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Title:

Investigating the Prevalence of Burnout and Turnover Intention in South African Healthcare Workers, a Quantitative Study.

Research Project

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Declaration

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Abstract

While facing critical shortages of South African healthcare workers, concerns of burnout and turnover intention are particularly concerning in the South African healthcare sector. Healthcare workers face many challenges in South African which impacts their mental health as well as the level of patient care they provide. Although studies have been conducted on the prevalence of burnout in South African healthcare workers, it is unclear what becomes of the healthcare workers suffering from burnout. The quantitative study investigated the prevalence of burnout and turnover intention in South African healthcare workers using the Oldenburg Burnout Inventory and Turnover Intention Scale respectively. The study investigated the relationship between burnout and turnover intention in the sample as well as the relationship between demographic factors of the sample with burnout, and turnover intention. Through a self-administered online survey distributed through online healthcare workers platforms and networks, 189 responses from healthcare workers across South Africa were analysed. Results showed that 82% of the sample experienced moderate to high burnout and 67% of the sample indicate an intention to leave their role. An expected significantly strong positive correlation between burnout and turnover intention was found. A significant association between burnout and turnover intention was found with demographic factors of sector, setting, and age, and a significant association was found with burnout and qualification status. These results are concerning not only for the mental health of South African healthcare workers but for the healthcare system of South Africa. Without attention directed to the effects of burnout, South Africa will continue to lose healthcare workers, resulting in a further decrease in the standard of medical care provided due to the increased strain and workload placed on the healthcare workers who remain.

Key words: Healthcare Workers, Burnout, Turnover Intention, South Africa, Oldenburg Burnout Inventory, OLBI, Turnover Intention Scale, TIS.

Contents

Chapter 1: Literature Review 7

Introduction 7

Healthcare in South Africa 7

Burnout 10

Turnover Intention 18

Study Rationale 21

Study Aims and Research Questions 22

Chapter 2: Methodology 24

Introduction 24

Theoretical Paradigm 24

Research Design 25

Sampling Strategy 26

Measuring Instruments 27

Procedure 30

Participants 33

Conclusion 35

Chapter 3: Results 36

Introduction 36

Normality of Variables 36

Reliability of Measurement Instruments 38

Prevalence of Burnout and Turnover Intention 40

Demographic Group Differences 51

Correlation 62

Simple Regression 65

Conclusion 68

Chapter 4: Discussion 69

Introduction 69

Prevalence Of Burnout 69

Prevalence of Turnover Intention 71

Relationship Between Burnout and Turnover Intention 72

Demographic Factors Associated with Burnout and Turnover Intention 72
Study Limitations 80
Future Recommendations 81
Conclusion 81

References 83

Appendices 91

Appendix A: Demographic Questionnaire 91
Appendix B: Oldenburg Burnout Inventory 92
Appendix C: Turnover Intention Scale 93
Appendix D: Permission for the Turnover Intention Scale 94
Appendix E: Ethical Clearance 95
Appendix F: University Student Access 96
Appendix G: Participant Information Sheet 97
Appendix H: Informed Consent Form 99
Appendix I: Discipline Categories 100
Appendix J: Normality Tests 101
Appendix K: Reliability Tests 108
Appendix L: Variable Levels 110
Appendix M: T-test and ANOVA Normality 111
Appendix N: ANOVA Homogeneity of Variance 127
Appendix O: ANOVA Post Hoc Tests 129
Appendix P: Correlation Linearity 131
Appendix Q: Regression Assumptions 136

Tables

Table 2.1: Descriptive Statistics of Sample for Continuous Demographic Factors 34
Table 2.2: Descriptive Statistics of Sample for Categorical Demographic Factors 34
Table 3.1: Low, Moderate and High Levels of Disengagement, Exhaustion, and Burnout Across Demographic Factors 41
Table 3.2: Binary and Low, Moderate, and High Levels of Turnover Intention Across Demographic Factors 47
Table 3.3: T-Test Results for Burnout in Sector, Gender, Setting, and Qualification Groups 55
Table 3.4: T-Test Results for Disengagement in Sector, Gender, Setting, and Qualification Groups 56
Table 3.5: T-Test Results for Exhaustion in Sector, Gender, Setting, and Qualification Groups 57
Table 3.6: T-Test Results for Turnover Intention in Sector, Gender, Setting, and Qualification Groups 58
Table 3.7: ANOVA Results for Disengagement, Exhaustion, and Burnout in Race, Province, and Discipline Groups and Turnover Intention in Race and Province Groups 60
Table 3.8: Kruskal-Wallis Test Result for Turnover Intention and Discipline 61
Table 3.9: Hochberg's GT2 Homogenous Subsets for Exhaustion Between Race Groups 61
Table 3.10: Hochberg's GT2 Homogenous Subset for Turnover Intention Between Race Groups 62
Table 3.11: Correlation Results Between Disengagement, Exhaustion, Burnout, Turnover Intention, Age, and Career Length 64
Table 3.12: Regression ANOVA Results for Disengagement, Exhaustion, and Burnout with Turnover Intention 67
Table 3.13: Regression Coefficients Results for Disengagement, Exhaustion, and Burnout with Turnover Intention 67
Table 3.14: Regression Model Summary Results for Disengagement, Exhaustion, and Burnout with Turnover Intention 68
Table 4.1: Moderate to High Exhaustion and Depersonalisation Prevalence in South African Studies 70

Chapter 1: Literature Review

Introduction

This literature review chapter presents the setting for this research study by presenting the current South African healthcare system landscape and working environment that South African healthcare workers are immersed in. These working conditions are argued to be influential factors for burnout and turnover intention, both of which are defined conceptually and theoretically, with appropriate measurement instruments discussed. Gaps in the reviewed literature are presented leading up to the rationale and aims of the study.

Healthcare in South Africa

Covid-19

The COVID-19 pandemic placed healthcare workers as an essential first line of defence, and created unprecedented circumstances for the profession (Cook et al., 2021; Robertson et al., 2020). This unique event led to a global increase in the media coverage and increased research on the psychological strain that healthcare workers experienced during the pandemic, including anxiety, depression, distress and fear (Robertson et al., 2020; Shaukat et al., 2020). However, the strain that healthcare workers experience in South Africa, was a cause for concern preceding the COVID-19 pandemic. Although it is important to protect the mental health of healthcare workers during pandemics such as COVID-19 (Cook et al., 2021), this importance needs to be extended to healthcare workers in South Africa who work under strenuous circumstances on a 'normal day'. These strenuous circumstances are influenced by the shortage of doctors, the medical training capacity, and the skewed distribution between public and private sectors, provinces, and rural and urban areas. These factors compound and lead to the dire working conditions, and ultimately negative psychological distress for South African healthcare workers.

Healthcare Worker Shortage

South Africa has been declared to have a shortage of doctors, with statistics in 2010 reporting approximately 62 doctors per 100 000 people, which is below the World Health Organisation's (WHO) estimate for middle income countries to have 180 doctors per 100 000 people, and closer to the ratio of 50 doctors per 100 000 for low income countries (Cook et al., 2021; Econex, 2015; G. George et al., 2012). South Africa drastically lags behind other middle-income countries, such as Mexico and Brazil, who last reported 198 and 185 doctors

per 100 000 people respectively (Econex, 2010; G. George et al., 2012). The shortage of doctors in South Africa aligns with the broader trend of the African continent as the WHO reported in 2006 that 78% of African countries were experiencing a critical shortage and suggesting there should ideally be 230 doctors per 100 000 people (G. George et al., 2012). This shortage was particularly exacerbated in 2008 when policies changed to mandate doctors to complete two years of internship before commencing community service, and an already 31% understaffed system had to manage 74% less community service doctors (Bateman, 2007). Despite the shortage of healthcare workers, medical schools in South Africa do not have the capacity to train more doctors, and in 2015 eight thousand students applied at WITS medical school which only accommodated 250 first year students (Econex, 2015). With only eight medical schools, South Africa underperforms in terms of the production of medical graduates, with only 3.7 trained doctors per 100 000 people in 2012, which was less than a third of 38 other countries belonging to the Organisation for Economic Co-operation and Development (OECD) (Econex, 2015). This is influenced by South Africa's policy that prohibits the private sector from training doctors and places the burden and limitation of training to public university medical schools (Econex, 2015). However, the shortage of doctors in South Africa is difficult to quantify as the number of doctors registered with the Health Professionals Council of South Africa (HPCSA) is not an accurate representation, with doctors retaining registration after retiring or emigrating (Econex, 2015), and often not accessible to researchers due to confidentiality (Bezuidenhout et al., 2009). Despite this difficulty, the shortage of doctors is strikingly apparent in the severe inequalities between the public and private sectors (Econex, 2015).

Public Versus Private

A factor that is fairly unique to South Africa is the differentiation between the public and private sector of healthcare, with a skewed distribution of financial and human resources in favour of the private sector, and the reality that the under-resourced public sector serves most of the population (Achoki & et al, 2022; Econex, 2015; G. George et al., 2012). This skewed distribution between public and private sectors was quantified in a review report by Econex (2015) whereby the distribution of medical specialists and general practitioners in the private sector was 86.5 and 92.5 per 100 000 people respectively compared to 11.4 and 25.1 per 100 000 in the public sector. This situation is exacerbated by approximately 70-80% of trained South African doctors not retained in the public sector by being absorbed into either the private sector or emigration (Bateman, 2007; Econex, 2015). This leaves South Africa's

rural health care system mostly serviced by foreign-qualified and local community service doctors with a challenge in retaining a mix of skills and expertise in the public sector (Bateman, 2007; G. George et al., 2012). Additionally, the large investment by government into the training of medical doctors represents a large potential loss with doctors emigrating or moving into the private sector (G. George & Reardon, 2013).

Provincial Distribution

In addition to the skewed distribution between public and private sectors, there exists a large variation between provinces and rural and urban areas in resources and health outcomes in South Africa (Achoki & et al, 2022; Econex, 2015; G. George et al., 2012). This provincial discrepancy has been argued to be because of the fragmented nature of the healthcare system whereby provincial governments determine their own financial health priorities (Achoki & et al, 2022). It has been found that the provinces with the most urbanisation and private sector concentration, namely the Western Cape, Gauteng, Free State and KwaZulu Natal, have a much higher count of medical specialists compared to more rural provinces, namely Eastern Cape, Limpopo, Mpumalanga, North West, and Northern Cape (Econex, 2015; G. George et al., 2012). This disparity presents the reality that provinces with the highest poverty headcount report the lowest count of medical specialists (Econex, 2015) with a continued migration from rural to urban facilities by medical doctors (Bateman, 2007). This provincial disparity is still currently stark with 2019 values of Healthcare Access Quality Index (HAQ) reporting the highest for Western Cape and KwaZulu Natal and the lowest for Free State, Northern Cape, and Eastern Cape, with the latter four provinces also having the smallest improvements over time (Achoki & et al, 2022). Therefore, in the South African context, it is important when addressing the shortage of doctors to not only aim to increase total numbers, but also the disparities between public and private, provincial, and rural and urban areas (Achoki & et al, 2022; Econex, 2015). However, while the shortage of doctors is not being adequately addressed, it is placing pressure on doctors particularly in their most formative years, and has long-term effects (Bateman, 2007). Some of these effects can be clearly observed in the working conditions and challenges that healthcare workers experience, and the severity of these match the disparity between public and private sectors.

Working Conditions

The South African Healthcare system is arguably broken, with a range of challenges that healthcare workers face. The most prominent challenges include poor infrastructure and the

lack of equipment and personnel resources (Cook et al., 2021; G. George et al., 2012; G. George & Reardon, 2013; Naidoo et al., 2020; Robertson et al., 2020), unmanageable caseloads with a high burden of patients and ineffective administrative planning processes (Bateman, 2007; Cook et al., 2021; G. George et al., 2012; Jensen et al., 2022; Naidoo et al., 2020; Robertson et al., 2020; Stodel & Stewart-Smith, 2011), little management and supervision support (Jensen et al., 2022; Naidoo et al., 2020), lack of infection control (Robertson et al., 2020; Young, 2016), fragile systems that provide healthcare to communities with a large range of socio-economic factors and a considerable number of the population living with HIV, TB, malnutrition, and diabetes (Cook et al., 2021; Econex, 2015; G. George et al., 2012; Jensen et al., 2022; Stodel & Stewart-Smith, 2011), as well as high levels of exposure to violent incidences (Jensen et al., 2022). Due to the aforementioned challenges of the South African healthcare system, healthcare workers work long hours in stressful environments with inadequate equipment, have poor management, insufficient leave and vacation time, and are sleep deprived (Bateman, 2007; Cook et al., 2021; G. George et al., 2012; Jensen et al., 2022; Naidoo et al., 2020; Rispel, 2015). The poor planning leads to little provision for illness with colleagues covering for fellow healthcare workers who are ill (G. George & Reardon, 2013; Stodel & Stewart-Smith, 2011).

For healthcare workers to work under such dire circumstances, be submersed in suffering and loss daily, and not be psychologically affected is as unrealistic as expecting to walk through water without getting wet (Remen, 1996 as cited in Miller & Sprang, 2017). These systemic challenges not only compromise the level of patient care healthcare workers are able to give, but also places them at high risk for psychological distress including depression, anxiety, poor coping, exhaustion, insomnia, and finally burnout (Bateman, 2007; Cook et al., 2021; Gray et al., 2019; Howlett et al., 2015; Matheson et al., 2016; West et al., 2018).

Burnout

Since conceptualisation, burnout has become a globally significant phenomenon that has attracted great interest from researchers and practitioners as a social problem worth focus (De Hert, 2020; Schaufeli et al., 2009). Since its first inception, key academics have shaped the way burnout is defined, assessed, and treated, with an estimation of over 6000 items having been published on burnout by 2008 (For a more detailed history on the concept of burnout see Schaufeli et al., 2009). Burnout was first termed and described by Freudenberger (1974) as

the gradual emotional depletion and reduction of motivation and commitment due to excessive demands on energy, strength and resources. Freudenberger himself suffered from burnout on two occasions which increased his credibility and self-reflective nature of his observations (Freudenberger, 1974; Schaufeli et al., 2009). At the same time, Maslach and colleagues came across the term when interviewing human service workers with an interest in their emotional coping and cognitive strategies (Maslach & Leiter, 1997; Schaufeli et al., 2009). Maslach and Leiter (1997) then expanded upon Freudenberger's (1974) definition to extend the conceptualisation further than mere emotional exhaustion and they developed the multi-dimensional construct that many scholars use today, consisting of emotional exhaustion, depersonalisation and reduced personal accomplishment. Maslach et al. (2001) and Maslach and Leiter (1997) define the three dimensions as follows; the exhaustion dimension refers to the feeling of being drained, depleted and unable to recover from emotional or physical exhaustion. The depersonalisation dimension refers to cynicism, a cold and distant attitude or detachment from the work and people. The reduced personal accomplishment dimension refers to the growing sense of inadequacy where each task seems overwhelming and confidence to complete tasks decreases. Burnout has been viscerally expressed as the erosion of values, dignity, spirit, and of the human soul (Maslach & Leiter, 1997).

The general result of the psychological syndrome of burnout is being chronically exhausted, cynical, detached from one's work, and becoming increasingly ineffective (Demerouti et al., 2010; Maslach & Leiter, 1997; Schaufeli et al., 2009). Although classified as a psychological syndrome, burnout can be accompanied by physical symptoms such as chronic fatigue, frequent headaches, gastrointestinal illness, sleep disturbances, high blood pressure, and muscle tension (De Hert, 2020; Freudenberger, 1974; Maslach & Leiter, 1997). Historically, burnout was viewed as a flaw in the person suffering from the syndrome and that the solution was to change or address the person, however, the progress of burnout research has shown that burnout is in fact a consequence of the work environment and a pervasive workplace hazard (Demerouti et al., 2001; Maslach & Leiter, 1997; Schaufeli et al., 2009). The above symptoms make burnout a downward spiral from which it is difficult to recover, with the increasing gap between job demands and the person coming with a high human price (Maslach & Leiter, 1997).

The Job Demands Resource Model

This increasing gap between job demands and resources as the theoretical model of burnout is shared among scholars and described as the stressful environment and demands of the job exceeding what you are able to give, and providing less than you need (Bakker & Demerouti, 2017; Demerouti et al., 2010; Maslach & Leiter, 1997; Schaufeli et al., 2009). This imbalance underpins the Job-Demands Resource Model (JD-R) of burnout, developed by Demerouti et al. (2001), proposing that the high demands of the job, limited resources and negative working conditions, leads to the depletion of energy and undermines motivation (Demerouti et al., 2010; Schaufeli et al., 2009). Bakker and Demerouti (2017) and Demerouti et al. (2001) developed, and recently reviewed, the JD-R model of burnout to involve two processes with the two factors of job demands and job resources:

Job demands refer to the social, organisational, or physical aspects of a job that require effort and are associated with physiological or psychological costs, such as exhaustion. The greater the effort required, the greater the cost for the individual where long term effects can lead to breakdown or exhaustion. Job resources refer to the social, organisational, or physical aspects of a job that either assist in achieving work goals, reduce job demands, or stimulate personal growth and development. The first process of the JD-R model is when the job demands lead to constant overtaxing, and ultimately exhaustion. The second process is when the lack of job resources adds further strain on job demands which leads to further withdrawal behaviour, and ultimately disengagement from work. The JD-R model of burnout proposes that the job demands are predictive of feelings of exhaustion while the job resources are predictive of disengagement. The JD-R model of burnout has been shown to be applicable to three different types of occupations, in which employees work with things, information, or people, and has been applied in hundreds of empirical studies (Bakker & Demerouti, 2017). This makes the JD-R model most appropriate for the conceptualisation of burnout in this study due to the various factors in the South African healthcare system that would classify as job demands (more patients, more intense requirements) and job resources (insufficient personnel, equipment supplies, or support) and the fact that healthcare workers ultimately work with things (equipment), information (medical and administrative) and people (Schaufeli et al., 2009). Additionally, in a study conducted by Bakker and Demerouti (2017), the JD-R model was shown to best fit the data for the health services profession compared to the industry and transport groups in their sample. The JD-R model also assumes that although individuals in the same work-group, such as healthcare, may suffer from differing levels of burnout, common variance in group scores may exist due to common working environments

and conditions, while error variance will represent individual differences (Demerouti et al., 2001). The JD-R model encompasses various relationships between personal factors and those of the work environment which are described in the propositions of the model, succinctly presented by (Bakker & Demerouti (2017) in their 15 year review and as follows: All types of job characteristics can be classified as either a demand or resource, and that they influence two processes, namely health-impairment and motivation respectively. Job resources can buffer the impact and strain caused by job demands, which can include personal factors such as optimism and self-efficacy and have a particular influence on motivation when job demands are high. Motivation then has a positive impact on job performance, while job strain has a negative influence. Higher levels of motivation also influence higher levels of resources, both job and personal, as people tend to engage in job crafting behaviours such as proactive behaviour to change one's work or tasks. The inverse also occurs whereby high levels of job demands that cause strain tend to develop a downward spiral whereby people perceive and create more demands over time. This proposition aligns with Maslach and Leiter's (1997) sentiment that burnout is a downward spiral that is challenging to recover from.

Measurements Of Burnout

Despite most scholars agreeing that burnout is generally characterised by negative feelings towards their work and exhaustion (De Hert, 2020; Demerouti & Bakker, 2008; Howlett et al., 2015; Maslach et al., 2001; Schaufeli et al., 2009), with a high global prevalence of burnout, there is a concerning lack of universality in its social conceptualisation and diagnostic criteria (De Hert, 2020; Howlett et al., 2015; Schaufeli et al., 2009). There appears to be two main views that vary across cultures and healthcare systems due to this lack of a standardised definition. Burnout is either viewed as a more fashionably diagnosed social problem or a medical condition that includes formal diagnosis and treatment (Schaufeli et al., 2009; van Mol et al., 2015). In addition, psychological professionals tend to view burnout on a continuous spectrum with varying severity, while medical professionals tend to view burnout dichotomously as either present or not (Schaufeli et al., 2009). This leads to various ways in which the scores of burnout measurements are interpreted by researchers and poses challenges in drawing comparisons across studies or what is truly considered as burned out (Halbesleben & Demerouti, 2005; Schaufeli et al., 2009). This challenge is exacerbated by the lack of universal cut-off scores for individual measurement instruments and the fact that baseline burnout levels differs across professions (De Hert, 2020; Demerouti & Bakker,

2008; Maslach & Leiter, 1997; Schaufeli et al., 2009). A range of cut-off scores used in studies is presented by van Mol et al. (2015) who reported thirteen different cut-off scoring methods for the MBI alone in their systematic review. Particularly important to note, is that measurement instruments that assess burnout are screening tools and not diagnostic procedures, as there is no standardised and valid procedure to diagnose burnout (De Hert, 2020). The relationship between burnout, chronic fatigue, and depression plays a role as there are common symptoms shared as well as the fact that burnout is argued as a risk factor for depression (De Hert, 2020).

The most commonly used measurement instrument for burnout, is the Maslach Burnout Inventory (MBI) developed by Maslach and Jackson (1896) in their seminal work on the topic (Demerouti et al., 2010; Demerouti & Bakker, 2008; Halbesleben & Demerouti, 2005; Schaufeli et al., 2009). The MBI conceptualises burnout as a syndrome of the three previously discussed dimensions of emotional exhaustion, depersonalisation, and reduced personal accomplishment as a subscale in the three-factor measurement instrument (Demerouti et al., 2010; Halbesleben & Demerouti, 2005; Maslach et al., 2001; Maslach & Leiter, 1997; Schaufeli et al., 2009). Although many scholars still classify the MBI as the leading measures of burnout, there have been other burnout inventories developed as a response to critiques of the MBI (Demerouti & Bakker, 2008; Halbesleben & Demerouti, 2005; Howlett et al., 2015; Schaufeli et al., 2009). One of the main critiques of the MBI is that all the items are worded in the same direction, with all exhaustion and depersonalisation items worded negatively, and all personal accomplishment items worded positively. This is argued to be psychometrically inferior to the inclusion of items phrased in both directions, as the former may cause artificial factor clustering based on the wording direction of items (Demerouti et al., 2010; Demerouti & Bakker, 2008; Halbesleben & Demerouti, 2005; Price, 1997; Sinval et al., 2019). Additionally, there has been the suggestion that a two factor-model of exhaustion and depersonalisation may be more appropriate as personal accomplishment is related differentially to factors such as job satisfaction and organisational commitment (Bakker & Demerouti, 2017; Demerouti & Bakker, 2008; Halbesleben & Demerouti, 2005; Kuhn et al., 2009). Depersonalisation and exhaustion have been shown to have consistent relationships with each other, while personal accomplishment has a less consistent relationship with the former two, supporting the notion that burnout consists of exhaustion and depersonalisation that is weakly related to personal accomplishment (De Hert, 2020; Demerouti et al., 2001, 2010; Halbesleben & Demerouti, 2005; Schaufeli et al., 2009). This is

further motivated by the scoring structure of the MBI, whereby high scores in exhaustion in addition to at least one other subscale indicates burnout while personal accomplishment is not a strict requirement for the indication of burnout (Maslach et al., 2001; Maslach & Leiter, 1997; Schaufeli et al., 2009). A final critique is that the MBI has a license fee for research scholars and is not publicly available through open access. The MBI instrument and manuals are the intellectual property of the copyright holder; Mind Garden (Maslach Burnout Inventory (MBI), n.d.) which poses accessibility challenges for the use of the MBI in studies investigating burnout.

A reliable and valid alternative measurement instrument that is increasing in popularity in research studies is the Oldenburg Burnout Inventory (OLBI) developed by Demerouti et al., (2001), which is argued to have higher psychometric quality with the use of positively and negatively worded items. The OLBI is similar to the MBI, but only assesses exhaustion and disengagement as the two core dimensions of burnout (Demerouti et al., 2001; Demerouti & Bakker, 2008; Halbesleben & Demerouti, 2005). Demerouti and Bakker (2008) define the two dimensions of the OLBI as follows; exhaustion is defined as the result of intense physical, affective, and cognitive strain. Disengagement refers to distancing oneself from one's work and experiencing negative attitudes towards the work object, content, or in general. Additionally, the OLBI aligns with the JD-R model of burnout (Demerouti & Bakker, 2008; Scanlan & Still, 2019) as discussed above. This is arguably more suitable for the setting of this research study, based on the job demands and resources conceptualisation influencing health-impairment as exhaustion, and motivation as disengagement as the two dimensions of burnout (Bakker & Demerouti, 2017; Demerouti et al., 2001).

Burnout In Healthcare Workers

Despite the variations in social conceptualisation and measurement instruments across cultures, what has been consistent is that healthcare workers have found to be more at risk of burnout than other professions due to the physically and emotionally demanding nature of the work in high-touch face-to-face settings (De Hert, 2020; Demerouti & Bakker, 2008; Freudenberger, 1974; Maslach & Leiter, 1997; Schaufeli et al., 2009). Within this context, burnout has been expressed as the price for professionalising the helping professions from callings into modern jobs and occupations (Schaufeli et al., 2009), with physician specialties such as emergency medicine appearing to be at greater risk for burnout (De Hert, 2020). This has made burnout in healthcare workers a widely researched phenomenon, however, results

show that the prevalence of burnout in healthcare workers differ across the world and the true prevalence of burnout in healthcare workers remains open for discussion (De Hert, 2020; Naidoo et al., 2020; van Mol et al., 2015). The variability of burnout in healthcare workers was found to range between 0% and 80.5% of samples in a systematic review of studies conducted between 1991 and 2018, which consisted of 109, 628 individuals and across 45 countries with no significant associations to demographic factors found (De Hert, 2020). This variability is argued to be due to the differences in conceptualisations, methodology, and measurement instruments used which warrants further research. To mitigate the measurement variability to a certain degree, this study consulted studies that have used the MBI or OLBI to measure burnout due to the comparable nature of the subscales between the two measurement instruments (Demerouti et al., 2003; Demerouti & Bakker, 2008; Halbesleben & Demerouti, 2005).

The largest indication of burnout in healthcare workers is presented in the Medscape National Physician Reports conducted on samples between 13 000 and 15 000 physicians in the United States of America. The reports present an increase in burnout from 2013 (39.8%), 2015 (46%), 2019 (44%), 2021 (42%) to 2022 (47%), and of the current 2022 sample, 76% reported moderate to severe burnout (De Hert, 2020; Kane, 2019, 2020, 2022). This minimal difference between 2019 and 2022 provides insight into how the healthcare systems were psychologically detrimental prior to the Covid19 pandemic, and that levels of burnout appear at a relatively constant high. The 2022 report also indicated that female physicians have reported more burnout symptoms than males over the years, with 56% of females reporting burnout in 2022 (Kane, 2022). Other studies have reported moderate to high levels of burnout in various healthcare professions with 32% in American samples (n= 206 and 193) (L. M. Jacobs et al., 2012; Kuhn et al., 2009), 33% in a Swedish sample (n=3719) (Peterson et al., 2008), and 74% in a Romanian sample (n= 116) (Tipa et al., 2019). International studies have reported differing burnout levels in healthcare workers across age and career length (Howlett et al., 2015; Peisah et al., 2009; Tipa et al., 2019; West et al., 2018), gender (Howlett et al., 2015; Tipa et al., 2019; West et al., 2018), discipline (Delgadillo et al., 2018; Howlett et al., 2015; L. M. Jacobs et al., 2012; Scanlan & Still, 2019; van Mol et al., 2015), and country (van Mol et al., 2015; West et al., 2018). In a global systematic review by van Mol et al. (2015) on the prevalence of burnout in intensive care units, only 2.5% of the global sample (n=14 770) were from Africa, while the majority (70%) were from Europe and North America. This highlights the concerning absence of locally conducted studies on burnout in

healthcare workers in comparison to the global setting, particularly due to the argument that South African healthcare workers are deemed to have a high-risk of burnout (Naidoo et al., 2020; van Mol et al., 2015). A limitation to these studies is the non-universal use of one measurement instrument, as studies use the MBI (Howlett et al., 2015; L. M. Jacobs et al., 2012; Kuhn et al., 2009) the OLBI (Peterson et al., 2008; Scanlan & Still, 2019; Tipa et al., 2019), the Professional Quality of Care Scale, and Link Burnout Questionnaire (van Mol et al., 2015).

Of the locally produced studies on burnout in healthcare workers, varying trends also occur as with the above global studies. Levels of moderate to high burnout have been reported as 76% of a sample (n=132) in Cape Town (Rossouw et al., 2013), 59% of a sample (n=150) in KwaZulu-Natal (Naidoo et al., 2020), 36% of a sample (n=205) in the Free State (Sirsawy et al., 2016), the whole sample (n = 22) in Cape Town (Stodel & Stewart-Smith, 2011), 92.5% of a sample (n = 93) in Gauteng (Rajan & Engelbrecht, 2018), and high levels across a whole sample (n = 402) in South Africa (Peltzer et al., 2003). Of these studies, only Peltzer et al. (2003) had a sample including both public and private sector healthcare workers, while the remaining studies only sampled from the public sector. Significant differences in burnout levels in healthcare workers were reported for race (Peltzer et al., 2003), gender (Peltzer et al., 2003; Sirsawy et al., 2016), and age and career length (Naidoo et al., 2020; Peltzer et al., 2003; Rajan & Engelbrecht, 2018; Rossouw et al., 2013). A limitation to the aforementioned studies is that only Peltzer et al. (2003) had a sample across South Africa, while the rest were limited to only one province, and collectively only covering four of the nine provinces. All six studies used the MBI measurement of burnout but implemented different cut-off scoring methods which makes comparability questionable across local studies and international studies.

The above local studies were conducted between 2003 and 2020 and raises concern around what is being done to address the high levels of burnout in South African healthcare workers. It has been proposed that as part of the process of burnout, people reach the point whereby the only option is to quit, and even if necessary, this decision can cause further psychological distress as people may end up walking away from a career that was once a source of pride and personal identity (Maslach & Leiter, 1997; van Mol et al., 2015). This then leads to the question of how to measure when people have reached the point of quitting. In addition to the impact of more doctors leaving the South African healthcare system, the impact of them

staying while suffering severely from burnout is also concerning, as burnout has been shown to have serious implications such as sub-optimal patient care, impaired quality of care, and medical errors (De Hert, 2020; Naidoo et al., 2020). From the mentioned South African studies on burnout in healthcare workers, only Rajan and Engelbrecht (2018) and Stodel and Stewart-Smith (2011) additionally investigated an intention to leave, reporting the affirmative intention in 43% and 95% of the samples respectively. However, the turnover intention was measured by either a single question (Rajan & Engelbrecht, 2018) or through qualitative interviews (Stodel & Stewart-Smith, 2011). In contrast to the Rajan and Engelbrecht (2018) and Stodel and Stewart-Smith (2011) studies, there is a formal valid measurement instrument for turnover intention that has been developed and successfully implemented, with the additional benefit of relevance to the South African context (Roodt, 2004). One of the most striking factors of the statistical shortage of healthcare workers in South Africa is that the measurements are all after the fact once healthcare workers have left (Econex, 2015; G. George et al., 2012). To predict, and hopefully plan for or prevent, the further decline in South Africa's healthcare worker to population ratio, we need data on the pre-emptive intention of healthcare workers to leave their job. This makes the turnover intention of healthcare workers an important measurement to investigate.

Turnover Intention

There is supportive evidence that people most often make the decision to quit long before doing so (Stodel & Stewart-Smith, 2011) and that it is the strongest predictor of leaving an organisation (Bothma & Roodt, 2013; Jaros et al., 1993; Rossouw et al., 2013). Turnover has been defined as the separation from an organisation and differentiates between voluntary and involuntary turnover (Price, 1997). Voluntary turnover is initiated by the individual and falls under terms such as quit, attrition, migration, or exit. Involuntary turnover is not initiated by the individual and can be due to death, dismissal or forced retirement. When turnover is measured after the fact, as with the previously presented statistics of shortages, the differentiation between voluntary and involuntary turnover is often not possible or accounted for. For this study, turnover intention will refer to the voluntary form. Although the concept of turnover intention seems self-explanatory, there are various definitions which include the behavioural intention to leave, the extent to which someone plans to leave, or the wilfulness to leave (Lacity et al., 2008; Bothma & Roodt, 2013; Tett & Meyer, 1993). The definition of turnover intention as the conscious and deliberate wilfulness to leave an organisation, is

based on Fishbein and Ajzen's (1975) theory of planned behaviour which will be utilised as the theoretical construct in this study (Ajzen, 1991; Bothma & Roodt, 2013; Roodt, 2004).

Theory of Planned Behaviour

The model of planned behaviour proposes that intentions are assumed to sufficiently capture the motivational factors to influence one's behaviour and how much effort a person is willing to exert in order to perform the behaviour, with a stronger intention indicating a stronger likelihood for the performance of a behaviour (Ajzen, 1991; Armitage & Conner, 2001; Bothma & Roodt, 2013). The theory of planned behaviour does acknowledge that behavioural intention can manifest in the actual performance of the behaviour if the behaviour is under volitional control and factors such as resources may affect the manifestation of the actual behaviour (Ajzen, 1991; Armitage & Conner, 2001). This is particularly important to note when using this theory for turnover intention as financial resources, employment opportunities, and qualification completion are factors that would be applicable to healthcare workers in South Africa. In the attempt to explain turnover intentions, the most prominent theory implemented is the JD-R model, which highlights the alignment of this model throughout the process of burnout, to the end stage of turnover (Bakker & Demerouti, 2017; Bothma & Roodt, 2013; Demerouti et al., 2001). Based on the congruency of the JD-R model in both burnout and turnover intention, the relationship between burnout and turnover intention has been well established with turnover being the strategy to escape the work environment (Bakker & Demerouti, 2017; Bothma & Roodt, 2013; Demerouti et al., 2001; Petriglieri, 2011). In the case of healthcare workers, it can be assumed that this end stage is reached substantially quickly with the high prevalence rates of burnout both globally and locally. However, it has been argued that leaving one's job may not always be a viable option for an individual, with contextual and personal factors such as economic and job market factors (Bothma & Roodt, 2013). Additionally, as a healthcare worker, leaving one's job arguably has a high threat against identity and personal pride (Maslach & Leiter, 1997; Petriglieri, 2011; van Mol et al., 2015). This implies that the relationship between burnout and turnover intention in healthcare workers may be different to the general population, and worth investigating with a formal turnover measurement as their turnover intention may not be as strongly correlated with their level of burnout.

Turnover Intention in Healthcare Workers

International studies that have investigated the turnover intention in healthcare workers have been reported in a systematic review conducted by Ayalew et al. (2021) as 51.96% in Sub-Saharan Africa, 33% in Europe, 28.7% in Switzerland, and 21.1% in Brazil. A study conducted by Blaauw et al. (2013) in a sample (n= 2220) of healthcare workers across Tanzania, Malawi, and South Africa reported a significant difference in intention to leave between the three countries. In this same study South Africa reported a 41.4% intention to leave, followed by Malawi (26.5%) and Tanzania (18.8%) aligning with the systematic review that sub-Saharan Africa has a higher turnover intention rate in healthcare workers compared to other Western countries. This is shown with the intention to leave in the USA reported for healthcare workers as approximately 20.7% of the sample (n= 20 665) (Sinsky et al., 2021). Local studies on healthcare workers have reported 37% of the sample (n= 298) across South Africa (G. George & Reardon, 2013) and 18.5% of a sample (n= 194) in KwaZulu-Natal (Van Wyk et al., 2010) intending to work or specialise overseas. Additionally, of the study conducted by Van Wyk et al. (2010), 63.7% of the sample indicated a preference to pursue work in an urban area. However, these studies use only one (Blaauw et al., 2013) or two (Sinsky et al., 2021) questions to deduce the intention to leave, or alternatively a few closed ended questions developed for the study (G. George & Reardon, 2013; Van Wyk et al., 2010). Comparing these studies is questionable as they are not consistent in their measurement of turnover intention, nor do they use valid and reliable measurement instruments as construct validity is unknown for single items and informally developed questions (E. Jacobs & Roodt, 2007). This again highlights the need for a formal turnover intention measurement for research studies.

Measurement of Turnover Intention

As reviewed by Bothma and Roodt (2013), studies have demonstrated that turnover intention can be used as a proxy for actual turnover. However, most studies presented above use an informal method, and often single item, to measure turnover intention and seldomly define turnover intention which has obvious psychometric limitations (Appollis, 2010; Bothma & Roodt, 2013; E. Jacobs & Roodt, 2007). Based on this lacking formal measurement, Roodt (2004) developed a turnover intention scale (TIS) based on the theory of planned behaviour, in the South African context. The TIS measures the intentions of an employee to leave or stay with an organisation and has been successfully implemented in South African samples outside and within the healthcare sector. Additionally, the TIS has been translated and used to

investigate the relationship with perceived stress in Chinese social workers with acceptable reliability (Su, 2021). However, studies have used the TIS to infer relationships with other variables such organisational culture and knowledge sharing in healthcare workers (E. Jacobs & Roodt, 2007, 2008), work engagement in information and communication technology professionals (Du Plooy & Roodt, 2010a), and job satisfaction in the tourism industry (Appollis, 2010). Therefore, there is a clear gap in the literature of formally validated and reliable measurement scales used to report the rates of turnover intention of healthcare workers in South Africa. This is particularly important as turnover intention has been shown to significantly differ across race (Du Plooy & Roodt, 2013), age (Blaauw et al., 2013; Du Plooy & Roodt, 2013), and profession (Sinsky et al., 2021).

Study Rationale

While facing critical shortages of South African healthcare workers (Bateman, 2007; Econex, 2015; G. George et al., 2012), concerns of burnout and turnover intention are particularly concerning in the South African healthcare sector. Without attention directed to the effects of burnout, South Africa will continue to lose healthcare workers, resulting in a further decrease in the standard of medical care provided due to the increased strain and workload placed on healthcare workers who remain (Achoki & et al, 2022; G. George et al., 2012; Stodel & Stewart-Smith, 2011). A concerning picture is being painted for the healthcare system of South Africa when the turnover intention rates are proposed as the end stage of severe burnout (Bothma & Roodt, 2013; Demerouti et al., 2001; Maslach & Leiter, 1997; Petriglieri, 2011) with concerning percentages of burnout reported in local studies (Naidoo et al., 2020; Peltzer et al., 2003; Rajan & Engelbrecht, 2018; Rossouw et al., 2013; Sirsawy et al., 2016; Stodel & Stewart-Smith, 2011). Of the studies reviewed that investigate burnout in healthcare workers both globally and locally (L. M. Jacobs et al., 2012; Kuhn et al., 2009; Naidoo et al., 2020; Peltzer et al., 2003; Peterson et al., 2008; Rajan & Engelbrecht, 2018; Rossouw et al., 2013; Sirsawy et al., 2016; Stodel & Stewart-Smith, 2011; Tipa et al., 2019), none of them included a formal measurement instrument for assessing turnover intention. Additionally, of the studies reviewed that do use the formal TIS (Du Plooy & Roodt, 2010a, 2010a, 2013; E. Jacobs & Roodt, 2007, 2008; Su, 2021), none of them report the descriptive results, but rather use them for inferential statistical analyses. Studies that have reported high levels of burnout in their samples, raise the question of what has since happened to the burned-out healthcare workers. It is impossible to follow up with these participants, who have possibly even left,

without being under the methodological structure of a longitudinal study. It is, therefore, much more practical to include a measure of the turnover intention in a cross-sectional study (Stodel & Stewart-Smith, 2011). A formal turnover intention measure will allow estimations to be made, as turnover intentions have been shown to be positively associated with (Bothma & Roodt, 2013), and a reliable proxy for, (Jaros et al., 1993) actual turnover. It would be beneficial for policy makers, healthcare organisations, and government to understand turnover intentions of healthcare workers, as a higher loss of critical skills and human resources will further overburden the healthcare system (Bateman, 2007; Econex, 2015; G. George et al., 2012). This study aims to showcase the urgent need to address South African healthcare workers working conditions and mental health, as the healthcare system strain and financial implications of turnover rates loom because of continued indifference. Ultimately, this study is motivated by the following sentiment expressed by Dr Wolvaardt (as quoted in Bateman, 2007, p. 1022):

> "Put simply, where there are no healthcare professionals, there is no healthcare system".

