Zhou, A., Panagopoulou, E., Chew-Graham, C.A., Peters, D., Esmail, A. & Panagioti, M. (2022) 'Associations of physician burnout with career engagement and quality of patient care: systematic review and meta-analysis', *BMJ*, 378, e070442.

Hueto Madrid, Juan Antonio MD*; Hargreaves, Judith MSc†; Buchelt, Beata PhD‡. Putting Patients at Risk: The Effect of Health Care Provider Burnout on Patient Care in the Operating Room—A Narrative Review. *Journal of Patient Safety* 21(6): p 424-436, (2025)

Jain, L. & Sarfraz, Z. (2024) 'Suicide in healthcare workers: An umbrella review of prevalence, causes, and preventive strategies', *Journal of Primary Care & Community Health*, 15, 21501319241273242.

University of Fort Hare

Jan, B.Z.M.M. and Keenoo, B.S. (2024) 'Prevalence of burnout among healthcare workers during the COVID-19 pandemic: a systematic literature review', Preprint, Research Square

Juliana Pontes Soares, Rayssa Horacio Lopes, Beatriz, P., Diniz, R., Martins, F. and Lima, J. (2023). Use of the Maslach Burnout Inventory among public health care professionals: a scoping review (Preprint). *JMIR Mental Health*, 10(e44195), pp. e44195–e44195.

Jung, F.U. et al. (2023) 'Burnout, work engagement and work hours – how physicians' decisions differ across career stages', *BMC Health Services Research*, 23, 1473.

Karakcheyeva, V., Willis-Johnson, H., Corr, P.G. & Frame, L.A., 2024. The Well-Being of Women in Healthcare Professions: A Comprehensive Review. *Global Advances in Integrative Medicine & Health*, [online], Article ID 27536130241232929. DOI: 10.1177/27536130241232929.

Kassew, T., Malkam M., Minichil W., Wondie M & Ali D (2024) 'Depressive and anxiety symptoms amid COVID-19 pandemic among healthcare workers in a low-resource setting: A systematic review and meta-analysis from Ethiopia', *Frontiers in Psychiatry*, 15, 1342002.

Khammissa RAG, Nemutandani S, Feller G, Lemmer J, Feller L (2022) 'Burnout phenomenon: neurophysiological factors, clinical features, and aspects of management', *Journal of International Medical Research*, 50(9), 03000605221106428.

Khan, S., Ntatomala, I. & Adams, S. (2024) 'A review of burnout among doctors in South Africa: pre-, during and post-COVID-19 pandemic', *South African Family Practice*, 66(1), a6002.

Khan, S., Ntatomala, I., Baatjies, R. & Adams, S., 2024. Prevalence and determinants of burnout among South African doctors during the COVID-19 pandemic. *South African Journal of Psychiatry*, 30, a2225. DOI:10.4102/sajpsychiatry.v30i0.2225

Khunou, S. and Jiyane, P.M. (2023) 'Experiences of professional nurses regarding shortage of resources at a tertiary hospital in Gauteng Province, South Africa: Qualitative study', *Journal of Nursing*, 18(2), pp. 176–183.

Kiratipaisarl, W., Surawattanasakul, V. & Sirikul, W. (2024) 'Individual and organizational interventions to reduce burnout in resident physicians: a systematic review and meta-analysis', *BMC Medical Education*, 24, 1234. *Together in Excellence*

Kiser, S.B., Sterns, J.D., Palamara, K.M. et al. (2024) 'Physician coaching by professionally trained peers for burnout and well-being: a randomized clinical trial', *JAMA Network Open*, 7(4), e249393.

Koutsimani, P. & Montgomery, A., 2022. Burnout and cognitive functioning: Are we underestimating the role of visuospatial functions? *Frontiers in Psychiatry*, 13, 775606. doi:10.3389/fpsy.2022.775606

Kovalchuk, L.S. et al. (2023) 'Burnout syndrome in healthcare professionals: structure, predictors and consequences', *Healthcare*, 11(4), 512.

Kramer, M., Könings, K.D., Prins, J.T., van der Heijden, F.M.M.A. and Heyligers, I.C. (2024) 'Still higher risk for burnout and low work engagement among female residents after 10 years of demographic feminisation', *Medical Science Educator*, 34, pp. 1–10.

Krishnan, A, Odejimi, O, Bertram, I, Chukowry, PS & Tadros, G 2022, 'A systematic review of interventions aiming to improve newly qualified doctors' wellbeing in the United Kingdom', *BMC Psychology*, vol. 10, no. 1, 161.

