

**TITLE: A SYSTEMATIC REVIEW: BURNOUT AND OCCUPATIONAL
STRESS IN HIGHER EDUCATION EMPLOYEES**



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WESTERN CAPE

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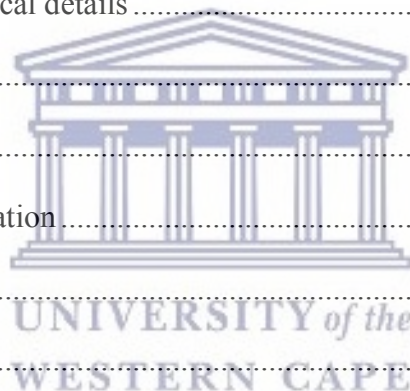
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Abstract

Research findings indicated that the higher education sector is progressively experiencing occupational stress and burnout. There are many factors that contribute to the increase in stress and burnout, such as transformational policies, student protests, issues of retention and throughput, internalisation and student mobility, funding challenges, massification, curricular changes informed by decolonisation, providing epistemological access, and contextual relevance. Continuous changes in the academic landscape and student protests have become a reality of the past two decades. As a result, higher education is considered more stressful as functions are performed in a Volatile, Uncertain, Complex and Ambiguous (VUCA) environment. The Corona Virus Disease 2019 (COVID-19) crisis posed new dilemmas that compound challenges in the sector. A clear body of literature that exists reports that occupational stress and burnout could result in the development and implementation of intervention strategies that will improve work performance and well-being for employees. It is very difficult to compare these primary studies on methodological rigour and coherence filtration process that identifies good quality literature reporting on occupational stress and burnout in the sector. This study aimed to consolidate the literature reporting on occupational stress and burnout conducted in Africa and published between January 2010 to June 2021. A systematic review was conducted on three levels: 1) identification of literature, 2) screening of abstracts and 3) evaluation of methodological quality. A meta-synthesis of the findings was concluded. Ethics clearance was issued by the UWC BioMedical Research Ethics Committee (BM20/9).

Key Words: Occupational stress, burnout, higher education, academics, tertiary employees, Africa, systematic review.

LIST OF ABBREVIATIONS

AL	Associate Lectures
APA	American Psychological Association
CCSQ	Comprehensive Coping Strategies Questionnaire
CDC	Centres for Disease Control
CFS	Chronic Fatigue Syndrome
COVID-19	Coronavirus Disease 2019
DP	Depersonalization
DSM-V	Diagnostic and Statistical Manual of Mental Disorders, 5 th Edition
EE	Emotional Exhaustion
EI	Emotional Intelligence
GAS	General Adaption Syndrome
HBU	Historically Black Universities
HEI	Higher Education Institution
HWU	Historically White Universities
ICD-10	International Classification of Diseases, 10 th Revision
JD-R	Job Demands – Resources Model
MBI	Maslach Burnout Inventory
MBI-HISS	Maslach Burnout Inventory Human Service Survey
Ndoe	National development of Education
NDP	National Development Plan
NPC	National Planning Commissions
NRF	National Research Foundation
OBI	Oldenburg Burnout Inventory
OS	Occupational Stress
PA	Personal Accomplishment
PhD	Post-Doctoral Degree
PRISMA	Preferred Reporting Items for Systematic Review And Menta-Analysis
SAHEI	South African Higher Educational Institutions

SARS-COV-2	Sever Acute Respiratory Syndrome Corona Virus - 2
SDG	Sustainable Development Goals
SEM	Structural Equational Modelling
SHD	Senate Higher Degrees Committee
SWSI	Source of Work Stress Inventory
TVET	Technical Vocational Education and Training
UWC	University of Western Cape
VUCA	Volatile, Uncertain, Complex and Ambiguous



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Figure 3.1 PRISMA flow chart. A guided flow chart for the Preferred Reporting Items for Systematic reviews and Meta-Analysis (PRISMA) developed by Moher *et al.* (2009).

Figure 4.1 PRISMA review process. The review process was graphically represented using an adaptation of the PRISMA developed by Moher *et al.* (2009).



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CHAPTER ONE

INTRODUCTION

1.1 Background of research topic

The higher education sector in South Africa and across the world continues to transform and with that, academic work has become more challenging and demanding on the employees of higher education institutions, also referred to as academics Frantz *et al.* (2019). The National Planning Commissions (NPC) established in 2010, was tasked with developing a National Development Plan (NDP) (Subban & Theron, 2016). The NPC's diagnostic report outlined South Africa's accomplishments and shortcomings since 1994 (Subban & Theron, 2016). Education was recognised as one of the nine major challenges (Subban & Theron, 2016). The 2012 National Development Plan identified the urgent need for revision in the higher education sector, intending to improve education, training and innovation (Buys, 2018).

Jansen (2003) reported that academics have a responsibility towards students in the higher education system. Academics must ensure all prospective and current students are equipped and knowledgeable within their respective fields of study (Jansen, 2003). Both student throughput rates and employment of graduates placed pressure on academics to improve the quality of their teaching. Academics are expected to perform well in areas of research and to obtain external funding while fulfilling numerous administrative duties (Barkhuizen & Rothmann, 2008). Higher education institutions have been commonly referred to as 'stress factories' due to the ongoing occupational stress placed on academics (Rothmann, Nell, *et al.*, 2008).

1.2 The impact of Apartheid on higher education

Historically, Apartheid denotes the legal structure of institutionalised racial inequality and segregation in South Africa (Lipton, 1989). Apartheid not only deprived the black community access to academic experiences that would equip them for tertiary training, but it also limited black students' access to well-resourced institutions in the higher education sector (Boughey, 2002). As a result, separate institutions were developed for the black and white populations

respectively (Bozalek & Boughey, 2012). The institutional infrastructure of Historically Black University (HBUs) were generally sub-standard due to the disproportionate distribution of capital from the South African government at the time, which favoured the white population (Subotzky, 1997). Boughey (2002) suggested that the apartheid era served as an underlying factor to many challenges and changes in higher education. HBUs were denied the opportunity to acquire the competence to govern their affairs on a systematic basis. The election of the democratic government in 1994 did not eradicate the divide in the higher education system between HBUs and historically white universities (HWUs) which had resulted from apartheid policies (Boughey, 2002).

1.3 Transformation of higher education: post-apartheid

Post-apartheid, several policies and legislations were implemented to establish a knowledge-based economy within the higher education system (Frantz *et al.*, 2019). The Higher Education Act 101 of 1997 was promulgated to govern the complete transformation of tertiary education in South Africa. This act aims to redress historical educational disparities and ensure that all students have equal opportunities for basic and higher education. Between 1994 and 2009, South African education policy underwent a significant transition in the post-apartheid period. The task of changing a racially divided, fractured, and inequitable education system in post-apartheid South Africa was recognised as a priority (Sayed & Kanjee, 2013). Therefore, following Apartheid's inefficient and uneven education system, the post-Apartheid education system saw numerous policies aimed at redressing apartheid disparities and meeting the demands of a democratic society within the educational sector (Sayed & Kanjee, 2013).

According to the National Development of Education summit (Ndoe), there were seven white papers outlining the government's response to new information and communication technology in education. Three green papers were drafted by the minister or department responsible for the issues in decision making regarding a particular policy. There were 26 bills (17/26 were amendment bills) and 35 acts (22/35 were amendments of existing laws) between 1994-2009 to rectify the South African educational sector (Sayed & Kanjee, 2013).

These administrative and negotiated policies were discussions surrounding school governance (i.e., core concepts and goals for resolving significant inequities in school supply and transforming a fragmented education system), school resourcing (i.e., the inequities in school

funding and resourcing required policy intervention), as well as teaching and learning (i.e., curriculum, exam and assessment policies, teachers and teaching) (Sayed & Kanjee, 2013). The transformational legislation and policies have not only changed the academic landscape, but became a major source of dissatisfaction among academics as it led to increased workload and expectations (Mapesela & Hay, 2006).

Several variables were recognized as contributing to the challenges in higher education (Hay *et al.*, 2001) The system's deep inequities and distortions, incoherent and poor articulation between various types of higher education institutions, unequal distribution of resources and subsidies among higher education institutions, declining state subsidies, and increased pressure from international and private higher education institutions were among them. “Transformation initiatives have not translated into any meaningful modifications throughout the organisation and substance of the curriculum,” the Department of Education remarked after apartheid ended (Education, 2011). In other words, HBUs continue to face oppression, unequal resource allocation and high demands, notwithstanding the lack of extra resources.