Study Aims and Research Questions

The study's first aim is to investigate the prevalence of burnout in South African healthcare workers using the OLBI. Secondly, the study aims to investigate the turnover intentions of healthcare workers for their current role or medical practice using the TIS. The third aim is to investigate the relationship between burnout and turnover intention in the sample. As subsidiary aims, the study will investigate the relationship between demographic factors of the sample with burnout, and turnover intention.

The following research questions will be considered when conducting the study:

1. What is the prevalence of burnout in a sample of South African healthcare workers?
2. What is the prevalence of turnover intention in a sample of South African healthcare workers?
3. What is the relationship between burnout and turnover intention in a sample of South African healthcare workers?
4. What are the relationships between demographic factors of the sample and the prevalence of burnout, and turnover intention? Demographic factors being:
    a. Age

b. Career length
c. Gender
d. Race
e. Sector (public or private)
f. Setting
g. Qualification
h. Discipline

Chapter 2: Methodology

Introduction

This methodology chapter describes the process followed in conducting this research study. The theoretical paradigm that underpins this study is presented, followed by the research design and applicability of the design aspects to appropriately answer the research questions. The research questions specific to this study include the prevalence of burnout and turnover intention, the prevalence across demographic factors, and the relationship between burnout and turnover intention. The sampling and data collection procedure are described followed by the variables and measurement instruments. Ethical considerations are presented before the process of statistical techniques that were conducted in the study. Lastly the participants of the sample are presented in terms of the demographic factors.

Theoretical Paradigm

This study uses critical realism, a form of post-positivism, as the guiding belief system influencing the gathering and interpretation of data, which is most appropriate for quantitative research (Creswell, 2009). Objectivity is valued but is not believed to be completely achieved and with knowledge being fallible it should be based on the best evidence available (Ryan, 2019). This paradigm asserts that there is one reality, however, each person has an individual perspective of it and we are unable to proclaim reality or knowledge with certainty when studying human behaviour (Bhaskar, 2008; Ryan, 2019). Critical realism differentiates between open and closed systems, and intransitive and transitive knowledge (Bhaskar, 2008; Ryan, 2019). Due to this research study involving people and their experiences of phenomena, it takes place in an open system in which human factors and contexts present an aspect of uncontrollability and the knowledge generated is transitive (Ryan, 2019). Critical realism investigations measure directly observable events and generate the most likely explanation of reality based on these observations but keeps cognisant that people have social factors, morals, and beliefs that inform their behaviour that are out of reach of observation (Ryan, 2019). Bhaskar (2008) differentiates between three levels of reality, namely empirical, actual, and real. He postulates that observations we make and critically examine in the empirical domain are explained in the actual domain and reflects the real domain which is unobservable. This leads to the inability to ever know the exact causal mechanisms of the real domain as we cannot observe everything (Bhaskar, 2008; Ryan, 2019). This is particularly important as the phenomena under investigation, namely

burnout and turnover intention, are part of a complex human experience, and not all factors of this experience are able to be investigated, however, this research study aims to contribute recent evidence to present a more current depiction of the prevalence of the phenomena of burnout and turnover intention in healthcare workers, and not the underlying causes and contributing factors. An important aspect of critical realism is the belief in subjectivity, whereby the researcher is both involved in the process and passionate about it (Ryan, 2019), as it was a personal interest and concern for the mental wellbeing of healthcare workers that influenced the researcher to conduct this research study.

Research Design

This study followed a quantitative, non-experimental, and cross-sectional design with descriptive and correlational statistical reporting and was exploratory in nature. The study was quantitative as the variables were operationalised and collected through scale measurement instruments, therefore numerically quantifiable to be analysed through statistical methods (Breakwell et al., 2012; Creswell, 2009). Using quantifiable data allows more practical implementation for a larger sample which was more appropriate for investigating the prevalence of a phenomenon. The variables investigated were burnout, turnover intention, and demographic factors. None of these variables were manipulated, nor were there control groups or random assignment, as the study had an observational focus to investigate pre-existing variables and was therefore non-experimental (Rosenthal & Rosnow, 2008). The study was cross-sectional as all variables were investigated simultaneously through a single observation at one point in time and one data collection method (Creswell, 2009). The study investigated the current occurrence of these variables, without the goal to make causal inferences outside of speculation and aimed to describe the variables as they naturally occur without any influence from the researcher (Rosenthal & Rosnow, 2008). This study aimed to describe the prevalence and severity of burnout and turnover intention in terms of the various demographic factors as a natural view and answer to the research questions. The correlational aspect of the study assumes burnout and turnover intention to be related to one another in a bi-directional manner as shown in the JD-R model of burnout with turnover as the final stage (Bakker & Demerouti, 2017; Bothma & Roodt, 2013; Demerouti et al., 2001). The study observed the variables at the same time to investigate the naturally co-occurring relationship between the two variables and describe how they change in relation to one another (Rosenthal & Rosnow, 2008). The relationship between the variables were

investigated in terms of significance, form and strength (Rosenthal & Rosnow, 2008). This study followed an inductive research approach using statistical explanations based on collected data to make probabilistic conclusions, and therefore exploratory (Rosenthal & Rosnow, 2008). This was undertaken with the awareness that the conclusions made are not universal as human behaviour, particularly factors such as burnout and turnover intention, can be affected by many factors that can introduce variability (Rosenthal & Rosnow, 2008).

A descriptive and correlational design can rarely provide an explanation of why an occurrence is happening or why one variable is related to other variables or events, nor can it provide causal inference or insight into which variable is responsible for another (Rosenthal & Rosnow, 2008). Due to the inability to make causal inferences, burnout cannot be viewed as a sufficient or necessary cause of turnover intention, however based on the literature presented and the conceptualisation of the process of burnout, temporal precedence is given to burnout. Therefore, burnout was classified as the predictor variable and turnover intention as the criterion variable for statistical analyses, however non-spuriousness cannot be accounted for in this non-experimental design (Creswell, 2009).

Sampling Strategy

A sample is a subset of a target population of interest (Rosenthal & Rosnow, 2008), and this study implemented a non-probability, convenience, purposive sampling strategy. The target population in this study, referred to as South African healthcare workers, included professionals involved in providing direct and front-line healthcare services across all disciplines. The exclusion criteria were professionals outside of healthcare services, administration only based roles, and students below their 4th year of medical school training. These criteria were selected to limit the sample to individuals who had specific and sufficient experience in the healthcare profession in South Africa, and therefore purposive sampling (Breakwell et al., 2012; Creswell & Plano Clark, 2018). The sample was limited to healthcare workers currently working in South Africa, but not to only South African citizens. For practicality, the study sample comprised of individuals who were available and willing to participate, with the limitation that the sample is not a representative of all healthcare workers in South Africa, and therefore non-probability and convenience sampling (Creswell & Plano Clark, 2018; Rosenthal & Rosnow, 2008). The study aimed to achieve maximum variation sampling across the demographic factors under investigation by gaining a sample as large as

possible, which is why convenience sampling was utilised. The sample was recruited through public media platforms and groups, such as Facebook, WhatsApp, and through the University of the Witwatersrand's registrar for medical school students in their 4th year and above of training as a voluntary request to participate. Facebook groups were chosen initially by a search method on Facebook for groups that included healthcare workers, doctors, allied professionals, and South Africa in their group name. The survey invitation was shared on the open access groups, and closed groups were accessed via the group admins requesting permission to share the survey invitation. Final Facebook groups that the research participation information was shared on included "Doctors South Africa" with 4 800 members, "SA Doctors United" with 13 900 members, "Medical Internship South Africa" with 16 300 members, and "Allied Health in South Africa" with 11 900 members. The University of the Witwatersrand's registrar disseminated the study participant invitation to 7406 students including registrars. Additionally, the researcher recruited participants through an informal healthcare workers network group, that they are involved with. At the time of the participant recruitment, 156 participants from this informal group were invited to participate. Due to the world-wide access and spread of digital media platforms, it was anticipated that the survey would reach prospective participants from various locations. This study aimed to include sample participants from across South Africa but anticipated the majority or participants to be from Gauteng, as this is the location the survey was initiated from. Although the study aimed to recruit as many participants as possible, a sample size of at least 30 participants was required for conducting statistical correlational and regression analyses (Creswell & Plano Clark, 2018).

Measuring Instruments

Demographic Factors

To investigate the relationship between the independent demographic factors of the sample and the prevalence of burnout and turnover intention, the study developed a demographic questionnaire. The demographic factors investigated were age, gender, race, province, years of practice, area of discipline, and sector of employment; public or private. The demographic data was collected via closed-ended multiple-choice questions which the exception of age, career length, and area of discipline which was collected via an open-ended free text question to allow for more detail and range of responses (See Appendix A).

Burnout

Burnout was measured with the Oldenburg Burnout Inventory (OLBI), developed by Demerouti and Bakker (2008) which measures burnout and work engagement. The OLBI includes both positively and negatively worded items to test the two core dimensions and subscales of burnout; exhaustion and disengagement (Demerouti & Bakker, 2008).

The OLBI has been shown to be reliable and valid through various studies across languages, countries, and professions including Brazil, Sweden, Slovenia, South Africa, Greece, and Malaysia as reported in a systematic review conducted by Sinval et al.(2019). The OLBI was originally developed in German but has been back translated and implemented in English (Demerouti et al., 2010; Halbesleben & Demerouti, 2005), Dutch (Demerouti & Bakker, 2008), Greek (Demerouti et al., 2003) and Portuguese (Sinval et al., 2019). The OLBI has produced acceptable internal consistency reliability with Cronbach's alpha ranging between .70 and .85 in numerous studies across the above differing contexts and languages (Demerouti et al., 2003, 2010; Demerouti & Bakker, 2008; Halbesleben & Demerouti, 2005; Sinval et al., 2019). The OLBI has also shown acceptable convergent validity with the MBI across languages and contexts (Demerouti et al., 2003; Halbesleben & Demerouti, 2005) and discriminant validity with the Utrecht Work Engagement Scale (UWES) in South Africa (Demerouti et al., 2003; Maslach & Leiter, 1997; Schaufeli et al., 2009).

The two sub-scales, exhaustion, and disengagement, consist of 8 items each, with a total of 16 items. The OLBI has eight reversed scored items namely 2, 3, 4, 6, 8, 9, 11 and 12, and the disengagement and exhaustion subscale items are mixed within the total questionnaire. The disengagement subscale consists of items 1, 3, 6, 7, 9, 13 and 15, and examples include "I always find new and interesting aspects of my work", "It happens more that I talk about my work in a negative way", and "Lately, I tend to think less at work and do my job almost mechanically" (Demerouti & Bakker, 2008). The exhaustion subscale consists of items 2, 4, 5, 8, 10, 12, 14 and 16 and examples include "There are days when I feel tired before I arrive at work", "During my work, I often feel emotionally drained", and "After my work, I usually feel worn out and weary" (Demerouti & Bakker, 2008) (See Appendix B).

All 16 items of the OLBI were originally measured on a four-point Likert-scale ranging from 1 to 4 (1 = strongly agree, 4 = strongly disagree) (Demerouti & Bakker, 2008). This study implemented the OLBI on a five-point Likert-scale, with 3 as a neutral option, for two

reasons. Firstly, the original 4-point scale has no neutral midpoint and creates a forced-choice for participants. This was implemented in alignment with the belief that should participants wish to sit on the fence and choose a mid-point, they should be given the option to do so (Cohen et al., 2007). A 5-point Likert scale has been found to produce less missing responses from participants and higher internal consistency compared to the same assessment using a 4-point Likert-type scale (Østerås et al., 2008). This is particularly important when analysing levels of agreement between participants, as the two midpoints on a 4-point Likert-scale could give rise to distortions of the data as subtleties are lost when aggregating scoring (Cohen et al., 2007). Secondly, the turnover intention scale is implemented on a 5-point Likert-scale with the two scales presented in the same survey consecutively, and it was desired to keep consistency between the two scales format for the participants to experience a standard response format. The total score for the 5-point OLBI ranged between 16 and 80. Mean scores for each subscale and total scale were used in statistical analysis, and participants were identified as having low, medium or high OLBI scores based on scores being above or below one standard deviation of the mean as previously categorised by Delgadillo et al. (2018). This categorisation method was used as no standard cut-off scores exist for the OLBI and norms have been shown to vary significantly between professional sectors, particularly between healthcare workers and white collar workers (Demerouti & Bakker, 2008).

Turnover Intention

The turnover intention was measured with the Turnover Intentions Scale (TIS) developed by Roodt (2004) which measures the intentions of a person to either stay with or leave an organisation (Du Plooy & Roodt, 2010b). The TIS has been reported to have acceptable internal consistency reliability with Cronbach's alpha ranging between .80 and .91 in South African samples (Appollis, 2010; Du Plooy & Roodt, 2013; E. J. Jacobs & Roodt, 2011; E. Jacobs & Roodt, 2008). The TIS consists of 15 items which are all are rated on a five-point Likert-scale ranging from 1 to 5 (1 = never, 5 = always) with 3 reverse scored items, namely items 10, 11 and 14. The TIS also has a short version comprising of 6 items, namely items 1, 3, 4, 6, 7, and 8. This study implemented the full 15 items scale to not limit the scope of data collection, however, the aim was to use the scale version that produced the highest reliability in the sample. The rationale being that the full version has been less frequently implemented in research studies and reliability has been reported on the short versions in South African samples. Example items include "How often have you considered leaving your job", "How

likely are you to accept another job at the same compensation level should it be offered to you", and "How often do you look forward to another day of work" (Roodt, 2004). The full TIS scale produces a total score ranging between 15 and 75, with a midpoint of 45 and the short version of the TIS produces a total score ranging between 6 and 30 with a midpoint of 18, with scores above the midpoint indicating a desire to leave the organisation (Roodt, 2004) (See Appendix C).

Procedure

Permissions

Permission to use the TIS in the study was requested from the questionnaire developer, Prof Gert Roodt. Permission was granted via email correspondence and the scale collateral was acquired by the researcher (See Appendix D). Permission to use the OLBI in the study was not necessary as the inventory is listed as open access, and the inventory and scoring procedure is included in the Demerouti et al. (2010) publication. Upon receiving ethical clearance (See Appendix E). from the Human Research Ethics (non-medical) Committee at the university of the Witwatersrand (Protocol Number MAPSYC-22-11), an application request was granted to conduct research with University of the Witwatersrand students was made to the university of the Witwatersrand's Registrar office (See Appendix F). This was done to access and invite medical students who are in their 4th year and above to participate in the study via email correspondence.

Survey Administration

The demographic questionnaire, TIS, and OLBI, were presented respectively, in a self-administered online single survey. The three questionnaires were uploaded to and presented on google forms. The link to the survey was distributed electronically via public digital media platforms with a brief research introduction and invitation to participate that directed participants to a landing page whereby the research study information, researcher details, and distress protocols were provided. An online survey was implemented with the target population in mind, as healthcare professionals work long and varying hours and may not have the capacity to participate in face-to-face or designated time sessions. The use of an online survey additionally allowed participants to complete the survey in their own time and comfort of their chosen location and device. Online surveys also provide convenience in the exporting of the response data. The survey was live and active for a period of three months,

launching only after ethical approval was received, from the 8th of August 2022 to the 8th of October 2022.

Ethical Considerations

This study used informed voluntary participation and informed consent was collected by the means of a tick box and submission function on the online survey platform. This was presented following the participant information sheet (See Appendix G) on the landing page of the survey and participants were restricted from completing the survey without giving digital informed consent (See Appendix H). The aim of the research was positioned to participants as an investigation into the current state of mind of South African healthcare workers to mitigate priming or response bias by using the term burnout or turnover intention. Participants were informed of their autonomy to withdraw from the study at any time on the landing page of the survey, and no questions were compulsory besides informed consent. Confidentiality and anonymity were ensured and practiced via the online survey platform which did not collect, nor ask for personal information other than the demographic questions of the survey which excluding direct identifying information such as names.

Due to the phenomenon under study, it was recognised that participants may already be under psychological distress before the completion of the survey. With this is mind, should any participants have felt overwhelmed or psychologically triggered by the content of the survey, resources were provided for free mental health counselling, specific to healthcare workers. Front-end distress protocols were followed with the list of resources displayed on the landing information page of the survey and the resources provided included:

1. The healthcare workers care network which includes 24-hour healthcare workers care network helpline (0800 21 21 21 or SMS 43001), monthly support group sessions, and online mental health resources. https://www.healthcareworkerscarenetwork.org.za
2. SADAG's 24-hour helpline 0800 456 789
3. SADAG's 24-hour suicide crisis helpline 0800 567 567
4. National Medical Frontliners Counselling 24-hour Hotline WhatsApp: 079 513 7015

Data Analysis

The responses to the survey were exported from the google forms platform into excel format and saved onto a password protected folder on the researcher's personal hardware device. As

the survey was conducted anonymously, during the export process of the data each participant was allocated a case number for reporting identification purposes. The data was imported into the *IBM SPSS Statistics* (2021) program and cleaned and checked for missing data and sample inclusion and exclusion criteria. Seven cases were removed in total as they fell outside the inclusion criteria of the target population or were mostly incomplete. Cases 5, 16, and 32 were removed due to being below their 4th year of medical school. Case 27 was removed as they belonged to the veterinary profession. Cases 42 and 70 were administration roles, and case 79 was a research-based role, and therefore removed. Due to no questions being compulsory, the data was checked for missing values and one participant, case 114, was removed as only three demographic items were completed in the whole survey. Cases were checked for missing data in the measurement scales and removed if they had more than 30 percent of a subscale missing, however, no cases had this occurrence and missing data was allocated as system missing.

Simple descriptive statistics, such as frequencies and means, were run for the demographic factors to assess and describe the properties of the sample (Field, 2017) namely age, gender, race, career length, province, and sector. In addition, the demographic factor of discipline was an open-ended question requesting as much detail as the participant wished to provide with the example prompts of "Geriatric nurse in a residential home, medical officer in an oncology hospital unit". The detail of the responses allowed three variables to be extracted through manual coding, and these included setting, qualification, and discipline. Setting comprised of 'hospital' and 'non-hospital' categories, with non-hospital including any private practice and clinic setting. The rationale behind this categorisation was to differentiate between participants who had more control over their work hours, as hospitals have pre-determined shifts and on-call duties. The variable of qualification included 'qualified' and 'in-training' to differentiate between participants who were under study demands to complete a qualification. In-training included students, interns, community service, or registrars. The final factor of discipline categorised participants into nine categories of service delivery. Although the nine categories of service delivery include more than one formal discipline area according to corresponding codes of conduct and ethics in South Africa, they are referred to as discipline areas in this study for ease of reference and simplicity. The discipline areas include musculoskeletal, critical, surgery, medical science, occupational therapy, general, paediatrics, student, mental health, and public health. These categories were coded based on sub-area

classifications provided in participant responses (See Appendix I), and participants that lacked information to be coded were classified as system missing for the factor.

The subscales of the OLBI, disengagement and exhaustion, were treated as additional variables for comparative purposes and all analyses were conducted on the disengagement subscale, exhaustion subscale, and OLBI scale, referred to collectively as OLBI scales. The OLBI and TIS Likert-type scales were treated as interval data in order to run statistical analyses (Breakwell et al., 2012; Field, 2017) and total mean scores and total sum scores were computed for the OLBI scales and TIS scale respectively.

Normality and reliability analyses were run for both the OLBI and TIS scales, although having a sample size of 189 allowed the central limit theorem to apply (Field, 2017). The central limit theorem proposes that as sample sizes get larger, particularly over 30, the sampling distribution will be normal (Field, 2017). Internal reliability was assessed with the Cronbach Alpha coefficient test and normality was assessed with the Kolmogorov-Smirnov test, which is suggested for sample sizes above 50, and Skewness and Kurtosis tests (Field, 2017; Rosenthal & Rosnow, 2008). The OLBI scales were categorised into 'low, medium, and high' levels, and the TIS was categorised into 'intention to leave' and 'intent to stay'. Descriptive statistics were run for the OLBI scales and the TIS to determine the prevalence of burnout and turnover intention in the sample. Group comparisons were conducted on the OLBI scales and TIS according to demographic factors to investigate any relationships between demographic factors and burnout or turnover intention prevalence. To determine the relationship between burnout and turnover intention a correlation analysis (Field, 2017; Rosenthal & Rosnow, 2008) was run between the OLBI scales and TIS mean scores. To further explore the nature of this relationship, a simple regression analysis was conducted to relate the changes in turnover intention to the changes in the OLBI scales (Field, 2017; Rosenthal & Rosnow, 2008).

Participants

The sample of the study, after data cleaning and the removal of seven cases, included a total of 189 participants.

Table 2.1

Descriptive Statistics of Sample for Continuous Demographic Factors

Demographic Factor	*n*	Minimum	Maximum	Range	Median	Mean	Standard Deviation
Age	186	21	75	54	34	36.85	10.78
Career Length	186	0.5	58	57.5	10	13.25	11.41

The age of the participants ranged between 21 and 75 years old, with majority of participants in their mid-thirties (M = 36.85, SD = 10.783). The sample consisted of mostly females (81%), with a majority of a white (49.2%) and black (20.1%) participants and located mostly in Gauteng (57.7%) and the Western Cape (18.5%). The length of professional experience ranged between 0.5 and 58 years, with most participants having approximately 13 years' experience (M = 13.2469, SD = 11.40837).

Table 2.2

Descriptive Statistics of Sample for Categorical Demographic Factors

Demographic Factor	*n*		Frequency	Percentage	Age (M)	Career Length (M)
Gender	188	Male	34	18	37.73	13.07
		Female	153	81	36.54	13.18
		Other	1	0.5	27.00	3.00
Race	189	Asian	3	1.6	44.33	19.67
		Black	38	20.1	35.00	10.42
		Coloured	22	11.6	35.77	11.61
		Indian	30	15.9	36.50	12.32
		White	93	49.2	37.76	15.03
		Other	3	1.6	36.33	9.33
Province	188	Eastern Cape	15	8	31.47	7.12
		Free State	2	1.1	53.00	32.50
		Gauteng	109	58	34.99	11.26
		KwaZulu Natal	14	7.4	34.14	9.17
		Limpopo	6	3.2	37.17	11.10
		North-West	5	2.7	39.00	14.60
		Northern Cape	2	1.1	32.50	14.00

		Western Cape	35	18.6	45.03	22.60
		Mpumalanga	0	0	0	0
Sector	189	Public	126	66.7	34.77	10.74
		Private	63	33.3	41.03	18.25
Setting	159	Hospital	97	51.3	33.54	9.04
		Non-Hospital	62	32.8	41.13	18.22
Qualification	176	In Training	36	19	28.67	4.99
		Qualified	140	74.1	39.08	15.37
Discipline	186	Musculoskeletal	12	6.3	29.67	6.80
		Critical	21	11.1	35.81	10.84
		Surgery	10	5.3	36.10	11.38
		Medical Science	8	4.2	39.63	17.13
		Occupational Therapy	19	10.1	33.42	11.16
		General	21	11.1	41.80	18.61
		Paediatrics	40	21.2	41.33	17.08
		Student	25	13.2	27.24	3.71
		Mental Health	20	10.6	35.90	9.45
		Public Health	10	5.3	53.67	13.25

Conclusion

In summary, this methodology chapter detailed the process followed in conducting this research study. The theoretical paradigm that underpinned this study was presented, followed by the research design and applicability of the design aspects to appropriately answer the research questions. The research questions were reiterated as the prevalence of burnout and turnover intention, the prevalence across demographic factors, and the relationship between burnout and turnover intention. The sampling and data collection procedure were described, followed by the variables and measurement instruments. Ethical considerations were presented before the statistical techniques that were conducted in the study. Lastly the participants of the sample were presented in terms of demographic factors.

Chapter 3: Results

Introduction

The results chapter reports the statistical analyses used to answer the research questions. Firstly, normality and reliability are presented for the measurement instruments in the study. Descriptive statistics are presented to report the prevalence of disengagement, exhaustion, burnout, and turnover intention in the sample, and how these prevalence scores range across demographic factors. Demographic factors are further investigated through the comparison of group means. The relationship between disengagement, exhaustion, and burnout with turnover intention is explored through correlation and regression analyses. All assumptions are discussed and assessed prior to presenting the results of the analyses to determine the most appropriate statistical tests for the data.

Normality of Variables

Normal distribution implies that the majority of scores on a scale lie around the centre of the distribution and become less frequent towards the extreme values, characterised by a bell-shaped curve, and according to the central limit theorem, sample sizes greater than thirty will approach normal distribution as the sample size increases (Field, 2017; Rosenthal & Rosnow, 2008). Due to the sample size of the study being 189, the central limit theorem applies and strict normality indicators become more flexible, however, the occurrence of extreme outliers become a more significant concern (Field, 2017). Normality is important as it is an assumption required for parametric statistical tests (Field, 2017).

Measurements of Normality

Normality is assessed with formal normality tests, such as the Kolmogorov-Smirnov and Shapiro-Wilk, with skewness and kurtosis, and with visual inspection of frequency histograms, quantile-quantile (Q-Q) plots, and box whisker diagrams. This study utilised all seven of the aforementioned methods in order to present an accurate representation of normality and argument for the use of parametric statistical tests.

The Kolmogorov-Smirnov normality tests are recommended for sample sizes above fifty and the Shapiro-Wilk test is recommended for sample below fifty (Razali & Wah, 2011) and were inspected accordingly. A significant Kolmogorov-Smirnov and Shapiro-Wilk coefficient ($p < .05$) indicates normal distribution cannot be assumed, however both of these tests are

notoriously affected by larger sample sizes whereby small deviations produce significant results (Field, 2017). Field (2017) recommends that if one has a large sample size, namely above 30, then significant normality tests may not give accurate representations and advises against the use of them, and to rather rely on visual plots of the data. Therefore, this study conducted normality tests, but made final decisions based on visual methods.

Skewness indicates whether data departs from normality based on the extension of the tails in the frequency curve, with extended left side tails indicating negatively skewed data and extended right side tails indicating positively skewed data (Rosenthal & Rosnow, 2008). Kurtosis indicates the flatness or peakedness of the frequency curve, with a high peak referred to as leptokurtic and a flat peak referred to as platykurtic (Rosenthal & Rosnow, 2008). Statistical skewness and kurtosis scores are deemed acceptable between -2 and +2, indicating normal distribution (D. George & Mallery, 2019).

The frequency histograms indicate normality with a bell-shaped curve, while Q-Q plots indicate the observed data against a diagonal expected observation plot (Field, 2017). Q-Q plots show normal distribution when observed points fall on or close to the reference line, and they indicate kurtosis when observed data dots fall well above or below the line, and skewness when observed dots drastically weave around the diagonal line in an 'S' shape (Field, 2017).

Box-whisker diagrams indicate extreme or significant outliers through visual representation of interquartile ranges with of the median as the centre, the 25th and 75th percentile as the edges of the box, and minimum and maximum values indicated by the whiskers (Field, 2017; Rosenthal & Rosnow, 2008). Perfectly normally distributed data will have equivalent means and medians, with perfectly symmetrical box-whisker plots, and outliers are indicated beyond the whiskers, with SPSS indicating extreme or significant outliers with an Asterix (Field, 2017).

Normality Results

Normality tests were conducted on total mean scores for each scale of measure, namely disengagement, exhaustion, burnout, and turnover intention. Based on the statistical normality tests the Kolmogorov-Smirnov coefficients (See table J1), and were significant for all the measurement scales, indicating normal distribution cannot be assumed. Skewness and

kurtosis scores ranged between -0.48 to -0.11 for skewness, and -0.71 to -0.26 for kurtosis, well within the acceptable ranges of -2 and +2, both indicating normal distribution. The visual normality tests, namely frequency distribution histograms, Q-Q plots and box-whisker plots, (See figures J2 – J13) indicated acceptably normal distribution with only disengagement reporting an outlier (See figure J4), but not of a significant or extreme nature. With the central limit theorem applying to all measurement scales (N= 189) and more weight being given to visual normality tests in this study due to the effect of larger sample sizes on the Kolmogorov-Smirnov and Shapiro-Wilk coefficients (Field, 2017), all measurement scales were concluded as normally distributed due to only statistical normality tests indicating non-normal distribution.

Reliability of Measurement Instruments

Reliability refers to the consistency of a measure, giving the results from the measure more trust in their appropriateness and meaningfulness in the way they claim to be (Rosenthal & Rosnow, 2008). The most common type of reliability assessed in psychological scales is internal consistency reliability, which indicates the degree of relatedness of individual items in the full scale (Rosenthal & Rosnow, 2008).

Measurements of Reliability

Due to the normal distribution of the data for each scale in this study, the internal consistency reliability in this study was assessed with the Cronbach's alpha coefficient, the corrected item-total correlation, and the Cronbach's alpha if item deleted. Cronbach's alpha coefficient indicates the extent to which each item of a scale measures the same construct under investigation (Field, 2017) and was used to assess internal consistency in the Disengagement, Exhaustion, Burnout and Turnover Intention scales. Cronbach's alpha coefficients range between 0 and 1, with scores above 0.7 indicating an acceptable reliability (Field, 2017; Kline, 1993). The corrected item-total correlation indicates the correlation between each item and the total score of the measure and was inspected for each scale in the study according to Field's (2017) recommendation that items above 0.3 should be retained. The Cronbach's alpha if item deleted reflects the change in alpha should that item be excluded from the scale of measure (Field, 2017). The Cronbach's alpha if item deleted was compared against the full-scale Cronbach alpha under the conditions of a dramatic increase and judged on a case-by-case basis.

Reliability Results

The Burnout Scale is comprised of two subscales with eight items each, namely Disengagement and Exhaustion, of which both produced high Cronbach's alpha coefficients of α =.80 and α =.83 respectively. The full Burnout Scale produced a Cronbach alpha of α =.89. Both the two subscales and full Burnout Scale indicate good acceptable internal consistency (Field, 2017). The Turnover Intention Scale comprised of a fifteen-item full version and six-item short version, producing a Cronbach's alpha coefficient of α =.78 and α =.86 respectively (See table K1), and represent an acceptable good internal consistency (Field, 2017)

The corrected total-item correlations (See table K2) for the two burnout subscales; disengagement and exhaustion, were all above 0.30 as recommended by Field (2017). However, in the full Burnout scale item 1, "I always find new and interesting aspects in my work" produced a corrected total-item correlation of slightly less, namely .25. This item would have only slightly increased the Cronbach's alpha coefficient by .004 and was therefore retained. Due to the Cronbach's alpha coefficients of the disengagement, exhaustion, and burnout scales being above .70, indicating good reliability, they were more than acceptable to use in further analyses (Field, 2017; Kline, 1993) without any items being omitted.

The short and full version of the Turnover Intention Scale reported a disparity of .08 between Cronbach's Alpha coefficients which was interesting considering an increase of items in a scale generally leads to a stronger internal consistency (Rosenthal & Rosnow, 2008). This disparity was further investigated by analysing the corrected total-item correlations and Cronbach's alpha coefficients if items deleted. The corrected total-item correlations for the short turnover intention scales were all above 0.30, with no increase in Cronbach's alpha if any items are deleted. The full Turnover Intention scale reported an increase to above α =.81 if items 10, 11 or 14 were deleted. In addition, the corrected item-total correlation (See table K3) for items 10, 11 and 14 produced between -.05 and -.45 scores, indicating problematic items as they are substantially below 0.30 (Field, 2017). These three items were the only reversed scored items in the scale and were "To what extent do responsibilities prevent you from quitting your job?", "To what extent do the benefits associated with your current job prevent you from quitting your job? and "To what extent does the 'fear of the unknown',

prevent you from quitting?". These items were analysed for face validity, and it is suspected that the wording and interpretation possibly caused ambiguity for these items in the sample of healthcare workers. For these reasons, the short version of the turnover intention scale which does not include the aforementioned items ($\alpha = .86$) was used in statistical analyses.

Prevalence of Burnout and Turnover Intention

Burnout Prevalence

To assess the prevalence of disengagement, exhaustion, and burnout, total mean scores were used to compute categorical variables of low, moderate and high levels using one standard deviation above and below the sample mean scores (See table L1), as done and suggested by Delgadillo et al. (2018) with the Oldenburg Burnout Inventory. The frequency of low levels of disengagement (19.58%), exhaustion (18.52%) and burnout (17.99%) were reported within the sample. The frequencies indicate that 80.43% of the sample experience moderate to high levels of disengagement, 81.48% experience moderate to high levels of exhaustion, and 82.01% experience moderate to high levels of burnout.

Turnover Intention Prevalence

To calculate the prevalence of turnover intention, a total sum score was computed for the short version of the turnover intention scale. This was then computed into binary categorical levels of the intention to stay and the intention to leave, based on the scoring recommendations by the developer of the scale (Roodt, 2004), with the midpoint of 18 indicating the split between the two levels (See table L2). Additionally, mean total scores of the turnover intention scale were used to compute categorical levels of low, moderate and high intention to leave in the same method as the burnout scales, namely 1 standard deviation above and below the mean (See table L3) for comparative purposes.

The first method of categorisation, namely the midpoint scale split, produce frequency scores that indicate 67.38% of the sample have the intention to leave their role. The second method of categorisation, namely 1 standard deviation of the sample mean, indicate that 19.58% of the sample have a low intention to leave, and 80.42% have a moderate to high intention to leave.

Prevalence of Burnout and Turnover Intention Across the Demographic Factors

To investigate the prevalence of disengagement, exhaustion, burnout across demographic factors, cross tables were computed based on low, moderate, and high levels. The turnover intention binary split and low, moderate, and high-level split methods were computed across demographic factors, however, only the binary split levels were reported on. The descriptive statistics are reported for the prevalence rates across demographic factors and statistical interrogation of the data is reported in the following section of group differences.