Langran, C., Mantzourani, E., Hughes, L., Hall, K. and Willis, S. (2022). 'I'm at breaking point'; Exploring pharmacists' resilience, coping and burnout during the COVID-19 pandemic. *Exploratory Research in Clinical and Social Pharmacy*, [online] 5, p.100104.

Lee, M. & Cha, C. (2023) 'Interventions to reduce burnout among clinical nurses: systematic review and meta-analysis', *Scientific Reports*, 13, 10971.

Li, L.Z., Wang, S., Xie, X., Jiang, Y., Wang, T., Sun, Z. & Zhou, Y., 2024. Nurse burnout and patient safety, satisfaction, and quality: a systematic review and meta-analysis. *JAMA Network Open*, 7(2), e2365639.

Li, X., Zhang, J., Wang, Y. & Lin, Y., 2024. Sleep quality, emotional exhaustion, and burnout in healthcare workers: a systematic review and meta-analysis. *Frontiers in Psychology*, 15, 1321057.

Macaron, M.M., Segun-Omosehin, O.A., Matar, R.H. et al. (2023) 'A systematic review and meta-analysis on burnout in physicians during the COVID-19 pandemic: a hidden healthcare crisis', *Frontiers in Psychiatry*, 13, 1071397.

Maddock, A., 2024. The relationships between stress, burnout, mental health and well-being in social workers. *British Journal of Social Work*, 54(2), pp.668–686.

Makina-Zimalirana, N., Bisnauth, M., Shangase, N., Davies, N., Jiyane, A., Buthelezi, F. & Rees, K., 2023. Workplace wellbeing among healthcare workers providing HIV services in primary care in Johannesburg: a mixed-methods study. *Frontiers in Public Health*, 11, 1220301.

Malematja, D.N., Nkosi, E.M. & Nene, S.E. (2025) 'The impact of insufficient resources on the quality-of-service delivery at a primary healthcare clinic in Limpopo', *Curationis*, 48(1), a2696

Maphumulo, W.T. & Bhengu, B.R. (2019) 'Challenges of quality improvement in the healthcare of South Africa post-apartheid: A critical review', *Curationis*, 42(1), a1901.



University of Port Hare
Together in Excellence

Martinez, M.F., O'Shea, K.J., Kern, M.C., Chin, K.L., Dinh, J.V., Bartsch, S.M. et al. (2025) 'The Health and Economic Burden of Employee Burnout to U.S. Employers', *American Journal of Preventive Medicine*, 68(4), pp. 645–655

Maslach, C. & Leiter, M.P. (2022) *The Burnout Challenge: Managing People's Relationships with Their Jobs*. Cambridge, MA: Harvard University Press.

Maslach, C. (2016). *Maslach Burnout Inventory Manual*. Mind Garden, Inc.

Maslach, C., Jackson, S.E. and Leiter, M.P. (2018). *Maslach burnout inventory: manual*. Menlo Park, Calif.: Mind Garden.

Matahela, R.S., Adekola, A.P. and Mavhandu-Mudzusi, A.H. (2023). Exploring quality standards implementation at a South African municipality's health facilities. *Curationis*, 46(1).

Meira-Silva, V.S.T., de Souza, L.T., da Silva, A.F., et al., 2022. Burnout syndrome in healthcare workers during the COVID-19 pandemic: a systematic review. *Frontiers in Public Health*, 10, 958601.

Mijakoski, D., Minov, J., Stoleski, S., Zafirova, B. & Mijakoska, M. (2023) 'Associations of burnout with job demands/resources during the COVID-19 pandemic among health workers in Southeast Europe', *Frontiers in Psychology*, 14, 1258226.

Minister of Health. White Paper on National Health Insurance. Government Notice No. 1230, Government Gazette # 39506, 2015. National Department of Health, Pretoria. Available online: https://www.gov.za/sites/default/files/gcis_document/201512/39506gon1230.pdf

Mkhwanazi, T., 2024. Assessing the National Health Insurance (NHI) in South Africa: Policy formulation, stakeholder engagement and implementation challenges. *European Journal of Medical and Health Research*, 6(1), pp.29–39.

Morar, T., Koen, L. and Niehaus, D.J.H. (2022) 'Exploring burnout among psychiatric trainees at a South African university', *South African Journal of Psychiatry*, 28, a1634.