The transformation of higher education remains a South African and global phenomenon, as it has been subjected to significant changes in the last two decades (Bouhey, 2004). The institutional mergers and co-operations that the South African post-Apartheid government initiated were intended to close the gap between HBUs and HWUs. HBUs such as the University of the Western Cape (UWC), which remained independent, continue to experience pressures to perform in demanding environments (Houston *et al.*, 2006). Staff at HBUs are under much more strain since they face the challenges and impact of the apartheid period whilst competing for resources with Historically White Universities (HWUs) and attempting to deliver on substantially altered outcomes (Houston *et al.*, 2006).

The NDP 2030 outlines the goals and objectives of the South African government to eradicate poverty and to reduce inequality. Looking into the higher education sector specifically, the NDP 2030 aims to promote higher education as an expanded, effective, coherent and integrated system (Education, 2011). It further identifies that higher education is the major driver of information and knowledge systems that contribute to both economic development and quality education (Education, 2011). One of the aims of the NDP 2030 is to improve the qualifications amongst academic staff by increasing the percentage of research and instructional staff who hold a Post-doctorate Degree (PhD) (Subban & Theron, 2016). PhD degrees held by academic

staff members are regarded to be the primary drivers of new knowledge creation in high-quality education (Education, 2011). Despite the aim of the NDP to restructure and transform the higher education system, academic staff in South Africa experience immense pressure to perform their primary job obligations as well as, environmental demands (Houston *et al.*, 2006). These environmental demands include administrative responsibilities such as curriculum development, student consultation, grading and lecture planning (Houston *et al.*, 2006).

1.4 Academics in South African higher education institution

Students and higher education institutional frameworks were formerly the emphasis of educational improvement in South Africa, rather than academic personnel (Mapesela & Hay, 2006). As a consequence of their ever-increasing workloads, limited resources, lack of recognition, and inadequate wages, academics may experience occupational stress, which may lead to burnout (Watts & Robertson, 2011). Academics are expected to produce a first-class quality of teaching through the implementation of policies that require more resources than are readily available. Universities have placed significant demands on academics and professional support staff to perform a variety of roles that contribute to stress and burnout as a result of an increase in demands and a decrease in resources. Recent research has identified occupational stress as a risk factor that has become more apparent in academic employees globally due to the responsibilities that these staff face daily (Bhui *et al.*, 2016).

1.5 Problem Statement

The knowledge-based economy is characterised by the expectation placed on universities by the government to transform the post-Apartheid legacy of inequality within academia. The Higher Education environment is described as a VUCA environment, in which the available resources exceed the job demands, as well as exceed the available internal and external resources of academic and professional support staff in the sector (Essenko & Rothmann, 2007). Recent studies report that the risk of burnout and occupational stress amongst staff in the educational sector is increasing. There is a clear body of literature globally that emerged over the last 10 years reporting on stress and burnout in the sector. The research has been predominantly focused on developed countries. Research on the African continent can be

described as emerging and there is a need to develop a good sense of the scope of the research conducted on the topic in Africa.

Globally, the research has moved beyond pure exploration and there is a need to identify clear foci for further research. It is difficult to compare findings of primary studies without a common basis for comparison of methodological rigour and coherence. Thus, there is a need for filtration of the literature conducted in Africa and reporting on burnout and occupational stress in the sector. The present study addressed this gap in research pertaining to burnout and occupational stress in academics within higher education in Africa.

1.6 Rationale of study

The NDP 2030 identified higher education as a sector that required redesign and transformation (Education, 2011). Post matriculation studies at Universities, and Technical and Vocational Education and Training (TVET) colleges are increasingly under the magnifying glass to address issues of access, quality and contextual relevance in alignment with transformational policy (Mapesela & Hay, 2006). The pressure to provide a quality education that produces graduates for the 21st century who can participate in the knowledge economy places a high demand on infrastructure and resources (Frantz & Smith, 2013). Understanding occupational stress and burnout in this environment is crucial to ensure that the higher education agenda is maintained (Frantz *et al.*, 2019). Thus, the present study addressed the reported incidence of burnout and occupational stress in the African Higher Education sector that in turn can inform possible intervention. Most research looks at how the NDP agenda can be attained but neglects to focus on the mental health aspects of the staff. This study could be making an important contribution to the pursuit of quality education in a context where increasing demands does not commensurate with dwindling resources.

1.7 Thesis organisation

The thesis is comprised of five chapters that are briefly discussed below:

Chapter One: Introduction

This chapter includes the context and background regarding the topic of discussion, rationale and problem statement as well as the aims and objectives.

Chapter Two: Literature Review

An overview of the accessible and present literature on the topic of discussion is assessed and documented within a literature review. This displays relevant literature on the topic as well as highlights the gaps in the literature for further research. This review is an abbreviated review to demonstrate the need for filtration for the literature emanating from Africa. Given that the chosen methodology uses literature as data, this is an important way to reduce repetition. This study provides an academic rationale for the study.

Chapter Three: Methodology

The methodology chapter concentrates on the research design that aligns with the aims, objectives and review questions of the present study. Within this chapter, the research design is explained and how the process of the study was conducted. Justifications are provided for the methodological decisions taken. The application of ethics principles was discussed.

Chapter Four: Results

This chapter presents the results of the present study. Results are organised into process results and meta-synthesis. Process results entail synthesised data extraction which are presented thematically to answer the review questions.

Chapter Five: Discussion

This chapter presents an executive summary of the research project. The results were discussed in relation to the review questions and the existing body of literature. The chapter also presents the limitations, recommendations, and conclusion of the study.

Technical Aspects:

A complete reference list of all sources that were cited is presented after Chapter Five. A complete list of annexures was also presented for this study. Within the scope of the University of Western Cape, the standards of the Publication Manual of the American Psychological Association® (APA), as defined in the seventh edition were utilized as a general guideline for referencing and technical conventions.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

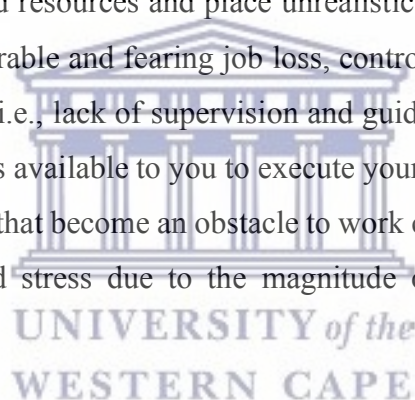
According to Clark (2000), there is an overwhelming amount of evidence of a disturbing imbalance in higher education. The rising imbalance in higher education and its environment is marked by a shortage of resources to meet supply needs, particularly money, as well as unequal distribution of resources or subsidies inside the educational institution (Barkhuizen & Rothmann, 2008). Despite the struggle of crime, violence, supply demands and finances; educational employees are inundated in paperwork and provided deadlines in both support and academic staff (Viljoen & Rothmann, 2002). Davis (1996) stated that higher education consists of two perceptible structures as a working organisation: (a) academic staff, and (b) professional academic support staff (administrative staff). The two organisational structures do not hold the same responsibilities within the job description and supervisory structure. Thus, generating different employee difficulties, demands, and concerns. Seldin (1991) further elaborates that the level of stress experienced by both academic staff and support staff to uphold the daily operations and work obligations increased over the recent years and are likely to continue escalating. Additionally, educators are expected to eliminate or reduce external negative influences that are visible in the social or personal setting, such as violence, criminality, or domestic problems among pupils (Jackson *et al.*, 2006).

2.2 Different types of stress

Stress is a multifaceted term that refers to the internal and external incident or condition that is connected to the individual's connection with the environment (Nel & Roomaney, 2015). There are three different forms of stress referred to as acute, episodic and chronic stress (Lazarus, 2000). Firstly, acute stress is defined as a rapid, acute reaction to a specific stressor such as an expectation, new demand, or pressure that raises an individual's arousal levels past their adaptation limit (Colligan & Higgins, 2006). Acute stress is distinguished by a distinct development and disappearance of symptoms over a short period of time. Secondly and similarly, episodic acute stress (episodic stress) is characterised by repetitive and consistent

stress responses occurring repeatedly over a longer period from multiple episodes. Those suffering from episodic stress are often impatient, displays a sense of urgency and are overwhelmed by too many demands circulating at the same time, which often results in them becoming easily frustrated and aggressive. Finally, chronic stress is the outcome of a long-term accumulation of continual demands or pressures (Colligan & Higgins, 2006). It becomes evident that academia and the tertiary education sector harbour an immense amount of stimulus that could potentially result in stress (Melendez & De Guzman, 1983).