Table 3.1

Low, Moderate and High Levels of Disengagement, Exhaustion, and Burnout Across Demographic Factors

	Disengagement			Exhaustion			Burnout		
	Low	Moderate	High	Low	Moderate	High	Low	Moderate	High
Gender (N= 188)									
Female (N= 153)	34	87	32	27	97	29	31	101	21
%	22.22	56.86	20.92	17.65	63.40	18.95	20.26	66.01	13.73
Mod to high %			77.78			82.35			79.74
Male (N =34)	3	26	5	8	23	3	3	27	4
%	8.82	76.47	14.71	23.53	67.65	8.82	8.82	79.41	11.76
Mod to high %			91.18			76.46			91.17
Other (N= 1)	0	1	0	0	1	0	0	1	0
%	0	100	0	0	100	0	0	100	0
Mod to high %			100			100			100
Race (N=189)									
Asian (N= 3)	1	1	1	0	1	2	1	1	1
%	33.33	33.33	33.33	0	33.33	67.67	33.33	33.33	33.33
Mod to high %			66.66			100			66.66

Table 3.1

Low, Moderate and High Levels of Disengagement, Exhaustion, and Burnout Across Demographic Factors

Black	8	19	11	12	22	4	9	24	5
(N= 38)									
%	21.05	50.00	28.95	31.58	57.89	10.53	23.68	63.16	13.16
Mod to high %			78.95			68.42			76.32
Coloured	1	15	6	2	16	4	1	19	2
(N= 22)									
%	4.55	68.18	27.27	9.09	72.73	18.18	4.55	86.36	9.09
Mod to high %			95.45			90.91			95.45
Indian	4	19	7	4	19	7	5	20	5
(N= 30)									
%	13.33	63.33	23.33	13.33	63.33	23.33	16.67	67.67	16.67
Mod to high %			86.66			86.66			84.34
White	22	58	13	16	62	15	17	64	12
(N= 93)									
%	23.66	62.37	13.98	17.20	67.67	16.13	18.28	68.82	12.90
Mod to high %			76.35			83.80			81.72
Other	1	2	0	1	2	0	1	2	0
(N= 3)									
%	33.33	67.67	0	33.33	67.67	0	33.33	67.67	0
Mod to high %			67.67			67.67			67.67
Province (N=188)									
Eastern Cape	1	10	4	3	11	1	2	10	3
(N= 15)									
%	6.67	66.67	26.67	20	73.33	6.67	13.33	66.67	20
Mod to high %			93.34			80			86.67
Free State	1	1	0	1	1	0	1	1	0
(N= 2)									
%	50	50	0	50	50	0	50	50	0
Mod to high %			50		50			50	

Table 3.1

Low, Moderate and High Levels of Disengagement, Exhaustion, and Burnout Across Demographic Factors

Gauteng (N= 109)	23	62	24	16	66	27	20	71	18
%	21.10	56.88	22.02	14.68	60.55	24.77	18.35	65.14	16.51
Mod to high %			78.90			85.32			81.65
KwaZulu Natal (N= 14)	0	13	1	2	10	2	0	13	1
%	0	92.86	7.14	14.29	71.43	14.29	0	92.86	7.14
Mod to high %			100			85.72			100
Limpopo (N= 6)	1	2	3	2	4	0	2	3	1
%	16.67	33.33	50.00	33.33	66.67	0	33.33	50	16.67
Mod to high %			73.33			66.67			66.67
North-West (N= 5)	0	3	2	0	4	1	0	4 80	1 20
%	0	60	40	0	80	20	0	80	20
Mod to high %			100			100			100
Northern Cape (N= 2)	1	1	0	1	1	0	1	1	0
%	50	50	0	50	50	0	50	50	0
Mod to high %			50			50			50
Western Cape (N= 35)	9	22	4	10	24	1	8	26	1
%	25.71	62.86	11.43	28.57	68.57	2.86	22.86	74.29	2.86
Mod to high %			74.29			71.43			77.15
Sector (N=189)									
Public (N= 126)	18	79	29	21	83	22	17	90	19
%	14.29	62.70	23.02	16.67	65.87	17.46	13.49	71.43	15.08
Mod to high %			85.72			83.33			86.51

Table 3.1

Low, Moderate and High Levels of Disengagement, Exhaustion, and Burnout Across Demographic Factors

Private (N= 63)	19	35	9	14	39	10	17	40	6
%	30.16	55.56	14.29	22.22	61.90	15.87	26.98	63.49	9.52
Mod to high %			69.85			77.77			73.01
Setting (N=159)									
Hospital (N= 97)	11	60	26	12	64	21	11	67	19
%	11.34	61.86	26.80	12.37	66.98	21.65	11.34	69.07	19.59
Mod to high %			88.66			88.63			88.66
Non-Hospital (N= 62)	17	38	7	15	39	8	16	42	4
%	27.42	61.29	11.29	24.19	62.90	12.90	25.81	67.74	6.45
Mod to high %			72.58			75.80			74.19
Qualified (N=176)									
In Training (N= 36)	4	20	12	4	20	12	4	23	9
%	11.11	55.56	33.33	11.11	55.56	33.33	11.11	63.89	25.00
Mod to high %			88.89			88.89			88.89
Qualified (N= 140)	31	89	20	30	92	18	29	98	13
%	22.14	63.57	14.29	21.43	65.71	12.86	20.71	70.00	9.29
Mod to high %			77.86			78.57			79.29
Discipline (N=186)									
Musculoskeletal (N= 12)	4	7	1	1	10	1	4	8	0
%	33.33	58.33	8.33	8.33	83.33	8.33	33.33	66.67	0
Mod to high %			66.66			91.60			66.67

Table 3.1

Low, Moderate and High Levels of Disengagement, Exhaustion, and Burnout Across Demographic Factors

Critical (N= 21)	1	9	11	1	15	5	1	13	7
%	4.76	42.86	52.38	4.76	71.43	23.81	4.76	61.90	33.33
Mod to high %			95.24			95.24			95.23
Surgery (N= 10)	1	8	1	1	7	2	1	8	1
%	10	80	10	10	70	20	10	80	10
Mod to high %			90			90			90
Medical Science (N= 8)	2	4	2	3	5	0	3	4	1
%	25	50	25	37.50	62.50	0	37.50	50.00	12.50
Mod to high %			75			62.50			62.50
Occupational Therapy (N= 19)	2	14	3	3	12	4	3	14	2
%	10.53	73.68	15.79	15.79	63.16	21.05	15.79	73.68	10.53
Mod to high %			89.47			84.21			84.21
General (N= 21)	3	15	3	5	14	2	4	16	1
%	14.29	71.43	14.29	23.81	66.67	9.52	19.05	76.19	4.76
Mod to high %			85.72			76.19			80.95
Paediatrics (N= 40)	8	26	6	8	23	9	5	28	7
%	20	65	15	20	57.50	22.50	12.50	70	17.50
Mod to high %			80			80			87.50
Student (N= 25)	4	12	9	2	15	8	3	16	6
%	16	48	36	8	60	32	12	64	24
Mod to high %			84			92			88

Table 3.1

Low, Moderate and High Levels of Disengagement, Exhaustion, and Burnout Across Demographic Factors

Mental Health (N= 20)	9	10	1	6	14	0	6	14	0
%	45	50	5	30	70	0	30	70	0
Mod to high %			55			70			70
Public Health (N= 10)	2	7	1	4	5	1	3	7	0
%	20	70	10	40	50	10	30	70	0
Mod to high %			80			60			70

Within the sample, 79.74% of females reported moderate to high burnout compared to 91.17% of males. More males reported moderate to high levels of disengagement than females, with only 8.82% of males reporting low disengagement compared to 22.22% of females. Races within the sample with the lowest percentage of moderate to high burnout were Asian (66.66%) and Other (66.67%), while 95.45% of Coloured participants reported moderate to high burnout. More Black participants reported moderate to high disengagement (78.95%) than exhaustion (68.42%), while more White participants reported moderate to high exhaustion (82.80%) compared to disengagement (76.35%). All (100%) participants based in KwaZulu-Natal reported moderate to high burnout while 22.86% of participants in the Western Cape reported low burnout levels. More participants in Gauteng scored moderate to high exhaustion (85.32%) compared to disengagement (78.90%), while the inverse was reported for the Eastern Cape with 93.34% reporting moderate to high disengagement compared to exhaustion (80%). 86.51% of participants in the public sector reported moderate to high burnout compared with 73.01% in the private sector. The public and private sector differed most on the disengagement subscale with 85.72% and 69.85% respectively for moderate to high levels. Participants in a hospital setting had 14.47% higher prevalence of moderate to high burnout (88.66%) compared to those in a non-hospital setting (74.19%) and this trend in difference occurred across the exhaustion and disengagement scales. Those in training also scored higher in burnout (88.89%) than those who are qualified (79.29%), with an average trend of 10% difference between exhaustion and disengagement scores between the two groups. Between the areas of discipline, those in critical (95.23%) and surgery (90%) have the highest prevalence of moderate to high burnout compared to medical sciences

(62.50%) who have the lowest prevalence of moderate to high burnout. The lowest prevalence of moderate to high disengagement were those in the mental health (55%) discipline, and the area of discipline with the greatest difference (24.94%) between exhaustion and disengagement was the musculoskeletal group.

Table 3.2

Binary and Low, Moderate, and High Levels of Turnover Intention Across Demographic Factors

	N	Binary Turnover Intention		*N*	Turnover Intention Levels		
		Stay	Leave		Low	Moderate	High
Gender	*186*			*186*			
Female	*151*	50	101	*153*	31	98	24
%		33.11	66.89		20.26	64.05	15.69
Mod to high %							79.74
Male	*34*	11	23	*34*	6	23	5
%		32.35	67.65		17.65	67.65	14.71
Mod to high %							82.36
Other	*1*	0	1	*1*	0	1	0
						100	
%		0	100			100	0
Mod to high %							100
Race	*187*			*189*			
Asian	*3*	1	2	*3*	1	1	1
%		33.33	66.67		33.33	33.33	33.33
Mod to high %							66.66
Black	*38*	15	23	*38*	7	29	2
%		39.47	60.53		18.42	76.32	5.26
Mod to high %							81.58
Coloured	*22*	2	20	*22*	1	16	5
%		9.09	90.91		4.55	72.73	22.73
Mod to high %							95.46
Indian	*29*	7	22	*30*	4	17	9
%		24.14	75.86		13.33	56.67	30.00
Mod to high %							86.67

Table 3.2

Binary and Low, Moderate, and High Levels of Turnover Intention Across Demographic

White	*92*	34	58	*93*	22	58	13
%		36.96	63.04		23.66	62.37	13.98
Mod to high %							76.35
Other	*3*	2	1	*3*	2	1	0
%		66.67	33.33		66.67	33.33	0
Mod to high %							33.33
Province	*186*			*188*			
Eastern Cape	*15*	3	12	*15*	2	9	4
%		20	80		13.33	60	26.67
Mod to high %							86.67
Free State	*2*	1	1	*2*	1	1	0
%		50	50		50	50	0
Mod to high %							50
Gauteng	*107*	41	66	*109*	22	72	15
%		38.32	61.68		20.18	66.06	13.76
Mod to high %							79.82
KwaZulu Natal	*14*	2	12	*14*	2	6	6
%		14.29	85.71		14.29	42.86	42.86
Mod to high %							85.72
Limpopo	*6*	1	5	*6*	1	5	0
%		16.67	83.33		16.67	83.33	0
Mod to high %							83.33
North-West	*5*	2	3	*5*	1	3	1
%		40	60		20	60	20
Mod to high %							80
Northern Cape	*2*	0	2	*2*	0	2	0
%		0	100			100	0
Mod to high %							100
Western Cape	*35*	10	25	*35*	8	23	4
%		28.57	71.43		22.86	65.71	11.43
Mod to high %							77.14

Table 3.2

Binary and Low, Moderate, and High Levels of Turnover Intention Across Demographic

Sector	*187*			*189*			
Public	*126*	33	93	*126*	18	85	23
%		26.19	73.81		14.29	67.46	18.25
Mod to high %							85.71
Private	*61*	28	33	*63*	19	37	7
%		45.90	54.10		30.16	58.73	11.11
Mod to high %							69.84
Setting	*157*			*159*			
Hospital	*97*	24	73	*97*	10	66	21
%		24.74	75.26		10.31	68.04	21.65
Mod to high %							89.69
Non-Hospital	*60*	23	37	*62*	18	38	6
%		38.33	61.67		29.03	61.29	9.68
Mod to high %							70.97
Qualified	*174*			*176*			
In Training	*36*	9	27	*36*	8	20	8
%		25	75		22.22	55.56	22.22
Mod to high %							77.78
Qualified	*138*	50	88	*140*	29	90	21
%		36.23	63.77		20.71	64.29	15.00
Mod to high %							79.29
Discipline	*184*			*186*			
Musculoskeletal	*11*	4	7	*12*	4	7	1
%		36.36	63.64		33.33	58.33	8.33
Mod to high %							66.66
Critical	*21*	1	20	*21*	0	17	4
%		4.76	95.24		0	80.95	19.05
Mod to high %							100
Surgery	*10*	0	10	*10*	0	7	3
%		0	100		0	70	30
Mod to high %							100

Table 3.2

Binary and Low, Moderate, and High Levels of Turnover Intention Across Demographic

Medical Science	*8*	4	4	*8*	3	3	2
%		50	50		37.50	37.50	25
Mod to high %							62.50
Occupational Therapy	*19*	5	14	*19*	3	12	4
%		26.32	73.68		15.79	63.16	21.05
Mod to high %							84.21
General	*21*	8	13	*21*	5	14	2
%		38.10	61.90		23.81	66.67	9.52
Mod to high %							76.19
Paediatrics	*39*	18	21	*40*	8	28	4
%		46.15	53.85		20	70	10
Mod to high %							80
Student	*25*	7	18	*25*	6	14	5
%		28	72		24	56	20
Mod to high %							76
Mental Health	*20*	10	10	*20*	6	11	3
%		50	50		30	55	15
Mod to high %							70
Public Health	*10*	3	7	*10*	2	6	2
%		30	70		20	60	20
Mod to high %							80

Approximately 67% of both male and female participants reported an intention to leave their role. Coloured participants reported the highest intention to leave (90.9%) compared to 60.5% of Black participants. The provinces reporting the highest percentage of participants with the intention to leave was Limpopo (83.3%), KwaZulu-Natal (85.7%), Northern Cape (100%). 73.8% of participants in the public sector reported the intention to leave compared to 54.1% of the private sector. The intention to leave has a 13.6% difference between participants in a hospital setting (75.3%) and those in a non-hospital setting (61.7%). There was a similar difference (11.2%) in intention to leave between those in training and those qualified, with those in training with the higher prevalence (75%). The two areas of discipline with the highest intention to leave were critical (95.2%) and surgery (100%) compared to mental health (50%) and medical science (50%) who have the lowest prevalence of intention to leave.

Demographic Group Differences

Group comparisons are assessed by comparing the means of the variables under investigation between different groups, which is most commonly done with parametric t-tests when comparing two groups, and one-way ANOVA's when comparing three or more groups, with independent observations (Rosenthal & Rosnow, 2008).

Measuring Group Differences

Independent samples t-tests and one-way Anova's require statistical assumptions to be met prior to running the analyses. These include normality, homogeneity of variance, and interval scales of measure for parametric tests to be conducted (Field, 2017). Once assumptions have been met and appropriate tests conducted, a significant result ($p < 0.05$) indicates a significant difference between the two groups is present in t-tests, or between at least two of the groups in one-way ANOVA's (Field, 2017). Once significance has been established, post-hoc tests are used to identify the magnitude of the significance, as well as between which groups this is present for the one-way ANOVA's. The post-hoc tests are chosen based on sample sizes and number of groups being compared. Assumption tests were conducted and presented prior to running the t-tests and ANOVAs to confirm parametric tests were appropriate, and the use of non-parametric equivalents were implemented if any violations occurred.

Assumptions of Independent Samples T-Tests and One-Way ANOVA

According to Field (2017), both the independent samples t-test and one-way ANOVA require the following statistical assumptions; the criterion variable as interval or ratio scales of measure, a normally distributed criterion variable on its own as well as per group with no significant outliers, and homogeneity of variance. Disengagement, exhaustion, burnout and turnover intention scales were measured on Likert-type scales with equal differences between each anchor of the scales and therefore treated as interval data (Field, 2017). The scales of the disengagement, exhaustion, burnout, and turnover intention were concluded as normally distributed with no extreme outliers in the normality of variables section above.

Normality of Variables Per Group. Normality for each group of the criterion variables were assessed with the same method as for the measurement scales. A combination of statistical normality tests, namely the Kolmogorov–Smirnov, Shapiro–Wilk, skewness, and kurtosis, and visual normality tests, such as histograms, Q-Q plots, and box-whisker plots, were implemented.

The Kolmogorov-Smirnov normality tests were inspected for sample sizes above fifty and the Shapiro-Wilk test was inspected for sample sizes below fifty (Razali & Wah, 2011). Violations of normality were considered if a variable grouping reported a significant Kolmogorov-Smirnov or Shapiro Wilk normality test ($p < .05$; Field, 2017) in addition to skewness and kurtosis coefficients being outside the acceptable range of -2 and +2 (D. George & Mallery, 2019). Normality conclusions considered if the sample size was below 30, as the central limit theorem would not apply. The visual histograms, Q-Q plots and box-whisker diagrams were visually inspected for extreme outliers and normal distribution and used as the main indicators for normality as was done in normality of variables section above due to the sensitivity of the statistical normality tests (Field, 2017). Due to the groups, particularly for the one-way ANOVA, having smaller sample sizes, the statistical normality tests have shown to not perform well with sample sizes below 30 (Razali & Wah, 2011), again motivating for more weight to be given to the visual normality tests.

Normality tests were conducted on total mean scores for disengagement, exhaustion, burnout, and turnover intention across the dichotomous demographic factors; sector, gender, setting, and qualification. Due to Gender only having one participant respond as 'Other', they were excluded and only two genders; male and female, were used for the group comparisons.

Kolmogorov-Smirnov or Shapiro-Wilk coefficients (See table M1) were significant at the $p < .05$ for disengagement with the female and qualified groups, exhaustion with the public, female, hospital, in-training and qualified groups. Significance was found for burnout with the public, female, hospital, and qualified groups, and for Turnover intention with the private, female, and in-training groups. Skewness are kurtosis scores were between acceptable ranges of -2 and +2, for all groups across the variables, indicating normal distribution. The histograms, Q-Q plots and box and whisker diagrams visually inspected for all variable groups, reported only for significant coefficient groups (See figures M2 – M15), and found no extreme outliers present. With the central limit theorem applying to all groups (Private = 126, Public = 63, Female = 153, Male = 34, Hospital = 97, non-Hospital =62, In-training = 36, and Qualified = 140), and no violations of normality based on the visual tests, all variable groups were concluded as normally distributed.

Kolmogorov-Smirnov or Shapiro-Wilk coefficients (See table M16) were only significant at the $p < .05$ for exhaustion and the White group but with acceptable skewness and kurtosis

scores. All other Race groups reported Kolmogorov-Smirnov or Shapiro-Wilk coefficients as non-significant ($p > .05$), indicating normal distribution. Kurtosis exceeded the acceptable range for burnout in the Coloured group with a score of 2.278 but had a non-significant Shapiro-Wilk Coefficient ($p = .091$). All other skewness are kurtosis scores were between acceptable ranges of -2 and +2, indicating normal distribution. The histograms, Q-Q plots and box and whisker diagrams were visually inspected for all variable groups, reported only for significant coefficient groups (See figures M17-M19), and found no extreme outliers present. With the central limit theorem applying to the White group ($n = 93$) and no serious violations of normality based on the visual tests, all variable groups were concluded as normally distributed.

The one-way ANOVA requires normality per group of a variable, and normality can only be computed for a minimum of three observations per group. The Free State and Northern Cape both having only two cases each, were combined into one group to meet the aforementioned requirement. This was additionally done as the two provinces are geographically neighbours and to give the combined group a total of four observations which was named Northern Cape/Free State for analyses.

Kolmogorov-Smirnov or Shapiro-Wilk coefficients (See table M20) were significant at the $p < .05$ for exhaustion in the Gauteng and Western Cape groups, for burnout in the Gauteng group, and for turnover intention in the Gauteng and KwaZulu-Natal groups. However, these aforementioned groups all reported acceptable skewness and kurtosis scores. Kurtosis scores exceeding the acceptable range of -2 and +2 were reported in KwaZulu-Natal and North-West for disengagement, in Northern Cape/Free State for exhaustion and burnout, and in Limpopo for turnover intention. However, all the aforementioned groups reported non-significant ($p > 0.05$) Kolmogorov-Smirnov or Shapiro-Wilk coefficients. All skewness scores were within the acceptable range of -2 and +2 for all groups. The histograms, Q-Q plots and box and whisker diagrams were visually inspected for all variable groups, reported only for significant coefficient groups (See figures M21-M25), and found no extreme outliers present. With the central limit theorem applying to the Gauteng group ($n = 109$) and no violations of normality based visual tests, all variable groups were concluded as normally distributed.

Shapiro-Wilk coefficients (See table M26) were significant at the $p < .05$ for disengagement in the critical and surgery groups, however, both groups had skewness sores within the

acceptable range. However, disengagement in the surgery group had a kurtosis score exceeding the acceptable range of -2 and +2. Histograms, Q-Q plots, and box-whisker diagrams (See figure M27) were assessed for this group and concluded as visually normal with one outlier that was not considered extreme by SPSS. Burnout in the surgery group reported a kurtosis score exceeding the acceptable range, however, had a non-significant Shapiro-Wilk coefficient ($p > 0.05$). All other groups reported non-significant Shapiro-Wilk coefficients and skewness and kurtosis within the acceptable range. The histograms, Q-Q plots and box and whisker diagrams were visually inspected for all variable groups, reported only for significant coefficient groups (See figure M28), and found no extreme outliers present. With the central limit theorem applying to Paediatrics ($n = 40$) and one no violations of visual normality tests, all variable groups were concluded as normally distributed.

Homogeneity of Variance. Homogeneity of variance was assessed with Levene's test for equal variance, with a non-significant result indicating that homogeneity of variance can be assumed (Field, 2017). For the Gender, Sector, Setting, and Qualification groups, homogeneity of variance is reported with the t-test results and if homogeneity was violated, t-tests were interpreted and reported on the variance not assumed equal statistics (Field, 2017). For the Race, Province and Discipline groups, the Levene test for equal variance was conducted, interpreted and reported prior to conducting a one-way ANOVA based on the mean, median, and trimmed mean for best practice, as ANOVA's are more sensitive homogeneity of variance than normality (Field, 2017).

Only Turnover Intention across Discipline reported significant Levene's test coefficient ($p< 0.05$) based on the mean and trimmed mean indicating (See table N1) homogeneity of variance cannot be assumed and is a violation of the assumption. All other variables: disengagement, exhaustion, burnout, and turnover intention, produced non-significant coefficients ($p > 0.05$) across the groups, indicating homogeneity of variance can be assumed.

Independent Samples T-Tests Results

Due to all variable groups concluded as normally distributed in the normality of variables section above, parametric independent samples t-tests were conducted for disengagement, exhaustion, burnout, and turnover intention across sector, gender, setting and qualification groups. Post hoc tests were conducted if the statistical t-tests reported a significant difference between groups, these included Cohen's D effect sizes and mean differences (Field, 2017).

The effect size for t-tests were interpreted according to Cohen's (1988) convention of a small (d = .20), medium (d = .50), and large (d = .80) effect size (Field, 2017).

Table 3.3

T-Test Results for Burnout in Sector, Gender, Setting, and Qualification Groups

	Group Mean (SD)	Equal Variance	Sig.	F-statistic	t statistic	Degrees of freedom	Two-sided P-Value	Mean Difference	Cohen's D
			Levene's test		T-Test			Effect Size	
Sector									
Public (N= 126)	3.27 (0.68)	Assumed	.31	1.02	2.25	187	.03	0.25	.71
Private (N= 63)	3.02 (.76)	Not assumed			2.17	122.30	.03		
Gender									
Female (N= 153)	3.19 (0.73)	Assumed	.44	0.59	0.31	185	.76	.04	.
Male (N= 34)	3.15 (0.68)	Not assumed			0.33	51.32	.75		
Setting									
Hospital (N= 97)	3.38 (0.67)	Assumed	.31	1.04	3.51	157	<.001	0.39	.69
Non-Hospital (N= 62)	2.98 (0.73)	Not assumed			3.44	121.39	<.001		
Qualification									
In-Training (N= 36)	3.45 (0.67)	Assumed	.44	0.59	2.77	174	.00	0.36	.70
Qualified (N= 140)	3.09 (0.71)	Not assumed			2.86	56.59	.01		

There was homogeneity of variances, as assessed by the Levene's test for equal variance, for sector (p = .31), gender (p = .44), setting (p = .31) and qualification (p = .44). Therefore, the t-tests were interpreted and reported as equal variances assumed. There was a significant effect for Sector on burnout scores t (187) = 2.25, p = .03, with the public sector (M = 3.27, SD = 0.68) reporting higher burnout than the private sector (M = 3.02, SD = 0.76) with a medium effect size (d = .71). Setting had a significant medium effect (d = .69) on burnout

scores t (157) = 3.51, $p < .001$, with the hospital setting (M=3.38, SD = 0.67) reporting higher burnout than the non-hospital setting (M=2.98, SD = 0.73). There was a significant effect of qualification on burnout scores t (174) = 2.77, p = .00, with a medium effect (d = .70) and in-training participants (M=3.45, SD = 0.67) reporting higher burnout than qualified participants (M= 3.09, SD = 0.71). The effect for gender was not significant on burnout scores t (185) = .31, p = .76.

Table 3.4

T-Test Results for Disengagement in Sector, Gender, Setting, and Qualification Groups

	Group Mean (SD)	Equal Variance	Sig.	F-statistic	t statistic	Degrees of freedom	Two-sided P-Value	Mean Difference	Cohen's D
			Levene's test			T-Test			Effect Size
Sector									
Public (N= 126)	3.02 (0.75)	Assumed	.27	1.23	2.32	187	.02	0.28	.78
Private (N= 63)	2.74 (0.83)	Not assumed			2.24	113.54	.03		
Gender									
Female (N= 153)	2.91 (0.81)	Assumed	.14	2.25	-0.50	185	.62	-0.07	
Male (N= 34)	2.99 (0.71)	Not assumed			-0.54	53.86	.59		
Setting									
Hospital (N= 97)	3.12 (0.73)	Assumed	.44	0.60	3.28	157	.00	0.41	.77
Non-Hospital (N= 62)	2.71 (0.82)	Not assumed			3.20	119.46	.00		
Qualification									
In-Training (N= 36)	3.18 (0.73)	Assumed	.72	0.13	2.47	174	.01	0.35	.76
Qualified (N= 140)	2.83 (0.77)	Not assumed			2.56	56.80	.01		

There was homogeneity of variances, as assessed by the Levene's test for equal variance, for sector (p = .27), gender (p = .14), setting (p = .44), and qualification (p = .72). Therefore, the

t-tests were interpreted and reported as equal variances assumed. There was a significant effect for Sector on disengagement scores t (187) = 2.32, p = .02, with the public sector (M = 3.02, SD = 0.75) reporting higher burnout than the private sector (M = 2.74, SD = 0.83) with a medium effect size (d = .78). Setting had a significant medium effect (d = .77) on disengagement scores t (157) = 3.28, p = .00, with the hospital setting (M=3.12, SD = 0.73) reporting higher disengagement than the non-hospital setting (M=2.71, SD = 0.82). There was a significant medium effect (d = .76) of qualification on disengagement scores t (174) = 2.47, p = .01, with in-training participants (M=3.18, SD = 0.73) reporting higher disengagement than qualified participants (M= 2.83, SD = 0.77). The effect for gender was not significant on disengagement scores t (185) = -0.50, p = .62.

Table 3.5

T-Test Results for Exhaustion in Sector, Gender, Setting, and Qualification Groups

	Group Mean (SD)	Equal Variance	Levene's test: Sig.	Levene's test: F-statistic	T-Test: t statistic	T-Test: Degrees of freedom	T-Test: Two-sided P-Value	Effect Size: Mean Difference	Effect Size: Cohen's D
Sector									
Public (N= 126)	3.52 (0.74)	Assumed	.26	1.27	1.81	187	.07	0.22	
Private (N= 63)	3.30 (0.83)	Not assumed			1.74	111.89	.08		
Gender									
Female (N= 153)	3.47 (0.78)	Assumed	.95	0.00	1.08	185	.28	0.16	
Male (N= 34)	3.31 (0.76)	Not assumed			1.09	49.57	.28		
Setting									
Hospital (N= 97)	3.63 (0.71)	Assumed	.22	1.53	3.16	157	.00	0.38	.74
Non-Hospital (N= 62)	3.25 (0.78)	Not assumed			3.09	121.14	.00		
Qualification									
In-Training (N= 36)	3.72 (0.75)	Assumed	.88	0.02	2.60	174	.01	0.37	.77

Qualified (N= 140)	3.35 (0.77)	Not assumed			2.65	55.70	.01		

There was homogeneity of variances, as assessed by the Levene's test for equal variance, for sector (p = .26), gender (p = .95), setting (p = .22), and qualification (p =.88). Therefore, the t-tests were interpreted and reported as equal variances assumed. Neither the effect for sector t (187) = 1.81, p = .07 nor gender t (185) = 1.08, p = .28 was significant on exhaustion scores. There was a significant medium effect (d = .74) for setting on exhaustion scores t (157) = 3.16, p = .00, with the hospital setting (M=3.63, SD = 0.71) reporting higher exhaustion than the non-hospital setting (M=3.25, SD = 0.78). There was a significant effect of qualification on exhaustion scores t (174) = 2.60, p = .01, with a medium effect (d = .77) and in-training participants (M=3.72, SD = 0.75) reporting higher exhaustion than qualified participants (M= 3.35, SD = 0.77).

Table 3.6

T-Test Results for Turnover Intention in Sector, Gender, Setting, and Qualification Groups

	Group Mean (SD)	Equal Variance	Sig.	F-statistic	t statistic	Degrees of freedom	Two-sided P-Value	Mean Difference	Cohen's D
			Levene's test			T-Test		Effect Size	
Sector									
Public (N= 126)	3.40 (0.91)	Assumed	.04	4.50	2.84	187	.00	0.42	.97
Private (N= 63)	2.98 (1.07)	Not assumed			2.69	107.77	.01		
Gender									
Female (N= 153)	3.24 (0.99)	Assumed	.56	0.34	-0.16	185	.87	-0.03	
Male (N= 34)	3.27 (0.97)	Not assumed			-0.17	49.77	.87		
Setting									
Hospital (N= 97)	3.49 (0.89)	Assumed	.08	3.10	2.94	157	.00	0.45	.95
Non-Hospital (N= 62)	3.04 (1.03)	Not assumed			2.85	116.68	.01		
Qualification									

In-Training (N= 36)	3.40 (1.01)	Assumed	.86	0.03	1.07	174	.29	0.20
Qualified (N= 140)	3.20 (1.00)	Not assumed			1.07	54.26	.29	

There was homogeneity of variances, as assessed by the Levene's test for equal variance, for gender (p = .56), setting (p = .08), and qualification (p = .86) therefore, the t-tests was interpreted and reported as equal variances assumed. However, homogeneity of variance was violated for sector (p = .04) and the t-test was interpreted and reported as equal variances not assumed. There was a significant effect for Sector on turnover intention scores, t (107.77) = 2.69, p = .01 with the public sector reporting higher intention to leave (M = 3.40, SD = 0.91) than the private sector (M = 2.98, SD = 1.07) with a large effect size (d = .97). A significantly large effect (d = .95) was also found for the effect of setting on turnover intention in scores t (157) = 2.94, p = .00, with the hospital group (M= 3.49, SD = 0.89) reporting higher turnover intention than the non-hospital group (M=3.04, SD = 1.03). Neither the effect for gender t (185) = -0.16, p = .87 nor qualification t (174) = 1.07, p = .29 were significant on turnover intention scores.

One-Way Anova Results

The assumption of normality was met, as reported in the above normality of variables section for disengagement, exhaustion, burnout and turnover intention across all races, provinces, discipline groups. The assumption of homogeneity of variance was met, as reported in the homogeneity of variance section above for disengagement, exhaustion, and burnout across all races, provinces, discipline groups, as well as for turnover intention across race, and province groups. Therefore, for these aforementioned groups, parametric, one-way ANOVAs were conducted. Due to the violation of homogeneity for turnover intention across the discipline group, the Kruskal-Wallis test was conducted as recommended by Field (2017) for violations of homogeneity. For significant one-way ANOVA results, Omega-Squared effect sizes were reported as either small (ω^2 = .01), medium (ω^2 = .06) or large (ω^2 = .14) according to Kirk (1996, as cited in Field, 2017) and Hochberg's GT2 post hoc tests were conducted. Hochberg's GT2 were conducted as recommended by Field, (2017) as the more appropriate post hoc test when samples sizes are very different between the groups which is the case for the Race, Province, and Discipline groups of the sample. Post Hoc tests for the Kruskal-

Wallis test, should a significant coefficient be reported ($p < 0.05$) included the pairwise comparison and Jonckheere-Tepstra test for independent samples.

Table 3.7

ANOVA Results for Disengagement, Exhaustion, and Burnout in Race, Province, and Discipline Groups and Turnover Intention in Race and Province Groups

	Sum of squares	Degrees of freedom	Mean Squares	F statistic	Sig.	Effect Size (ω^2)
Disengagement and Race						
Between Groups	3.70	5	0.74	1.20	.31	
Within Groups	112.93	183	0.62			
Exhaustion and Race						
Between Groups	7.61	5	1.52	2.65	.02	.04
Within Groups	105.322	183	0.58			
Burnout and Race						
Between Groups	4.36	5	0.87	1.72	.13	
Within Groups	92.66	183	0.51			
Turnover Intention and Race						
Between Groups	14.06	5	2.81	3.05	.01	.05
Within Groups	168.95	183	0.92			
Disengagement and Province						
Between Groups	7.09	6	1.18	1.96	.07	
Within Groups	108.89	181	0.60			
Exhaustion and Province						
Between Groups	5.58	6	0.93	1.57	.16	
Within Groups	107.16	181	0.59			
Burnout and Province						
Between Groups	4.73	6	0.79	1.55	.16	
Within Groups	91.90	181	0.51			
Turnover Intention and Province						
Between Groups	5.90	6	0.98	1.01	.42	
Within Groups	176.93	181	0.98			

Note. Effect Size reported as Omega-Squared (ω^2)

Table 3.8

Kruskal-Wallis Test Result for Turnover Intention and Discipline

	Test statistic	Degrees of freedom	Tow Sided Asymptotic Sig.
Turnover Intention and Discipline			
	12.99	9	.16

The one-way ANOVA revealed that there was a statistically significant difference in exhaustion between at least two groups of race F (5, 183) = 2.65, p = .02, with a small effect size (ω^2 = .04). There were also statistically significant differences in turnover intention between at least two groups of race F (5, 183) = 3.05, p = .01, with a small effect size (ω^2 = .05). However, there was no statistically significant difference in burnout between groups of race F (5, 183) = 1.72, p = .13, or province F (6, 181) = 1.55, p = .16). Nor was there a significant difference between provinces in disengagement F (6, 181) = 1.18, p = .07, or turnover intention F (6, 181) = 0.98, p = .42). The Kruskal-Wallis test revealed no significant difference in turnover intention between groups of discipline H (9) = 12.99, p = .16, despite mental health group scoring lower in turnover intention (M= 2.92, SD = 1.13) than the surgery group (M= 3.77, SD = 0.56).

A Hochberg's GT2 post hoc test was conducted for exhaustion and turnover intention between race groups, based on the significant one-way ANOVA results, and analysed by multiple comparisons and homogenous subsets.

Table 3.9

Hochberg's GT2 Homogenous Subsets for Exhaustion Between Race Groups

Race	N	Subset for alpha = .05	
		1	2
Other	3	2.83	
Black	38	3.17	3.17
White	93	3.44	3.44
Indian	30	3.60	3.60
Coloured	22	3.72	3.72
Asian	3		4.08
Sig.		.29	.25

Note. Uses Harmonic Mean Sample Size = 7.668

Table 3.10

Hochberg's GT2 Homogenous Subset for Turnover Intention Between Race Groups

Race	N	Subset for alpha = .05	
		1	2
Other	3	2.06	
White	93	3.14	3.14
Black	38	3.15	3.15
Asian	3	3.22	3.22
Indian	30	3.49	3.49
Coloured	22		3.80
Sig.		.06	.95

Note. Uses Harmonic Mean Sample Size = 7.668.

The Hochberg's GT2 test for multiple comparisons (See table O1) found the mean of exhaustion to not be significantly different between any of the race groups. However, the homogenous subsets test showed a significant difference in exhaustion between Other (M = 2.83, SD = 0.81) and Asian (M = 4.08, SD = 0.95, p < .05) Races. The Hochberg's GT2 test for multiple comparisons (See table O2) found the mean of turnover intention approaching significance for a difference between Coloured and Other race groups (p = .05, 95% C.I = -0.01, 3.49). The homogenous subsets test also showed a significant difference in turnover intention between Coloured (M = 3.80, SD = 0.70) and Other (M = 2.06, SD = 1.08, p < .05) races.

Correlation

In order to describe the relationship between variables, correlation analysis is the most widely used method, particularly the Pearson's product-Moment Coefficient for normally distributed data (Rosenthal & Rosnow, 2008).

Measurements of Correlation

The Pearson's product-moment correlation coefficient indicates whether there is a significant relationship between two variables, and the direction and strength of the relationship (Field, 2017). The Pearson's coefficient (*r)* can range between -1 and +1, with the value of zero indicating no linear relationship, whereby the change in one variable has no association with the change in another variable, and a value of 1 indicating a perfect linear relationship with

the change in one variable being a perfectly predicted association with the change in another variable (Rosenthal & Rosnow, 2008). The sign (- or +) of the correlation coefficient indicates whether the relationship is negative or positive between the variables and the strength of the corelation can be categories into weak ($r < .30$), moderate ($.30 > r < .50$), strong ($.50 > r < .70$) or very strong ($.70 < r$) according to George and Mallery (2019).

Correlation Assumptions

The assumptions for a Pearson's correlation analysis is that both the criterion and predictor variables are interval scale data, and the criterion and predictor variables need to be normally distributed with no significant outliers and have a linear relationship (Field, 2017). The disengagement, exhaustion, burnout, and turnover intention scales were measured on a Likert-type scale, and therefore treated as interval data. All disengagement, exhaustion, burnout, and turnover intention scales were shown to be normality distributed in the normality of variables section above. However, due to the Kolmogorov or Shapiro-Wilk coefficient being significant for the disengagement, exhaustion, burnout and turnover scales (See table J1) bootstrapping was implemented in the correlation computation for best practice to ensure more robust estimations (Field, 2017). Lastly, there needs to be a linear relationship between the predictor and criterion variables (Field, 2017) which was assessed through scatterplots and found to be the case (See figures P1-P10).

Correlation Results

With all assumptions being met, a Pearson's product moment correlation analysis was conducted between the disengagement, exhaustion, burnout, turnover intention, age, and career length with 95% confidence interval and 1000 samples bootstrapping.

Table 3.11

Correlation Results Between Disengagement, Exhaustion, Burnout, Turnover Intention, Age, and Career Length

	Disengagement	Exhaustion	Burnout	Turnover Intention	Age	Career Length
Disengagement						
Pearson's correlation (*r*)		.69	.92	.72	-.23	-.25
Two tailed Sig.		<.001	<.001	<.001	.00	<.001
Exhaustion						
Pearson's correlation (*r*)			.92	.64	-.20	-.22
Two tailed Sig.			<.001	<.001	.01	.00
Burnout						
Pearson's correlation (*r*)				.74	-.23	-.25
Two tailed Sig.				<.001	.00	<.001
Turnover Intention						
Pearson's correlation (*r*)					-.17	-.21
Two tailed Sig.					.02	.00
Age						
Pearson's correlation (*r*)						.96
Sig. (2-tailed)						<.001

Note. N = 189

With age and career length having a significantly almost perfect positive correlation r (187) = .96, $p < .001$), only age was used in further statistical analyses and reporting. From the correlation analysis, disengagement r (187) = .72, $p < .001$, exhaustion r (187) = .64, $p < .001$ and burnout r (187) = .74, $p < .001$, were found to be significant with a strong positive correlation with turnover intention. Disengagement and exhaustion were significantly correlated r (187) = .69, $p < .001$ with a moderate positive nature. Age was found to be significant with a weak negative correlation with disengagement r (187) = -.23, $p = .00$), exhaustion r (187) = -.20, $p = .01$, burnout r (187) = -.23, $p = .00$, and turnover intention r (187) = -.17, $p = .02$.

Simple Regression

Regression analysis is used to fit a linear model to the data to predict values of a criterion variable based on predictor variable values, and simple regression is run when one predictor and one criterion variable are under investigation (Field, 2017). A simple regression indicates the association by investigating the variance between the two variables and whether the proportion of variance in the criterion variable can be explained by the predictor variable (Field, 2017).

Measurements of Regression

According to Field (2017) a simple regression analysis requires the following assumptions to be met; both the criterion and predictor variables as at least interval scales of measure, independence of observations, no significant outliers or influential cases, linearity between the two variables, no multicollinearity, homoscedasticity, and normally distributed residuals. With disengagement, exhaustion, burnout, and turnover intention measured on Likert-type scales, they meet the assumption of at least interval data. The assumption of independence of observation was met by the study design, as each participant completed the survey and each scale only once. Linearity between burnout and turnover intention was established in the correlation analysis section above, with the linearity scatterplots (See figures P1-P10) and a strong positive correlation r (187) = .74, $p < .001$. Before running the regression analysis, the assumptions of homoscedasticity, significant or influential outliers, and normally distributed residuals were assessed and reported.

Assumptions of Simple Regression.

Homoscedasticity. Homoscedasticity was visually inspected using the standardised residual and predicted values scatterplots (See figures Q1 – Q3) as recommended by Field (2017) and found the assumption for homoscedasticity to be met for disengagement, exhaustion, and burnout with turnover intention.

Significant *a*nd Influential Outliers. Significant or influential outliers was assessed with Cooks Distance and Leverage points. The acceptable range of Cook's Distance being below 1, or with the formula 4/n (Field, 2017) was implemented. Leverage points acceptable ranges are defined as (k+1)/n x 3, where k is the number of predictor variables (Field, 2017). Additionally, standard residuals that exceed -3 or +3 were used as indicators of significant

outliers**.** Based on the formula of 4/n, the cut-off point for Cook's Distance for the sample is .02, or the more lenient rule of 1.00 (Field, 2017). Based on the formula (k+1)/n x 3, the cut-off point for Centred Leverage for the sample is .03. Cases were deemed significant outliers if both the Cook's Distance and Centred Leverage points exceeded the cut-off points.