Morgantini, L.A., Naha, U., Wang, H., Francavilla, S., Acar, Ö., Flores, J.M., Crivellaro, S., Moreira, D., Abern, M., Eklund, M., Vigneswaran, H.T. & Weine, S.M., 2020. Factors contributing to healthcare professional burnout during the COVID-19 pandemic: A rapid turnaround global survey. *PLoS ONE*, 15(9), e0238217. doi:10.1371/journal.pone.0238217

Moses, A.C., Crous, C., Mokgatle, M. & Mboweni, S. (2024) 'Factors associated with burnout among healthcare professionals employed in a rural district of South Africa', *African Journal of Primary Health Care & Family Medicine*, 16(1), a4163.

Moses, A.C., Essack, S.Y., Mazibuko, Z. & Scott, V., (2024). Factors associated with burnout among healthcare professionals in rural South Africa. *African Journal of Primary Health Care & Family Medicine*, 16(1), a4163.

Müller, M.M., de la Torre, E., Kiefer, M., & Gold, A. (2023) Burnout among hospital staff during the COVID-19 pandemic. *Journal of Hospital Medicine*, 18(6), pp. 219-227.

Nagarajan, R., 2024. Global estimate of burnout among the public health workforce: A systematic review and meta-analysis. *Human Resources for Health*, 22, Article 9.

Nagle, E., Griskevica, I., Rajevska, O. & Skruzkalne, I. (2024) 'Factors affecting healthcare workers' burnout and their conceptual models: a scoping review', *BMC Psychology*, 12, 637.

Naidoo, R. & Schoeman, R., (2023). Burnout in emergency department staff: the prevalence and barriers to intervention. *South African Journal of Psychiatry*, 29, a2095. doi:10.4102/sajpsychiatry.v29i0.2095.



Narain, S. & Mathye, D., (2025). Perceptions and attitudes of South African physiotherapists towards National Health Insurance. *Health SA Gesondheid*, 30, Article e3017. doi:10.4102/hsag.v30i0.3017

National Department of Health (South Africa), 2023. National Mental Health Policy Framework and Strategic Plan 2023-2030. Pretoria: South African Government. Available at: <https://www.health.gov.za/wp-content/uploads/2024/02/National-Mental-Health-Policy-Framework-and-Strategic-Plan-2023-2030.pdf>

National Treasury (2022). Budget Review 2022: Health expenditure trends. Pretoria: Government of South Africa.

Nazeema, A., Lowton, K., Tenea, Z., Anic, A. & Jayrajh, P (2023). Study of burnout and depressive symptoms in doctors at a central-level state hospital. *South African Journal of Psychiatry*, 29, a1866.

Ngobeni, V., Breitenbach, M.C. and Aye, G.C. (2020). Technical efficiency of provincial public healthcare in South Africa. *Cost Effectiveness and Resource Allocation*, [online] 18(1).

Nkadimeng, M., Engelbrecht, A. & Rajan, S. (2024). Workplace violence in three public sector emergency department settings in Gauteng, South Africa: Prevalence and impacts. *African Journal of Emergency Medicine*

Nyirigira, G., Bailey, J.G., Rutayisire, F., Neil, K.L., Bould, M.D., Kwizera, R., Ndekezi, J.K., Gatera, M.R., Tuyishime, E. and Uwurukundo, B.S. (2025) 'Staff burnout and its risk factors at King Faisal Hospital Rwanda: a cross-sectional survey', *BMC Health Services Research*, 25, 508. doi: 10.1186/s12913-025-12638-4.

Office of the Surgeon General (2022) *Addressing Health Worker Burnout: The U.S. Surgeon General's Advisory on Building a Thriving Health Workforce*. Washington, DC: U.S. Department of Health and Human Services.

Olmsted, J. (2024). Research Reliability and Validity: Why do they matter? *American Dental Hygienists' Association*, 98(6), pp.53–57.

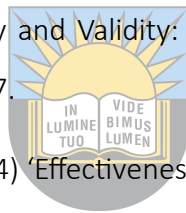
Ong, N.Y., Teo, F.J.J., Ee, J.Z.Y. et al. (2024) 'Effectiveness of mindfulness-based interventions on the well-being of healthcare workers: a systematic review and meta-analysis', *General Psychiatry*, 37(3), e101115.

Park, Y.S., Konge, L. and Artino, A.R. (2020). The Positivism Paradigm of Research. *Academic Medicine*, 95(5), pp.690–694. doi:<https://doi.org/10.1097/ACM.0000000000003093>.

Parliamentary Monitoring Group (PMG), 2025. National Assembly: Reply to question no.1986. PMG. Available at: <https://pmg.org.za/committee-question/29573/> [Accessed 24 August 2025].