Marshall and Cooper (1976) developed the Organisational Stress Screening Tool (ASSET) based on the Model of Stress at Work. There are eight sources of stress namely; work relationships, work-life imbalance, overload, job security, control, resources and communication, pay and benefits and aspects of the job itself. Work relationships relate to the unaccommodating relationship with colleagues and supervisors, isolation or unfair treatment. Work-life imbalance refers to interference between both personal and work life. Overload entails job demands that exceed resources and place unrealistic deadlines. Job security refers to concerns about being undesirable and fearing job loss, control i.e., training, equipment and resources that are appropriate (i.e., lack of supervision and guidance control). Resources and communication relate to what is available to you to execute your work. Pay and benefits relate to occupational financial perks that become an obstacle to work completion. Aspects of the job itself relate to self-perpetuated stress due to the magnitude of the inherent nature of the occupation.



Occupational stress (OS) arises from various work-related pressures, ineffective coping mechanisms and the lack of control over one's job (Rosenthal & Alter, 2012). Various factors impact the levels of occupational stress amongst academic employees in higher education institutions. These factors may entail work overload, work-life imbalances, work relationships, control, communication and job security (Tytherleigh* *et al.*, 2005). OS often leads to physical and emotional exhaustion which has repercussions for the working environment such as; the inability to cope or lack of control over one's job (Meng & Wang, 2018). Exposure to high levels of OS for a prolonged period leads to what is commonly referred to as burnout (Reddy & Poornima, 2012). According to Van der Colff and Rothmann (2014) stress is the main cause of burnout. Burnout is a condition that can affect people of all ages and from all walks of life, yet mostly affects individuals who work in jobs that require interpersonal interaction such as education (Frantz *et al.*, 2019). The manifestation of burnout includes emotional exhaustion,

depersonalization and a lack of professional achievement by the individual which can be categorised into cognitive and physiological symptoms (Costa & Pinto, 2017). Emotional exhaustion refers to the employee's incapability of performing daily tasks due to a loss in energy, emotional fatigue or cynicism towards clients and fellow employees (Rothmann, Barkhuizen, *et al.*, 2008). Depersonalisation represents the interpersonal dimension of burnout together with a negative adjustment in mood displayed by the employee towards fellow employees and their environment (Ozkan & Ozdevecioğlu, 2013). An additional component of burnout is a sense of personal inadequacy which indicates a person's proclivity towards negative assessment (Wright & Bonett, 1997). Burnout has been linked to depression, a sense of failure, fatigue, loss of motivation and poor job-related self-esteem (Levert *et al.*, 2000).

2.3 Understanding burnout

As previously mentioned, the rate of transformation that South African tertiary institutions are experiencing places a tremendous amount of pressure on academics (Viljoen & Rothmann, 2002). Frantz *et al.* (2019) further argued that this may lead to OS and burnout amongst academic employees. Maslach *et al.* (1997) conceptualised burnout as a syndrome of emotional exhaustion, depersonalisation and reduced personal accomplishment that can occur within a working environment associated with various people. Maslach and Leiter (2016, p. 103) recently defines burnout as “a psychological syndrome emerging as a prolonged response to chronic interpersonal stressors on the job.” Moreover, burnout is conceptualised on three key dimensions of response namely, overwhelming exhaustion, feelings of cynicism and detachment from the job, and a sense of ineffectiveness and lack of accomplishment (Maslach & Leiter, 2016). The importance of the three-dimensional model is that it highlights an individual's stress within a societal/environment context as well as highlights the conception of the self and others (Maslach & Leiter, 2016). Hansen *et al.* (2015) recognises that burnout is known to be progressive with time. Similarly, Essenکو and Rothmann (2007) stated that prolonged involvement in demanding circumstances of individuals results in burnout.

According to Bianchi *et al.* (2015) burnout is not included in the Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-V), though in several countries it is recognised as a justification for authorised leave. However, it has become increasingly acknowledged as a variable affecting health status in the tenth edition of the International Classification of

Diseases (ICD-10) (Bianchi *et al.*, 2015). Recognition given to the burnout syndrome in the ICD-10 is coded as Z73.0 which is defined as a state of vital exhaustion (Bianchi *et al.*, 2015) According to Essenko and Rothmann (2007) increased stress levels from workload, toxic relationships between colleagues, isolation, disproportionately large class size, scarcity of resources, limitations in the promotion and insufficient financial support, application of external parties and poor image of the profession are indicators of OS. Therefore, all these factors that may impact the effectiveness and health of staff members at higher educational institutions need an investigation to highlight the importance of delivering a service that is of adequate quality (Essenko & Rothmann, 2007).

It is well known that ill-health/ deterioration of health is directly related to chronic stress, of which symptoms include immune suppression, cardiorespiratory symptoms, headaches, gastric ulcers as well as common influenza (Kirkcaldy *et al.*, 1995). In accordance with the aforementioned, thorough evidence has connected occupational stress with the manifestation of physical and psychological ill-health notably, cardiovascular disease, depression, allergies and may even be linked to some forms of malignancy (Jackson *et al.*, 2006). As many as one hundred various symptoms have been recognised resulting from burnout, as presented by Botha (2006). Thus, Schaufeli and Buunk (2003) classified symptoms of burnout into five categories namely; affective (discrepancies in mood symptoms), cognitive (symptoms similar to that of abulia [absence of will power]), physical (inclusive of high levels of cortisol and cholesterol), behavioural (substance abuse, absenteeism, staff turnover, and impaired work performance), and motivational manifestations (symptoms of avolition i.e., absence of motivation). Essenko and Rothmann (2007) stated that attendance to various stressors with support and academic staff are to be observed in higher educational institutions. Interventional techniques should be implemented to target an increase in job resources and a decrease in workload of support personnel (including flexible working hours and goal setting) which may directly cause or contribute to a decrease in symptoms of exhaustion and cynicism (Essenko & Rothmann, 2007). Furthermore, to achieve an increase in optimism, an intervention such as cognitive behavioural therapy should be implemented (Viljoen & Rothmann, 2002).

2.4 The National Development Plan and burnout in the academic sector

Higher education is considered stressful as functions are performed in a VUCA environment. The restructuring and transformation of higher education institutions is a high priority of the

government (Fourie, 1999). Higher education is the main driver of knowledge and information systems, connecting it to economic growth (Naicker & Mestry, 2016). Moreover, the NDP 2030 aims at improving education, training and innovation. This aligns with the implementation of goal four in the sustainable development goals (SDG) 2030, which is to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all (Education, 2011). The higher education sector is put under immense pressure to transform into a new educational landscape (Walker & Mkwanzani, 2015). Having said that, the provision of quality education depends on excellence, with the qualifications of the staff identified as the most important determinant of quality in education (Education, 2011).

The NDP 2030 aims to increase the number of PhD trained staff from 34% to above 75% by 2030. The goal point of the NDP by 2030, places academics under further pressure as South Africa only generates 28 PhD graduates per million per annum, which is extremely low in terms of international standards (Education, 2011). South Africa needs more than 5000 graduates per annum to reach a target of 100 PhD graduates per million per year (Education, 2011). The pressure placed on professionals within the education sector to increase research productivity ultimately results in burnout.

As a result of financial obstacles, many students are forced out of higher education and many students from lower economic backgrounds struggle to complete higher education after entry (Mdepa & Tshiwula, 2012). Thus, there is neither fair access to nor equitable retention in higher education (Mdepa & Tshiwula, 2012). If South Africa continues to seek equitable solutions the challenges of access, diversity, retention, and success can be addressed and this should, in turn, contribute to enhancing its competitiveness in the global economy (Mdepa & Tshiwula, 2012). Failure to address these pressing priorities will seriously affect its ability to tackle complex socio-economic realities. Even with efforts to reform and restructure the higher education sector, academics are facing rising pressure to perform in challenging surroundings (Houston *et al.*, 2006).

2.5 Challenges in the academic sector

Academic employees working in South Africa Higher Education Institutions (SAHEI) are exposed to an increasingly demanding work atmosphere with unreasonable demands on their limited time and energy resources without adequate compensation (Bakker & Costa, 2014). As a result, academic employees may encounter occupational stress related to their ever-expanding workloads, insufficient resources, lack of recognition, and insufficient wages (Watts & Robertson, 2011). A recent report on burnout among university academics in a SAHEI highlighted debilitating burnout results, such as chronic tiredness leading to low productivity and work performance, as well as high absenteeism (Coetzee *et al.*, 2019) This establishes that burnout is an issue in academic settings.

When evaluating the effect of burnout among academics, research into the historical conditions of higher education must be considered, since the SAHEI sector represented the ruling party's biases and prejudices throughout the Apartheid era (Wolpe, 1995). To address the vast inequality and poverty that arose from the Apartheid era, post-democratic transformation necessitated significant modifications in policy, practice, and resource allocation (Ceasar, 2021) The aforementioned policies, programmes, and processes led to the revision of the higher education sector. Academics, on the other hand, suffered disproportionately negative repercussions as a result of these practices (Hay *et al.*, 2001).