Cook's Distance and Centred Leverage points were computed for the sample (See table Q4). Three cases in burnout and turnover intention exceeded the Cook's Distance cut-off of .02, however all three cases were within the +1 cut-off and had acceptable Centred Leverage points (< .03). Therefore, none were indicative of significant outliers. Six cases in disengagement with turnover intention exceeded the Cook's Distance cut-off of .02, however all six cases were within the +1 cut-off and had acceptable Centred Leverage points (< .03). One case exceeded the Centred Leverage point cut-off of .03, however had an acceptable Cook's Distance (< .02). Therefore, none were indicative of significant outliers. Six cases in exhaustion with turnover intention exceeded the Cook's Distance cut-off of .03, however all six cases were within the +1 cut-off and had acceptable Centred Leverage points (< .03). Therefore, none were indicative of a significant outlier. Additionally, none of the residuals exceeded -3 or +3, indicating no significant outliers. Therefore, all cases were left in the sample for the regression analysis with the assumption of no significant or influential outliers being met.

Normally Distributed Residuals. Frequency histograms (See figures Q5 – Q7) of standardise residuals were visually inspected, and found to be normally distributed for disengagement, exhaustion, and burnout with turnover intention.

Simple Regression Results

With all the assumptions of the simple regression being met, the regression analyses for disengagement on turnover intention, exhaustion on turnover intention, and burnout on turnover intention, were run.

Table 3.12

Regression ANOVA Results for Disengagement, Exhaustion, and Burnout with Turnover Intention

	Sum of Squares	Degrees of freedom	Mean Squares	F	Sig.
Disengagement and Turnover Intention					
Regression	94.85	1	94.85	201.20	<.001
Residual	88.16	187	0.47		
Exhaustion and Turnover Intention					
Regression	74.82	1	74.82	129.33	<.001
Residual	108.19	187	0.58		
Burnout and Turnover Intention					
Regression	100.13	1	100.13	225.95	<.001
Residual	82.87	187	0.44		

Table 3.13

Regression Coefficients Results for Disengagement, Exhaustion, and Burnout with Turnover Intention

	Unstandardised Coefficients		Standardised Coefficients			95.0% Confidence Interval for B	
	B	St. Error	Beta	t	Sig.	Lower Bound	Upper Bound
Disengagement and Turnover Intention							
Constant	0.62	0.19		3.20	.00	0.24	1.00
	0.90	0.06	0.72	14.18	<.001	0.78	1.03
Exhaustion and Turnover Intention							
Constant	0.46	0.25		1.81	.07	-0.04	0.95
	0.81	0.07	0.64	11.37	<.001	0.67	0.96
Burnout and Turnover Intention							
Constant	0.02	0.22		0.10	0.92	-0.41	0.46
	1.02	0.07	0.74	15.03	<.001	0.88	1.15

Table 3.14

Regression Model Summary Results for Disengagement, Exhaustion, and Burnout with Turnover Intention

Model	R	R Square	Adjusted R Square	Std. Error of estimation
Disengagement and Turnover Intention	.72	.52	.52	.69
Exhaustion and Turnover Intention	.64	.41	.41	.76
Burnout and Turnover Intention	.74	.55	.54	.67

Simple linear regression was used to test if disengagement significantly predicted turnover intention. The fitted regression model was: 0.62 + 0.90 * (disengagement) and the overall regression was statistically significant $R^2 = .52$, $F(1,187) = 201.20$, $p < .001$. Exhaustion was found to predicted turnover intention and the fitted regression model was: 0.46 + 0.81 * (exhaustion), with the overall regression statistically significant $R^2 = .41$, $F(1,187) = 129.33$, $p < .001$. Burnout significantly predicted turnover intention with fitted regression model as 0.02 + 1.02 * (burnout), and the overall regression statistically significant $R^2 = .55$, $F(1,187) = 225.95$, $p < .001$. Overall, it was found that exhaustion, ($\beta = .81$, $p < .001$), disengagement ($\beta = .90$, $p < .001$), and burnout ($\beta = 1.02$, $p < .001$) all significantly predicted turnover intention.

Conclusion

The results chapter reported the statistical analyses used to answer the research questions. Firstly, normality and reliability were presented for the measurement instruments in the study. Descriptive statistics were presented to report the prevalence of disengagement, exhaustion, burnout, and turnover intention in the sample, and how these prevalence scores ranged across demographic factors. Demographic factors were further investigated through the comparison of group means. The relationship between disengagement, exhaustion, and burnout with turnover intention was explored through correlation and regression analyses. All assumptions were discussed and assessed prior to presenting the results of the analyses to determine the most appropriate statistical tests for the data.

Chapter 4: Discussion

Introduction

This study was conducted to showcase the severity of burnout in healthcare workers, particularly within the context of a strained and complex South African healthcare system. The risk of losing a substantial number of healthcare workers in addition to the current shortage is of great concern and aimed to be quantified in this study. To achieve this, the first two aims of the study were to measure the prevalence of burnout and turnover intention in South African Healthcare workers. The third aim was to investigate the relationship between burnout and turnover intention. The fourth and final aim was to investigate the relationship between demographic factors and the prevalence scores of both burnout and turnover intention. Results of this study are discussed in relation to previous results on burnout and or turnover intention in healthcare workers, both globally and locally. This section draws on the presented literature to explore possible explanations for unexpected or interesting findings. Lastly, limitations of the study and future recommendations are discussed.

Prevalence Of Burnout

The current sample expectantly reported higher prevalence of moderate to high burnout than international studies, such as those reporting between 32% and 47% in American samples (L. M. Jacobs et al., 2012; Kane, 2022; Kuhn et al., 2009), 74% in a Romanian sample (Tipa et al., 2019), and 65% reported in a Swedish sample (Peterson et al., 2008). This is most likely due to the strained healthcare system and concerning healthcare worker to population ratio in South Africa which drastically lags behind other middle-income countries (Econex, 2010; G. George et al., 2012). Based on the JD-R model, the higher prevalence of burnout across South African samples indicates a large imbalance between job demands and resources in the healthcare system and working environment compared to other countries who report lower burnout prevalence such as in America (L. M. Jacobs et al., 2012; Kane, 2022; Kuhn et al., 2009), Sweden (Peterson et al., 2008), and Romania (Tipa et al., 2019). This is expected considering the demands and lack of resources in the South African healthcare system and this current study adds further support to the argument that South African healthcare workers are at higher risk for burnout (Naidoo et al., 2020; van Mol et al., 2015).

The current study being more comparable to the Romain and Swedish samples with higher burnout prevalence could be due to the fact that of the above international studies, only Tipa

et al. (2019) and Peterson et al. (2008) implemented the OLBI which excludes personal accomplishment as a subscale. It is suspected that the inclusion of the personal accomplishment subscale influences the overall burnout prevalence reported for studies that use the MBI scale, as it has shown to have negative or weak correlations with the exhaustion and depersonalisation subscales (De Hert, 2020; Demerouti et al., 2001, 2010; Schaufeli et al., 2009). The influence of personal accomplishment on burnout scores has been particularly evident in a systematic review on burnout in healthcare workers, whereby some studies define burnout as a high score on at least one scale of the MBI and how the overall burnout prevalence decreases quite drastically when all three subscales are included in scoring (van Mol et al., 2015).

Due to no other local studies, to the researcher's knowledge, implementing the OLBI with a sample of healthcare workers, comparisons were made on the individual or combined subscales of only exhaustion and depersonalisation to limit the influence of the personal accomplishment subscale on overall results. Comparing exhaustion and disengagement from the OLBI with exhaustion and depersonalisation from the MBI has been shown to be acceptable and used as a method for validating the OLBI (Demerouti et al., 2010; Demerouti & Bakker, 2008; Halbesleben & Demerouti, 2005). Comparisons between the current study and other local studies between moderate to high exhaustion and depersonalisation prevalence can be seen in table 4.1 below. Additionally, the below comparable results support the OLBI as an alternative to measuring burnout in healthcare workers, particularly in the South African context (Demerouti et al., 2010).

Table 4.1

Moderate to High Exhaustion and Depersonalisation Prevalence in South African Studies

	Stodel and Stewart-Smith (2011)	Rossouw et al. (2013)	Rajan and Engelbrecht (2018)	Naidoo et al. (2020)	Current study (2022)
Sample Size	22	132	93	150	189
Exhaustion (%)	100	78	92.5	70	81.48
Depersonalisation (%)	90	87	80.7	68	80.43

The current sample was expected to report lower levels of burnout than other local studies due to the inclusion of both the private and public sector, whereas the above local studies

were limited to samples in the public sector. The skewed distribution of resources and healthcare worker to patient ratio between these two sectors were expected to have equally contributing influence on the job demands and resources and therefore the overall current sample's burnout prevalence. However, the sample was more comparable to studies that used samples from only the public sector which could be due to most of the current sample still being from the public sector (66.7%). Alternatively, it is possible that the public and private sector are more comparable in job demands and resources than believed, ultimately influencing burnout, but the lack of data on both sectors in previous studies has left this unanswered. This study now contributes evidence that in general, South African healthcare workers have a high prevalence of burnout across both sectors. This overall high prevalence of burnout could also be due to the longer lasting effects of the Covid-19 pandemic on the mental health of healthcare workers in both sectors, as the above local studies were preceding the pandemic. A further discussion of the current sample demographics will be explored below to interrogate these possible explanations.

Prevalence of Turnover Intention

The prevalence of turnover intention of the current sample was 67.38%, signifying a concerning number of healthcare workers possibly leaving their current role or possibly quitting practice completely. This is much more than the 21.1% to 33% in European, Swiss, Brazilian, Malawian, Tanzanian, American samples (Ayalew et al., 2021; Blaauw et al., 2013; Sinsky et al., 2021) and more comparable to the 41.4% to 51.96% of Sub-Saharan and South African samples (Ayalew et al., 2021; Blaauw et al., 2013). The South African healthcare system is clearly at a higher risk of losing even more healthcare workers, which will only add to the strain of limited personnel resources and a more concerning healthcare worker to population ratio. This aligns with the overall critically low healthcare workers to patient ratio reported across 78% of African countries (G. George et al., 2012) which increases the demands of the profession,

The current study is unable to differentiate between turnover in terms of emigration or moving to the private sector. Some insight into these intentions were reported by George and Reardon (2013) and Van Wyk et al. (2010), whereby 37% and 18.5% of a South African and KwaZulu-Natal sample respectively, intending to emigrate. Additionally, 63.7% of a South African sample was reported with the intention to move to urban areas (Van Wyk et al.,

2010) which could be as a means to escape under resources settings or better lifestyle and work-life balance opportunities in more urban areas.

Relationship Between Burnout and Turnover Intention

There was an expected significantly strong positive correlation between burnout and turnover intention. It was found in the current sample that burnout significantly predicted turnover intention, explaining 41% of the variance in turnover intention. A significant relationship was also been found by Scanlan and Still (2019) and Stodel and Stewart-Smith (2011) and is supported by the JD-R model whereby turnover is the final stage of burnout (Bakker & Demerouti, 2017; Demerouti et al., 2001).

Demographic Factors Associated with Burnout and Turnover Intention

With an unsurprising strong correlation between burnout and turnover intention, it is beneficial to understand the demographic factors that influence burnout and turnover intention in South African healthcare workers. This is particularly important as the South African healthcare system has unique factors that global studies would not be able to capture or represent, and local studies do not appear to report a combination of various factor, such as public or private sector. The demographic factors will be discussed in association with both burnout and turnover intention for each factor. Significant associations will be discussed first, namely sector, setting qualification, and age. Followed by non-significant associations, namely gender, race, province, and discipline. Although the latter demographic factors produced non-significant results, there were some interesting patterns worth discussing, particularly due to the interwoven nature of demographic factors in the South African context.

Sector

The sample of this study consisted of 66.7% in the public sector and 33.3% in the private. This gives this study a good representation of the two groups, unlike other studies conducted in South Africa that have either been from the public sector only (Naidoo et al., 2020; Rajan & Engelbrecht, 2018; Rossouw et al., 2013; Sirsawy et al., 2016; Stodel & Stewart-Smith, 2011) or not reported on the sector factor in their sample (Peltzer et al., 2003). This study therefore aims to add new insight to the differences experienced between the two sectors with fair confidence.

Sector was found to be significantly associated with disengagement and overall burnout with a medium effect size, but not with exhaustion. Moderate to high burnout and disengagement was reported in more (86.51% and 85.72%) of the public sector than the private sector (73.01% and 69.85%). Higher disengagement in the public sector could be due to poorer interpersonal relationships between healthcare workers and patients due to language barriers or treatment continuity. The public sector services the greater population which encompasses the eleven official languages of South Africa. Due to the high caseloads, many public healthcare workers provide treatment to patients with whom they are unable to effectively communicate with and receiving treatment from a professional who can speak the same first language is impractical with such healthcare worker shortages. Additionally, the extensive waiting times and lack of resources are unlikely to encourage patients to continue with treatment plans or continuity in consultations with the same healthcare worker, limiting the personal connection with patients and leading to higher disengagement. Whereas in the private sector, most patients seek out a healthcare worker themselves and first language alignment is possible decisive factor. The seeking out of healthcare professionals would also increase continuity of treatment with the same professional and interpersonal relationships being formed.

The non-significant association with sector and exhaustion despite higher levels in the public sector (83.33%) than the private sector (77.77%) suggests that participants in the public and private sector are equally at risk for exhaustion but more at risk for disengagement and overall burnout in the public sector. The association between sector and burnout is the first reported in local studies and is suspected to be due to the skewed distribution of resources in the public healthcare system in South Africa, therefore influencing the imbalance of job demands and resources. The overall low healthcare worker to population ratio in South Africa, would inflict high caseloads on both sectors. However, the private sector would have more financial and equipment resources to slightly mitigate the imbalance between demands and resources, whereby the lack of resources is a further burden in the public sector which the healthcare worker has no control over.

It is not surprising that sector was also found to have a significant association with turnover intention with a large effect size. More participants in the public sector (73.81%) intend to leave than in the private sector (54.10%). It is possible that those in the public sector intend to move to the private sector, and when they experience similar levels of burnout due to

remaining high caseloads they then intend to emigrate. This creates a large proportion of healthcare workers exiting the public sector, and less exiting the private sector. This could be due to the relative ease to move between sectors than it is to emigrate which requires more risk, processes, and financial resources. In addition, many healthcare workers pursue the career to benefit their broader community, which is often with a patriotic undertone and leaving South Africa may not be a move many healthcare workers are willing to make. Negative attitudes towards emigration have been reported to be significantly associated with intention to work overseas in a sample of South African healthcare workers, and of those who did intend to move abroad the cost of emigration was the most common barrier (G. George & Reardon, 2013).

Setting

The sample consisted of 51.3% in a hospital setting and 32.8% in a non-hospital setting. This is a factor that is either not reported in other studies (L. M. Jacobs et al., 2012; Peltzer et al., 2003; Peterson et al., 2008; Scanlan & Still, 2019) or samples are limited to hospital or emergency centre settings only (Kuhn et al., 2009; Naidoo et al., 2020; Rajan & Engelbrecht, 2018; Rossouw et al., 2013; Sirsawy et al., 2016; Stodel & Stewart-Smith, 2011; van Mol et al., 2015). Therefore, this study provides a unique contribution to understanding the influence of this demographic factor in burnout in South African healthcare workers.

A significant association with setting was found between disengagement, exhaustion, and overall burnout, with a medium effect size. Moderate to high burnout was reported in more participants in a hospital setting (88.66%) than non-hospital setting (74.19%). This is suspectedly due to the demands of shift hours, on call duties, and the number of patients that frequent hospitals with emergency or casualty facilities. Hours reaching 62 and 96 hours a week, more than double the prescribed weekly working hours, have been reported for healthcare workers in Bloemfontein (Sirsawy et al., 2016) and Cape Town (Stodel & Stewart-Smith, 2011) respectively. Working in a hospital setting adds the dynamic of managerial and administrative demands, which are not often supportive for healthcare workers, and limited leave and vacation time (Bateman, 2007; Cook et al., 2021; G. George & Reardon, 2013; Jensen et al., 2022; Naidoo et al., 2020; Rispel, 2015). This ultimately leaves healthcare workers with less control over their working demands and no time to rest and recover when working in a hospital setting. This aspect gives more context for the comparable prevalence of burnout in the current sample with other local public sector samples, as majority of the

current sample were in a hospital setting and all local studies mentioned were in hospital settings.

Setting was also found to have a significant association with turnover intention with a large effect size. More participants in the hospital setting (75.26%) intending to leave than in the non-hospital setting (61.67%). This is interesting as many disciplines can only practice in hospital settings such as surgeons and critical care. It does raise concern on whether healthcare workers who could only work in a hospital setting intend on leaving medical practice completely or emigrating.

Qualification

The sample differentiated between those in training and those who are qualified to determine if study demands influenced burnout and turnover intention. Participants in-training included final year medical students, internship and community service doctors, and registrars competing specialisation. In-training participants made up 19% of the sample compared to qualified (74.1%). The heavy majority of qualified participants does raise caution on concluding results as the weak representation of in-training participants could skew results.

There was a significant association between qualification and disengagement, exhaustion, and overall burnout. Participants who were currently undergoing a form of training reported more burnout (88.89%) than participants who were qualified (79.29%). This corresponds with local studies conducted by Naidoo et al. (2020), Rajan and Engelbrecht (2018) and Rossouw et al. (2013) who also found significantly higher burnout in interns and registrars and community service participants respectively. This could be because of the gap between theoretical training in medical school and the practical work during internships and community service healthcare workers, and the additional study demands on registrars whilst still managing ‘normal’ caseloads.

The finding that qualification was not also significantly associated with turnover intention was surprising. One would have thought that participants would be unwilling to leave their role while completing training, and would persevere to achieve their qualification, as the time required to complete a medical degree is substantial. However, of both in-training and qualified participants 75% and 63.77% reported turnover intentions respectively. It is possible that in-training participants are pre-emptively intending to leave their current setting

or organisation once they have received their qualification. This is supported by Stodel and Stewart-Smith's (2011) study whereby 95% of junior doctors intended to leave the hospital at the end of their training rotation, and Eastern Cape healthcare workers (Rajan & Engelbrecht, 2018) reported turnover intentions within the next five years. It is possible that the TIS allowed ambiguity in terms of the time frame in which participants intended to leave their role.

Interestingly, all three factors that were significantly associated to burnout in the current study, namely sector, setting, and qualification, corresponds to the sample in Stodel and Stewart-Smith's (2011) study of junior doctors in a public hospital in Cape Town, who reported 100% and 98% of their sample having moderate to high exhaustion and disengagement respectively. This indicates that a combination of all three factors is almost always likely to lead to burnout and turnover intention, and that our junior doctors completing training in hospitals are at a higher risk of burnout. However, an interesting pattern emerged from the current sample data when further analysing the sample characteristics on the three significant factors. Of the participants in the public sector, 84.3% were based in hospitals, compared to the 19.3% of the private sector. Additionally, of the participants in training, 96.6% were based in hospitals, compared of the 49.2% of qualified participants. This makes it more unclear as to which factor is playing a more significant role, and it could be that the hospital setting, regardless of sector or qualification, places healthcare workers at higher risk of burnout. This highlights the demands that hospitals place on their healthcare workers and how healthcare has been 'professionalised' (Schaufeli et al., 2009) with more importance placed on the financial bottom line than the quality of healthcare.

Age

The analysed sample consisted of 186 participants ranging between 21 and 75 years old (M=36.85) and an average career length of 13.25 years. This large age range is consisted with other studies in South Africa (Naidoo et al., 2020; Peltzer et al., 2003; Sirsawy et al., 2016) and demonstrates the long working career that healthcare workers have. Age and career length were both found to be significantly inversely correlated with burnout and turnover intention, with older healthcare workers reporting lower levels of burnout and turnover intention. This could be due to learning to live with the severe working conditions and establishing healthy coping mechanisms throughout one's career as the effects of burnout are made cognisant. It may also be that as healthcare workers progress and become more

established in their career, they have more control over their hours and working environment setting (Peisah et al., 2009). Additionally, as healthcare workers become qualified, they have the option to move into private practice and leave hospital settings, depending on their discipline. This is suggestive from the current sample, as private and non-hospital settings had healthcare workers approximately ten years older than those in public and hospital settings. This aligns with the concern that public hospitals are being largely serviced by internship and community services healthcare workers (Bateman, 2007; G. George & Reardon, 2013). The significance of age on burnout also supports the possibility of junior doctors being unprepared for the practical working conditions they are immersed in during internship and community service years and further highlights the higher risk of burnout for junior doctors.

Gender

The sample were majority females (81%) which was also reported in the most of the global studies on healthcare workers (Howlett et al., 2015; L. M. Jacobs et al., 2012; Peterson et al., 2008; Scanlan & Still, 2019; Tipa et al., 2019). However, the current study had a much higher female contingency than other South African studies (Naidoo et al., 2020; Peltzer et al., 2003; Rajan & Engelbrecht, 2018; Rossouw et al., 2013; Sirsawy et al., 2016). This could be due to the convenience sampling strategy and general likelihood of females to participate in research studies. This high female percentage could influence the significance of results and does illicit caution when concluding any group differences on gender.

No significant association with gender and burnout was reported in the current study, corresponding to findings by Jacobs et al. (2012), Kuhn et al. (2009) and Rajan and Engelbrecht (2018). Moderate to high disengagement was reported in more males (91.18%) than females (77.78%) in the current sample, while the inverse was found for exhaustion with females (82.35%) being higher than males (76.46%). This was also found by Tipa et al. (2019) where males reported significantly higher disengagement than females, and females reported significantly higher exhaustion by Sirsawy et al. (2016) and Peltzer et al.(2003). The inverse between males and females with the disengagement and exhaustion dimensions could be due to females generally having additional family responsibilities and being naturally inclined to use more emotional energy when dealing with people (Sirsawy et al., 2016).

As with burnout, no significant associations were found with gender and turnover intention. However, the turnover intention had a lower disparity between males (67.65%) and females (66.89%) in comparison to the prevalence of burnout. The differing contrast between burnout and turnover intention between males and females could be as an influence of the sector and setting. As males and females were evenly distributed between hospital and non-hospital settings, but not evenly distributed across public and private sectors.

Race

The sample were majority White (49.2%) and Black (20.1%), followed by Indian (15.9%), Coloured (11.6%), Asian (1.6%) and Other (1.6%). This distribution was similar to studies conducted by (Sirsawy et al., 2016) in the Free State, and (Peltzer et al., 2003) across South Africa. In contrast, Naidoo et al. (2020) obtained a sample of majority Indian (57.3%) and White/Coloured/Other (23.3%) compared to Black (19.3) participants in KwaZulu-Natal. This is expected as the racial demographic distribution differs across South Africa and will be reflective of where the study emanated from, this is important in the South African context as socio-historical cultural differences may affect the data across local studies.

Race was found to only have a significant association with exhaustion but post-hoc tests produced conflicting results which may be due to the poor representation in some Race groups, such as Asian and Other, and therefore are not discussed as significant. Of the four main Race groups in South Africa, moderate to high burnout was found in 95% of Coloured, 84.34% of Indian, 81.72% of White, and 76.32% of Black participants. Interestingly, despite the lower prevalence of burnout in Black participants, most Black participants were based in the public sector (94.7%) and a hospital setting (80%). It is unclear why less Black participants would have reported burnout as they had a larger majority compared to the second largest proportion of Indian participants, with 80% in the public sector and 76% in a hospital setting. This aspect would require further investigation and supports how socio-historic culture may play a role.

A significant association with race and turnover intention was found, but also with conflicting post-hoc results. Of the four main Race groups in South Africa, turnover intention was found to be highest in 90.91% of Coloured, 75.86% of Indian, 63.04% of White, and 60.53% of Black participants, corresponding with burnout levels. It is unclear why this could be the case, and further exploration of more insightful factors of burnout would be beneficial.

Province

The current sample included participants, majority to least, from Gauteng (58%), Western Cape (18.6%), Eastern Cape (8%), KwaZulu-Natal (7.4%), Limpopo (3.2%), North West (2.7%), Free State (1.1%), and Northern Cape (1.1%). This range of provincial representation is more varied than other samples which were isolated to one province, namely Cape Town (Rossouw et al., 2013; Stodel & Stewart-Smith, 2011), KwaZulu-Natal (Naidoo et al., 2020), Free State (Sirsawy et al., 2016), and Gauteng (Rajan & Engelbrecht, 2018). This gives the current study the ability to make provincial group comparisons unlike other studies, which is advantageous considering the disparity between provinces in terms of resources and public and private facility distribution. Noteworthily, these deductions are made with caution due to poor representation for some provinces.

No significant association between province and burnout was found in the current sample. However, it is interesting to note that KwaZulu-Natal (100%), North-West (100%), and Eastern Cape reported more moderate to high burnout than Gauteng (81%) and Western Cape (77%). This corresponds with Gauteng and Western Cape having the higher concentrations of urbanisations and private sector concentration compared to North-West (Econex, 2015; G. George & Reardon, 2013). Once again, the pattern emerged whereby the sample from KwaZulu-Natal, North-West and Eastern Cape had more participants in a hospital setting (75%, 100%, and 83.3% respectively) compared to Gauteng and Western Cape (62.4% and 37.5% respectively). This indicate that setting could play a more influential role in the differing prevalence of burnout between provinces.

As with burnout, no significant associations were found with province and turnover intention and the highest and least turnover intention prevalence was found in the same corresponding groups as with burnout. Namely KwaZulu-Natal (85.71%), North-West (60%), Eastern Cape (80%), Gauteng (61.68%) and Western Cape (71.42%).

Discipline

The current sample consisted of nine disciplines which were manually coded from open ended questions, as discussed in the methodology chapter. These included musculoskeletal, critical, surgery, medical sciences, occupational therapy, general, paediatrics, students, mental health, and public health. The study had a fairly even distribution across the disciplines, with majority being paediatrics (21.2%), students (13.2%) and critical (11.1%)

and general (11.1%). Comparisons to other studies on discipline is challenging as each study had a differing set of groups.

Discipline was not found to be significantly associated with burnout, despite participants in medical science (62.50%) and musculoskeletal (66.67%) groups reporting lower prevalence of burnout than critical (95.23%) and surgery (90%) groups. Once again, the setting factor could play a role in this disparity, as only 18.2% of musculoskeletal participants were based in a hospital compared to 100% of both the critical and surgery disciplines. Interestingly, the discipline with the lowest prevalence of disengagement were those in mental health (55%) followed by musculoskeletal (66.66%) compared to those with the lowest in exhaustion as medical science (62.50%) and public health (60%). This striking contrast between disengagement and exhaustion for participants in mental health is most likely due to the nature of their work as the group was approximately evenly distributed between setting and sector, and that engagement with patients is critical to successful outcomes.

As with burnout, no significant associations were found with discipline and turnover intention. Highest and least prevalence of turnover intention was found in the same corresponding groups as with burnout. Namely, medical science (50), musculoskeletal (63.64) critical (95.24) and surgery (100). This highlights the concern mentioned above whereby almost all critical and surgery participants intend to leave, which with their role limited to a hospital setting, could infer leaving medical practice or emigrating.

Study Limitations

Sample limitations of the study include a poor representation across demographic factors such as race and province. This could have affected the significance levels of results for these groups. The sample could have been susceptible to selection bias, in that healthcare workers who were more burned out or under psychological stress may not have had the capacity or willingness to participate. The self-report methods of assessment could be susceptible to response bias and the large female, Gauteng, and Western cape majority limits the generalisability of findings to the broader South African context. The cross-sectional nature of the study is insufficient for any causal inferences and only associations and relationships can be deduced. Burnout is also argued to be a dynamic process and the cross-sectional design only gives an indication of a set point in time and not how the construct changes over

time. The manual coding of discipline areas based on open ended questions limited group allocation to participants who provided enough information to make classifications. Therefore, there were a portion of the sample that was excluded from analyses based on discipline. Lastly, comparing burnout across different measurement scales and cut-off scoring methods poses challenges and exact comparisons may be misleading.

Future Recommendations

Self-report closed ended measurement scales may not obtain as much nuanced information as interviews or qualitative methods. It is recommended that further investigations on South African healthcare workers are conducted to understand the nuanced demands and resources that healthcare workers find influential to their burnout. This would add to the understanding of some of the patterns that emerged in this study as quantitative analysis is limited in the exploration of underlying factors, experiences, and perceptions. More importantly than additional research, are interventions aimed to help mitigate or address factors that are causing such high prevalence rates of burnout in healthcare workers. Severe burnout often leads to errors and poor patient outcomes and interventions to prevent this are crucial. Therefore, the mental health of our healthcare workers has the potential to affect any of us negatively. With such high turnover intention rates, we need to commit to addressing these issues before we lose more healthcare workers, and then ultimately our healthcare system. To develop interventions, deeper understanding is needed into the contributing factors to burnout in different settings and contexts, again highlighting the motivation for future qualitative investigation in this area.

Conclusion

This research study has presented the unique factors of the South African Healthcare system. Importance was given to the nation-wide shortage of healthcare workers to population ratio, and how this adds strain on the system and healthcare workers. The skewed distribution of resources between the public and private sector influences many healthcare workers to seek employment in the private sector, leaving the public sector further short of healthcare workers, yet it services most of the population. Skewed distributions are also present between rural and urban areas, and therefore provinces. The working conditions of healthcare workers are strenuous across the world, but South Africa is arguably of a more concerning severity.

The dire working conditions that South African healthcare workers endure are significant contributors to their risk for burnout and turnover intention.

This study aimed to present current prevalence rates of burnout and turnover intention in South African healthcare workers, as one of the first local studies to use a valid and reliable measurement scale for turnover intention that allows more confidence than one or two questions used in most studies. The study aimed to investigate the relationship between burnout and turnover intention to support the applicability of the JD-R model for the theoretical construct for both burnout and turnover intention. Based on this construct, the OLBI and TIS were used as measurement scales in a cross sectional, self-report study that obtained a sample of 189 healthcare workers.

The quantitative analyses produced concerning prevalence rates of both burnout and turnover intention, both of which were significantly positively correlated. The South African context is unique in demographic factors and group differences were also investigated across the factors for burnout and turnover intention. Sector, setting, and qualification were all found to be significantly associated with burnout and turnover intentions. Upon further analyses, it was suggested that the main contributing factor was whether healthcare workers were based in a hospital setting and all healthcare workers were at a high risk for burnout. These findings paint a concerning picture for South Africa as severe burnout in healthcare workers has been found to impact patient care, outcomes, and error rates. The high turnover intention due to burnout puts South Africa at risk of losing more healthcare workers, and ultimately our healthcare system. This was supported by the quantitative finding that burnout significantly predicts turnover intention.

Despite the limitations of the study, the prevalence rates of burnout and turnover intention presented in this sample should worry all South Africans as the healthcare services they use are at risk and in jeopardy.

References

Achoki, T. et al., (2022). Health trends, inequalities and opportunities in South Africa's provinces, 1990–2019: Findings from the Global Burden of Disease 2019 Study. *Journal of Epidemiology and Community Health*, *76*(5), 471–481. https://doi.org/10.1136/jech-2021-217480

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T

Appollis, V. P. (2010). *The Relationship Between Intention To Quit, Psychological Capital And Job Satisfaction In The Tourism Industry In The Western Cape*. University of the Western Cape.

Armitage, C. J., & Conner, M. (2001). Efficacy of the Theory of Planned Behaviour: A meta-analytic review. *British Journal of Social Psychology*, *40*, 471–499.

Ayalew, E., Workineh, Y., Semachew, A., Woldgiorgies, T., Kerie, S., Gedamu, H., & Zeleke, B. (2021). Nurses' intention to leave their job in sub-Saharan Africa: A systematic review and meta-analysis. *Heliyon*, *7*(6), e07382. https://doi.org/10.1016/j.heliyon.2021.e07382

Bakker, A. B., & Demerouti, E. (2017). Job demands–resources theory: Taking stock and looking forward. *Journal of Occupational Health Psychology*, *22*(3), 273–285. https://doi.org/10.1037/ocp0000056

Bateman, C. (2007). Slim Pickings as 2008 Health Staff Crises Looms. *SAMJ*, *97*(11), 1020–1034.

Bezuidenhout, M., Joubert, G., Hiemstra, L., & Struwig, M. (2009). Reasons for doctor migration from South Africa. *South African Family Practice*, *51*(3), 211–215. https://doi.org/10.1080/20786204.2009.10873850

Bhaskar, R. (2008). *A realist theory of science*. Routledge.

Blaauw, D., Ditlopo, P., Maseko, F., Chirwa, M., Mwisongo, A., Bidwell, P., Thomas, S., & Normand, C. (2013). Comparing the job satisfaction and intention to leave of different categories of health workers in Tanzania, Malawi, and South Africa. *Global Health Action*, *6*(1), 19287. https://doi.org/10.3402/gha.v6i0.19287

Bothma, C. F. C., & Roodt, G. (2013). The validation of the turnover intention scale. *SA Journal of Human Resource Management*, *11*(1). https://doi.org/10.4102/sajhrm.v11i1.507

Breakwell, G. M., Smith, J. A., & Wright, D. B. (Eds.). (2012). *Research methods in psychology* (4th ed). SAGE.

Cohen, L., Manion, L., & Morrison, K. (2007). *Research methods in education* (6th ed). Routledge.

Cook, L. J., Hassem, T., Laher, S., Variava, T., & Schutte, E. (2021). Mental health experiences of healthcare professionals during COVID-19. *SA Journal of Industrial Psychology*, *47*. https://doi.org/10.4102/sajip.v47i0.1865

Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed). Sage Publications.

Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research* (3rd ed.). SAGE Publications, Inc.

De Hert, S. (2020). Burnout in Healthcare Workers: Prevalence, Impact and Preventative Strategies. *Local and Regional Anesthesia*, *Volume 13*, 171–183. https://doi.org/10.2147/LRA.S240564

Delgadillo, J., Saxon, D., & Barkham, M. (2018). Associations between therapists' occupational burnout and their patients' depression and anxiety treatment outcomes. *Depression and Anxiety*, *35*(9), 844–850. https://doi.org/10.1002/da.22766

Demerouti, E., & Bakker, A. B. (2008). The Oldenburg Burnout Inventory: A good alternative to measure burnout (and engagement). In J. R. B. Halbesleben (Ed.), *Handbook of Stress and Burnout in Helath Care* (p. 25). Nova Science.

Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, *86*(3), 499–512. https://doi.org/10.1037/0021-9010.86.3.499

Demerouti, E., Demerouti, E., Bakker, A. B., Vardakou, I., & Kantas, A. (2003). The Convergent Validity of Two Burnout Instruments. *European Journal of Psychological Assessment*, *19*(1), 12–23. https://doi.org/10.1027//1015-5759.19.1.12

Demerouti, E., Mostert, K., & Bakker, A. B. (2010). Burnout and work engagement: A thorough investigation of the independency of both constructs. *Journal of Occupational Health Psychology*, *15*(3), 209–222. https://doi.org/10.1037/a0019408

Du Plooy, J., & Roodt, G. (2010a). Work engagement, burnout and related constructs as predictors of turnover intentions. *SA Journal of Industrial Psychology*, *36*(1), 13 pages. https://doi.org/10.4102/sajip.v36i1.910

Du Plooy, J., & Roodt, G. (2010b). Work engagement, burnout and related constructs as predictors of turnover intentions. *SA Journal of Industrial Psychology*, *36*(1), 13 pages. https://doi.org/10.4102/sajip.v36i1.910

Du Plooy, J., & Roodt, G. (2013). Biographical and demographical variables as moderators in the prediction of turnover intentions. *SA Journal of Industrial Psychology*, *39*(1), 12 pages. https://doi.org/10.4102/sajip.v39i1.1070

Econex. (2010). *Health reform note 7*.

Econex. (2015). *Identifying the determinants of and solutions to the shortage of doctors in South Africa Is there a role for the private sector in medical education.* https://econex.co.za/publication/research-report-1/

Field, A. (2017). *Discovering statistics using IBM SPSS statistics* (5th edition). SAGE Publications.

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

George, D., & Mallery, P. (2019). *IBM SPSS statistics 25 step by step: A simple guide and reference* (Fifteenth edition). Routledge, Taylor & Francis Group.

George, G., Quinlan, T., Reardon, C., & Aguilera, J.-F. (2012). Where are we short and who are we short of? A review of the human resources for health in South Africa. *Health SA Gesondheid*, *17*(1). https://doi.org/10.4102/hsag.v17i1.622

George, G., & Reardon, C. (2013). Preparing for export? Medical and nursing student migration intentions post-qualification in South Africa. *African Journal of Primary Health Care & Family Medicine*, *5*(1). https://doi.org/10.4102/phcfm.v5i1.483

Gray, P., Senabe, S., Naicker, N., Kgalamono, S., Yassi, A., & Spiegel, J. M. (2019). Workplace-Based Organizational Interventions Promoting Mental Health and Happiness among Healthcare Workers: A Realist Review. *International Journal of Environmental Research and Public Health*, *16*(22), 4396. https://doi.org/10.3390/ijerph16224396

Halbesleben, J. R. B., & Demerouti, E. (2005). The construct validity of an alternative measure of burnout: Investigating the English translation of the Oldenburg Burnout Inventory. *Work & Stress*, *19*(3), 208–220. https://doi.org/10.1080/02678370500340728

Howlett, M., Doody, K., Murray, J., LeBlanc-Duchin, D., Fraser, J., & Atkinson, P. (2015). Burnout in emergency department healthcare professionals is associated with coping style: A cross-sectional survey. *Emergency Medicine Journal*, *32*(9), 722–727. https://doi.org/10.1136/emermed-2014-203750

IBM SPSS Statistics (28.0.1.0 (142)). (2021). IBM Corp.

Jacobs, E. J., & Roodt, G. (2011). The mediating effect of knowledge sharing between organisational culture and turnover intentions of professional nurses. *SA Journal of Information Management*, *13*(1). https://doi.org/10.4102/sajim.v13i1.425

Jacobs, E., & Roodt, G. (2007). The development of a knowledge sharing construct to predict turnover intentions. *Aslib Proceedings*, *59*(3), 229–248. https://doi.org/10.1108/00012530710752034

Jacobs, E., & Roodt, G. (2008). Organisational culture of hospitals to predict turnover intentions of professional nurses. *Health SA Gesondheid*, *13*(1), 63–78. https://doi.org/10.4102/hsag.v13i1.258

Jacobs, L. M., Nawaz, M. K., Hood, J. L., & Bae, S. (2012). Burnout among Workers in a Pediatric Health Care System. *Workplace Health & Safety*, *60*(8).

Jaros, S. J., Jermier, J. M., Koehler, J. W., & Sincich, T. (1993). Effects of continuance, affective, and moral commitment on the withdrawal process: An evaluation of eight structural equation models. *Academy of Management Journal*, *36*(5), 951–995. https://doi.org/10.2307/256642

Jensen, N., Lund, C., & Abrahams, Z. (2022). Exploring effort–reward imbalance and professional quality of life among health workers in Cape Town, South Africa: A mixed-methods study. *Global Health Research and Policy*, *7*(1), 7. https://doi.org/10.1186/s41256-022-00242-6

Kane, L. (2019). *Medscape National Physician Burnout, Depression & Suicide Report 2019*. Medscape. https://www.medscape.com/slideshow/2019-lifestyle-burnout-depression-6011056

Kane, L. (2020). *Medscape Natioanal Physician Burnout & Suicide Report 2020: The Generational Divide*. https://www.medscape.com/slideshow/2020-lifestyle-burnout-6012460

Kane, L. (2022). *Medscape Physician Burnout & Depression*. Medscape. https://www.medscape.com/slideshow/2022-lifestyle-burnout-6014664

Kline, P. (1993). *The handbook of psychological testing*. Routledge.