Phillips, C.S., Trainum, K. and Thomas Hebdon, M.C. (2025) 'Hidden in Plain Sight: A Scoping Review of Professional Grief in Healthcare and Charting a Path for Change', *Health Services Insights*, 18, 11786329251344772.

Pladdys, J. (2024) 'Mitigating workplace burnout through transformational leadership and employee participation in recovery experiences', *HCA Healthcare Journal of Medicine*, 5(3), pp. 215–223. doi:10.36518/2689-0216.1783.



University of Port Hare
Together in Excellence

Purbrick, G.M., Morar, T. and Kooverjee, J. (2024). Burnout among community service doctors in South Africa. *African Journal of Primary Health Care & Family Medicine*, [online] 16(1), p.9.

Raosoftware (2025). Sample size calculator. [online] Raosoftware. Available at: <http://www.raosoftware.com/samplesize.html>.

Ruotsalainen, J.H. et al. (2023) 'Burnout among health professionals: updated systematic review and meta-analysis', *Occupational and Environmental Medicine*, 80(5), pp. 281–290.

Saul, K., et al., 2024. Burnout among diagnostic radiographers at selected public health facilities in South Africa: prevalence and associated factors [e-poster]. Nelson Mandela University / Health Research e-Posters.

Sexton, J.B., Adair, K.C., Frankel, T.C. et al. (2024) 'Well-Being Outcomes of Health Care Workers After a 5-Hour Continuing Education Intervention (WELL-B): a randomized clinical trial', *JAMA Network Open*, 7(9), e2429858.

Shanafelt, T. D., West, C. P., Dyrbye, L. N., & Trockel, M. (2022) 'Interventions to prevent and reduce physician burnout: A systematic review and meta-analysis', *The Lancet*, 400(10362), pp. 1926-1945.

Shanafelt, T.D., West, C.P., Sinsky, C., Trockel, M., Tuttle, M., Wang, H., Carlasare, L.E. and Dyrbye, L.N. (2025). Changes in Burnout and Satisfaction with Work–Life Integration in Physicians and the General US Working Population Between 2011 and 2023. *Mayo Clinic Proceedings*, [online] 100(7), pp.1142–1158.

Shin, P., Desai, V., Hernandez Conte, A. and Qiu, C. (2023) 'Time Out: The Impact of Physician Burnout on Patient Care Quality and Safety in Perioperative Medicine', *The Permanente Journal*, 27(2), pp. 160–168.

Singh, H. et al. (2023) 'A qualitative exploration of allied health providers' perspectives on cultural humility in palliative and end-of-life care', *BMC Palliative Care*, 22, 92. doi:10.1186/s12904-023-01214-4.

Sinsky, C.A., Prgomet, M., Davis, A. et al. (2024) 'Vacation days taken, work during vacation, and burnout among US physicians', *JAMA Network Open*, 7(1), e2351635.



University of Fort Hare
Together in Excellence

Society of Occupational Medicine (2023) Burnout in Healthcare: Risk Factors and Solutions. London: SOM.

Struwig, N. and Van Stormbroek, K. (2023). Support, supervision, and job satisfaction: Promising directions for preventing burnout in South African community service occupational therapists. *South African Journal of Occupational Therapy*, 53(1), pp.67–80.

Suran, B., & Sheridan, E. (1985). Management of burnout: Training psychologists in professional life span perspectives. *Professional Psychology: Research And Practice*, 16(6), 741-752. doi: 10.1037//0735-7028.16.6.741

Taherdoost, H. & Madanchian, M., 2024. The impact of survey response rates on research validity and reliability. In: *Design and Validation of Research Tools and Methodologies*. pp.183–212

Tast, A., Kasén, A., Bölenius, K. & Hilli, Y., 2024. Being a Newly Qualified Nurse: A Nordic Focus Group Study. *SAGE Open Nursing*, 10:23779608241244679

Too, E. K., Wachira, P., Njenga, S., Odero, S. A., Ndirangu-Mugo, E., & Abubakar, A. (2025). Prevalence and factors associated with depression, anxiety and post-traumatic stress disorder among healthcare workers from sub-Saharan Africa: systematic review. *BJPsych open*, 11(5), e192.

Van Zyl-Cillié, M.M., Kruger, W.H., Hunter, J. & Smith, M., (2024). A machine-learning model to predict risk factors causing burnout and emotional exhaustion among South African nurses. *BMC Health Services Research*, 24, 12184. <https://doi.org/10.1186/s12913-024-12184-5>

Venturini, E., Ugolini, A., Bianchi, L., Di Bari, M. & Paci, M., (2024). Prevalence of burnout among physiotherapists: a systematic review and meta-analysis. *Physiotherapy*, 124, pp.164-179.