Due to the increased strain placed on academics, they have reported significant levels of stress on a national, institutional, and personal level (Frantz *et al.*, 2019). Academics must deliver international quality education to guarantee that students graduate with the highest possible grades and opportunity to contribute to the economy (Barkhuizen & Rothmann, 2008). Decolonising curriculum and giving additional academic help to previously disadvantaged pupils whose foundation of learning was built on a substandard basic education influenced by Apartheid-era prejudices were noted as problems (Albertus, 2019). Academics are also required to expand their publishing portfolios, volunteer in the community, and supervise and guide postgraduate students in research (Yozi, 2018). Academics are constantly under pressure to get a PhD by 2030, despite the numerous tasks they must fill in their professional and personal life (Education, 2011).

Academics' stress and burnout are exacerbated by a variety of contextual factors. Consider the #FeesMustFall movement, which began in 2015. Students' nationwide demonstrations against paying university tuition resulted in serious disruptions and the closure of SAHEIs (Langa *et al.*, 2017). Students campaigned against growing educational expenditures and racial inequality, as well as for the decolonisation of the entire academic system. Academics had physical dread for their safety as a result of the violent student protests which took a considerable emotional toll on them (Hedding *et al.*, 2020). The academics' experiences throughout the protest may have perpetuated symptoms of burnout. In recent tribulations, the worldwide COVID-19 pandemic has added a source of possible stress and burnout for academics (Toquero, 2020).

The coronavirus, also known as COVID-19, is a potentially lethal virus connected to Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). To prevent the spread of COVID-19, national and international borders, stores, places of worship, and schools were closed for lengthy periods as a result of a global lockdown. Academics had to navigate a technology-enhanced educational environment that came with its own set of obstacles as a result of the need for an online educational system (Van Staden, 2021). To address these expectations, a variety of steps had to be taken, including upskilling academic staff in the use of online learning platforms, posting study materials online, and creating new ways to formally assess students (Hedding *et al.*, 2020). While SAHEIs reshuffled their budgets to accommodate these students, many HBU students were unable to access these online platforms due to financial restrictions (Hedding *et al.*, 2020). Academics had to support two distinct learning routes at the same time, one for those students who could access online learning and one for others who could not.

In most public and private sector universities, recent development in higher education institutions in developing countries have resulted in increased competitiveness and organisational change (Rajarajeswari, 2010), while faculty members are increasingly subjected to pressures that contribute to stress and burnout. Catano *et al.* (2010) conducted a survey of stress levels at UK, Canadian, and Australian universities, and the results revealed staggeringly high occupational stress levels among higher education academics. According to Golembiewski (1999) stated that approximately 40% of all workers in the public and private sectors are in advanced stages of burnout. Therefore, research on burnout in higher education continues to be a subject for further study. The research body is primarily exploratory and there is a need to define the research focal points for the formulation of intervention research. Thus,

the present study attempted to consolidate the literature reporting on stress in the Higher Education sector in Africa.

2.6 Theoretical framework

The Demands-Control-Support model and the Effort-Reward Imbalance model are the two most well-developed and acknowledged theories of burnout that arose from The Job Demands-Resources (JD-R) model (Siegrist, 1996). The former is concerned with the interaction between demands (stressors), an individual's perception of their competence or capacity to control the outcome of a situation and the degree of social support available to help them overcome the circumstance. The latter refers to a mismatch between the reciprocity of efforts (high strain) and the benefits received (recognition). The JD-R model was used for this study, because it provided a more thorough theoretical formulation and was more suited to the study and environment.

Excessive job demands and insufficient job resources are two criteria in the JD-R paradigm. Job demands are psychological and physical expenses associated with employment that may not be regarded as negative, but can become stressful if the psychological or physical effort required to satisfy them is excessive (Upadyaya *et al.*, 2016). Emotional strain, time pressure, prolonged working hours and workload are examples of job demands.

Resources refer to psychological, physical, organizational, or social buffers that facilitate learning, promote personal growth, improve performance, decrease the effects of job demands, or help a person achieve specific goals that are relevant to the job at hand (Upadyaya *et al.*, 2016). Resource qualities in the workplace include resilience, compassionate leadership, energy, and support. The job demands in this framework relate to the exhaustion and disengagement dimensions of burnout, while the job resources decrease them. This model can be used to understand burnout within the population of Higher Education institutions (HEI). In addition to interacting with students, HEIs are responsible for facilitating professional competence. As such, academic staff within the higher education sector are subject to "intensive service needs" that can lead to burnout (Salyers *et al.*, 2017). The majority of higher education institutions operate as professional programmes that require extensive job resources. Demerouti and Bakker (2011) showed that an imbalance between demands and resources correlated with burnout. Thus, this framework was deemed appropriate for the

current study as it offered a theoretical model with an accompanying operational measurement that contributed to greater methodological coherence.



CHAPTER THREE

METHODOLOGY

3.1 Aim of the study

The study aimed to determine the extent of research reporting on occupational stress and burnout in the higher education environment in Africa.

3.2 Objectives

The aim was achieved through the following objectives:

- To identify the foci of research reporting on occupational stress and burnout in the higher education environment in Africa.
- To identify the target groups or populations studied.
- To identify the types of research conducted.
- To identify the types of research methodologies used.
- To identify the instruments used to measure stress and burnout respectively.
- To identify the theoretical frameworks used.
- To identify the core findings on the sources of occupational stress.
- To identify the core findings on occupational stress.
- To identify the core findings on burnout.
- To identify the recommendations for future studies.

3.3 Research design

This study used a systematic review to identify evidence about occupational stress and burnout amongst tertiary education employees. A systematic review was a suitable research design as it uses a detailed and comprehensive plan and search strategy to identify and select relevant literature (Uman, 2011). According to Staples and Niazi (2007), a systematic review is a demarcated and methodical way of identifying, assessing and analysing published studies to investigate a specific research question. Systematic reviews are appropriate for appraising

articles for methodological rigour that enables the subsequent analysis and summation of good quality literature within the research available (Armstrong *et al.*, 2011). There are three main stages in the process of conducting a systematic review, namely, planning a review, conducting a review and reporting a review (B Kitchenham, 2004). The significance of a systematic review is contingent on the stages that are taken to conduct the review and the precision of reporting on the filtration and summation of the literature (Moher *et al.*, 2009). Therefore, to ensure intelligibility and clarity one can use the guidelines for the Preferred Reporting Items for Systematic reviews and Meta-analysis (PRISMA), which was used (Moher *et al.*, 2009).

A systematic review enables the reviewer to identify, summarise and synthesize the literature available within the databases with specific inclusion and exclusion criteria. In doing so, this provides possible literature and findings available along with highlighting any gaps in the area of interest (Barbara Kitchenham, 2004). This was an appropriate methodology for the present study as it provided a systematic method for filtration and summation of studies reporting on occupational stress and burnout in a higher education environment and to identify foci for further research. The systematic review enabled the reviewer to compile and synthesise data from all relevant sources meeting the inclusion criteria, whilst minimising bias in an attempt to answer the presented review questions.

3.4 Review questions

- What were the foci of research reporting on stress and burnout in the Higher Education Environment?
- What target groups or populations were studied?
- What types of research questions were posed?
- What type of methodologies were used?
- What instruments were used to measure occupational stress and burnout respectively?
- What theoretical frameworks were used?
- What were the core findings of occupational stress?
- What were the core findings on the sources of stress?
- What were the core findings of burnout?
- What recommendations were made for future studies?

In other words, which good quality literature would constitute a consolidated evidence base of filtered information on occupational stress and burnout in higher education that has been assessed for methodological quality.

3.5 Inclusion criteria

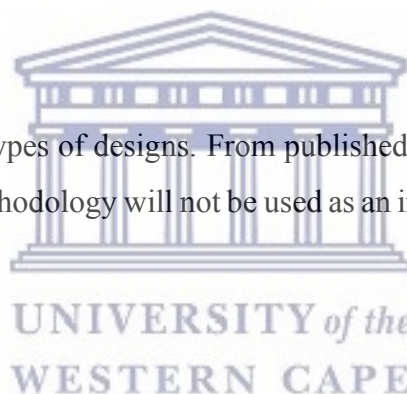
The subsections below are the inclusion criteria based within this research study

3.5.1. Target group

Staff employed in the higher education environment in Africa includes Technical and Vocational Education and Training (TVET) and University domains. All tertiary academic and support staff experiencing occupational stress or suffering from burnout and the challenges attesting to its onset within a higher education environment in Africa.

3.5.2. The type of studies

Primary studies, including all types of designs. From published studies found in the identified database. A specific type of methodology will not be used as an inclusion or exclusion criterion.