Kuhn, G., Goldberg, R., & Compton, S. (2009). Tolerance for Uncertainty, Burnout, and Satisfaction With the Career of Emergency Medicine. *Annals of Emergency Medicine*, *54*(1), 106-113.e6. https://doi.org/10.1016/j.annemergmed.2008.12.019

Lekutle, M., & Nel, J. A. (2012). Psychometric Evaluation of The Utrecht Work Engagement Scale (UWES) and Oldenburg Burnout Inventory (OLBI) within a Cement Factory.

Journal of Psychology in Africa, *22*(4), 641–647. https://doi.org/10.1080/14330237.2012.10820580

Maslach Burnout Inventory (MBI). (n.d.). Mindgarden. Retrieved 12 March 2022, from https://www.mindgarden.com/117-maslach-burnout-inventory-mbi

Maslach, C., & Leiter, M. P. (1997). *The truth about burnout: How organizations cause personal stress and what to do about it* (1st ed). Jossey-Bass.

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

Matheson, K. M., Barrett, T., Landine, J., McLuckie, A., Soh, N. L.-W., & Walter, G. (2016). Experiences of Psychological Distress and Sources of Stress and Support During Medical Training: A Survey of Medical Students. *Academic Psychiatry*, *40*(1), 63–68. https://doi.org/10.1007/s40596-015-0395-9

Miller, B., & Sprang, G. (2017). A components-based practice and supervision model for reducing compassion fatigue by affecting clinician experience. *Traumatology*, *23*(2), 153–164. https://doi.org/10.1037/trm0000058

Naidoo, T., Tomita, A., & Paruk, S. (2020). Burnout, anxiety and depression risk in medical doctors working in KwaZulu-Natal Province, South Africa: Evidence from a multi-site study of resource-constrained government hospitals in a generalised HIV epidemic setting. *PLOS ONE*, *15*(10), e0239753. https://doi.org/10.1371/journal.pone.0239753

Østerås, N., Gulbrandsen, P., Garratt, A., Benth, J., Dahl, F. A., Natvig, B., & Brage, S. (2008). A randomised comparison of a four- and a five-point scale version of the Norwegian Function Assessment Scale. *Health and Quality of Life Outcomes*, *6*(1), 14. https://doi.org/10.1186/1477-7525-6-14

Peisah, C., Latif, E., Wilhelm, K., & Williams, B. (2009). Secrets to psychological success: Why older doctors might have lower psychological distress and burnout than younger doctors. *Aging & Mental Health*, *13*(2), 300–307. https://doi.org/10.1080/13607860802459831

Peltzer, K., Mashego, T.-A., & Mabeba, M. (2003). Short communication: Occupational stress and burnout among South African medical practitioners. *Stress and Health*, *19*(5), 275–280. https://doi.org/10.1002/smi.982

Peterson, U., Demerouti, E., Bergström, G., Samuelsson, M., Åsberg, M., & Nygren, Å. (2008). Burnout and physical and mental health among Swedish healthcare workers.

Journal of Advanced Nursing, *62*(1), 84–95. https://doi.org/10.1111/j.1365-2648.2007.04580.x

Petriglieri, J. L. (2011). Under Threat: Responses to and the Consequences of Threats to Individuals' Identities. *Academy of Management Review*, *36*(4), 641–662. https://doi.org/10.5465/amr.2009.0087

Price, J. L. (1997). Handbook of organizational measurement. *International Journal of Manpower*, *18*(4/5/6).

Rajan, S., & Engelbrecht, A. (2018). A cross-sectional survey of burnout amongst doctors in a cohort of public sector emergency centres in Gauteng, South Africa. *African Journal of Emergency Medicine*, *8*(3), 95–99. https://doi.org/10.1016/j.afjem.2018.04.001

Razali, N. M., & Wah, Y. B. (2011). Power Comparisons of Shapiro-Wilk, Kolmogorov-Smirnov, Lilliefors and Anderson-Darling Tests. *Journal of Statistical Modeling and Analytics*, *2*(1), 21–33.

Rispel, L. C. (2015). Transforming nursing policy, practice and management in South Africa. *Global Health Action*, *8*(1), 28005. https://doi.org/10.3402/gha.v8.28005

Robertson, L. J., Maposa, I., Somaroo, H., & Johnson, O. (2020). Mental health of healthcare workers during the COVID-19 outbreak: A rapid scoping review to inform provincial guidelines in South Africa. *South African Medical Journal*, *110*(10), 1010. https://doi.org/10.7196/SAMJ.2020.v110i10.15022

Roodt, G. (2004). *Turnover Intentions.* [Unpublished document.].

Rosenthal, R., & Rosnow, R. L. (2008). *Essentials of behavioral research: Methods and data analysis* (3rd ed). McGraw-Hill.

Rossouw, L., Seedat, S., Emsley, R., Suliman, S., & Hagemeister, D. (2013). The prevalence of burnout and depression in medical doctors working in the Cape Town Metropolitan Municipality community healthcare clinics and district hospitals of the Provincial Government of the Western Cape: A cross-sectional study. *South African Family Practice*, *55*(6), 567–573. https://doi.org/10.1080/20786204.2013.10874418

Ryan, G. (2019). Postpositivist critical realism: Philosophy, methodology and method for nursing research. *Nurse Researcher*, *27*(3), 20–26. https://doi.org/10.7748/nr.2019.e1598

Scanlan, J. N., & Still, M. (2019). Relationships between burnout, turnover intention, job satisfaction, job demands and job resources for mental health personnel in an Australian mental health service. *BMC Health Services Research*, *19*(1), 62. https://doi.org/10.1186/s12913-018-3841-z

Schaufeli, W. B., Leiter, M. P., & Maslach, C. (2009). Burnout: 35 years of research and practice. *Career Development International*, *14*(3), 204–220. https://doi.org/10.1108/13620430910966406

Shaukat, N., Ali, D. M., & Razzak, J. (2020). Physical and mental health impacts of COVID-19 on healthcare workers: A scoping review. *International Journal of Emergency Medicine*, *13*(1), 40. https://doi.org/10.1186/s12245-020-00299-5

Sinsky, C. A., Brown, R. L., Stillman, M. J., & Linzer, M. (2021). COVID-Related Stress and Work Intentions in a Sample of US Health Care Workers. *Mayo Clinic Proceedings: Innovations, Quality & Outcomes*, *5*(6), 1165–1173. https://doi.org/10.1016/j.mayocpiqo.2021.08.007

Sinval, J., Queirós, C., Pasian, S., & Marôco, J. (2019). Transcultural Adaptation of the Oldenburg Burnout Inventory (OLBI) for Brazil and Portugal. *Frontiers in Psychology*, *10*, 338. https://doi.org/10.3389/fpsyg.2019.00338

Sirsawy, U., Steinberg, W., & Raubenheimer, J. (2016). Levels of burnout among registrars and medical officers working at Bloemfontein public healthcare facilities in 2013. *South African Family Practice*, *58*(6), 213–218. https://doi.org/10.1080/20786190.2016.1198088

Stodel, J. M., & Stewart-Smith, A. (2011). The influence of burnout on skills retention of junior doctors at Red Cross War Memorial Children's Hospital: A case study. *South African Medical Journal*, *101*(2), 115. https://doi.org/10.7196/SAMJ.4431

Su, X. (2021). Validation of the Chinese Version of the Turnover Intention Scale in Social Workers. *Journal of Social Service Research*, *47*(2), 207–218. https://doi.org/10.1080/01488376.2020.1738312

Tipa, R. O., Tudose, C., & Pucarea, V. L. (2019). Measuring Burnout Among Psychiatric Residents Using the Oldenburg Burnout Inventory (OLBI) Instrument. *Journal of Medicine and Life*, *12*(4), 354–360. https://doi.org/10.25122/jml-2019-0089

van Mol, M. M. C., Kompanje, E. J. O., Benoit, D. D., Bakker, J., & Nijkamp, M. D. (2015). The Prevalence of Compassion Fatigue and Burnout among Healthcare Professionals in Intensive Care Units: A Systematic Review. *PLOS ONE*, *10*(8), e0136955. https://doi.org/10.1371/journal.pone.0136955

Van Wyk, J., Naidoo, S., & Esterhuizen, T. (2010). Will graduating medical students prefer to practise in rural communities? *South African Family Practice*, *52*(2), 149–153. https://doi.org/10.1080/20786204.2010.10873958

West, C. P., Dyrbye, L. N., & Shanafelt, T. D. (2018). Physician burnout: Contributors, consequences and solutions. *Journal of Internal Medicine*, *283*(6), 516–529. https://doi.org/10.1111/joim.12752

Young, M. (2016). *Private vs. Public Healthcare in South Africa*. Western Michigan University.

Appendices

Appendix A: Demographic Questionnaire

Please select the below options that apply to you.

1. What is your age?
2. What gender do you identify as?
    - □ Male
    - □ Female
    - □ Other
3. Which race applies to you?
    - □ Black
    - □ Coloured
    - □ Indian
    - □ Asian
    - □ White
    - □ Other
4. Which South African Province do you currently work in?
    - □ Eastern Cape
    - □ Free State
    - □ Gauteng
    - □ KwaZulu-Natal
    - □ Limpopo
    - □ Mpumalanga
    - □ Northern Cape
    - □ North-West
    - □ Western Cape
5. How many years have you been in the healthcare services for?
6. What area of discipline do you currently work/practice in?

    This could include oncology, paediatrics, para-medical, radiology, dentistry, nursing, etc.
7. Which sector do you currently work/practice in?
    - □ Public
    - □ Private

Appendix B: Oldenburg Burnout Inventory

Below is a series of statements. Using the scale, please indicate the degree to which you either agree or disagree with the statement.

1	I always find new and interesting aspects in my work.	**Strongly Agree**	1-------2-------3-------4-------5	**Strongly Disagree**
2	There are days when I feel tired before I arrive at work.	**Strongly Agree**	1-------2-------3-------4-------5	**Strongly Disagree**
3	It happens more and more often that I talk about my work in a negative way.	**Strongly Agree**	1-------2-------3-------4-------5	**Strongly Disagree**
4	After work, I tend to need more time than in the past in order to relax and feel better.	**Strongly Agree**	1-------2-------3-------4-------5	**Strongly Disagree**
5	I can tolerate the pressure of my work very well.	**Strongly Agree**	1-------2-------3-------4-------5	**Strongly Disagree**
6	Lately, I tend to think less at work and do my job almost mechanically.	**Strongly Agree**	1-------2-------3-------4-------5	**Strongly Disagree**
7	I find my work to be a positive challenge.	**Strongly Agree**	1-------2-------3-------4-------5	**Strongly Disagree**
8	During my work, I often feel emotionally drained.	**Strongly Agree**	1-------2-------3-------4-------5	**Strongly Disagree**
9	Over time, one can become disconnected from this type of work.	**Strongly Agree**	1-------2-------3-------4-------5	**Strongly Disagree**
10	After working, I have enough energy for my leisure activities.	**Strongly Agree**	1-------2-------3-------4-------5	**Strongly Disagree**
11	Sometimes I feel sickened by my work tasks.	**Strongly Agree**	1-------2-------3-------4-------5	**Strongly Disagree**
12	After my work, I usually feel worn out and weary.	**Strongly Agree**	1-------2-------3-------4-------5	**Strongly Disagree**
13	This is the only type of work that I can imagine myself doing.	**Strongly Agree**	1-------2-------3-------4-------5	**Strongly Disagree**
14	Usually, I can manage the amount of my work well.	**Strongly Agree**	1-------2-------3-------4-------5	**Strongly Disagree**
15	I feel more and more engaged in my work	**Strongly Agree**	1-------2-------3-------4-------5	**Strongly Disagree**
16	When I work, I usually feel energised.	**Strongly Agree**	1-------2-------3-------4-------5	**Strongly Disagree**

Appendix C: Turnover Intention Scale

Please read each question and indicate your response using the scale provided for each question. During the past 9 months….

1	How often have you considered leaving your job?	**Never**	1-------2-------3-------4-------5	**Always**
2	How frequently do you scan the newspapers in search of alternative job opportunities?	**Never**	1-------2-------3-------4-------5	**All the time**
3	How satisfying is your job in fulfilling your personal needs?	**Very satisfying**	1-------2-------3-------4-------5	**Totally dissatisfying**
4	How often are you frustrated when not given the opportunity at work to achieve your personal work-related goals?	**Never**	1-------2-------3-------4-------5	**Always**
5	How often are your personal values at work compromised?	**Never**	1-------2-------3-------4-------5	**Always**
6	How often do you dream about getting another job that will better suit your personal needs?	**Never**	1-------2-------3-------4-------5	**Always**
7	How likely are you to accept another job at the same compensation level should it be offered to you?	**Highly unlikely**	1-------2-------3-------4-------5	**Highly likely**
8	How often do you look forward to another day at work?	**Always**	1-------2-------3-------4-------5	**Never**
9	How often do you think about starting your own business?	**Never**	1-------2-------3-------4-------5	**Always**
10	To what extent do responsibilities prevent you from quitting your job?	**To no extent**	1-------2-------3-------4-------5	**To a very large extent**
11	To what extent do the benefits associated with your current job prevent you from quitting your job?	**To no extent**	1-------2-------3-------4-------5	**To a very large extent**
12	How frequently are you emotionally agitated when arriving home after work?	**Never**	1-------2-------3-------4-------5	**All of the time**
13	To what extent does your current job have a negative effect on your personal well-being?	**To no extent**	1-------2-------3-------4-------5	**To a very large extent**
14	To what extent does the “fear of the unknown”, prevent you from quitting?	**To no extent**	1-------2-------3-------4-------5	**To a very large extent**
15	How frequently do you scan the internet in search of alternative job opportunities?	**Never**	1-------2-------3-------4-------5	**All of the time**

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Appendix D: Permission for the Turnover Intention Scale

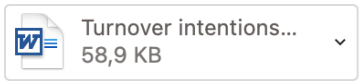
RE: Turnover Intention Questionnaire Permission

R

roodtg8@gmail.com <roodtg8@gmail.com>

Monday, 04 April 2022 at 16:10

To: 'Daniela Olivia Sounes'



Download All • Preview All

Dear Daniela

You are welcome to use the TIS for your research (please accept this e-mail as the formal permission letter). For this purpose please find the TIS-15 attached for your convenience. The TIS-6 (version 4) consists of the first six items high-lighted in yellow. You may use any one of these two versions. The TIS is based on the Theory of Planned Behaviour.

The only two conditions for using the TIS are that it may not be used for commercial purposes (other than for post graduate research) and second that it should be properly referenced as (Roodt, 2004) as in the article by Bothma & Roodt (2013) in the SA Journal of Human Resource Management (open access).

It is easy to score the TIS-6. Merely add the item scores to get a total score. The midpoint of the scale is 18 (3 x 6). If the total score is below 18 then the it indicates a desire to stay. If the scores are above 18 it indicates a desire to leave the organisation. The minimum a person can get is 6 (6 x 1) and the maximum is 30 (5 x 6). No item scores need to be reflected (reverse scored).

It is recommended that you conduct a CFA on the item scores to assess the dimensionality of the scale. We found that respondents with a matric (grade12) tertiary school qualification tend to understand the items better and consequently an uni-dimensional factor structure is obtained.

Appendix E: Ethical Clearance

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

SCHOOL OF HUMAN AND COMMUNITY DEVELOPMENT ETHICS COMMITTEE
CONSTITUTED UNDER THE UNIVERSITY HUMAN RESEARCH ETHICS COMMITTEE (NON-MEDICAL)

CLEARANCE CERTIFICATE:	**PROTOCOL NUMBER: MAPSYC-22-11**
PROJECT TITLE:	Investigating the prevalence of burnout and turnover intention in South African healthcare workers, a mixed methods study.
INVESTIGATOR	Sounes Daniela (607236)
SCHOOL/DEPARTMENT OF INVESTIGATOR	SHCD/Psychology
DATE CONSIDERED	26 May 2022
DECISION OF THE COMMITTEE	Approved unconditionally
RISK LEVEL	Low Risk
EXPIRY DATE	31 December 2024

ISSUE DATE OF CERTIFICATE 19 July 2022 **CHAIRPERSON** (Dr Nkululeko Nkomo)

Cc Ms Enid Schutte (Supervisor)

DECLARATION OF INVESTIGATOR

To be completed in duplicate and **ONE COPY** returned to the Chairperson of the School/Department ethics committee.

I fully understand the conditions under which I am are authorized to carry out the abovementioned research and I guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee.

Signature Date 27 / July / 2022

PLEASE QUOTE THE PROTOCOL NUMBER ON ALL ENQUIRIES

Appendix F: University Student Access

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

OFFICE OF THE DEPUTY REGISTRAR

01 August 2022

Daniela Sounes
Student Number (607236)
Master of Arts by Coursework and Research Report
School of Human and Community Development

TO WHOM IT MAY CONCERN

"Investigating the prevalence of burnout and turnover intention in South African healthcare workers, a mixed methods study."

This letter serves to confirm that the above project has received permission to be conducted on University premises, and/or involving staff and/or students of the University as research participants. In undertaking this research, you agree to abide by all University regulations for conducting research on campus and to respect participants' rights to withdraw from participation at any time.

If you are conducting research on certain student cohorts, year groups or courses within specific Schools and within the teaching term, permission must be sought from Heads of School or individual academics.

Ethical clearance has been obtained. (Protocol number: MAPSYC-22-11)

Research Expiration: (31 December 2024)

Nicoleen Potgieter
University Deputy Registrar

Appendix G: Participant Information Sheet

Dear prospective participant/healthcare worker,

My name is Daniela Sounes, a current Masters student in Research Psychology at Wits University in Johannesburg. As part of my studies, I am investigating the current state of mind of South African healthcare workers.

As part of this project, I would like to invite you to take part in answering a self-administered questionnaire survey. This activity will involve four sections and will take around 15 - 20 minutes to complete.

By participating in this survey, you will not receive any direct benefits, nor will there be disadvantages or penalties for not participating. You may withdraw at any time or choose to not answer any question. The online survey will be confidential and anonymous and will not be asking for your name or any identifying information, and the information you provide will be held securely and not disclosed to anyone else. I may use anonymous quotes, to represent your responses, in my final research report.

If you experience any distress or discomfort, you may stop the survey at any time. If you need any support or counselling services during or after the survey, these are available free of charge:

1. The healthcare workers care network which includes 24-hour healthcare workers care network helpline (0800 21 21 21 or SMS 43001), monthly support group sessions, and online mental health resources. https://www.healthcareworkerscarenetwork.org.za
2. SADAG's 24-hour helpline 0800 456 789
3. SADAG's 24-hour suicide crisis helpline 0800 567 567

4. National Medical Frontliners Counselling 24-hour Hotline WhatsApp: 079 513 7015

If you have any questions about this research, feel free to contact me on the details listed below. This study will be written up as a research report which will be available online through the Wits university library website.

If you have any queries, concerns, or complaints regarding the ethical procedures of this study, you are welcome to contact the Wits University Human Research Ethics Committee (non-medical) by telephone + 27(0)11 717 1408 or by email: Shaun.Schoeman@wits.ac.za

Yours sincerely,

Researcher: Daniela Sounes
607236@students.wits.ac.za
0842547896

Supervisor: Enid Schutte
Enid.Schutte@wits.ac.za
0117174521

Appendix H: Informed Consent Form



Researcher: Daniela Sounes

Please tick the below options and click submit to give informed consent to participate in this study.

1. I agree to participate in this research project, the research has been explained to me, and I understand what my participation will involve.
   - □ YES
   - □ NO

2. I agree that my participation will remain anonymous.
   - □ YES
   - □ NO

3. I agree that the researcher may use anonymous quotes in their research report.
   - □ YES
   - □ NO

4. I agree that the information I provide may be used anonymously by other researchers following this study.
   - □ YES
   - □ NO

Appendix I: Discipline Categories

Table I1

Sub-Classifications of Discipline Factor

Musculoskeletal	n	Physiotherapy, Chiropractic, Podiatry, and Orthopaedics
Critical	12	Emergency Medicine, Casualty, Intensive Care, and Internal Medicine
Surgery	21	Surgery, Specialist Physician, and Anaesthesiology
Medical Science	10	Pharmacy, Radiography, Clinical Research, Pathology, and Infectious Disease
Occupational Therapy	8	Occupational Therapy and Speech Therapy
General	21	General Practice, Family Medicine, Nursing, Dentistry, Oral Hygiene, and Geriatrics
Paediatrics	40	Paediatrics, Neonatology, and Obstetrics and Gynaecology
Student	25	Medical Student, Intern, and Community Service
Mental Health	20	Counselling, Clinical, and Educational Psychology, Lay Counselling, and Psychiatry
Public Health	10	Occupational Health Nursing, and Public Health

Note. N=186

Appendix J: Normality Tests

Table J.1

Statistical Normality Tests for Disengagement, Exhaustion, Burnout and Turnover Intention

	Disengagement	Exhaustion	Burnout	Turnover Intention
n	189	189	189	189
Mean	2.93	3.44	3.19	3.26
Median	3.00	3.50	3.31	3.33
Kolmogorov-Smirnov	**.01**	**<.001**	**.00**	**<.001**
Shapiro-Wilk	.11	<.001	.01	<.001
Skewness	-0.11	-0.48	-0.32	-0.34
Kurtosis	-0.26	-0.44	-0.37	-0.71

Note. Kolmogorov-Smirnov was based on Lilliefors Significance Correction.

Figure J2

Visual Normality Tests: Histogram for Disengagement

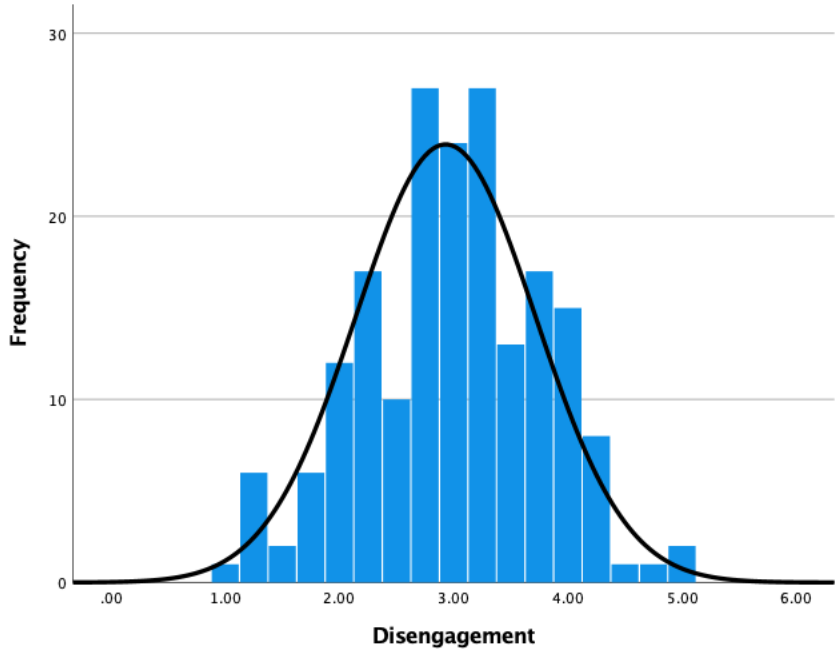


Figure J3

Visual Normality Tests: Q-Q Plot for Disengagement

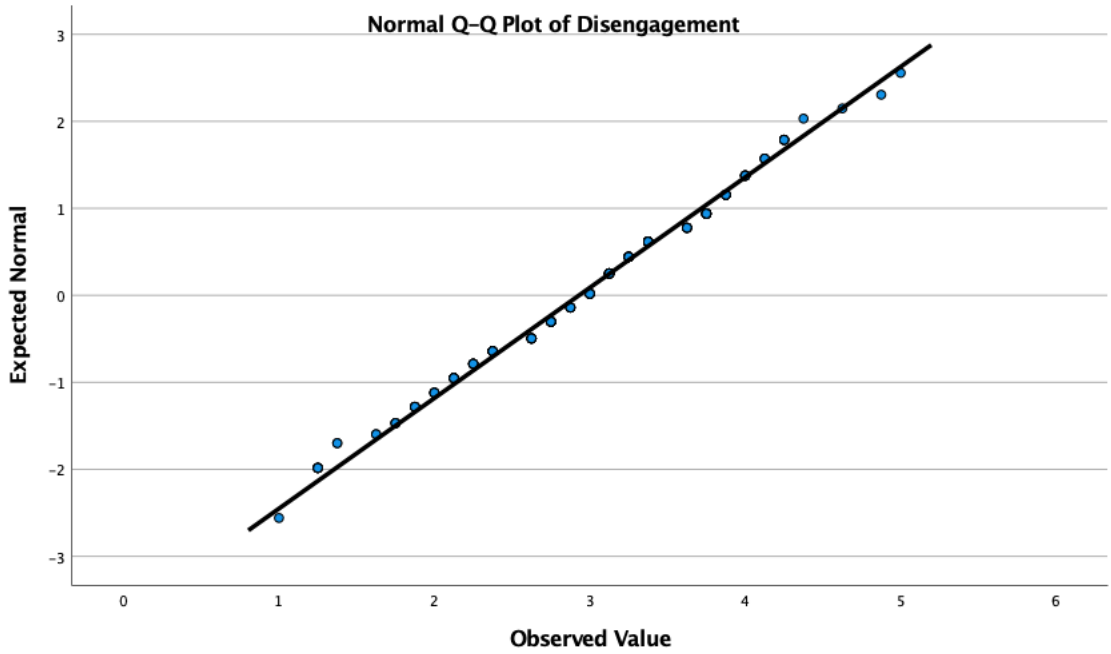
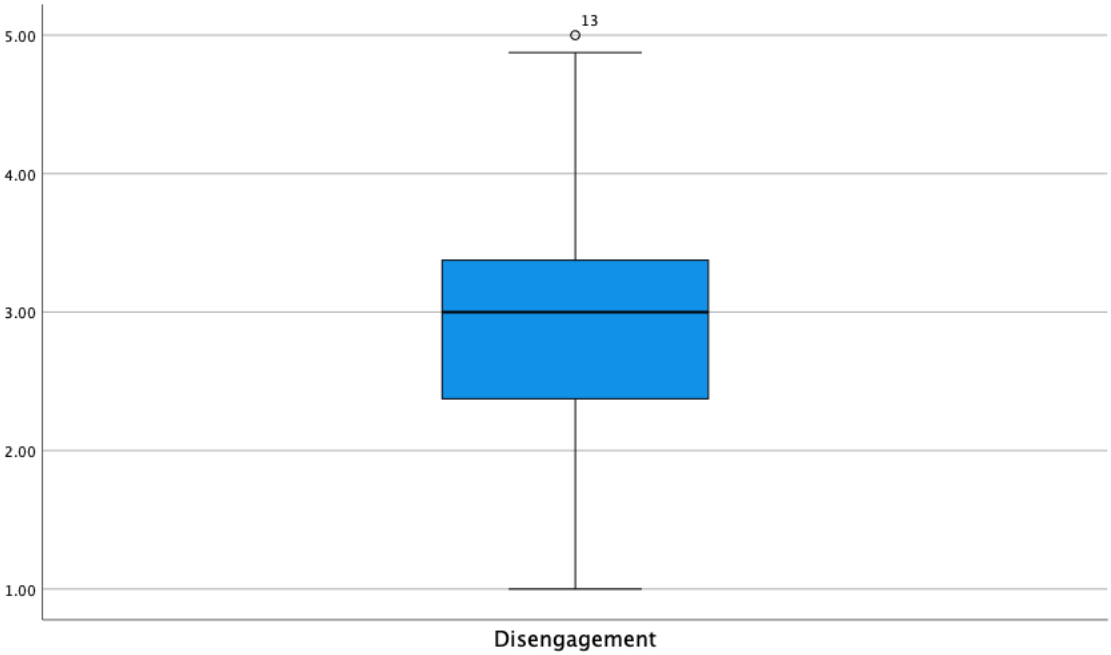


Figure J4

Visual Normality Tests: Box Whisker for Disengagement



Note. M = 2.93, Mdn = 3.00

Figure J5
Visual Normality Tests: Histogram for Exhaustion

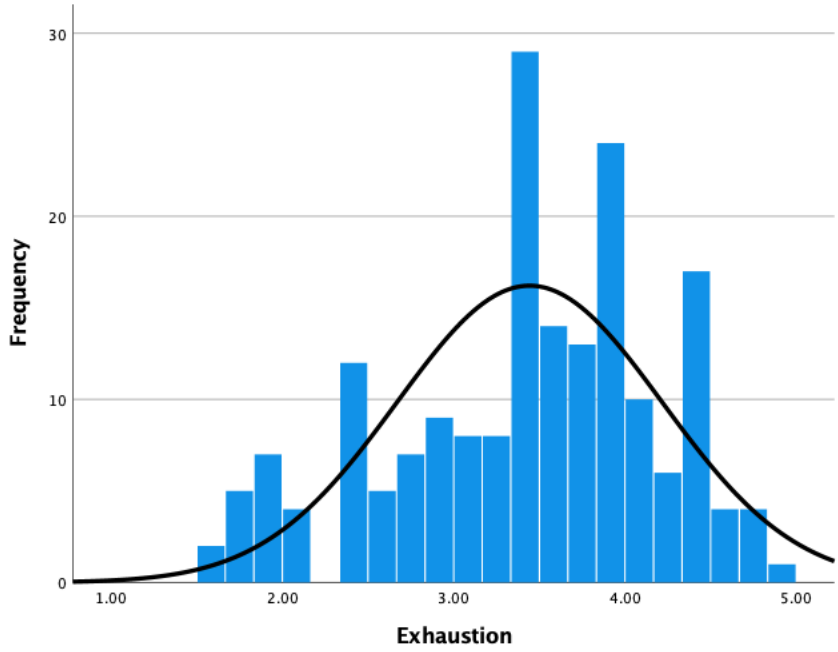


Figure J6
Visual Normality Tests: Q-Q Plot for Exhaustion

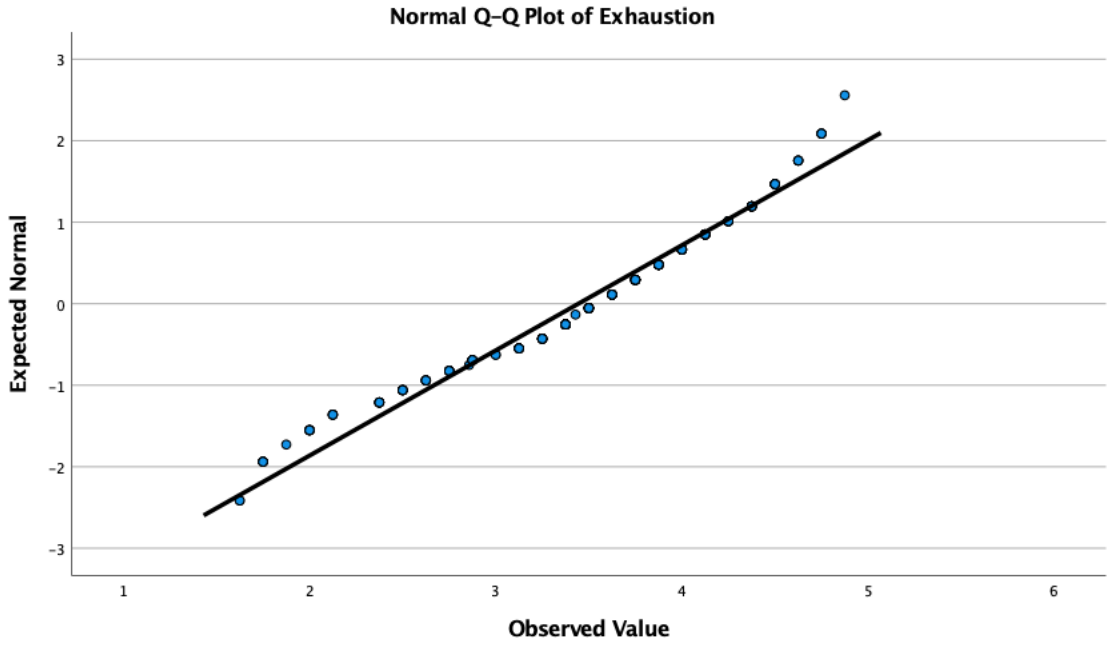
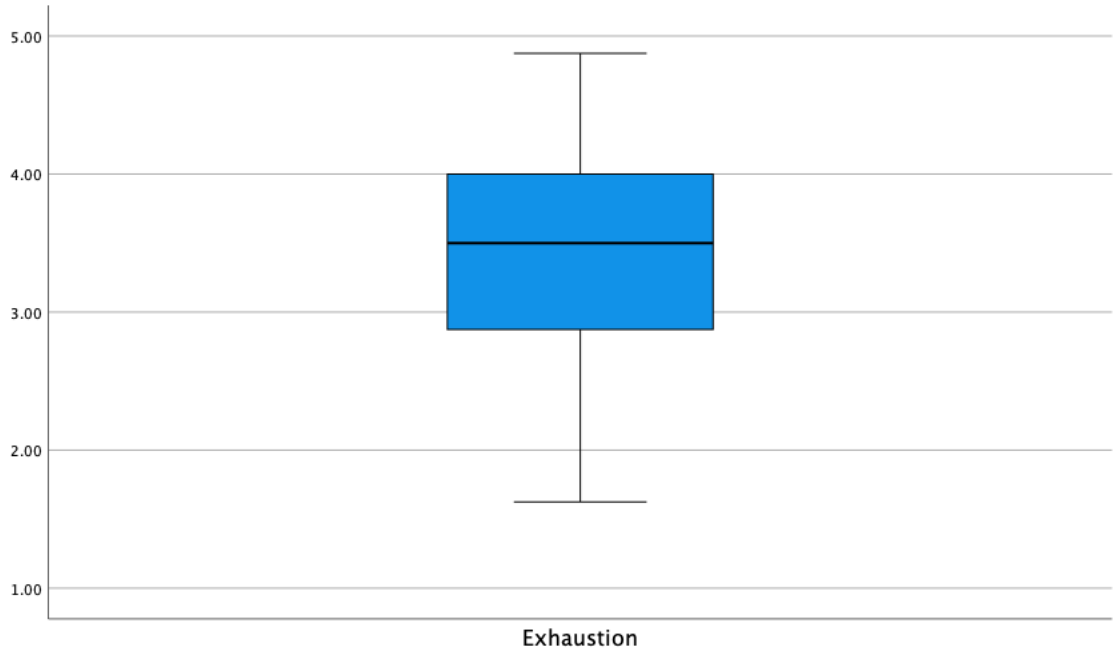


Figure J7

Visual Normality Tests: Box Whisker for Exhaustion



Note. M = 3.44, Mdn = 3.50

Figure J8

Visual Normality Tests: Histogram for Burnout

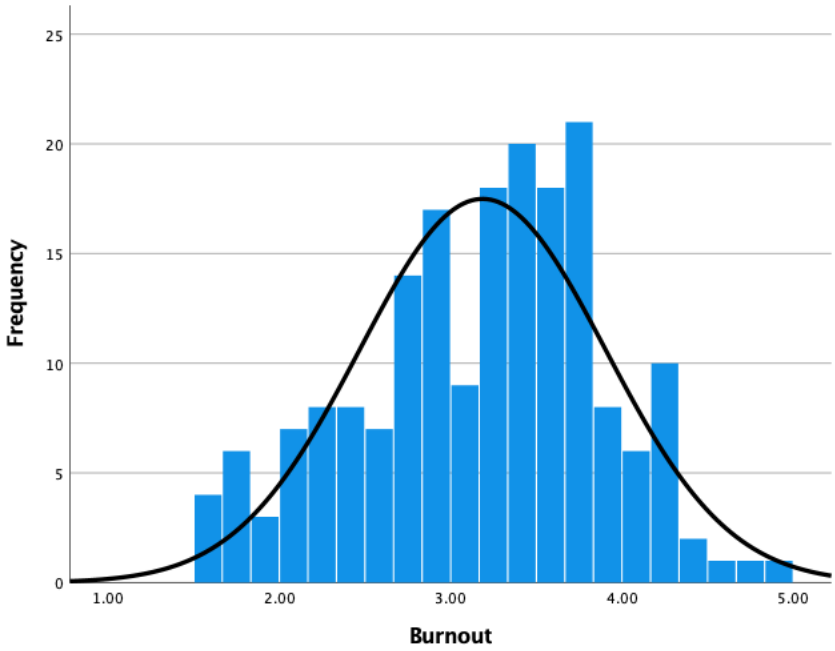


Figure J9

Visual Normality Tests: Q-Q Plot for Burnout

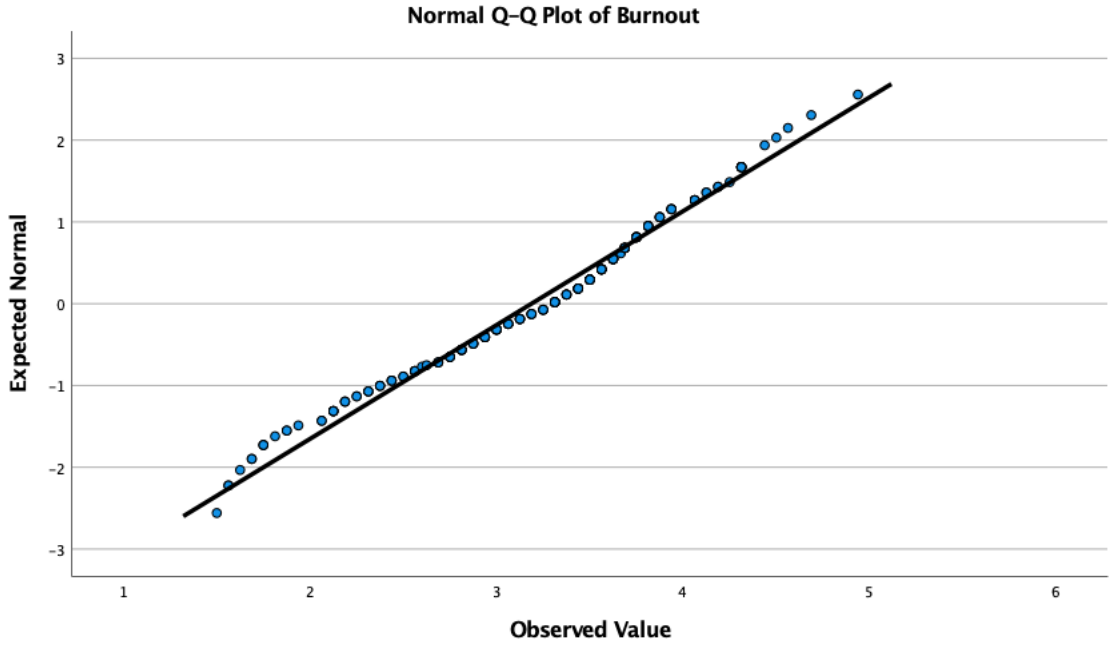
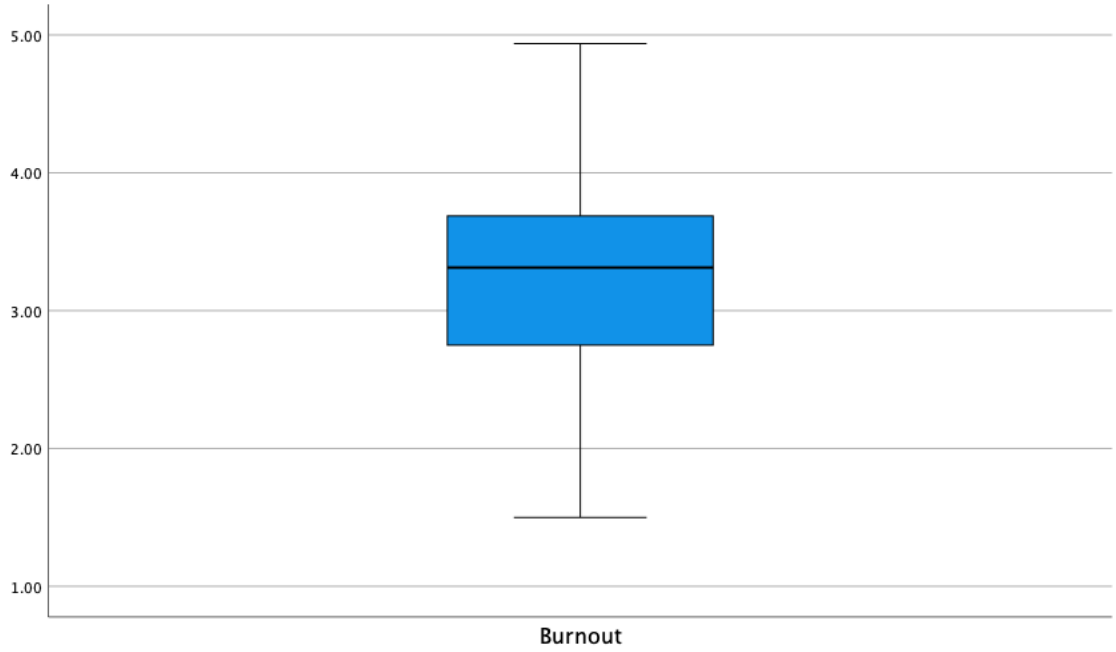