Wang, X. and Cheng, Z. (2020). Cross-sectional studies: Strengths, Weaknesses, and Recommendations. *Chest*, [online] 158(1), pp.65–71.

Watermeyer, J. et al. (2023) 'The mental health and wellbeing of healthcare workers during COVID-19 in South Africa', *Health SA Gesondheid*, 28, a2159.

Wei, Z., Zhu, W., Zhu, Y. & Wu, J. (2024) 'Factors affecting occupational burnout in medical staff: A cross-sectional study based on the Job Demands–Resources model', *BMC Health Services Research*, 24, 157.

Weir, F.U., Ramano, E.M. & Balbadhur, R. (2024) “‘There’s a lot on my shoulders” – occupational therapists’ experience of stress and burnout in mental healthcare settings in Gauteng, South Africa’, *British Journal of Occupational Therapy*, 87(3), pp. 181–189.

Wilson AB, Brooks WS, Edwards DN, Deaver J, Surd JA, Pirlo OJ, Byrd WA, Meyer ER, Beresheim A, Cuskey SL, Tsintolas JG, Norrell ES, Fisher HC, Skaggs CW, Mysak D, Levin SR, Escutia Rosas CE, Cale AS, Karim MN, Pollock J, Kakos NJ, O'Brien MS, Lufner RS. Survey response rates in health sciences education research: A 10-year meta-analysis. *Anat Sci Educ*. 2024 Jan-Feb;17(1):11-23. doi: 10.1002/ase.2345.

Wójcik, G., Wontorczyk, A. & Barańska, I. (2022) 'Job demands, resources and burnout among Polish nurses during the late wave of COVID-19 pandemic: The mediating role of emotional labour', *Frontiers in Psychiatry*, 13, 931391. doi:10.3389/fpsyt.2022.931391.

World Health Organization (2019) 'Burn-out an “occupational phenomenon”': International Classification of Diseases'. Available at: <https://www.who.int/news/item/28-05-2019-burn-out-an-occupational-phenomenon-international-classification-of-diseases>

World Health Organization (2022) ICD-11 Fact Sheet; Burn-out an “occupational phenomenon” (webpages). Available at: WHO Standards & Classifications. Accessed 26 Aug 2025

Youssef, D. et al. (2022) 'Prevalence and correlates of burnout among physicians in a developing country', *Scientific Reports*, 12, 13533.

Zhou, H., Wu, H., Xu, Y., Zhou, J., Feng, L. & Zhang, Y., (2025). Relationship between empathy and burnout as well as related factors among clinical healthcare providers: A cross-sectional study. *Frontiers in Psychology*, 16, Article 1423832.

Zhou, T., Xu, C., Wang, C. et al. (2022) 'Burnout and well-being of healthcare workers in the post-pandemic period of COVID-19: a perspective from the job demands–resources model', *BMC Health Services Research*, 22, 284.

Zhu, H., Yang, X., Xie, S. and Zhou, J. (2023) 'Prevalence of burnout and mental health problems among medical staff during the COVID-19 pandemic: a systematic review and meta-analysis', *BMJ Open*, 13(7), e061945. doi:10.1136/bmjopen-2022-061945.

Zuma, S.M. (2022) 'Assessment of medicine stock-outs challenges in public health services', *Africa's Public Service Delivery and Performance Review*, 10(1), a578.



University of Fort Hare
Together in Excellence

APPENDIX 1 ETHICAL CLEARANCE – UFH

**FACULTY OF HEALTH SCIENCES
Research Ethics Committee**

P.O Box 1054
East London 5200
Tel: +27 (0) 43 704 7368
E-mail: dgoon@ufh.ac.za



**ETHICAL CLEARANCE CERTIFICATE
REC-100118-054**

Certificate Reference Number: **Ref # 2020=01=003=TrollopeLT**

Project title: **Prevalence of burnout among allied healthcare professionals employed at a state referral hospital in the Eastern Cape, South Africa**

Nature of Project: **Masters of Public Health**

Principal Researcher: **Trollope LT**

Student Number: **201415805**

Supervisors: **Prof DT Goon**

On behalf of the Health Sciences Research Ethics Committee (HREC), I hereby give ethical approval in respect of the undertakings contained in the above-mentioned project and research instruments(s). Should any other instruments be used, these require separate authorization. The Researcher may therefore commence with the research as from the date of this certificate, using the reference number indicated above.