3.5.3. Time period

The present review adopted the timeframe between January 2016 till June 2021, for review. The timeframe assumed that the most recent literature i.e., published within the last five years would be considered as cutting-edge evidence of challenges and outcomes on occupational stress and burnout. In addition, the last five years in the higher education sector posed numerous changes and challenges such as the #Feesmustfall movement, the COVID-19 pandemic and major changes resulting from transformational policies that in turn impacted stress and burnout in staff.

3.5.4. Text selection

The present review focused on primary studies published in English. Additionally, only full-text articles that were non-fee carrying were considered for inclusion to enable the

identification of readily accessible current best evidence regarding challenges and sources of burnout and occupational stress. Decisions on pay-for-view documents were made based on the number of articles identified in that category and available funds for fieldwork.

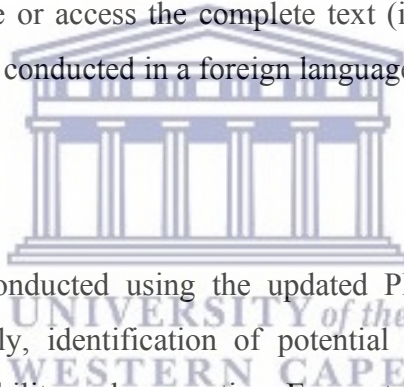
3.6 Exclusion criteria:

Studies were excluded if:

- The manuscripts were not published in English
- The study was not published within the designated time period.
- If the publications were not peer-reviewed and were not available as full-texts.
- It was secondary research.
- It did not target the required population intended to be assessed.
- Studies were disqualified if they had not been peer-reviewed and had not been published within the specified time frame. Studies that did not cover our target group required payment to see or access the complete text (i.e., those that were not in the public domain), or were conducted in a foreign language were also omitted.

3.7 Review process

The systematic review was conducted using the updated PRISMA method. PRISMA is depicted on four levels namely, identification of potential titles, screening of abstracts, evaluation of full texts for eligibility and summation. Every step in the revision process has a series of operations as seen in **Figure 3.1**.



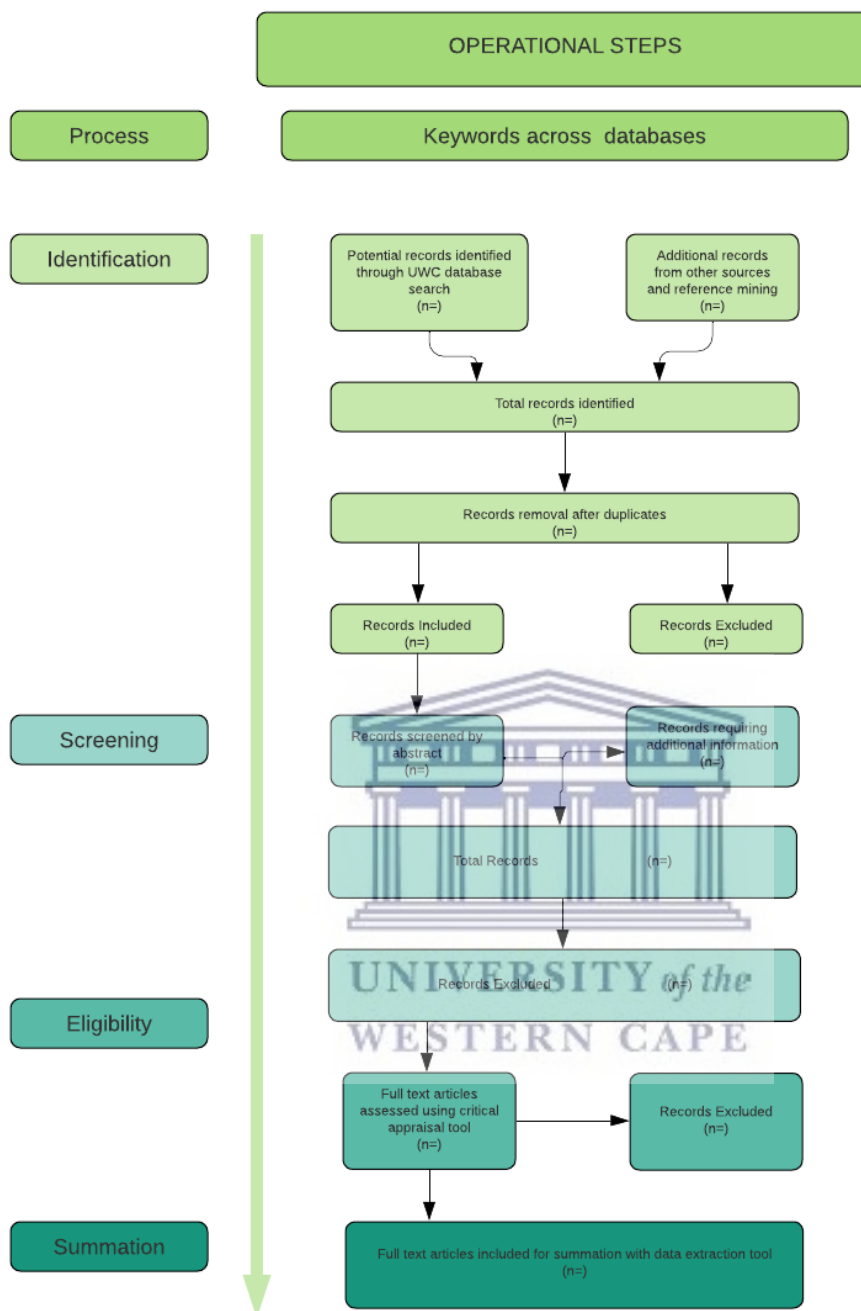


Figure 3.1 PRISMA flow chart. A guided flow chart for the Preferred Reporting Items for Systematic reviews and Meta-Analysis (PRISMA) developed by Moher *et al.* (2009).

3.7.1. Identification of potential titles

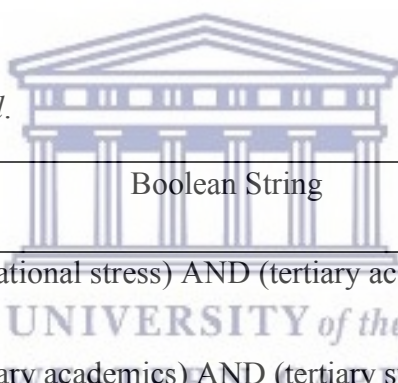
Literature was retrieved from three core sources: 1) keyword identification; 2) database search and 3) reference mining. Below is a brief explanation of each source.

3.7.1.1 Keyword Identification

A provisional list of keywords was identified from the literature and tested for viability in Google Scholar. A final list of 14 keywords was compiled. The final keywords were combined into 10 Boolean strings. Boolean strings are combinations of keywords that are more effective in literature searches than single keywords or search terms (Tredoux & Smith, 2006). The Boolean strings were tested for viability against the databases subscribed to the library of the University of Western Cape using Ukwazi as the search engine. All the strings were retained after testing. **Table 3.1** reflects the list of Boolean strings used in the search.

Table 3.1

List of Boolean strings searched.



Index	Boolean String
1	(Burnout) OR (occupational stress) AND (tertiary academics) AND (tertiary support staff)
2	(Burnout) AND (tertiary academics) AND (tertiary support staff)
3	(Job demands) AND/OR (job resources) AND (tertiary academics) AND (tertiary support staff)
4	(Job demands) AND (tertiary education)
5	(Symptoms of burnout) OR (ASSET Tool) OR (An organizational stress screening tool) AND (tertiary academics) AND (tertiary support staff)
6	(Burnout) AND (occupational stress) AND (tertiary education) OR (tertiary academics) AND (tertiary support staff)
7	(National Development Plan 2030) AND (tertiary Education SA)
8	(Intervention Strategies) AND (tertiary academics) AND (tertiary support staff)
9	(Mental health) AND (tertiary academics) AND (tertiary support staff)

3.7.1.2 Database search

The strength or thoroughness of the search was enhanced through a rigorous process of keyword identification as described above. A comprehensive search of the databases in the UWC library was conducted. A list of all databases ($n= 124$) subscribed to by the UWC library is presented in **Appendix A**. The UWC library offered an integrated search facility, Ukwazi. Ukwazi searches all databases to which the UWC library subscribes in a single operation. Thus, Ukwazi was used as the primary operation for the comprehensive database search. A beneficial advantage of using the Ukwazi search facility is that it searches all databases subscribed to it. The administrative efficiency allows search processes to be streamlined while maintaining a substantial database compliment for the search. As a result, the search is both thorough and efficient.