Figure J10

Visual Normality Tests: Box Whisker for Burnout



Note. M = 3.19, Mdn = 3.31

Figure J11

Visual Normality Tests: Histogram for Turnover Intention

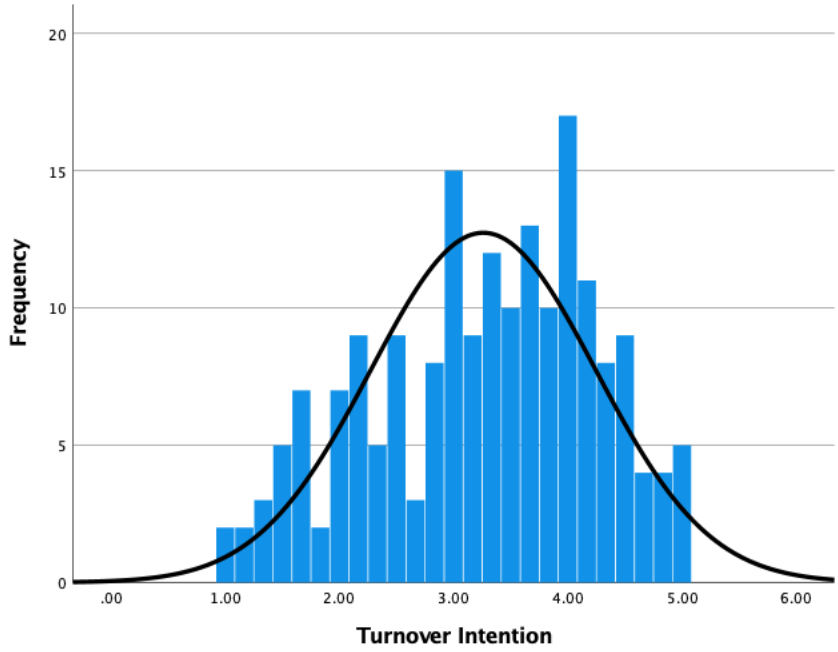


Figure J12

Visual Normality Tests: Q-Q Plot for Turnover Intention

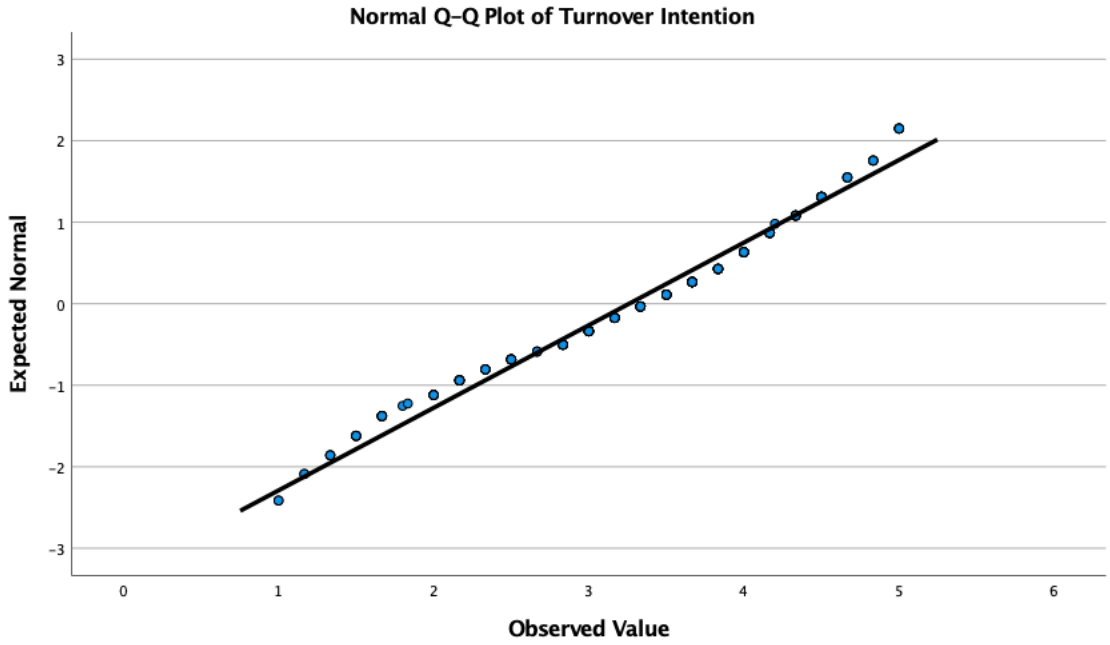
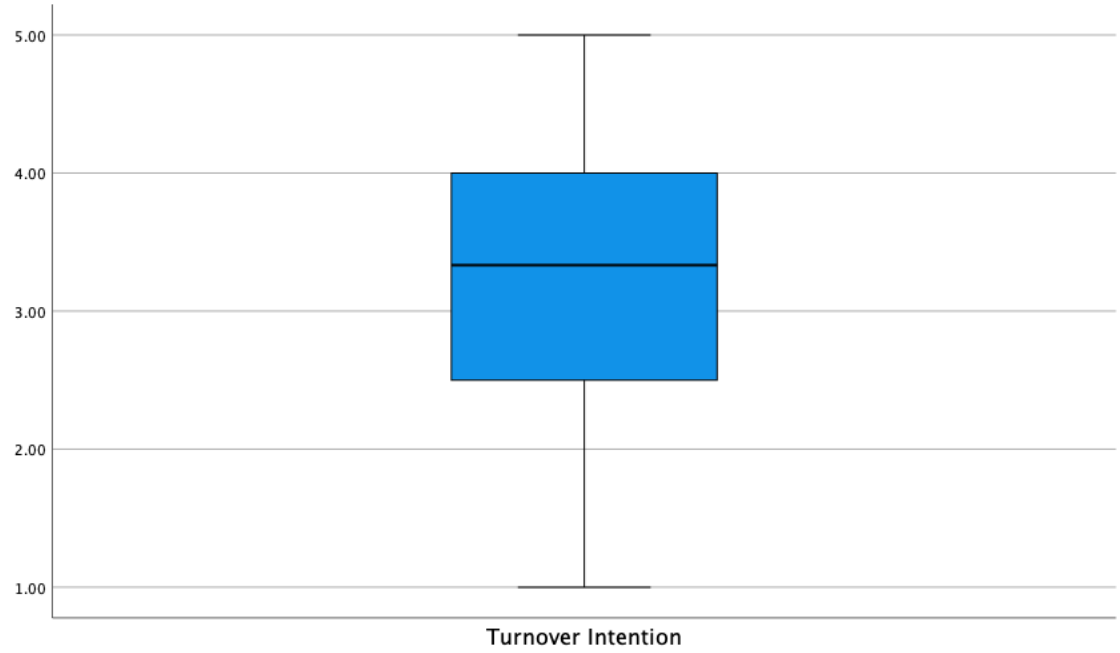


Figure J13

Visual Normality Tests: Box Whisker for Turnover Intention



Note. M= 3.26, Mdn = 3.33

Appendix K: Reliability Tests

Table K1

Cronbach's Alpha of Disengagement, Exhaustion, Burnout, and Turnover Intention Scales

Scale	Number of items	Valid Cases	Cronbach's Alpha (α)	Mean	Standard Deviation
Disengagement Subscale	8	189	.80	23.44	6.30
Exhaustion Subscale	8	187	.83	27.57	6.22
Burnout Scale	16	187	.89	50.99	11.52
Turnover Intention Short Version	6	187	.86	19.57	5.90
Turnover Intention Full Version	15	183	.78	47.72	9.80

Table K2

Corrected Item-Total Correlation and Cronbach's Alpha if Item Deleted for Disengagement, Exhaustion, Burnout Scales

	Burnout Subscales		Burnout Full Scale	
	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Disengagement Subscale (α = .80)			(α = .89)	
Item 1	.32	.81	.25	.89
Item 3	.64	.76	.74	.87
Item 6	.51	.78	.49	.88
Item 7	.62	.77	.61	.88
Item 9	.51	.78	.54	.88
Item 11	.45	.79	.56	.88
Item 13	.32	.82	.31	.89
Item 15	.95	.74	.85	.87
Exhaustion Subscale (α = .83)				
Item 2	.62	.81	.60	.88
Item 4	.63	.81	.63	.88
Item 5	.55	.82	.53	.88
Item 8	.64	.80	.63	.88
Item 10	.57	.81	.51	.88
Item 12	.63	.81	.59	.88
Item 14	.33	.84	.35	.89
Item 16	.52	.82	.63	.88

Table K3

Corrected Item-Total Correlation and Cronbach's Alpha if Item Deleted for Short and Full Turnover Intention Scales

	Turnover Intention Short Version (α = .86)		Turnover Intention Full Version (α = .78)	
	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Item 1	.73	.82	.72	.74
Item 2			.66	.74
Item 3	.59	.85	.57	.76

Item 4	.53	.86	.51	.76
Item 5			.60	.75
Item 6	.81	.81	.78	.73
Item 7	.66	.84	.57	.75
Item 8	.63	.84	.56	.76
Item 9			.35	.77
Item 10			-.31	.82
Item 11			-.05	.81
Item 12			.50	.76
Item 13			.58	.76
Item 14			-.45	.84
Item 15			.69	.74

Appendix L: Variable Levels

Table L1

Categorical Levels of Disengagement, Exhaustion, And Burnout Based On 1 Standard Deviation of The Mean

	Low	Moderate	High
Disengagement (M = 2.93, SD = 0.79)			
Level Values	< 2.14	< 2.14 < 3.72	3.72 <
Frequency	37	114	38
%	19.58	60.32	20.11
%			80.43
Exhaustion (M = 3.44, SD = 0.78)			
Level Values	< 2.67	< 2.67 < 4.22	4.22 <
Frequency	35	122	32
%	18.52	64.55	16.93
%			81.48
Burnout (M = 3.19, SD = 0.72)			
Level Values	< 2.47	< 2.47 < 3.90	3.90 <
Frequency	34	130	25
%	17.99	68.78	13.23
%			82.01

Note. N=189, Low = below 1SD of the mean, Moderate = between 1SD below and 1SD above the mean, High = above 1 SD of the mean.

Table L2

Categorical Levels of Turnover Intention based on Midpoint Split

	Intention to Stay	Intention to Leave
Turnover Intention (M = 19.57, SD = 5.90)		
Level Values	> 17.99	18 <
Frequency	61	126
%	32.28	67.38

Note. N = 187

Table L3

Categorical Levels of Turnover Intention based on 1 Standard Deviation of The Mean

	Low	Moderate	High
Turnover Intention (M = 3.26, SD = 0.99)			
Level Values	< 2.27	< 2.27 > 4.24	4.24<
Frequency	37	122	30
%	19.58	64.55	15.87
%			80.42

Note. N= 189, Low = below 1SD of the mean, Moderate = between 1SD below and 1SD above the mean, High = above 1 SD of the mean.

Appendix M: T-test and ANOVA Normality

Table M1

Statistical Normality Tests for Disengagement, Exhaustion, Burnout, and Turnover Intention for Sector, Gender, Setting, and Qualification

	Sector		Gender		Setting		Qualification	
	Public	Private	Female	Male	Hospital	Non-Hospital	In Training	Qualified
n	126	63	153	34	97	62	36	140
Disengagement								
Mean	3.02	2.74	2.91	2.99	3.12	2.71	3.18	2.83
Median	3.00	2.75	3.00	3.00	3.13	2.75	3.13	2.94
Kolmogorov-Smirnov	**.17**	**.20**	**.04**	.12	**.09**	**.10**	.10	**.01**
Shapiro-Wilk	.41	.30	.10	**.22**	.24	.31	**.10**	.21
Skewness	-0.13	0.04	-0.04	-0.45	-0.21	0.03	-0.52	-0.12
Kurtosis	-0.11	-0.40	-0.40	0.99	-0.03	0.13	-0.02	-0.19
Exhaustion								
Mean	3.52	3.30	3.47	3.31	3.63	3.25	3.72	3.35
Median	3.63	3.38	3.63	3.25	3.63	3.25	3.88	3.50
Kolmogorov-Smirnov	**<.001**	**.20**	**<.001**	.20	**<.001**	**.20**	.09	**<.001**
Shapiro-Wilk	<.001	.11	<.001	**.40**	.00	.28	**.01**	.00
Skewness	-0.56	-0.29	-0.51	-0.32	-0.62	-0.24	-0.84	-0.42
Kurtosis	-0.39	-0.52	-0.39	-0.57	-0.00	-0.69	-0.10	-0.47
Burnout								
Mean	3.27	3.02	3.19	3.15	3.38	2.98	3.45	3.09
Median	3.38	3.13	3.31	3.03	3.50	3.03	3.56	3.16
Kolmogorov-Smirnov	**.00**	**.20**	**.00**	.20	**.02**	**.20**	.01	**.03**
Shapiro-Wilk	.06	.29	.01	**.54**	.08	.65	**.05**	.07
Skewness	-0.40	-0.11	-0.31	-0.35	-0.48	-0.09	-0.86	-0.26
Kurtosis	-0.16	-0.58	-0.47	0.31	0.17	-0.41	0.45	-0.42
Turnover Intention								
Mean	3.40	2.98	3.24	3.27	3.49	3.04	3.40	3.20
Median	3.50	3.00	3.33	3.33	3.67	3.17	3.50	3.33
Kolmogorov-Smirnov	**.01**	**.20**	**.00**	.20	**.07**	**.17**	.20	**.01**
Shapiro-Wilk	.01	.04	.00	**.75**	.04	.03	**.17**	.01
Skewness	-0.39	-0.10	-0.34	-0.23	-0.40	-0.23	-0.36	-0.29
Kurtosis	-0.45	-1.12	-0.74	-0.48	-0.43	-1.04	-0.75	-0.76

Note. Kolmogorov-Smirnov was based on Lilliefors Significance Correction.