Please note that the HREC must be informed immediately of

- Any material change in the conditions or undertakings mentioned in the document
- Any material breaches of ethical undertakings or events that impact upon the ethical conduct of the research

The Principal Researcher must report to the HREC in the prescribed format, where applicable, annually, and at the end of the project, in respect of ethical compliance.

**FACULTY OF HEALTH SCIENCES
Research Ethics Committee**

P.O Box 1054
East London 5200
Tel: +27 (0) 43 704 7368
E-mail: dgoon@ufh.ac.za



The HREC retains the right to

- Withdraw or amend this Ethical Clearance Certificate if
 - Any unethical principles or practices are revealed or suspected
 - relevant information has been withheld or misrepresented
 - regulatory changes of whatsoever nature so require
 - the conditions contained in the Certificate have not been adhered to
- Request access to any information or data at any time during the course or after completion of the project.
- In addition to the need to comply with the highest level of ethical conduct principal investigators must report back annually as an evaluation and monitoring mechanism on the progress being made by the research. Such a report must be sent to HREC monitoring@ufh.ac.za.

The Ethics Committee wishes you well in your research endeavours.

Yours sincerely



Professor DT Goon
Chairperson: HREC
28 January 2020

APPENDIX 2 DEPARTMENT OF HEALTH APPROVAL

EASTERN CAPE PROVINCE

DEPARTMENT OF HEALTH



ISEBE LEZEMPILO

CECILIA MAKIWANE & FRERE HOSPITALS RESEARCH ETHICS COMMITTEE

DEPARTMENT OF INTERNAL MEDICINE
PRIVATE BAG X 9047
EAST LONDON
5200

Cell: 082 5765930
E-mail: andygp@mweb.co.za

10 February 2022

Protocol Title: Prevalence of burn-out amongst allied health care professionals employed at a state referral hospital in the Eastern Cape, South Africa.

Protocol Reference Number: FCMHREC/A0114/2022

Protocol Status: Approved

To Ms L Trollope

Dear Leigh

The FCMHREC has reviewed the above application. The proposed study takes the form of a prospective cohort interview and as such does not entail substantial clinical risk. The protocol has been revised to document interventions needed if individuals with burn-out are identified during the study. Compliance with standards of Good Clinical Practice in terms of anonymizing information and data security are still essential in terms of collection, storage and publication of results.

Explanation of protocol status: 'approved' – the study may proceed with the conditions listed below; 'amendments required' – the suggested amendments are needed before the study will be approved and in the interim the study may not proceed; 'study not approved' – the study protocol was felt to contain substantive issues which will be spelt out below and the study may not proceed.

Period of approval: one year from the date of this letter. At the end of the approval period, please notify the committee of the status of the project (completed, discontinued or need for a further approval period). Also notify the committee at completion of the project on how you intend to feedback results to the local clinical and/or patient community.

Conditions of approval: Please inform the FCMREC in writing on the appropriate form if any of the following occurs: proposed protocol changes (FCMHREC/F056/2021); serious or unexpected adverse events (FCMHREC/F046/2021); unforeseen events that may affect the continuing ethical acceptability of the project. Urgent issues should also be communicated promptly either electronically or telephonically.

If you wish to appeal a decision of the FCMHREC, please do so using form FCMHREC/F047/2021.

Please note that the clinical governance structure of the institution(s) in which you intend to perform this study still need to be contacted both for permission to work within their clinical domain, and also so that they are aware of your activity on site.

Yours sincerely

Assoc Prof AG Parrish
MBChB, DA(SA), MMed(Med), MMedSci, FCP(SA)
Chair, CMH and Frere Research Ethics Committee

APPENDIX 3 PERMISSION FROM T DU PLESSIS TO USE STUDY DESIGN

Leigh Tovell

From: Theresa du Plessis <mjduplessis@mweb.co.za>
Sent: Thursday, 07 February 2019 07:21
To: Leigh Tovell
Subject: RE: Research on burnout in healthcare workers

Good day Leigh

Apologies for the delay responding to your e-mail. I am happy for you to use my study design and for my methodology to be replicated.

Good luck with your studies and please let me know about your study findings. The comparison will be very interesting.

Kind regards

Theresa du Plessis
Social Worker @ Life The Glynnwood Hospital
Cellular number: 083 442 0481
Email address: mjduplessis@mweb.co.za
Fax number: 086 684 1864



University of Fort Hare
Together in Excellence

APPENDIX 4 INFORMED CONSENT & QUESTIONNAIRE

In fulfilment in a master's in public health, Leigh Tovell would like to invite you to participate in the following research project.