3.7.1.3 Reference mining

Reference mining was used in the research. The reference lists of all articles and reports found were looked at to identify articles that might have been missed through the database search. Bronson and Davis (2011) advised that reference mining enhances the search strategy by increasing the number of articles retrieved. Reference mining can uncover new relevant articles that aren't contained in the databases that were searched (Hill *et al.*, 2006). Reference mining helps to reduce the possible publication bias that may have been introduced by the search method and inclusion criteria (Hill *et al.*, 2006). Thus, reference mining was performed to identify possible titles and expand the title search.

3.7.1.4 Title screening

Titles identified from the comprehensive database search and the reference mining were reviewed for appropriateness. Relevant titles were retained and those that seemed unrelated were excluded. The screening procedure is founded on the premise that a well-written title conveys the core of the research and makes it accessible to readers. As a result, if an article's

title is poorly written, it may be rejected. This level of identification and screening is dependent on the title. To manage the articles during the production of the evaluation, Endnote 20 a reference management software tool was utilised. Endnote20 was used to capture the titles retained for this present study.

3.7.1.5 Abstract screening

The abstract of titles that were retained in the previous level was obtained. The abstracts were evaluated for relevance using the stated inclusion and exclusion criteria of the study. Articles that were considered acceptable for inclusion advanced to the next phase of the review, but the research that met the exclusion criteria did not. Endnote20 was used to capture the information from all of the abstracts that were evaluated and categorised into “abstracts to keep” and “abstracts to delete”.

3.7.1.6 Eligibility

The full text of abstracts that were retained at the previous level of screening proceeded to this stage. The full-text articles were retrieved and evaluated for eligibility and inclusion in the final summation. A critical appraisal tool was used to assess the methodological quality of these studies. The primary reviewer set a threshold score in conjunction with the supervisor and research team to assess eligibility for inclusion in the summation. The critical appraisal tool that was utilised, as well as the inclusion threshold score, are described below.

3.7.1.7 Critical appraisal tool

The SFS scoring system was utilised for the critical appraisal tool (Smith *et al.*, 2015). Version C of this system is a generic tool developed to appraise studies of different methodologies as reflected in **Appendix B** (Smith *et al.*, 2015). The tool consists of eight sections, Section 1, Purpose, evaluated the study's rationale, problem statement, and goals, as well as the extent to which the goals were connected to the problem statement. Section 2, Sampling: examined how well components of sampling, such as size, type, inclusion/exclusion criteria, and approaches for ensuring optimal size, were reported and executed. Section 3, Design, included the theoretical orientation, the elements of the chosen design, and its relationship to the study objectives. Section 4, Data collection, assessed the quality and relevance of data collection

methods. The items for this section were equally divided into sections for qualitative and quantitative studies. Section 5, Analysis, examined whether the reported data analysis was appropriate for the research question and whether the data supported the analysis and subsequent conclusions. Sections 6, Ethics, evaluated for the steps taken to ensure that no ethics violations occurred. Section 7, Results, focused on the qualitative and quantitative approaches separately and equally weighted criteria and rated, among other things, whether the findings were relevant to the research question. Section 8, Conclusion, examined whether or not it was related to the study findings, or if recommendations were made or limitations were identified.

A total score was assigned to each article based on scores obtained in the subsections. This score was expressed as a percentage. Each article was assigned a quality descriptor based on the composite score as weak (0-40%), moderate (41-60%), strong (61-80%), or excellent (81-100%). The threshold score for inclusion was set at 50%. A modest criterion was selected as recommended by Smith *et al* (2015). The critical appraisal tool was more detailed and the threshold score was recommended at 50% to not exclude studies as a result of a too stringent threshold.



3.7.1.8 Summation

Data extraction and meta-synthesis are two operational stages covered in this step. The data extraction process was applied to all articles that met the threshold score. The objectives of the study were used to develop the categories for data extraction. The categories were reflected in a self-constructed data extraction tool (**Appendix C**). Extracted data were synthesised and presented in tabular form.

3.7.1.8.1 Meta-synthesis

A meta-synthesis, according to Walsh and Downe (2005), involves a systematic integration of the findings of separate but closely related studies. In bringing together several different interpretations of a given topic, common themes and differences can be identified, which can lead to new interpretations of the research (Schreiber *et al.*, 1997). Furthermore, it is a comprehensive method that utilises a qualitative approach to analyse and interpret research findings rigorously (Jensen & Allen, 1996). Additionally, a meta-synthesis provided a broad description of occupational stress and burnout, as well as its effects on academics in higher

education. The present study used a descriptive meta-synthesis. The descriptive meta-synthesis consisted of three components, namely the process results; rankings based on methodological rigour; and thematic synthesis.

3.7.1.8.2 Process results

The process results entailed reflecting the statistics at each level in the review, as well as the operational steps related to them. As mentioned before, the PRISMA flow chart was adapted and used to report the findings at each step of the review. PRISMA statement, as well as its several extensions, define the commonly accepted rules for reporting systematic review results. These reporting requirements are typically advised when performing systematic reviews using the possibly relevant methodology mentioned above. They can help reviewers ensure that all phases of the review process are rigorous and repeatable.

3.8 Ranks based on methodological rigour

Articles included in the summation were ranked base on the total score and subsection scores. This allows for a more rigorous approach to evaluating methodological rigour and coherence. The highest rank was “1”. The higher the rank, the lower the score was for that subsection on the critical appraisal tool. In cases where articles scored zero for a subsection, this is indicated by a dash (-). The ranking table presents the ranks in descending order. The range of ranks are also discussed.

3.9 Thematic synthesis

Thematic synthesis is an approach discovered by Thomas and Harden (2008) that builds on the ideas of a thematic analysis and other well-established methodologies in qualitative research. In systematic reviews, finding repeating themes or concerns in primary research and in analysing these themes, derive conclusions (Thomas & Harden, 2008). Four categories were established from the review questions in this study. The focus of Category 1 was on the research focuses that were shown, as well as the core of each article. The methodological elements that each article presented and took in producing its results are displayed in Category 2. Category 3 focuses on the major emphasis and outcomes of each article. Finally, category 4 includes all

of the articles' conclusions and recommendations. Following the tabulation of these focus areas, a brief description of each table was prepared, comparing the various articles.

3.10 Method of review

A pair of reviewers conducted and independently documented their results at every level of review. The second reviewer holds a Masters degree in Research Psychology and had extensive knowledge about the method and procedure of conducting systematic reviews. Working in pairs allowed for verification. The convention of conducting systematic reviews in pairs is recommended for maintaining the rigour and integrity of the review (Higgins *et al.*, 2019). The reviewers used the EndNote20 software programme as an organisational tool for the articles. Findings were compared at the end of each level, and the results were recorded accordingly. When disagreements arose, the reviewers discussed them in order to resolve them. A single disagreement arose between the two reviewers as a result of the title search being unclear or vague. This was readily addressed via discussion and resolved. As implied above, the supervisor served as an external auditor to ensure that all decisions made throughout the review process were rigorous and supported by the data as well as recorded accurately. The supervisor was also assigned the role of ombudsman to make a final ruling when disagreements could not be resolved. The involvement of the supervisor as an external auditor was not required to resolve the differences. The use of two reviewers and provision of an external auditor enhanced verification and contributed to the rigour of this study.

3.11 Ethics

As the study is non-reactive, it constituted minimal risk from an ethics perspective. Ethics clearance was granted by the Biomedical Research Ethics Committee of UWC (Ethics registration number BM20/9/). Published literature is in the public domain and does not require additional permission for access. Lawful access to the databases housed at the UWC library was obtained through upholding registration as a student at UWC. The proof of registration for the periods of enrolment for this degree is attached in **Appendix D**. Permission to use the critical appraisal tool was obtained from the authors (**Appendix E**). The software employed in the execution of the study was a free resource and available without a permit.

The reviewers underwent training in the use of the software to ensure that it was used as intended in the execution of the study. The reviewers took responsibility to ensure accuracy in the review as recommended by Wager and Wiffen (2011). The reviewers took responsibility under the guidance of the supervisor to ensure that all issues related to the governance of the study were in order. For example, the title of the study was registered by the Senate Higher Degrees Committee (SHD) as the official title in fulfilment of the degree requirements. The study was funded by the National Research Foundation (NRF) and the contribution of the NRF was properly acknowledged. The supervisor was a recipient of a Thuthuka grant in the rating track. Scholarships for human capacitation formed part of the award. The researcher or student was nominated and approved for a grant-holder linked scholarship under human capacitation. The NRF and the grant must be acknowledged per the conditions of the grant (**Appendix F**). The research does not represent the views of the NRF. A copy of the thesis will be submitted to the NRF upon the awarding of the degree and the reviewer has an ethical responsibility to uphold the grant conditions.



CHAPTER FOUR

RESULTS AND DISCUSSION

The findings of this investigation are presented in this chapter. It is divided into three parts: Process Results, Ranking based on methodological rigour and Descriptive Meta-Synthesis.