Figure M2

Visual Normality Tests: Q-Q Plot for Disengagement in the Female Group

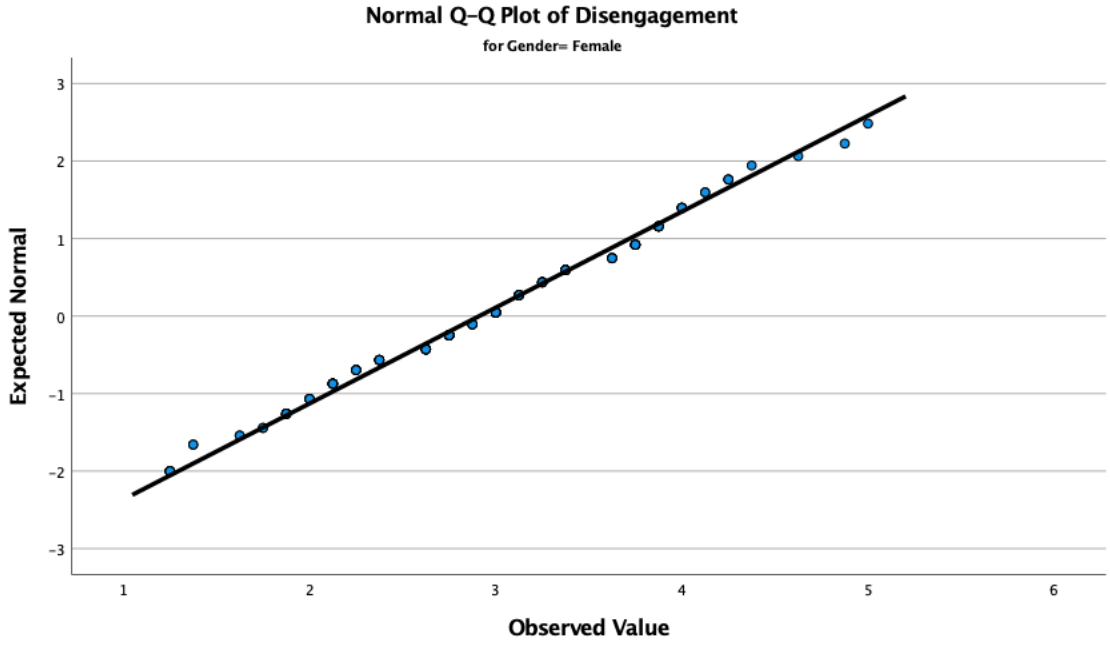


Figure M3

Visual Normality Tests: Histogram for Disengagement in the Qualified Group

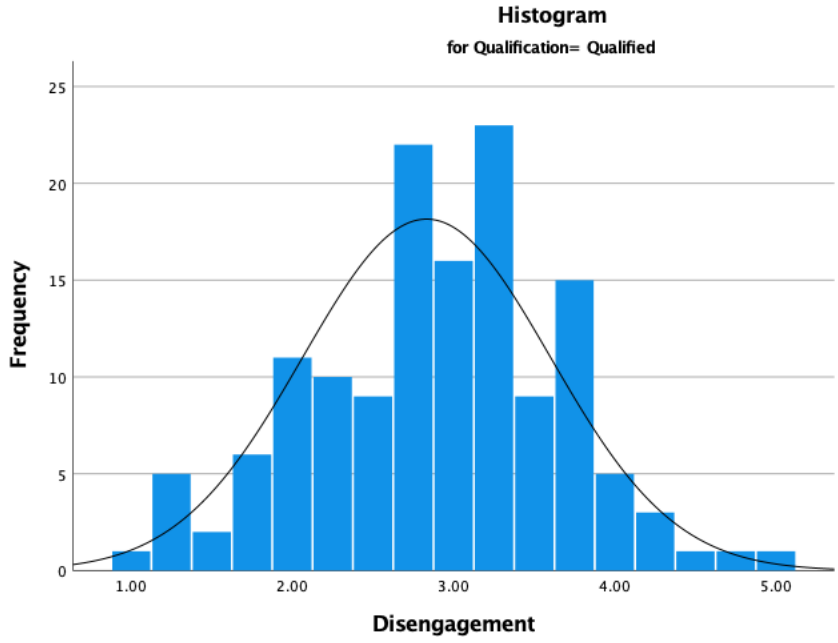


Figure M4

Visual Normality Tests: Q-Q Plot for Exhaustion in the Public Sector

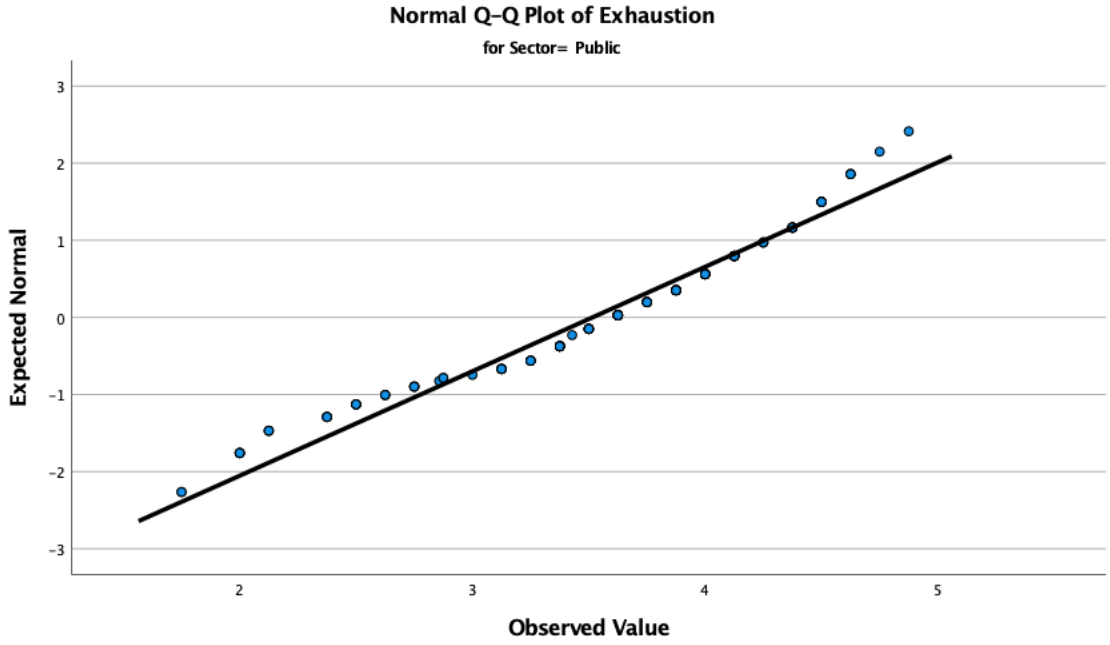


Figure M5

Visual Normality Tests: Q-Q Plot for Exhaustion in the Female Group

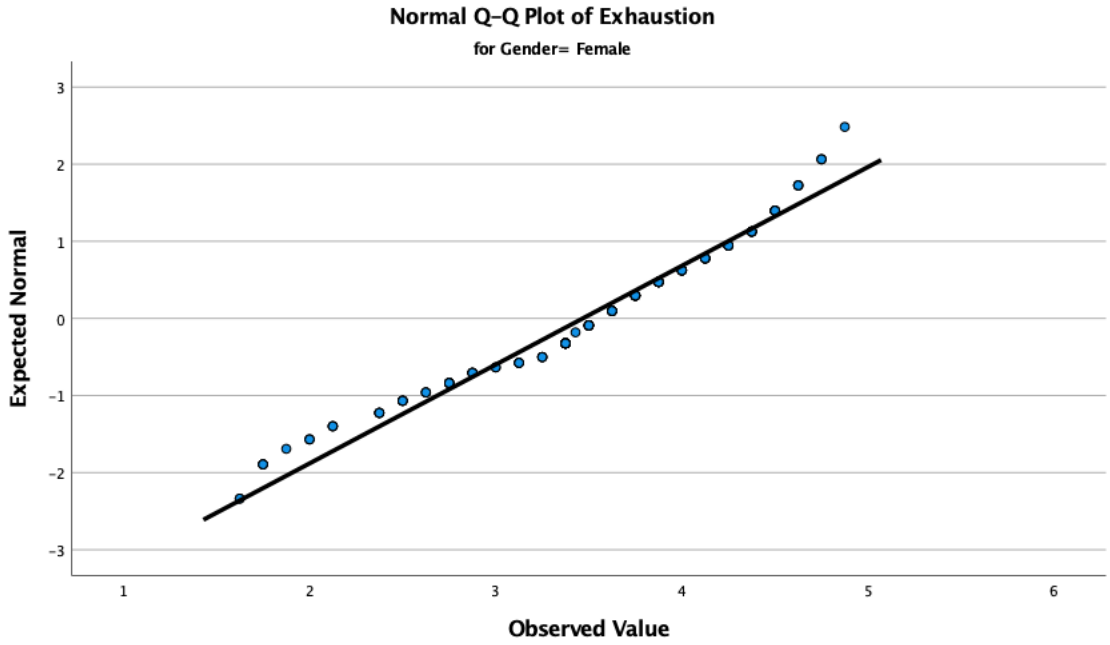


Figure M6

Visual Normality Tests: Histogram for Exhaustion in the Hospital Group

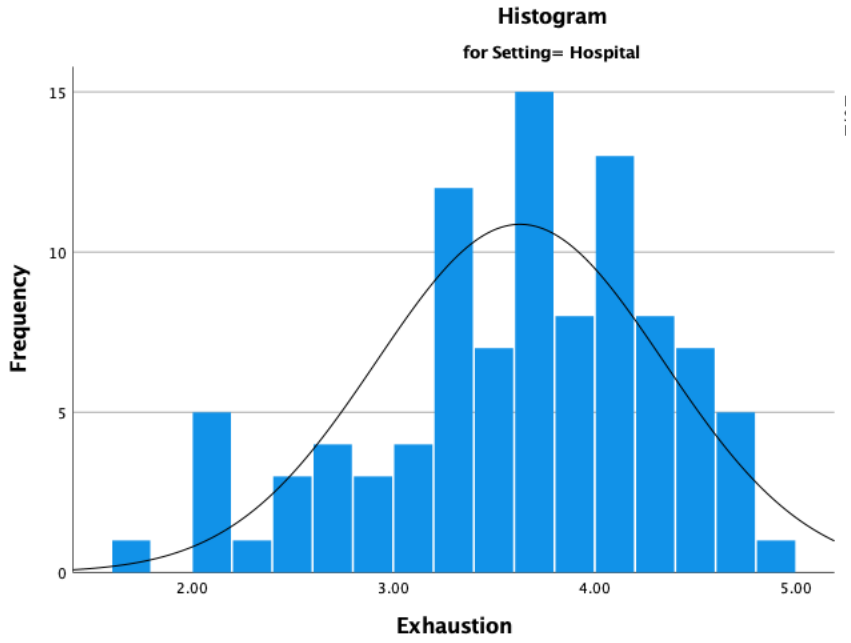


Figure M7

Visual Normality Tests: Q-Q Plot for Exhaustion in the Training Group

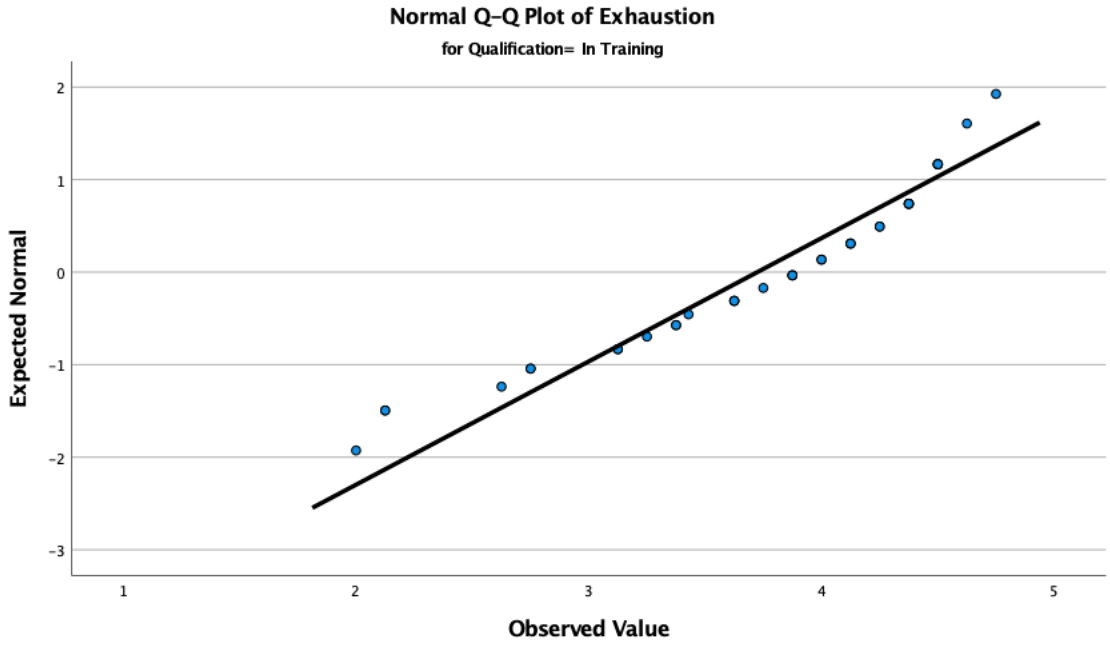


Figure M8

Visual Normality Tests: Q-Q Plot for Exhaustion in the Qualified Group

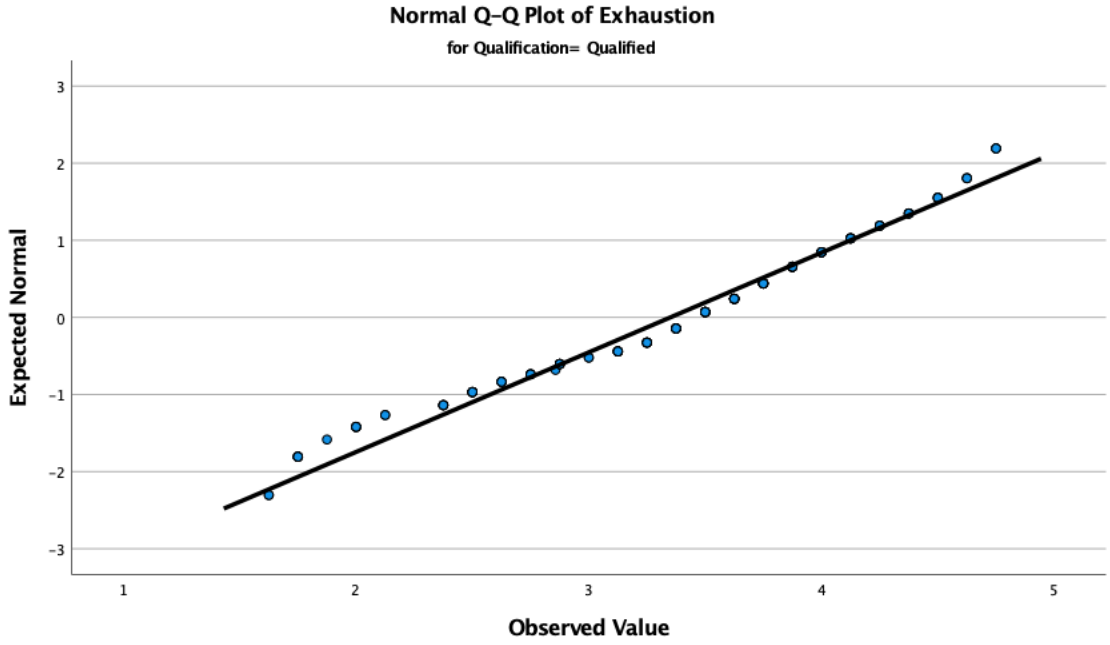


Figure M9

Visual Normality Tests: Histogram for Burnout in the Public Group

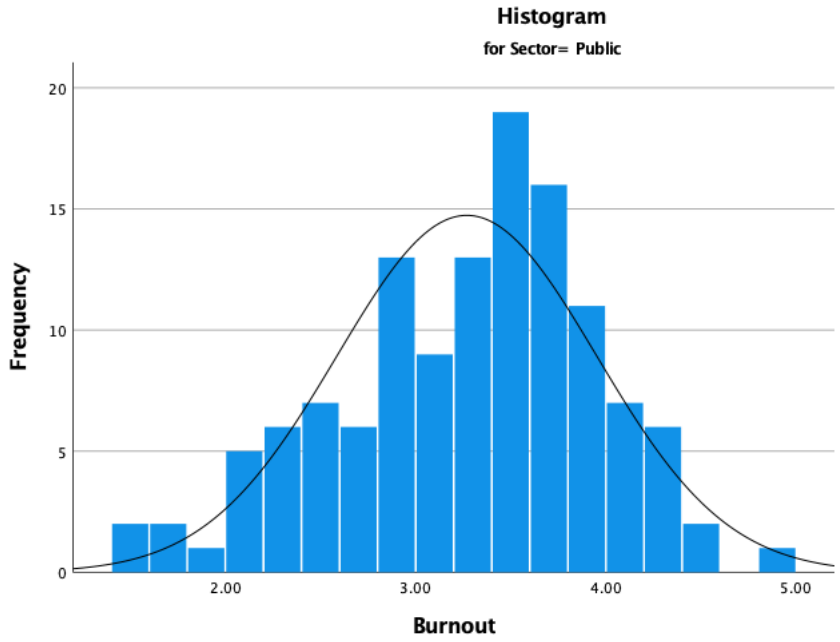


Figure M10

Visual Normality Tests: Q-Q Plot for Burnout in the Female Group

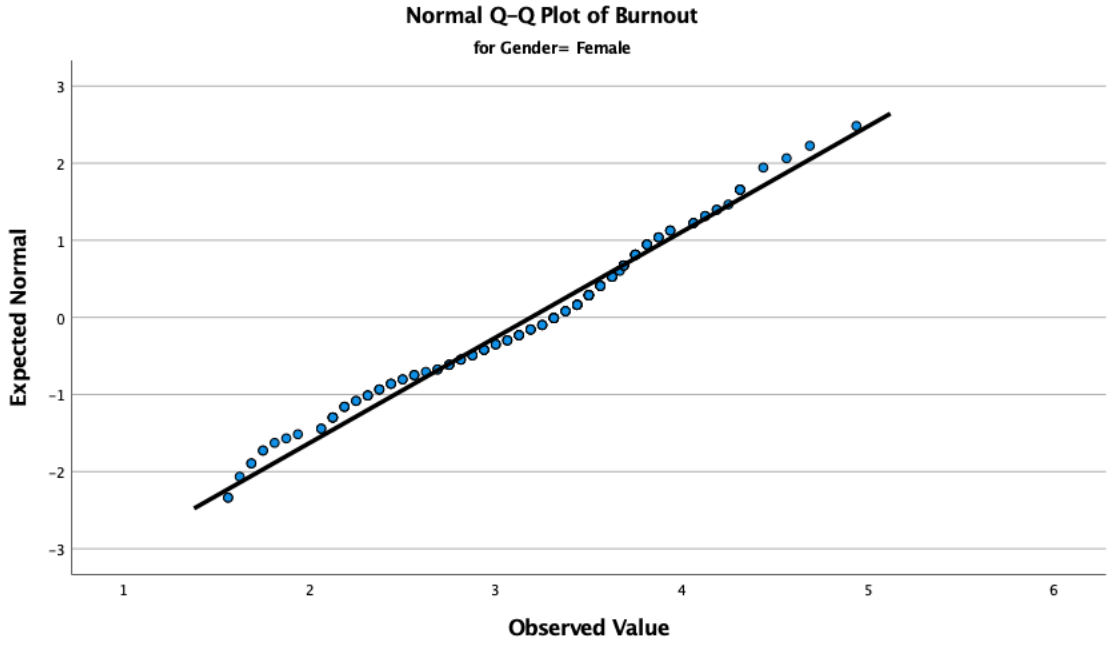


Figure M11

Visual Normality Tests: Histogram for Burnout in the Hospital Group

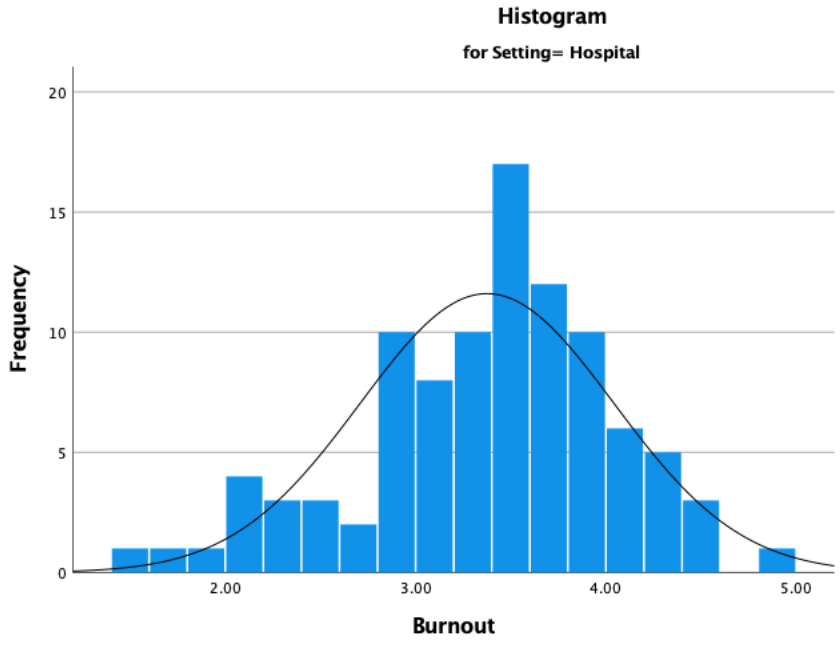


Figure M12

Visual Normality Tests: Q-Q Plot for Burnout in the Qualified Group

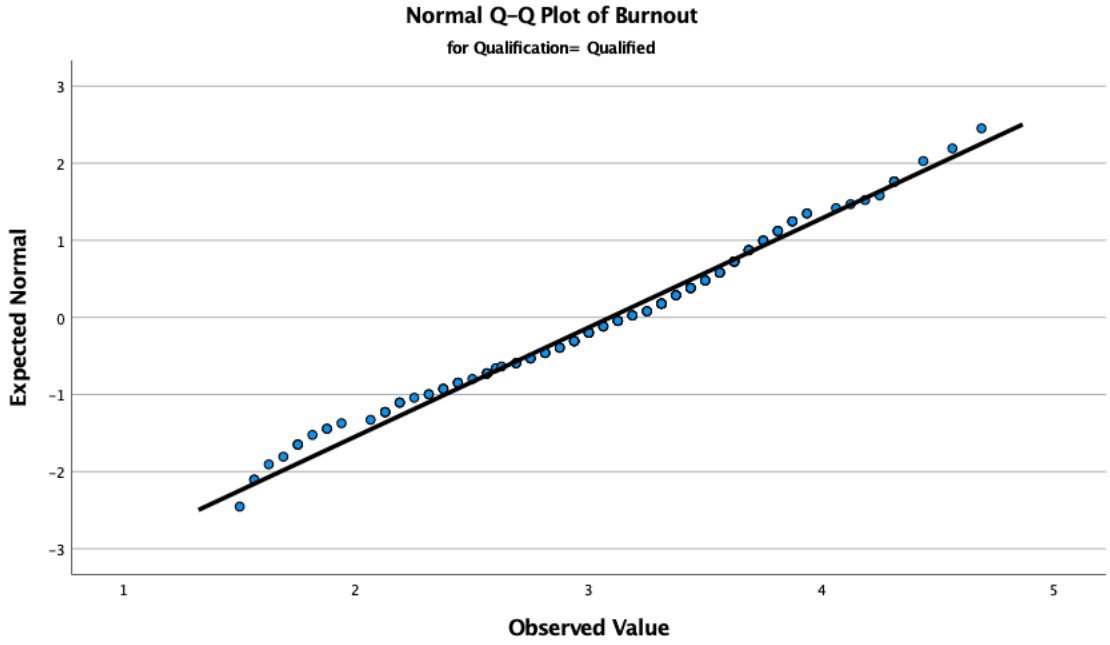


Figure M13

Visual Normality Tests: Q-Q Plot for Turnover Intention in the Public Group

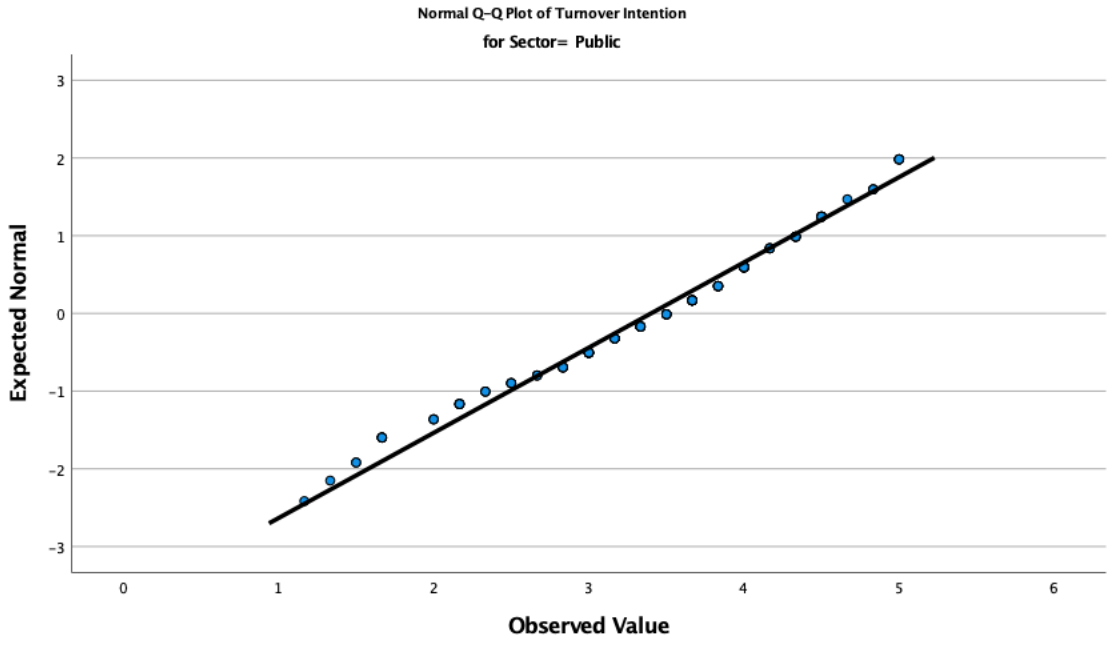


Figure M14

Visual Normality Tests: Q-Q Plot for Turnover Intention in the Female Group

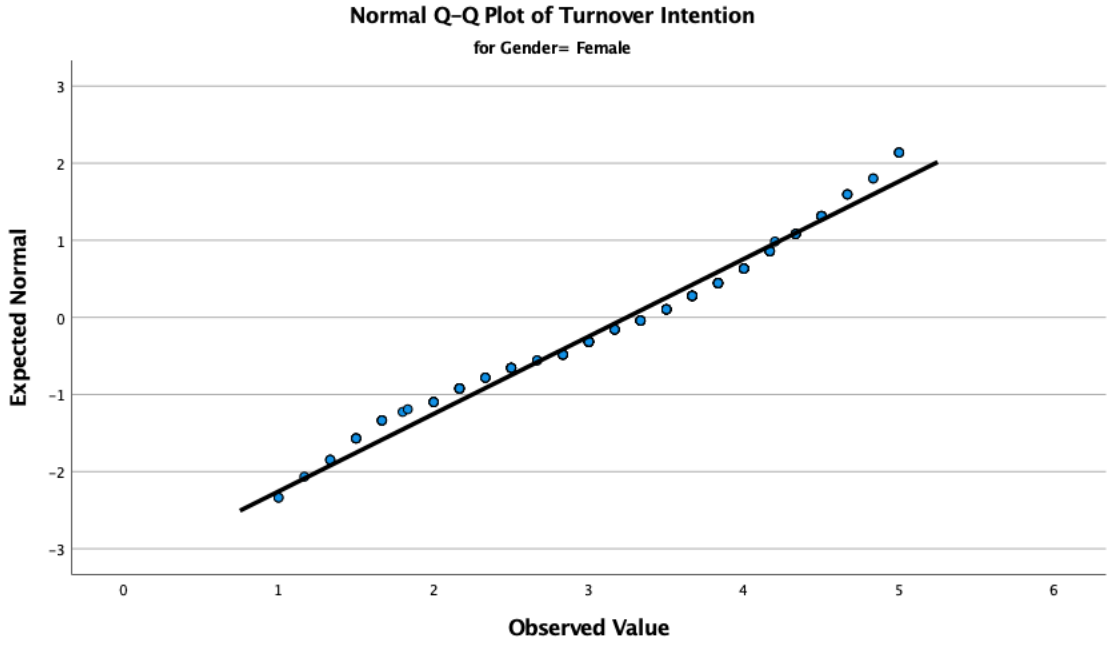


Figure M15

Visual Normality Tests: Q-Q Plot for Turnover Intention in the Qualified Group

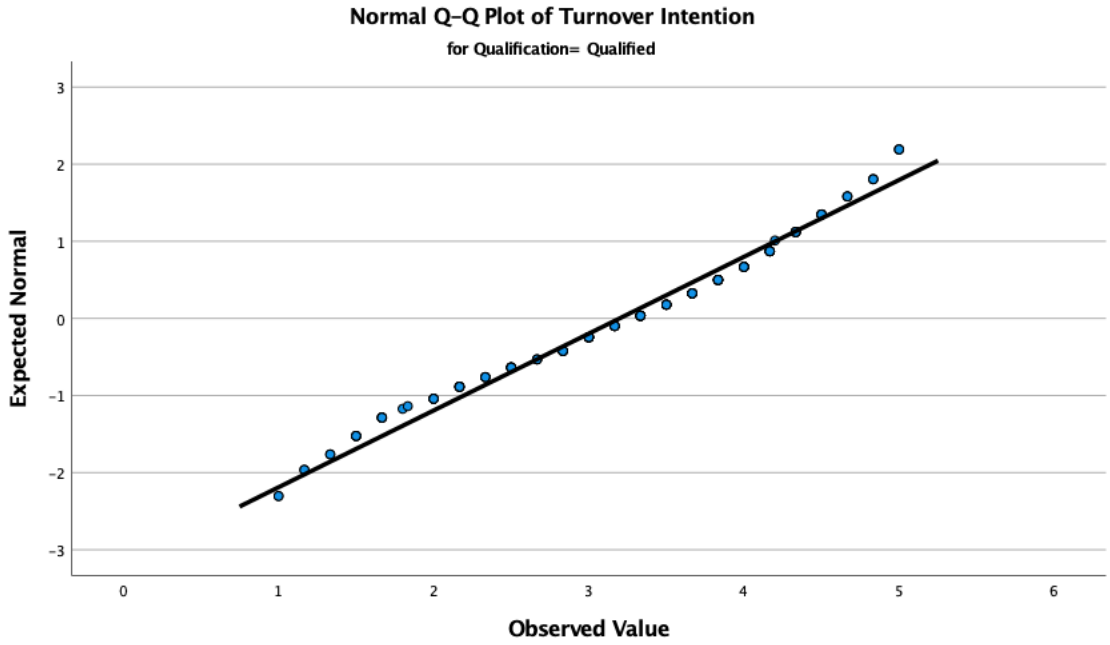


Table M16

Statistical Normality Tests for Disengagement, Exhaustion, Burnout, and Turnover Intention for Race

	Asian	Black	Coloured	Indian	White	Other
n	3	38	22	30	93	3
Disengagement						
Mean	2.92	2.90	3.21	3.10	2.83	2.79

Median	3.13	2.81	3.13	3.13	2.88	3.13
Kolmogorov-Smirnov	.	.11	.20	.20	**.15**	.
Shapiro-Wilk	**.78**	**.15**	**.25**	**.23**	.68	**.30**
Skewness	-0.59	-0.07	0.73	-0.38	-0.01	-1.545
Kurtosis	.	-0.84	1.70	-0.63	-0.11	.
Exhaustion						
Mean	4.08	3.17	3.72	3.60	3.44	2.83
Median	4.50	3.25	3.69	3.69	3.63	2.88
Kolmogorov-Smirnov	.	.20	.04	.20	**.01**	.
Shapiro-Wilk	**.25**	**.45**	**.19**	**.26**	.00	**.92**
Skewness	-1.60	-0.10	-0.49	-0.49	-0.57	-0.23
Kurtosis	.	-0.86	0.67	-0.52	-0.27	.
Burnout						
Mean	3.5	3.03	3.47	3.35	3.13	2.81
Median	3.81	3.03	3.56	3.53	3.19	3.00
Kolmogorov-Smirnov	.	.20	.10	.02	**.20**	.
Shapiro-Wilk	**.58**	**.53**	**.09**	**.08**	.20	**.61**
Skewness	-1.06	-0.03	0.31	-0.68	-0.33	-1.00
Kurtosis	.	-0.82	2.28	-0.22	-0.32	.
Turnover Intention						
Mean	3.22	3.15	3.80	3.49	3.14	2.06
Median	3.50	3.08	3.92	3.75	3.17	2.00
Kolmogorov-Smirnov	.	.20	.20	.04	**.10**	.
Shapiro-Wilk	**.71**	**.51**	**.62**	**.07**	.05	**.92**
Skewness	-0.76	-0.21	-0.50	-0.66	-0.18	0.23
Kurtosis	.	-0.43	0.43	-0.49	-0.85	.

Note. Kolmogorov-Smirnov was based on Lilliefors Significance Correction.

Figure M17

Visual Normality Tests: Histogram for Burnout in the Coloured Group

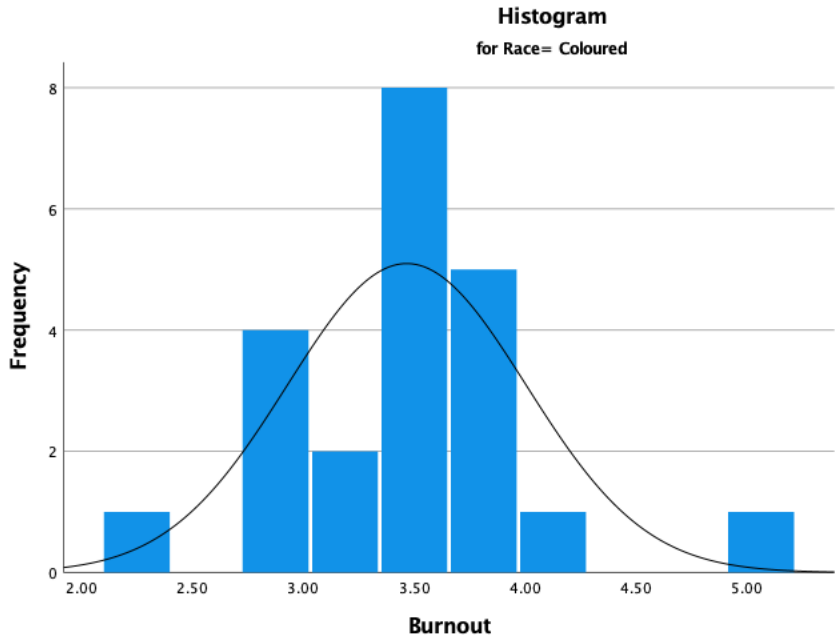


Figure M18

Visual Normality Tests: Histogram for Exhaustion in the White Group

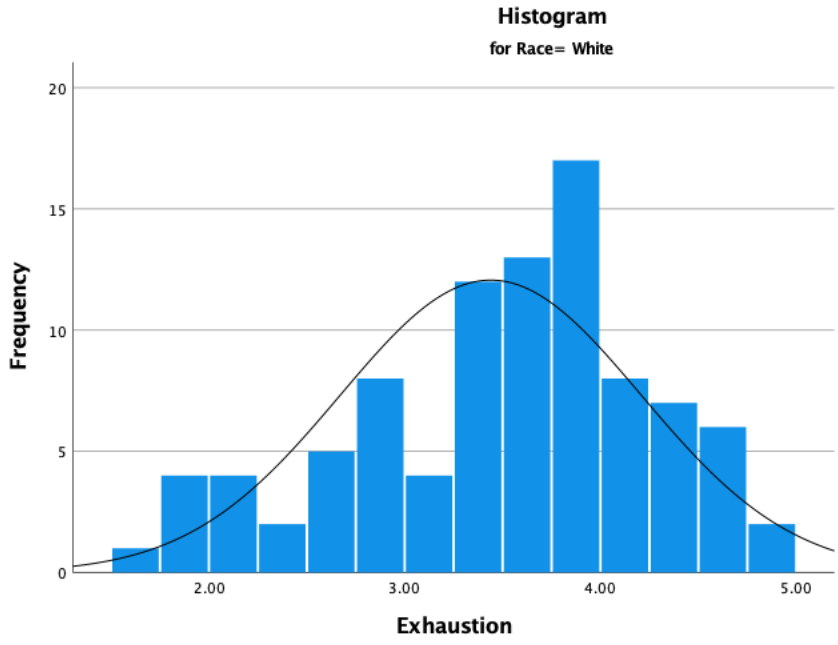


Figure M19

Visual Normality Tests: Q-Q Plot for Exhaustion in the White Group

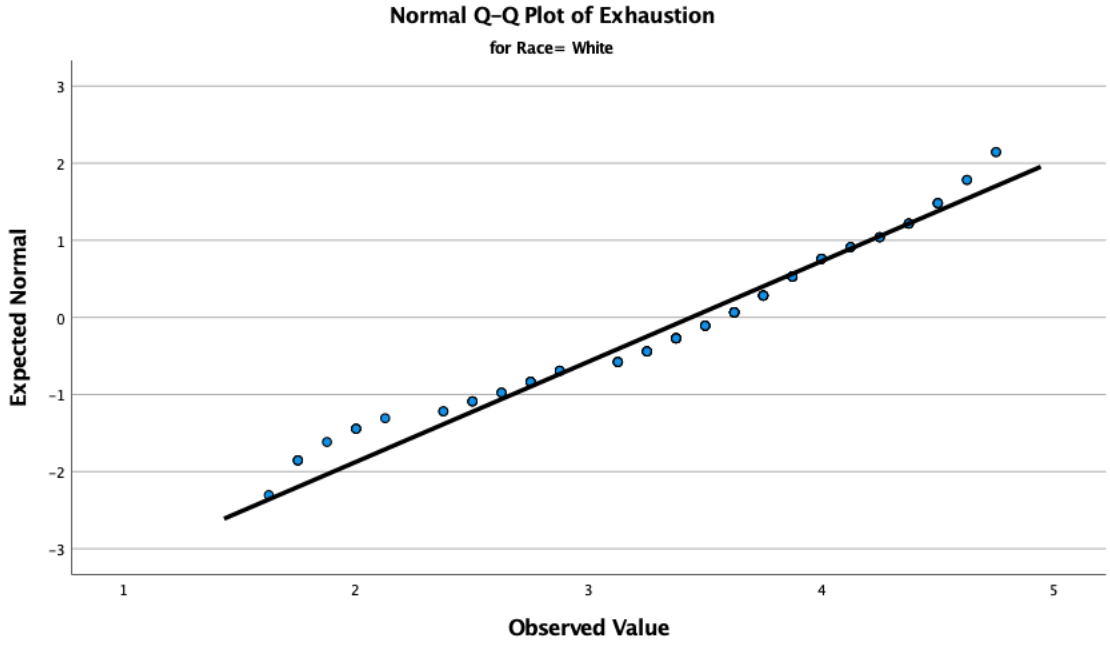


Table M20

Statistical Normality Tests for Disengagement, Exhaustion, Burnout, and Turnover Intention for Province

	Eastern Cape	Northern Cape/ Free State	Gauteng	KwaZulu-Natal	Limpopo	North-West	Western Cape
n	15	4	109	14	6	5	35
Disengagement							
Mean	3.28	2.38	2.92	3.11	3.21	3.43	2.70
Median	3.13	2.56	3.00	3.13	3.63	3.63	2.75
Kolmogorov-Smirnov	.17	.	**.15**	.12	.20	.20	.17
Shapiro-Wilk	**.13**	**.44**	.16	**.11**	**.12**	**.41**	**.63**
Skewness	0.88	-0.78	-0.11	0.80	-0.95	-0.40	-0.33
Kurtosis	1.05	-1.54	-0.58	3.24	-0.93	-2.45	-0.20
Exhaustion							
Mean	3.43	3.06	3.53	3.54	3.01	3.85	3.20
Median	3.50	3.13	3.63	3.75	3.28	3.88	3.38
Kolmogorov-Smirnov	.20	.	**.00**	.15	.20	.20	.19
Shapiro-Wilk	**.92**	**.33**	.00	**.22**	**.48**	**.19**	**.02**
Skewness	-0.19	-0.13	-0.52	-0.65	-.061	1.21	-0.50
Kurtosis	0.28	-4.77	-.032	-0.79	-1.39	1.51	-0.91
Burnout							
Mean	3.35	2.72	3.23	3.33	3.11	3.64	2.95

Median	3.31	2.88	3.38	3.41	3.46	3.75	3.06
Kolmogorov-Smirnov	.20	.	**.03**	.20	.20	.20	.20
Shapiro-Wilk	**.71**	**.30**	.05	**.57**	**.20**	**.84**	**.07**
Skewness	0.63	-0.41	-0.32	-0.14	-0.84	0.32	-0.57
Kurtosis	0.72	-3.67	-0.61	-0.43	-1.26	0.52	-0.60
Turnover Intention							
Mean	3.62	3.13	3.19	3.71	3.31	3.30	3.15
Median	3.33	3.58	3.33	3.83	3.42	3.00	3.17
Kolmogorov-Smirnov	.20	.	**.00**	.13	.20	.20	.04
Shapiro-Wilk	**.45**	**.14**	.02	**.02**	**.44**	**.52**	**.18**
Skewness	-0.11	-1.48	-0.30	-1.28	-1.20	0.71	-0.43
Kurtosis	-1.00	1.80	-0.78	1.09	2.51	-1.13	-0.62

Note. Kolmogorov-Smirnov was based on Lilliefors Significance Correction.

Figure M21

Visual Normality Tests: Q-Q Plot for Exhaustion in the Gauteng Group

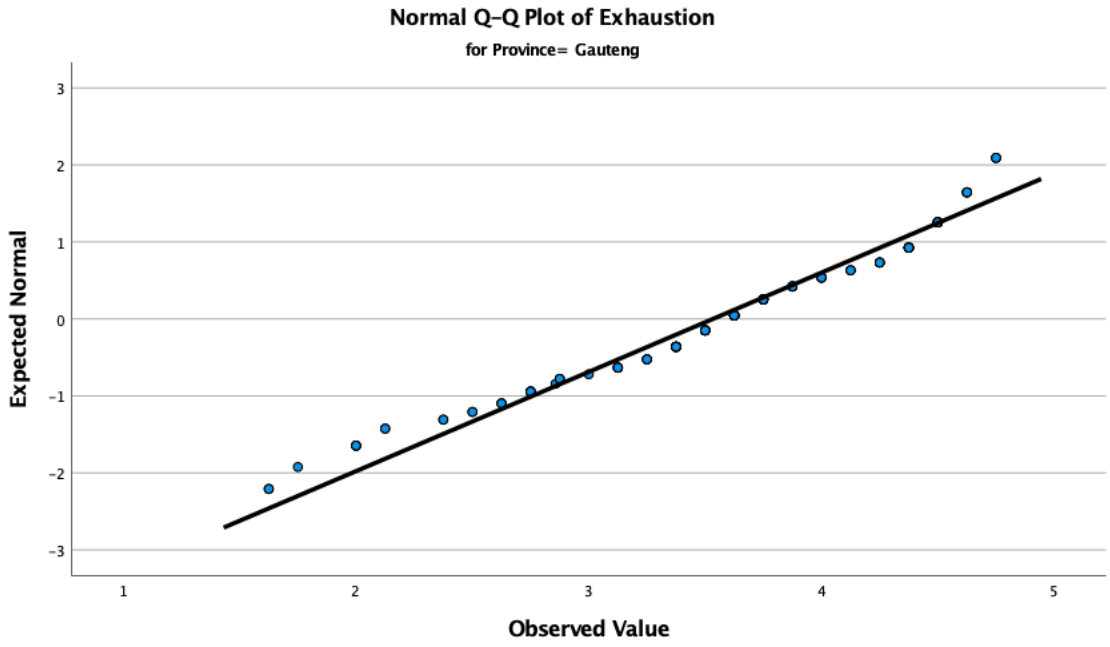


Figure M22

Visual Normality Tests: Histogram for Exhaustion in the Western Cape Group

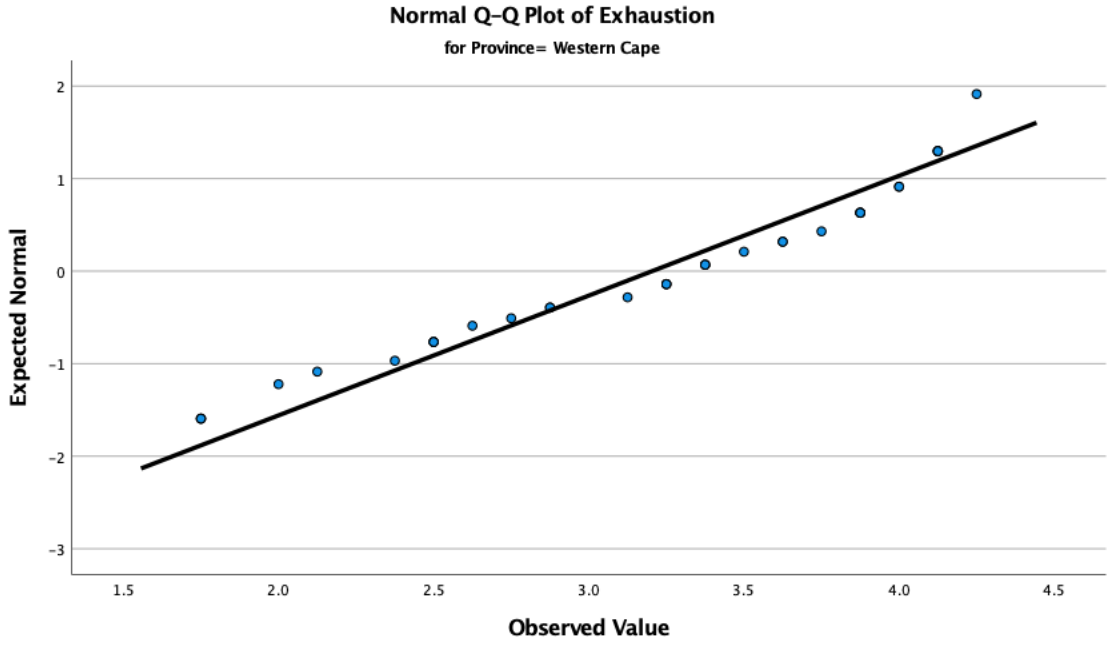


Figure M23

Visual Normality Tests: Histogram for Burnout in the Gauteng Group

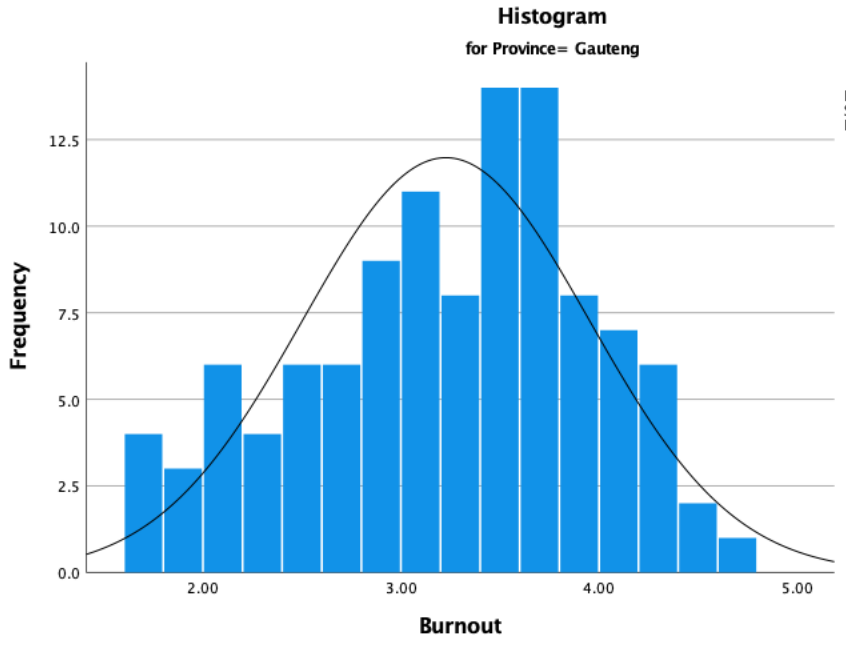


Figure M24

Visual Normality Tests: Q-Q Plot for Turnover Intention in the Gauteng Group

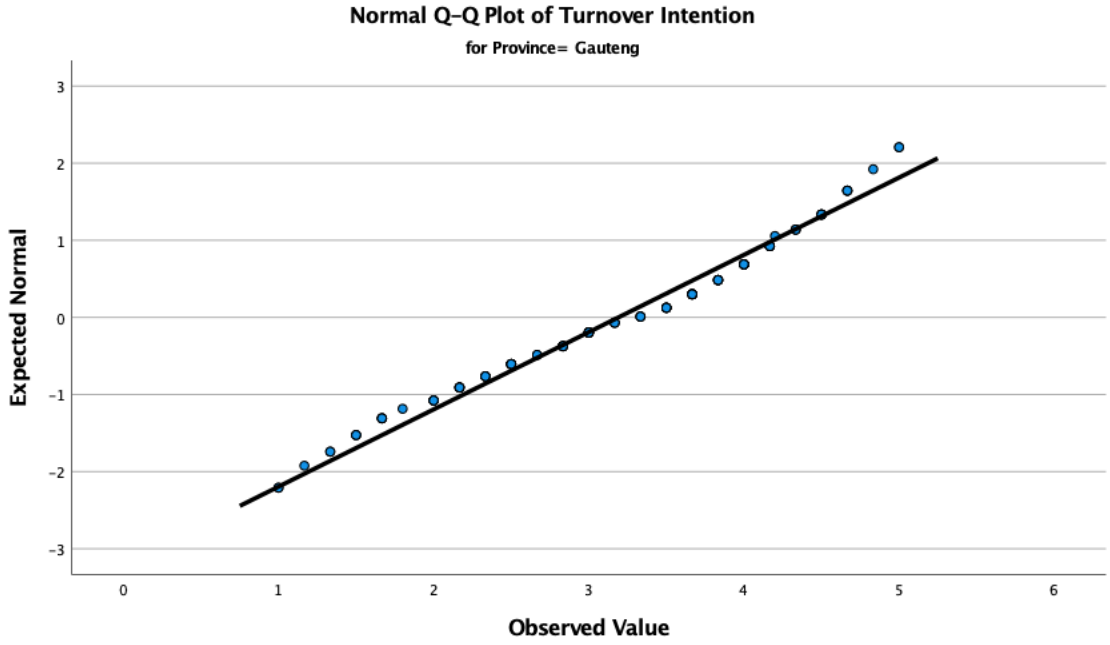


Figure M25

Visual Normality Tests: Q-Q Plot for Turnover Intention in the KwaZulu-Natal Group

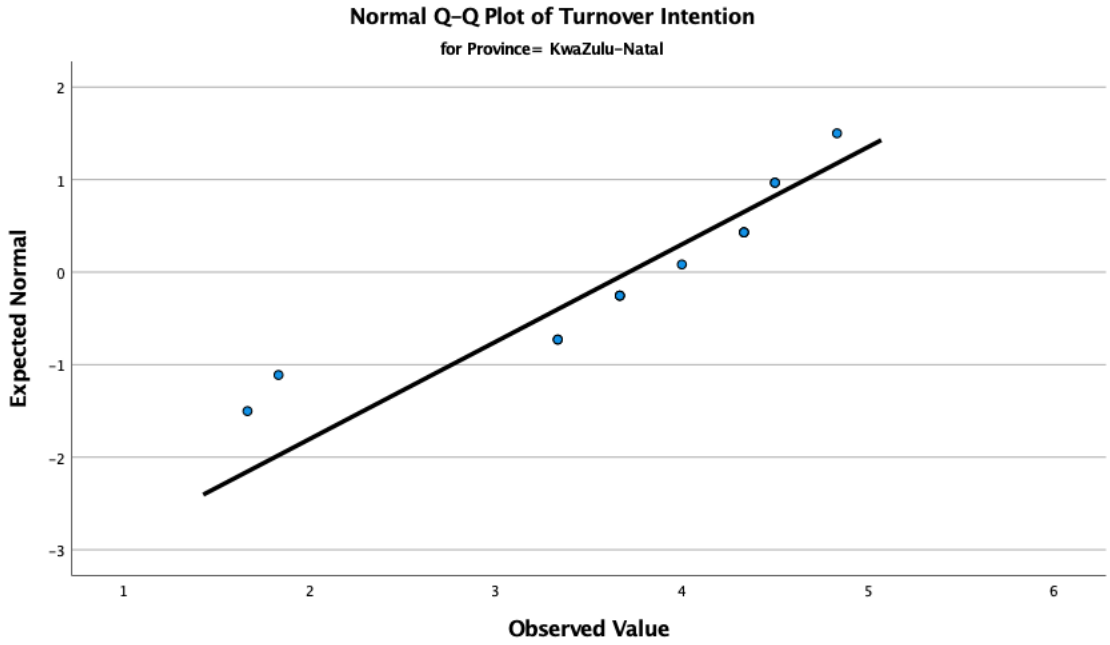


Table M26

Statistical Normality Tests for Disengagement, Exhaustion, Burnout, and Turnover Intention for Discipline

	Musculoskeletal	Critical	Surgery	Medical Science	Occupational Therapy	General	Paediatrics	Student	Mental health	Public Health
n	12	21	10	8	19	21	40	25	20	10
Disengagement										
Mean	2.52	3.45	3.09	2.86	3.03	2.83	2.93	3.18	2.48	2.69
Median	2.56	3.75	3.00	2.81	3.00	2.75	3.00	3.13	2.31	2.88
Kolmogorov-Smirnov	.20	.09	.07	.20	.20	.11	.05	.16	.20	.15
Shapiro-Wilk	**.99**	**.03**	**.02**	**.75**	**.99**	**.24**	**.44**	**.10**	**.47**	**.12**
Skewness	-0.06	-1.22	1.88	0.39	0.31	-0.70	-0.12	-0.22	0.25	-0.92
Kurtosis	-0.16	1.42	5.07	-0.93	0.28	0.59	0.17	-1.19	-0.48	-0.04
Exhaustion										
Mean	3.24	3.77	3.79	3.11	3.44	3.24	3.53	3.73	3.13	3.04
Median	3.31	3.88	3.75	3.44	3.50	3.38	3.63	3.88	3.19	3.19
Kolmogorov-Smirnov	.20	.20	.20	.20	.20	.17	.10	.20	.20	.20
Shapiro-Wilk	**.88**	**.44**	**.85**	**.28**	**.62**	**.25**	**.05**	**.11**	**.45**	**.95**
Skewness	.24	-.37	-.38	-.58	-.46	-.48	-.55	-.89	-.23	-.15
Kurtosis	-.37	.59	1.46	-1.38	-.51	-.49	-.46	.52	-.77	-.72
Burnout										
Mean	2.88	3.61	3.44	2.98	3.24	3.04	3.23	3.45	2.80	2.86
Median	2.91	3.63	3.44	3.22	3.44	3.19	3.25	3.50	2.84	3.03
Kolmogorov-Smirnov	.20	.20	.07	.20	.12	.20	.20	.07	.20	.20
Shapiro-Wilk	**.99**	**.44**	**.19**	**.36**	**.29**	**.21**	**.92**	**.23**	**.60**	**.35**
Skewness	-0.26	-0.76	0.87	-0.42	-0.60	-0.67	-0.23	-0.65	-0.12	-.036
Kurtosis	-0.47	0.70	3.15	-1.59	0.07	-0.06	-0.27	-0.03	-0.76	-1.22
Turnover Intention										
Mean	3.04	3.75	3.77	2.94	3.46	3.05	3.13	3.36	2.92	3.22
Median	3.25	3.67	3.67	2.92	3.67	3.33	3.17	3.50	2.83	3.33
Kolmogorov-Smirnov	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20
Shapiro-Wilk	**.23**	**.62**	**.28**	**.76**	**.54**	**.38**	**.79**	**.36**	**.67**	**.21**
Skewness	-0.09	0.22	0.00	0.36	-0.33	-0.43	-0.15	-0.16	0.17	-0.53
Kurtosis	-1.63	-0.12	-1.26	-0.77	-0.81	-0.81	-0.64	-0.84	-0.90	-1.04

Note. Kolmogorov-Smirnov was based on Lilliefors Significance Correction.