Prevalence of burnout among allied healthcare workers employed at tertiary hospital in the Eastern Cape, South Africa.

The aim of the study is to determine the prevalence of burnout in the allied healthcare professionals at the identified Hospital, with the intention of bringing about a greater awareness of the incidence of this condition in the institution with the long-term view of advocating for measures to be put in place and manage this condition.

Participation will entail a 2-part self-administrated questionnaire, which will take approximately 20 minutes to complete. No further participation or commitment will be required.

Participation is voluntary and withdrawal at any stage is permitted – refusal to participate or withdrawal at any stage will in no way effect employment at the institution.

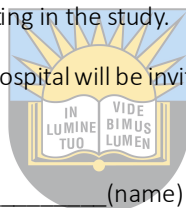
All information provided will remain confidential – the identity of participants will not be disclosed at any stage.

Benefits to participants include institutional knowledge of burnout rates in Allied Healthcare workers and contributing to a body of evidence to develop appropriate and targeted interventions to reduce and manage burn out in the institution.

There are no risks associated with participating in the study.

Only the Allied Healthcare Workers at XXXX Hospital will be invited to participate in this study – approx. 100 people.

I _____ (name) have read the consent form and consent to voluntary participate in the above-mentioned project.



University of Fort Hare
Together in Excellence

Participant signature

Date

Researcher signature

Date

Should you have any questions or concerns, please do not hesitate to contact me on 083 582 5031 or leigh.tovell@echealth.gov.za

Demographic, employment and social information

Demographic

1 Research identity number:

2 Gender:

1	M	
2	F	

3 Age:

4 Marital status:

1	never married	
2	married	
3	divorced	
4	widow/er	
5	seperated	
6	other	

If other, please specify

5 If married, how long have you been married

6 Do you have children / child dependants

1	Yes	
2	No	

7 If you have children / child dependants, how many of them are living with you?

8 Education (highest level)

1	Less than grade 12	
2	Grade 12	
3	1-3 years tertiary	
4	> 3 years tertiary	
5	post grad degree	

Employment details

9 Occupation

1	Physiotherapist	
2	Occupational therapist	

3	Social worker	
4	Dietician	
5	Speech therapist	
6	Audiologist	
7	Radiographer	
8	Orthotist / Prosthetist	

10 Years working experience

1	0-1y11m	
2	2-4y11m	
3	5-6y11m	
4	7-8y11m	
5	9-10y11m	
6	>11 years	

11 How long have you been working in your current position?

1	0-1y11m	
2	2-4y11m	
3	5-6y11m	
4	7-8y11m	
5	9-10y11m	
6	>11 years	

12 Income bracket (gross before deductions)

1	R0-R10 000	
2	R10 001-R15 000	
3	R15 001-R20 000	
4	R20 001 - R25 000	
5	R25 001 - R30 000	
6	R30 001 - R35 000	
7	> R35 001	

13 Do you consult privately or take on extra hours, over and above your normal working hours?

1	Yes	
2	No	

14 On average how many hours do you work a week?

1	Less than 32 hours	
2	40 hours	
3	48 hours	
4	56 hours	
5	>56 hours	

15	Do you work over weekends and public holidays?		
	1	Yes	
	2	No	

16	If yes, on average, how often?		
	1	Less than once a month	
	2	Once a month	
	3	Twice a month	
	4	Once a week	
	5	Twice a week	
	6	More than twice a week	
	7	Daily	

17	Do you usually work overtime?		
	1	Yes	
	2	No	

18	If yes, how many hours of overtime do you work on ave per month?		
	1	Less than once a month	
	2	Once a month	
	3	Twice a month	
	4	Once a week	
	5	Daily	

19	Do you sometimes work less hours than you should?		
	1	Yes	
	2	No	

20	If yes, on average, how often?		
	1	Less than once a month	
	2	Once a month	
	3	Twice a month	
	4	Once a week	
	5	Daily	

21	How many annual days leave did you take in the last year?		
	1	None	
	2	1-5 days	

3	6-10 days	
4	11-15 days	
5	16-20 days	
5	> 20 days	

22 How many days sick leave did you take in the last year?

1	None	
2	1-5 days	
3	6-10 days	
4	11-15 days	
5	16-20 days	
5	> 20 days	

Leisure and other activities

23 Do you participate in leisure and / or sport activities?

1	Yes	
2	No	

24 Are you actively involved in your religion?

1	Yes	
2	No	

25 Do you partake in other social or recreational activities?

1	Yes	
2	No	

Burnout related

In questions 28-43, choose the option that best describes your situation.

Please tick one option under each question.