4.1 Process results

4.1.1. Identification of potential titles

A thorough scan of databases identified 63 articles and reference mining identified a further three articles. There were three duplicates found among the 66 articles. Once removed, that left a yield of 63 titles. A total of 39 titles were eliminated because they were deemed unrelated to the review. As a result, a total of 24 titles were considered suitable for this study and included in the abstract review.

4.1.2. Screening abstracts

The abstracts of the 24 titles that were deemed relevant in the previous step were retrieved. The abstracts were screened using the inclusion and exclusion criteria that were set out. 10 abstracts were identified as requiring additional information. These abstracts provided insufficient information to determine whether it qualified for inclusion. All 10 articles were excluded after closer inspection, as each article presented reasons for exclusion. These included studies not addressing the research question, studies with an incorrect target group (e.g., undergraduate students), and studies with poorly written or inadequate abstracts lacking vital information. The screening process resulted in the exclusion of 10 abstracts in total, as the 14 articles did not meet the inclusion criteria outright and were excluded from further review.

In summary, 34 abstracts were screened. A total of 10 abstracts were excluded. Only five abstracts were retained for the next step.

4.1.3. Eligibility

The full texts of the five retained abstracts were retrieved and critically appraised. **Table 4.1** below summarises the global scores attained by the reviewed articles. Each article was assigned an index number.

Table 4.1

The global scores attained by the reviewed articles

Index	Authors/ Reference	Year	Title	Score
A.	Coetsee, Maree & Smit	2019	The relationship between chronic fatigue syndrome, burnout, job satisfaction, social support and age among academics at a tertiary institution	73%
B.	Du Plessis	2020	Model of coping with occupational stress of academics in a South African Higher Education institution	84%
C.	Simons, Munnik, Frantz & Smith	2019	The Profile of occupational stress in a sample of health profession academics at a historically disadvantaged university	86%
D.	Ngirande & Mjoli	2020	Uncertainty as a moderator of the relationship between job satisfaction and occupational stress	88%
E.	Kebde & Gedfie	2018	Burnout Experience among Public Universities of Amhara Regional States, Ethiopia	95%

As previously stated, the threshold point was set at 50%. All five articles attained a score that exceeded 50% and were therefore eligible for inclusion in the final summation. All articles were retained, as all articles scored above the threshold score. The results of the review process are represented graphically in **Figure 4.1** below adapted from the Moher *et al.* (2009) flow chart.

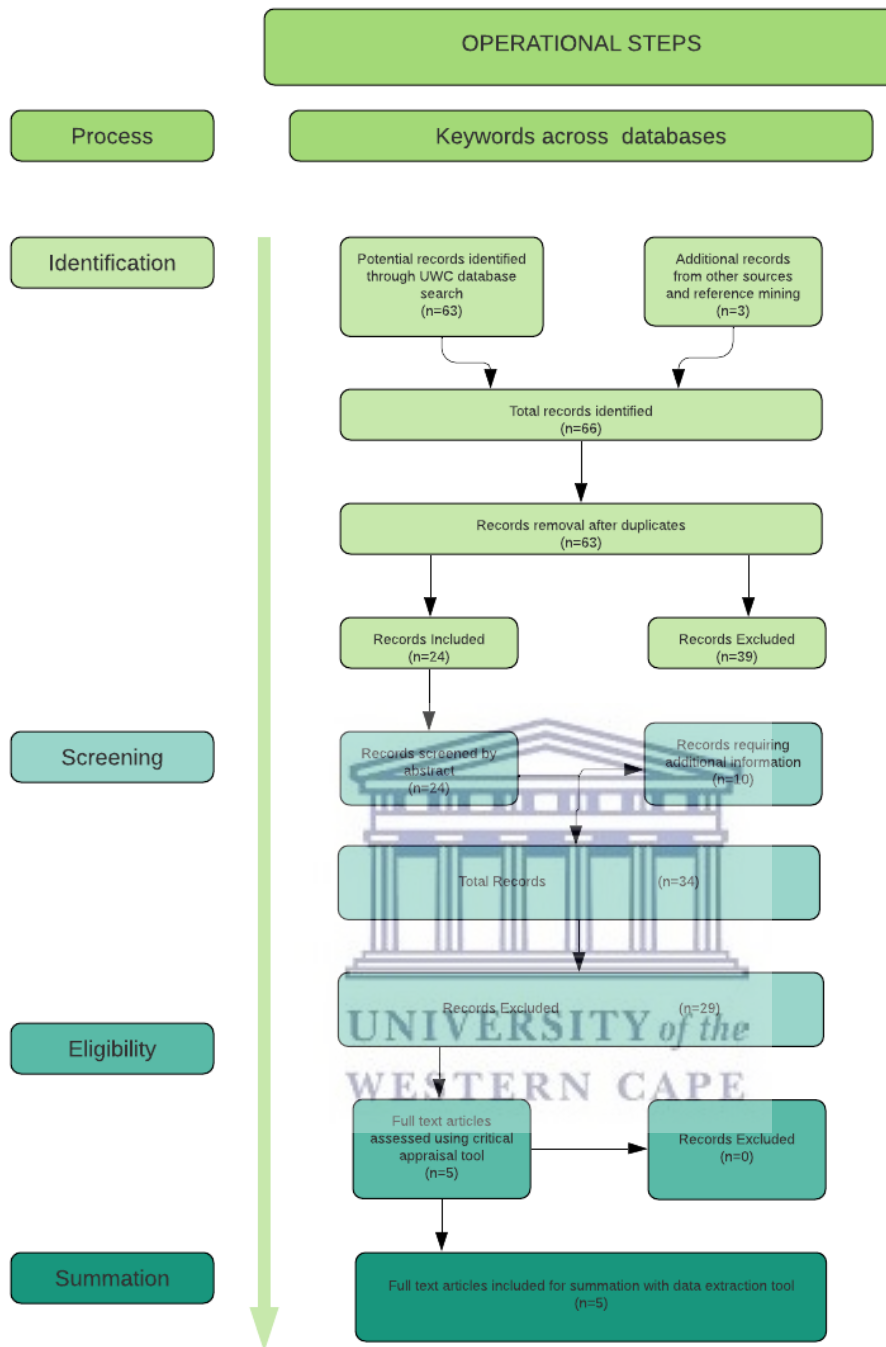


Figure 4.1 Review process. The review process was graphically represented using an adaptation of the PRISMA developed by Moher *et al.* (2009).

4.2 Ranking

Articles were ranked based on their overall score and subsection scores obtained on the critical appraisal tool. The articles were ranked in descending order. As a result, higher ranks represent articles with more rigour as measured by the SFS scoring system. **Table 4.2** below summarises the ranked scores per article.

Table 4.2

Ranking based on methodological rigour

Index number	A	B	C	D	E
Appraisal Score	73%	84%	86%	88%	95%
Quality Description	Strong	Excellent	Excellent	Excellent	Excellent
Rank	5	4	3	2	1

4.2.1 Composite scores

The majority (4/5) of the articles obtained quality descriptors of excellent (>80%) based on their composite scores. The remaining article obtained a quality descriptor of strong (61-80%). The SFS scoring system is more stringent and the included articles scored very well on overall methodological rigour and coherence. It is noteworthy that even though the body of literature was small, the quality was excellent.



4.2.2 Sub-section scores

The following is a breakdown of the respective articles in terms of the subsections of the critical appraisal tool. **Table 4.3** presents the ranking of the first three sub sections namely, Purpose, Design and Ethics.

Table 4.3

Ranks based on sub-section scores

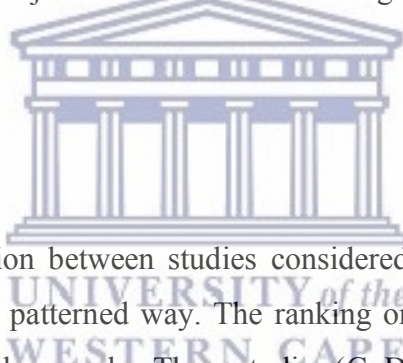
Index number	Purpose		Design		Ethics	
	<i>Rank</i>	<i>Score^a</i>	<i>Rank</i>	<i>Score^b</i>	<i>Rank</i>	<i>Score^c</i>

A	2	2	3	2	2	3
B	1	5	2	6	1	5
C	1	5	1	7	1	5
D	1	5	1	7	1	5
E	1	5	1	7	1	5

^a Score total out of 5, ^b Score total out of 7, ^c Score out of 6

4.2.2.1 Purpose

The ranking on the purpose subsection of the appraisal tool was truncated to only two ranks. Article A was ranked second and obtained a score of two out of a possible five. The lower score indicates that the article provided a brief context for the study and formulated the research problem less clearly. Articles B – E were combined to rank first with a score of five. The articles ranked first and obtained a full score which indicates that they provided information consistent with what is expected of good reporting. Readers were provided with a comprehensive background and the problem was clearly articulated. The higher score here may be suggestive of the influence of journals where the author guidelines are clear for possible publication (Robertson, 2018).