Figure M27

Visual Normality Tests: Q-Q Plot for Disengagement in the Critical Group

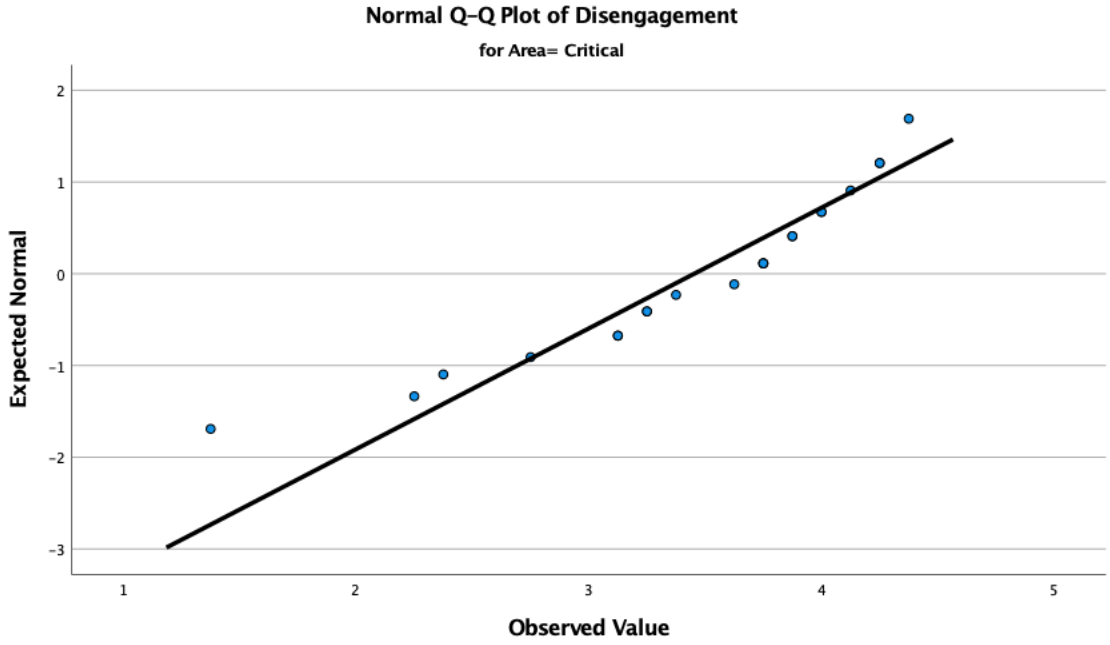
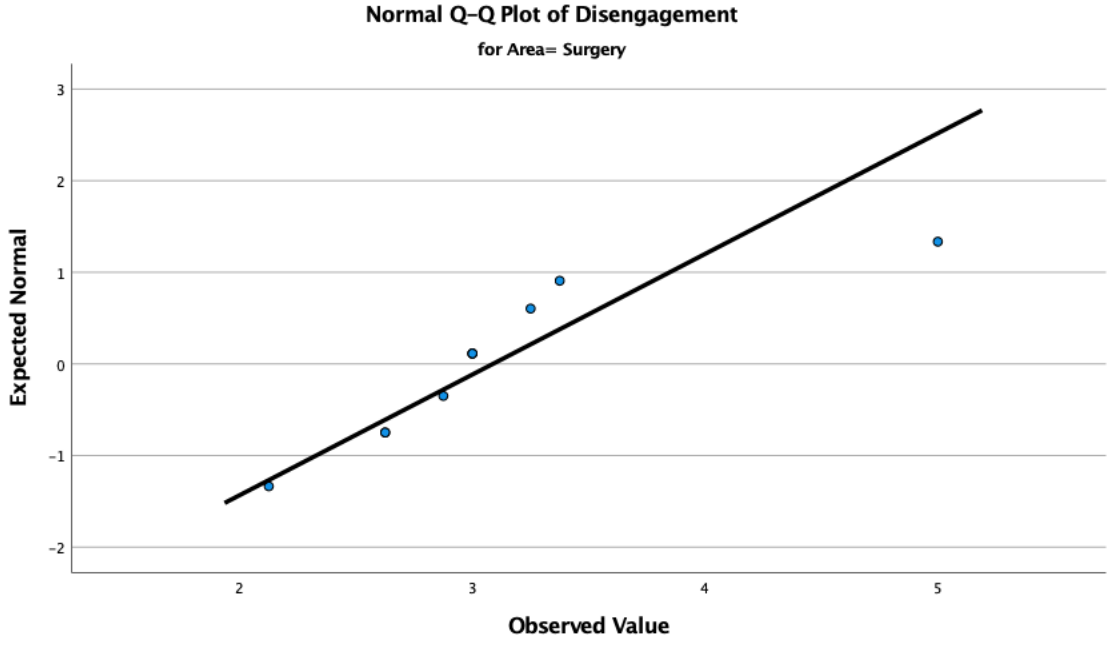


Figure M28

Visual Normality Tests: Q-Q Plot for Disengagement in the Surgery Group



Appendix N: ANOVA Homogeneity of Variance

Table N1

Homogeneity Of Variance for Disengagement, Exhaustion, Burnout and Turnover Intention Scales Per Race, Province, and Discipline

	Levene Statistic	Degrees of freedom 1	Degrees of freedom 2	Sig.
Burnout and Race				
Based on Mean	1.88	5	183	.10
Based on Median	1.71			.13
Based on trimmed Mean	1.85			.14
Disengagement and Race				
Based on Mean	1.49	5	183	.20
Based on Median	1.30			.27
Based on trimmed Mean	1.51			.19
Exhaustion and Race				
Based on Mean	0.95	5	183	.45
Based on Median	0.77			.57
Based on trimmed Mean	0.93			.46
Turnover Intention and Race				
Based on Mean	1.73	5	183	.13
Based on Median	1.45			.21
Based on trimmed Mean	1.71			.13
Burnout and Province				
Based on Mean	1.12	6	181	.35
Based on Median	0.88			.51
Based on trimmed Mean	1.08			.38
Disengagement and Province				
Based on Mean	1.57	6	181	.16
Based on Median	1.41			.21
Based on trimmed Mean	1.52			.17
Exhaustion and Province				
Based on Mean	0.80	6	181	.57
Based on Median	0.72			.64
Based on trimmed Mean	0.77			.60
Turnover Intention and Province				
Based on Mean	0.67	6	181	.67
Based on Median	0.55			.77
Based on trimmed Mean	0.67			.67
Burnout and Discipline				
Based on Mean	0.61	9	176	.78
Based on Median	0.51			.87
Based on trimmed Mean	0.60			.79
Disengagement and Discipline				
Based on Mean	0.16	9	176	.99
Based on Median	0.17			.99
Based on trimmed Mean	0.18			.99

Exhaustion and Discipline				
Based on Mean	1.21	9	176	.29
Based on Median	0.95			.48
Based on trimmed Mean	1.17			.32
Turnover Intention and Discipline				
Based on Mean	2.11	9	176	.03
Based on Median	1.92			.05
Based on trimmed Mean	2.10			.03

Appendix O: ANOVA Post Hoc Tests

Table O1

Hochberg's GT2 Multiple Comparisons for Exhaustion Between Race Groups

	Race	Mean Difference	Sig.	Lower Bound 95% C.I	Upper Bound 95% C.I
Asian	Black	.91	.50	-.43	2.26
	Coloured	.36	1.00	-1.02	1.75
	Indian	.49	.99	-.87	1.85
	White	.64	.91	-.68	1.96
	Other	1.25	.49	-.59	3.09
Black	Asian	-.91	.50	-2.26	.43
	Coloured	-.55	.10	-1.16	.05
	Indian	-.43	.28	-.98	.12
	White	-.27	.63	-.70	.16
	Other	.34	1.00	-1.01	1.68
Coloured	Asian	-.36	1.00	-1.75	1.02
	Black	.55	.10	-.05	1.16
	Indian	.13	1.00	-.51	.76
	White	.28	.84	-.25	.82
	Other	.89	.59	-.50	2.27
Indian	Asian	-.49	.99	-1.85	.87
	Black	.43	.28	-.12	.98
	Coloured	-.13	1.00	-.76	.51
	White	.16	1.00	-.32	.63
	Other	.76	.78	-.60	2.12
White	Asian	-.64	.91	-1.96	.68
	Black	.27	.63	-.16	.70
	Coloured	-.28	.84	-.82	.25
	Indian	-.16	1.00	-.63	.32
	Other	.61	.94	-.71	1.93
Other	Asian	-1.25	.49	-3.09	.59
	Black	-.34	1.00	-1.68	1.01
	Coloured	-.89	.59	-2.27	.50
	Indian	-.76	.78	-2.12	.60
	White	-.61	.94	-1.93	.71

Table O2

Hochberg's GT2 Multiple Comparisons for Turnover Intention Between Race Groups

	Race	Mean Difference	Sig.	Lower Bound 95% C.I	Upper Bound 95% C.I
Asian	Black	.07	1.00	-1.64	1.78
	Coloured	-.57	1.00	-2.33	1.18
	Indian	-.27	1.00	-2.00	1.45
	White	.08	1.00	-1.59	1.75
	Other	1.17	.89	-1.16	3.49
Black	Asian	-.07	1.00	-1.78	1.64
	Coloured	-.65	.18	-1.41	.12
	Indian	-.34	.90	-1.04	.35
	White	.01	1.00	-.54	.56
	Other	1.09	.59	-.61	2.80
Coloured	Asian	.57	1.00	-1.18	2.33
	Black	.65	.18	-.12	1.41
	Indian	.30	.99	-.50	1.10
	White	.65	.07	-.02	1.33
	Other	1.74	.05	-.01	3.49
Indian	Asian	.27	1.00	-1.45	2.00

	Black	.34	.90	-.35	1.04
	Coloured	-.30	.99	-1.10	.50
	White	.35	.72	-.25	.95
	Other	1.44	.19	-.29	3.16
White	Asian	-.08	1.00	-1.75	1.59
	Black	-.01	1.00	-.56	.54
	Coloured	-.65	.07	-1.33	.02
	Indian	-.35	.72	-.95	.25
	Other	1.09	.57	-.58	2.76
Other	Asian	-1.17	.89	-3.49	1.16
	Black	-1.09	.59	-2.80	.61
	Coloured	-1.74	.05	-3.49	.01
	Indian	-1.44	.19	-3.16	.29
	White	-1.09	.57	-2.76	.58

Appendix P: Correlation Linearity

Figure P1

Scatterplot Of Disengagement and Turnover Intention

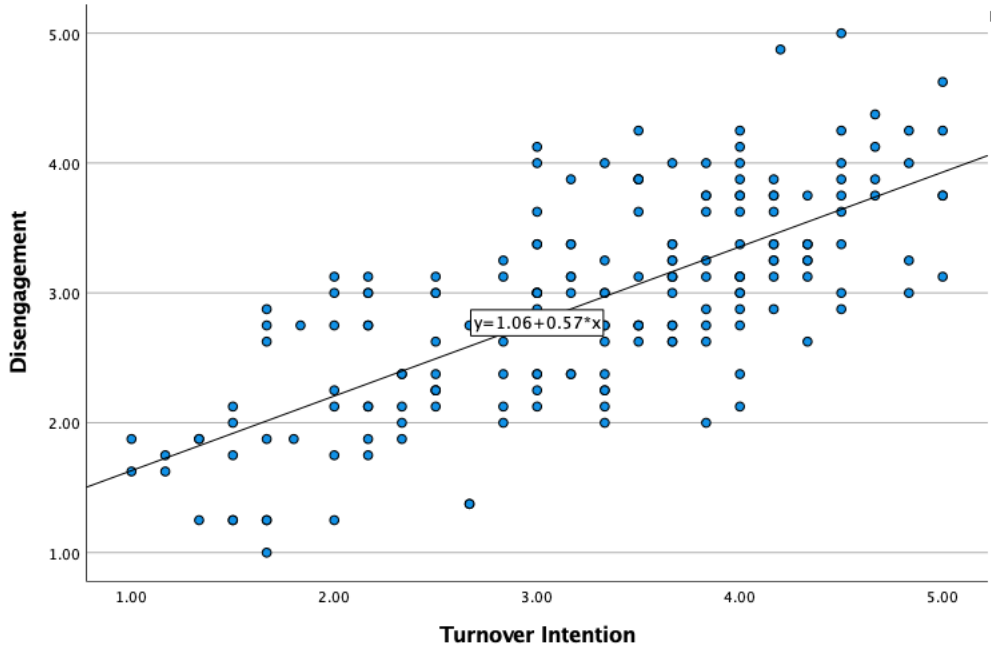


Figure P2

Scatterplot Of Disengagement and Age

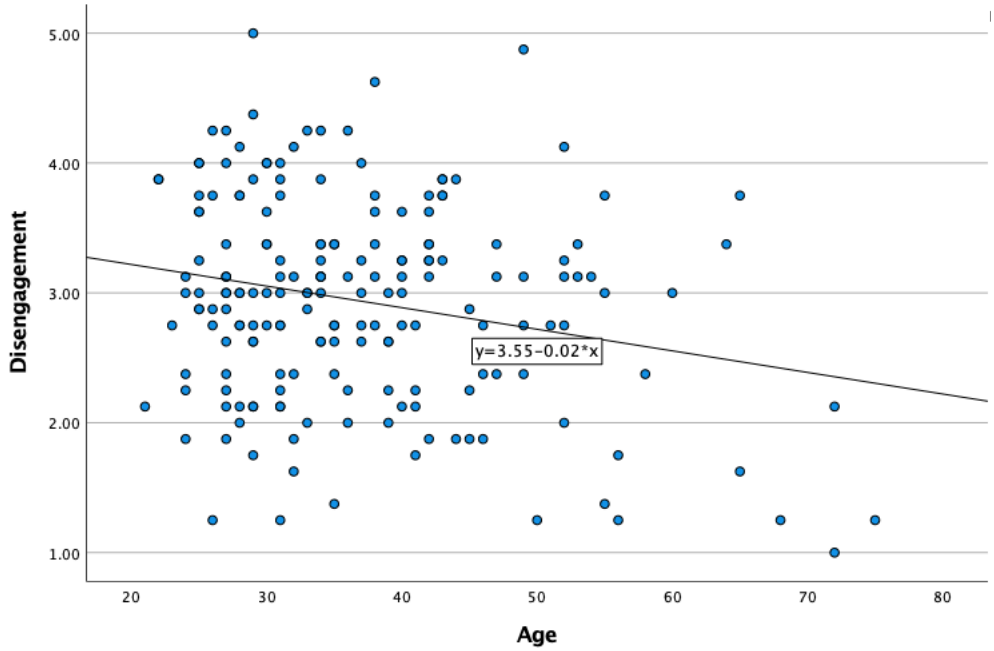


Figure P3

Scatterplot Of Disengagement and Career Length

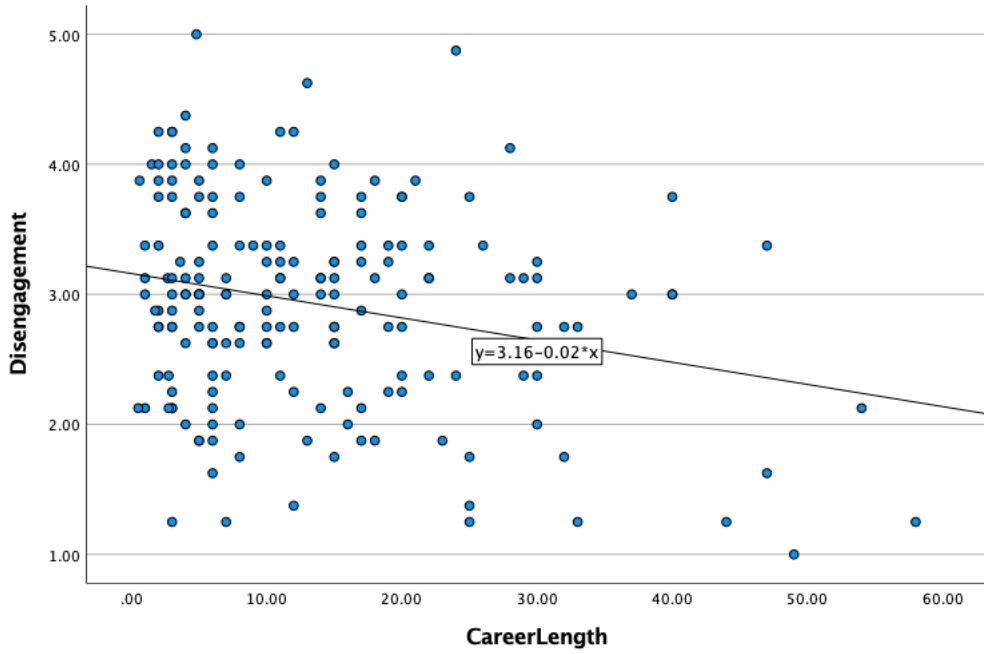


Figure P4

Scatterplot Of Exhaustion and Turnover Intention

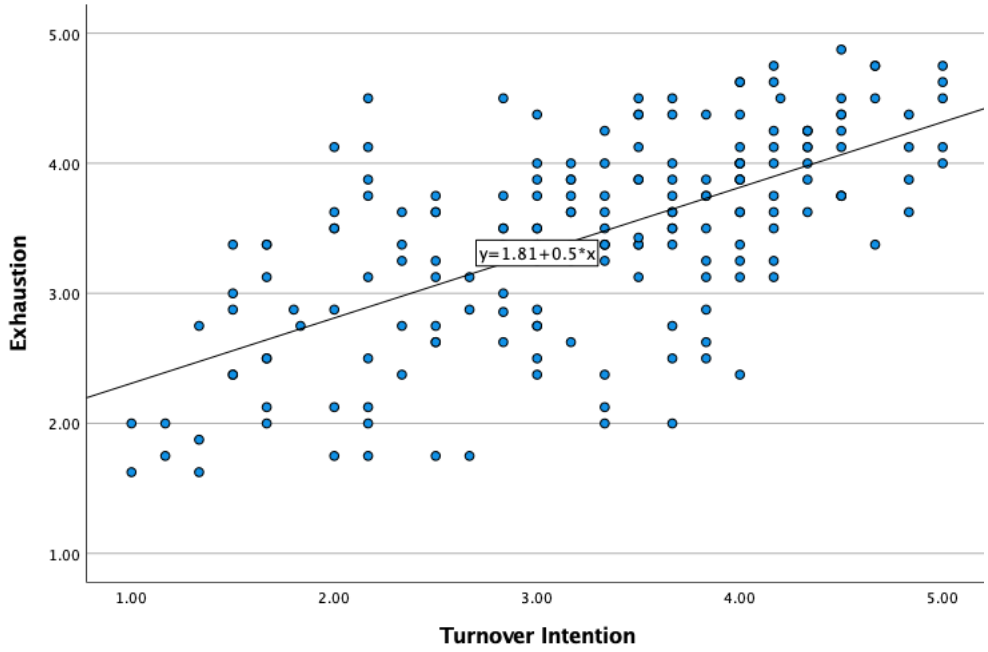


Figure P5

Scatterplot Of Exhaustion and Age

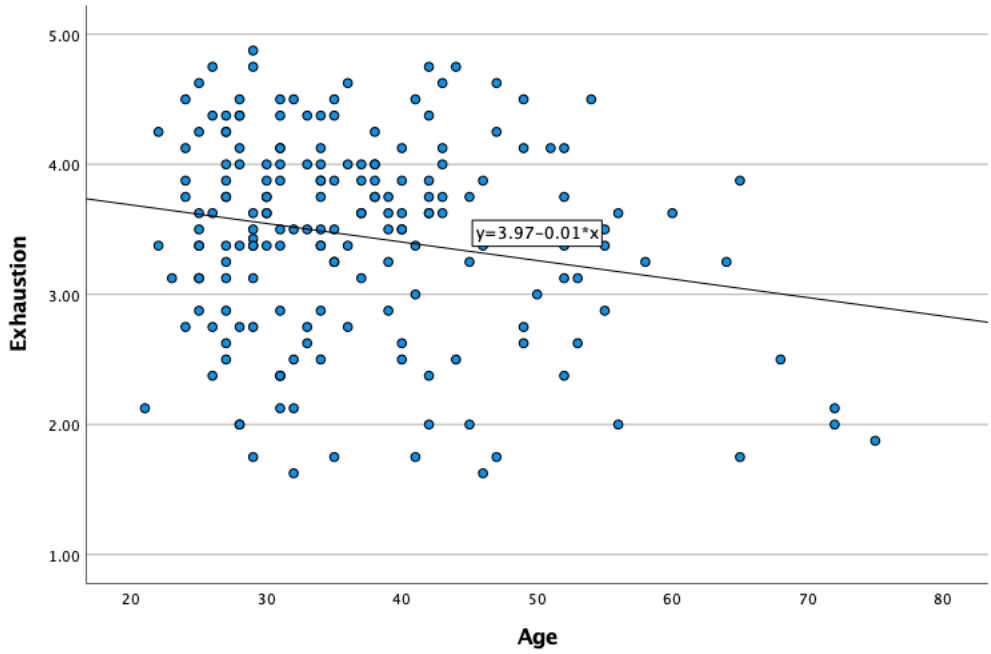


Figure P6

Scatterplot Of Exhaustion and Career Length

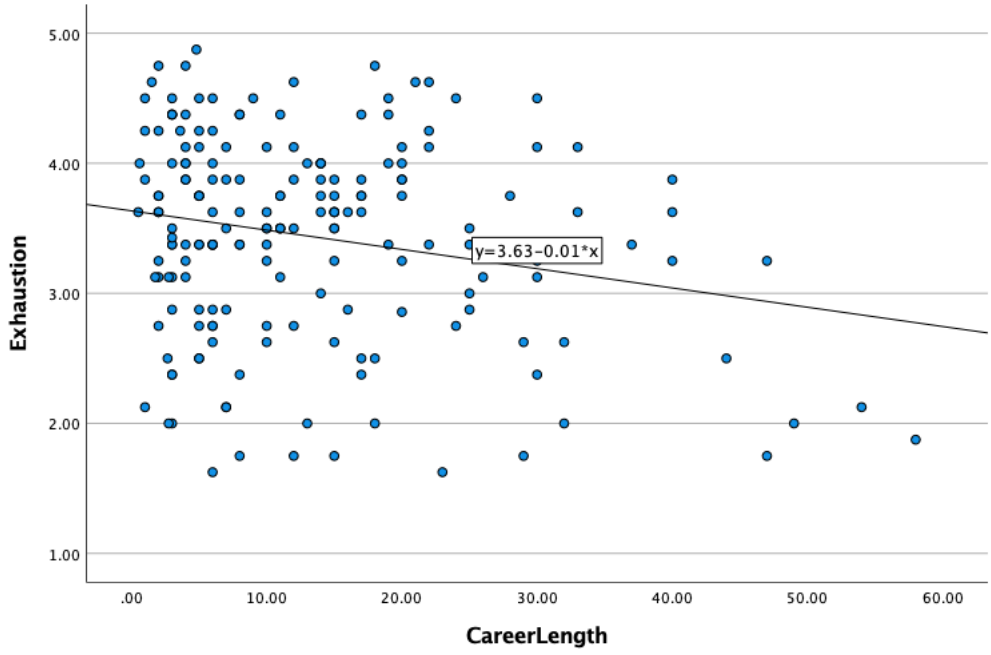


Figure P7

Scatterplot Of Burnout and Turnover Intention

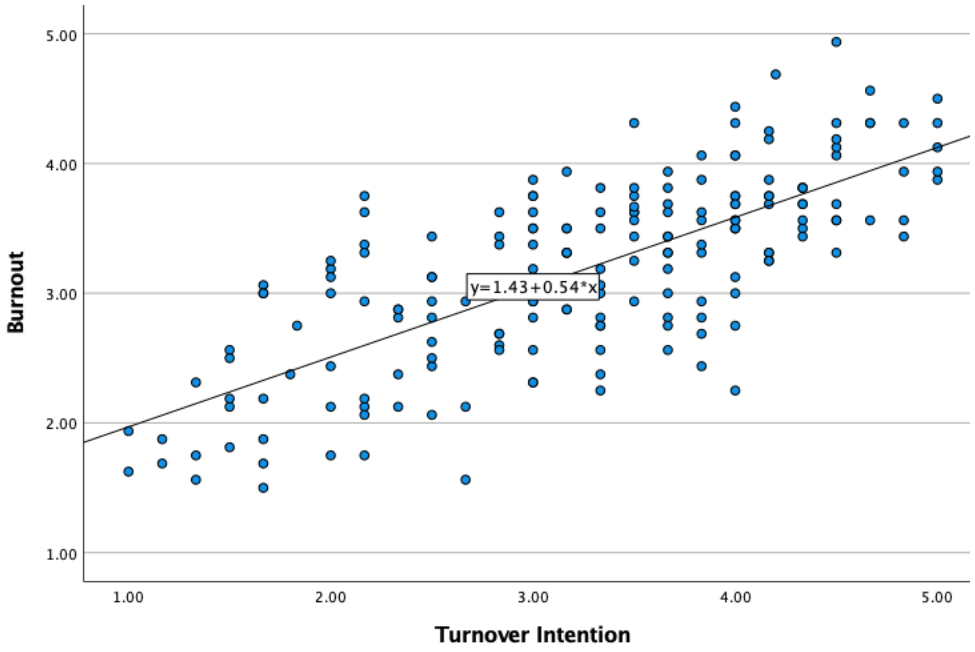


Figure P8

Scatterplot Of Burnout and Age

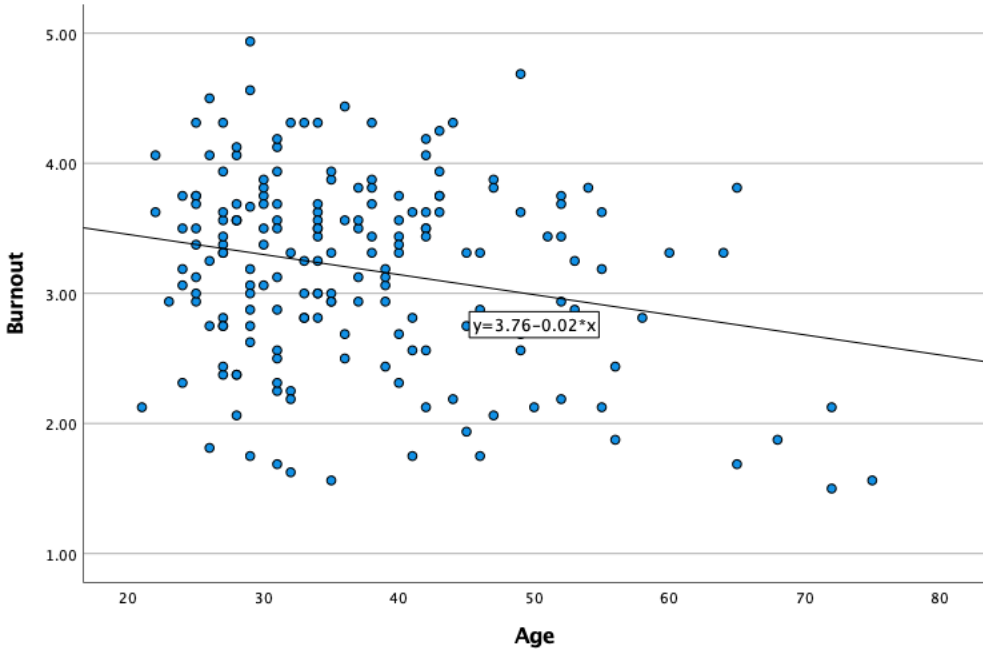


Figure P9
Scatterplot Of Burnout and Career Length

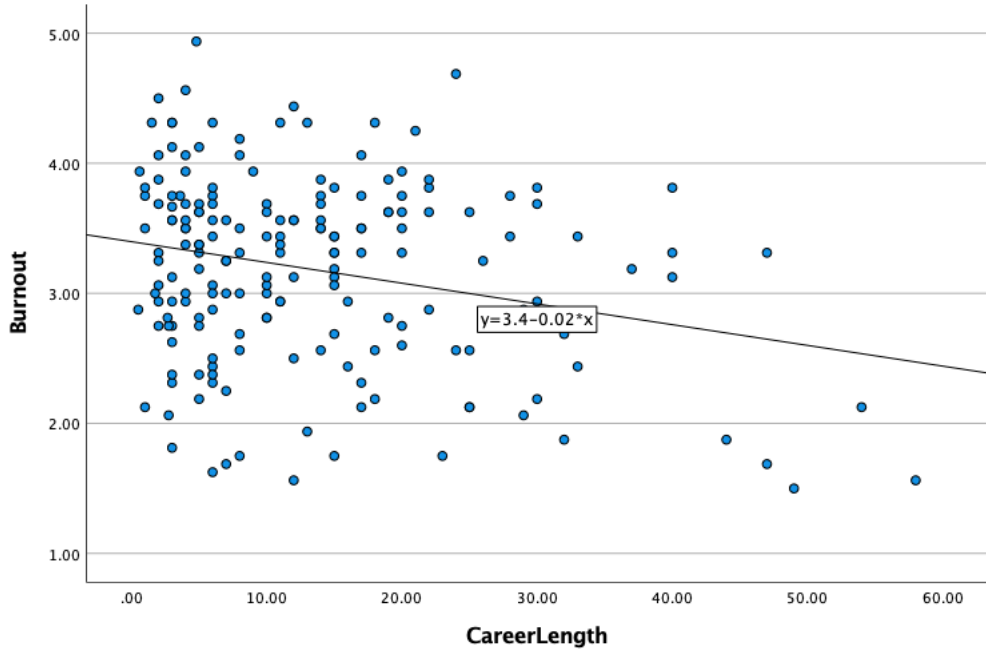
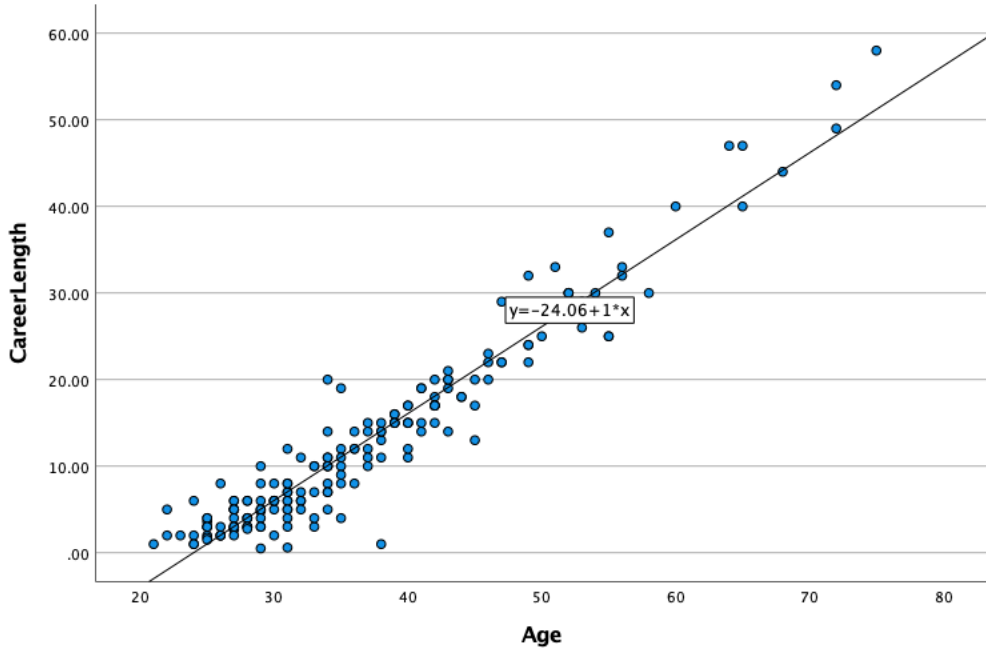


Figure P10
Scatterplot Of Age and Career Length



Appendix Q: Regression Assumptions

Figure Q1

Standard Residuals and Predicted Values of Disengagement and Turnover Intention

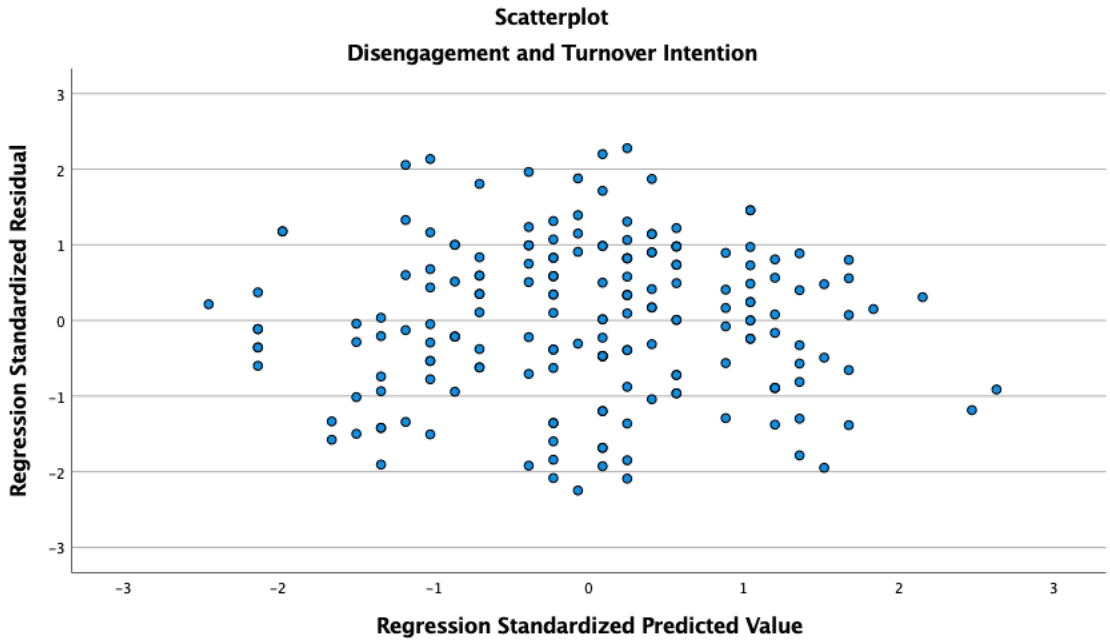


Figure Q2

Standard Residuals and Predicted Values of Exhaustion and Turnover Intention

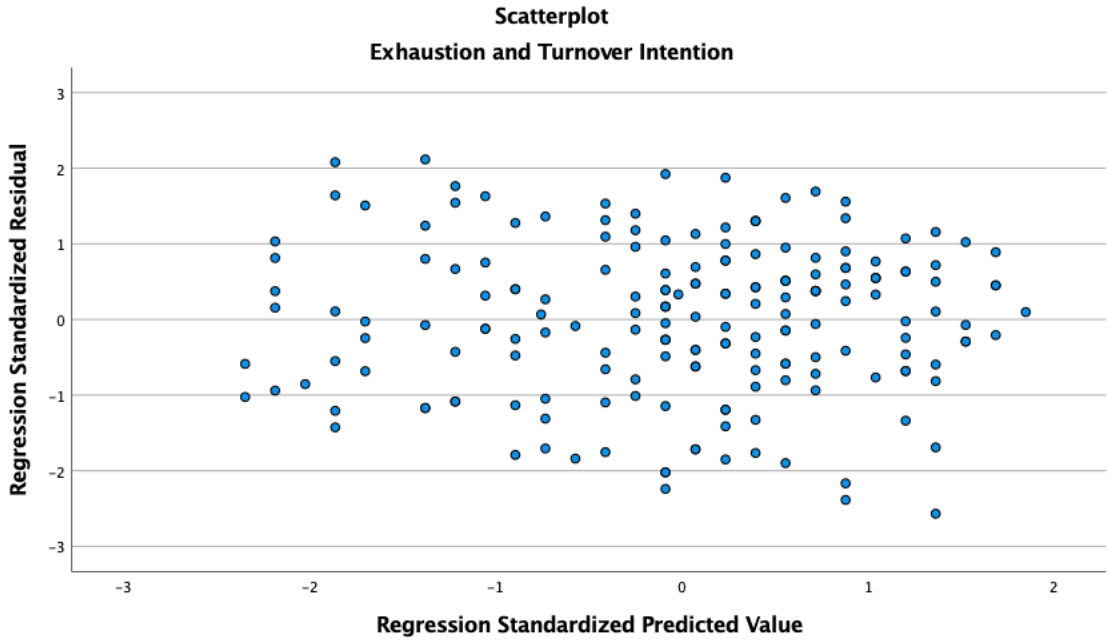


Figure Q3

Standard Residuals and Predicted Values of Burnout and Turnover Intention

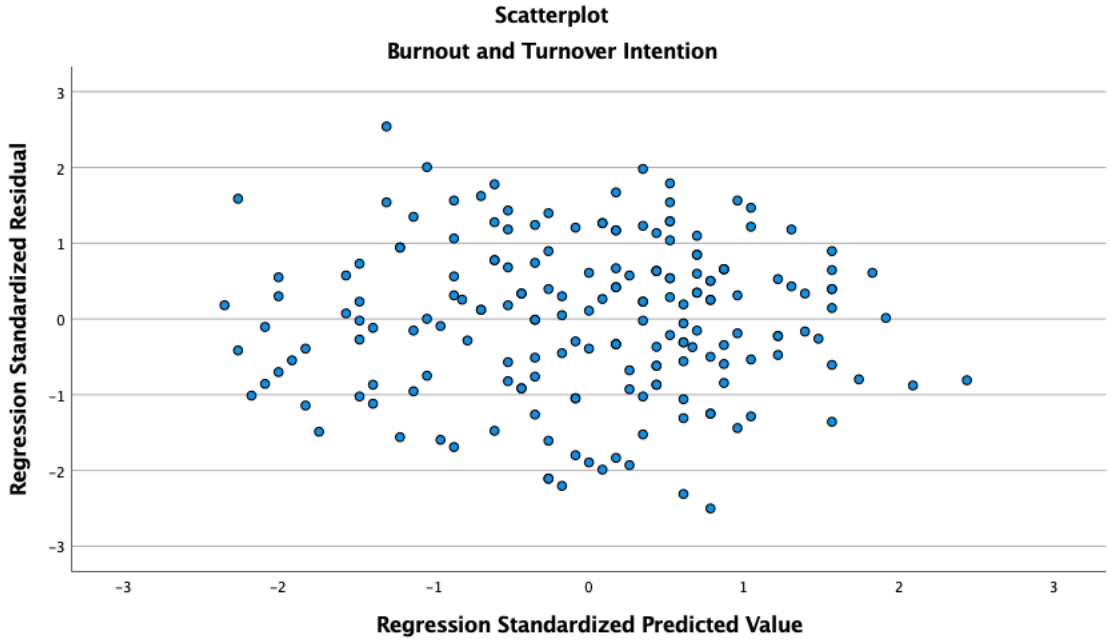


Table Q4

Residual Statistics, Cooks Distance and Leverage Points of Disengagement, Exhaustion, And Burnout on Turnover Intention

	Minimum	Maximum	Mean	Standard Deviation
Disengagement and Turnover Intention				
Std Residual	-2.25	2.28	.00	1.00
Cook's Distance	.00	.03	.00	.01
Centred Leverage Value	.00	.04	.01	.01
Exhaustion and Turnover Intention				
Std Residual	-2.57	2.12	.00	1.00
Cook's Distance	.00	.05	.01	.01
Centred Leverage Value	.00	.03	.01	.01
Burnout and Turnover Intention				
Std Residual	-2.50	2.54	.00	1.00
Cook's Distance	.00	.05	.00	.01
Centred Leverage Value	.00	.03	.01	.01

Note. N=189

Figure Q5

Visual Normality Test: Histogram for Standardised Residual of Disengagement with Turnover Intention

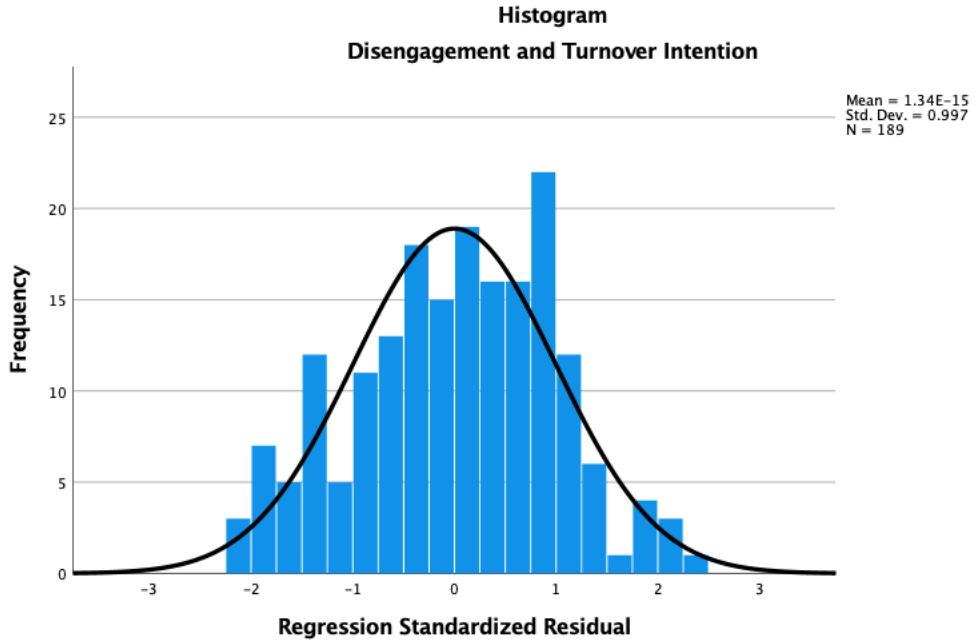


Figure Q6

Visual Normality Test: Histogram for Standardised Residual of Exhaustion with Turnover Intention

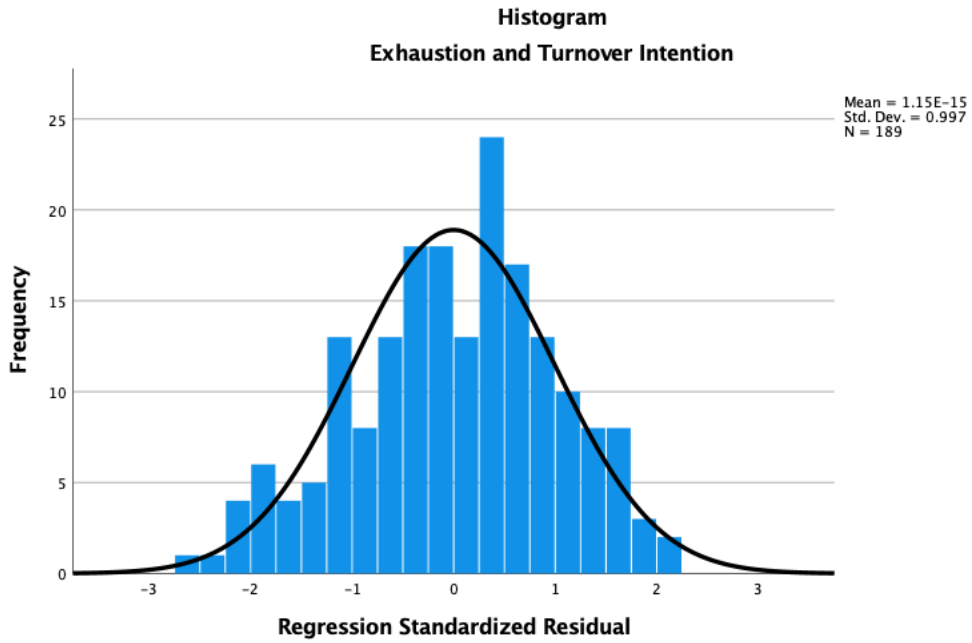


Figure Q7

Visual Normality Test: Histogram for Standardised Residual of Burnout with Turnover Intention