28 I have an adequate social network and support system

Not at all	A little	Fairly good	Excellent
------------	----------	-------------	-----------

29 I have well developed strategies to cope with stress

Not at all	A little	Fairly good	Excellent
------------	----------	-------------	-----------

30 I feel competent in my job

Not at all	A little	Fairly good	Excellent
------------	----------	-------------	-----------

31 I feel confident in my job

Not at all	A little	Fairly good	Excellent
------------	----------	-------------	-----------

32 My work load is

To small	Just enough	A bit much	Overwhelming
----------	-------------	------------	--------------

33 My patient load is

To small	Just enough	A bit much	Overwhelming
----------	-------------	------------	--------------

34 On average, what part of your day is spent on administrative duties?

None	Up to 25%	25-50%	50-70%	> 75%
------	-----------	--------	--------	-------

35 I experience time pressure in my

Never	Seldom	Often	Always
-------	--------	-------	--------

36 I am unsure of my role in the team

Never	Seldom	Often	Always
-------	--------	-------	--------

37 I experience conflict with

Never	Seldom	Often	Always
-------	--------	-------	--------

38 I experience conflict with patients

Never	Seldom	Often	Always
-------	--------	-------	--------

39 I have the authority to make my own decisions regarding my work

None	A little	A fair amount	Completely
------	----------	---------------	------------

40 My job / profession is seen as prestigious

Not at all	A bit	Fairly	Completely
------------	-------	--------	------------

41 I experience job satisfaction

None	A little	A fair amount	Completely
------	----------	---------------	------------

42 I tend to postpone contact with patients

Never	Seldom	Often	Always
-------	--------	-------	--------

43 Do you experience any of the following signs and symptoms on a weekly basis?
Tick all appropriate options.

1	Lingering colds	
2	Sleeplessness	
3	Headaches	
4	Anger	
5	Resentment	
6	Decreased sense of humour	
7	Cynicism	
8	Impatience	
9	Increased irritability	

10	Bitterness	
11	Sense of failure	
12	Denial	
13	Paranoia	
14	Depression	
15	Addiction to a substance	
16	Exhaustion	
17	Shortness of breath	
18	Weight control problems	
19	High blood pressure	
20	Impersonality with patients	
21	Lack of motivation	
22	Difficulty with concentration	
23	Tired all day long	

MBI-Human Services Survey

How often:	0	1	2	3	4	5	6
	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day

How Often 0-6	Statements:
1. _____	I feel emotionally drained from my work.
2. _____	I feel used up at the end of the workday.
3. _____	I feel fatigued when I get up in the morning and have to face another day on the job.
4. _____	I can easily understand how my recipients feel about things.
5. _____	I feel I treat some recipients as if they were impersonal objects.
6. _____	Working with people all day is really a strain for me.
7. _____	I deal very effectively with the problems of my recipients.
8. _____	I feel burned out from my work.
9. _____	I feel I'm positively influencing other people's lives through my work.
10. _____	I've become more callous toward people since I took this job.
11. _____	I worry that this job is hardening me emotionally.
12. _____	I feel very energetic.
13. _____	I feel frustrated by my job.
14. _____	I feel I'm working too hard on my job.
15. _____	I don't really care what happens to some recipients.
16. _____	Working with people directly puts too much stress on me.
17. _____	I can easily create a relaxed atmosphere with my recipients.
18. _____	I feel exhilarated after working closely with my recipients.
19. _____	I have accomplished many worthwhile things in this job.
20. _____	I feel like I'm at the end of my rope.
21. _____	In my work, I deal with emotional problems very calmly.
22. _____	I feel recipients blame me for some of their problems.

(Administrative use only) EE: _____ cat. DP: _____ cat. PA: _____ cat.

APPENDIX 5 TURNITIN REPORT

Leigh Tovell

ORIGINALITY REPORT

20%

SIMILARITY INDEX

17%

INTERNET SOURCES

13%

PUBLICATIONS

6%

STUDENT PAPERS

PRIMARY SOURCES

1

pdfs.semanticscholar.org

Internet Source

4%

2

vital.seals.ac.za:8080

Internet Source

1%

3

www.frontiersin.org

Internet Source

1%

4

www.mdpi.com

Internet Source

1%

5

pmc.ncbi.nlm.nih.gov

Internet Source

<1%

6

Submitted to Nelson Mandela Metropolitan
University

Student Paper

<1%

7

worldwidescience.org

Internet Source

<1%

8

core.ac.uk

Internet Source

<1%

9

open.uct.ac.za

Internet Source

<1%