4.2.2.2 Design

In this subsection, the distinction between studies considered strong and those considered excellent became apparent in a patterned way. The ranking on the design subsection of the appraisal tool was truncated to three ranks. Three studies (C, D & E) attained scores of seven out of a total score of seven, which were ranked joint first. Thus, indicating that they reported comprehensively on their design elements and provided justifications that the chosen design was appropriate to address the objectives of the particular study. Article B attained a score of six out of a possible seven, which ranked second. These four articles (B, C, D, E) that attained high scores demonstrated an intentional decision on the part of the authors to prioritise detailed descriptions of their respective research designs. In this manner, studies are replicable as they are detailed and well-documented. Reproducible reports, as well as good reporting, are hallmarks of quality research (Resnik & Shamoo, 2017).

Article A attained a score of three out of a possible seven, which ranked third. This article included important elements of the design, but lacked an overarching methodological

coherence resulting in a lower score. This study though categorised as, good, would not easily be replicable based on the limited detail included in the manuscript.

4.2.2.3 Ethics

In this subsection, the ranking was truncated to two ranks. In all the articles, the authors reported that they received ethics approval for conducting their research and referenced the relevant ethics committee and ethics clearance number in their articles.

Articles B, C, D and E were ranked joint first. These articles scored five out of a possible six. The authors additionally indicated which principles were relevant to their study. They did not, however, report on how these principles were applied, therefore, resulting in the deduction of one point.

Article A scored three out of six which ranked second. In this article, the focus was on the relevant institutions that cleared the ethics of the study. A general statement was made that all relevant ethical principles were applied. This left the reader to infer or deduce which principles were relevant and how they would have been applied. This practice might be related to publication convention as many journals require ethics certificates to be uploaded when articles are submitted. This is taken as a vetting process resulting in the authors assuming that an ethics clearance certificate is a proxy for research integrity and ethical conduct (Robertson, 2018). Limited reporting on ethics may be influenced by the word count requirements of journals. **Table 4.4** represents the ranking of the next three subsections related to sampling, methods of data collection and analysis.

Table 4.4

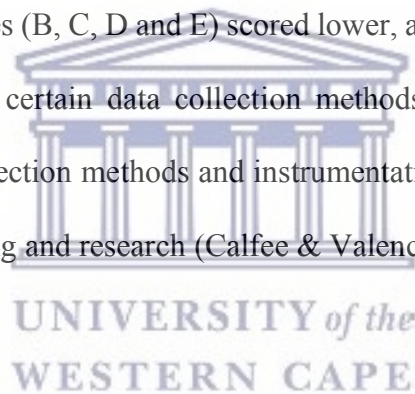
Ranks based on subsection scores

Index number	Data collection		Data analysis		Sample	
	Rank	Score ^a	Rank	Score ^b	Rank	Score ^c
A	1	7	1	5	3	5
B	2	5	2	4	4	4
C	2	5	2	4	2	6
D	2	5	1	5	2	6
E	2	5	1	5	1	8

^a Score total out of 7, ^b Score total out of 5, ^c Score out of 8

4.2.2.4 Data collection

This subsection observed how articles reported on data collection methods. In this subsection, the ranking in data collection was truncated to two ranks. Article A received a perfect score of seven which ranked first, while the remaining articles (B, C, D and E) attained a score of five out of seven which were ranked joint second. It becomes evident that the authors in article A prioritised this section by providing very detailed descriptions of the data collection in the study. Article A received a high score since it provided a clear rationale for the data gathering methods chosen, as well as a thorough explanation of the instrumentation used. This made it more obvious that the data gathering methodologies were adequate for the stated objectives of the study. The remaining articles (B, C, D and E) scored lower, as they were less explicit about the motivation for employing certain data collection methods. The provision of adequate information about the data collection methods and instrumentation promotes replicability and evidences good quality reporting and research (Calfee & Valencia, 1991).



4.2.2.5 Data analysis

The ranking in this subsection was truncated to two ranks. Three articles (A, D, E) were ranked first and two articles (B and C) were ranked second. There was only one point difference between the two ranks. The high-ranking articles indicate that the articles were able to show which analyses were supported and that the stated analyses were suitable. The articles that lost points in this subsection did not indicate whether the data supported the analysis. Overall, the studies attained very high scores. This may be attributed to the formulaic approach to reporting quantitative results. The publication conventions are more explicit about the expectations for the reporting of statistical techniques (Kelley *et al.*, 2003). The high scored articles reflected

conformity to academic conventions and publication standards. When authors conform to these conventions, it increases the chances of being published. Thus, the scores here may well reflect publication bias and the influence of quantitative methods in terms of what is considered good quality. Nevertheless, the SFS scoring system is more stringent than other screening tools (Smith *et al.*, 2015). High scores indicate that over and above the influences mentioned above, the research was methodologically rigorous and coherent (Smith *et al.*, 2015).

4.2.2.6 Sample

The ranking in this subsection had the widest range and included four ranks. The sampling component looked at whether the research reported on the sampling techniques and processes used. This section also examined whether the sampling strategies were appropriate for the study objectives. Article E received a perfect score of eight which ranked first. Articles C and D received a score of six out of a possible eight, which ranked joint second. These articles all go into great length on the sampling methods. Article A received a score of five which ranked third, while Article B received a score of four which ranked fourth. The reason for the deduction of scores was that these articles failed to identify the type of sampling used and whether it was probability or non-probability sampling. Reporting on sampling procedures and information on the samples used in investigations are required by academic and publication guidelines (Tredoux & Smith, 2006). **Table 4.5** presents the next two subsections related to results and conclusions.

Table 4.5

Ranks based on sub section scores

Index number	Results		Conclusion	
	<i>Rank</i>	<i>Score^a</i>	<i>Rank</i>	<i>Score^b</i>
A	1	3	1	4

B	1	3	1	4
C	1	3	2	3
D	1	3	1	4
E	1	3	1	4

^a Score total out of 3, ^b Score total out of 4

4.2.2.7 Results

All five articles achieved full scores of three out of a possible three for the results subsection. Thus, all articles were ranked joint first. The articles demonstrated that the data or evidence supported the conclusions that were drawn. The influence of quantitative methods can be seen as there are clear conventions for accepting statistical results against specified alpha levels (Tredoux & Smith, 2006).

4.2.2.8 Conclusion

The rankings in this subsection were truncated to two ranks with only one point difference. Articles A, B, D and E were ranked joint first and article C was ranked second. The respective articles scored high in this subsection. Thus, the ranks indicate that the conclusions drawn therein were appropriate. Additionally, limitations were communicated clearly. The conclusions, limitations, and recommendations were all adequately addressed in all of these articles.

4.3 Descriptive meta-synthesis

Four categories of content were extracted from the five articles namely foci of research, methodological detail, core findings, conclusions and recommendations.

4.3.1 Category 1: Foci of research

Each of the articles adopted a slightly different approach to the study of stress and burnout in the context of Higher Education. **Table 4.6** below provides an overview of the foci within the respective studies.

Table 4.6

Foci of research

Source	Region	Target group	Research questions	Focus
A	South Africa	Academics. Institutional study	To determine the relationship between chronic fatigue syndrome, burnout, job satisfaction, social support and age (constructs) among academics at a SA tertiary institution	Model testing, chronic fatigue, burnout, job satisfaction, social support, age
B	South Africa	Academics. Institutional study	The theoretically hypothesised model has a good fit with the empirically manifested structural model Adaptive coping strategies positively and negatively predict coping success	Model testing Stress, coping styles
C	South Africa	Health Professions Academics at an HDI. Faculty based Study	Relationship between occupational stress and emotional intelligence in Health Professions Academics	Model testing Stress and Emotional Intelligence
D	South Africa	Academic staff Inter-Institutional study	Compare the levels of employee job satisfaction and occupational stress in a merged and non-merged institution of higher learning in South Africa	Model testing Stress, job satisfaction
E	Ethiopia	Teachers working in three selected universities Inter-Institutional study	Level of burnout in public university teachers Factors contributing to burnout Socio-demographic variable resulting in statistically significant differences in the level of burnout	Model testing Burnout, demographics

From **Table 4.6** above it becomes evident that the majority of the studies were conducted in South Africa ($n=4$). Thus, more research conducted on occupational stress within South African higher education was included in the final summation. In spite of the fact that this type of research in Africa is emerging, the research could engage in model testing. It appears that the authors were able to draw on the trends in the international literature to advance work on the continent.

4.3.2 Demographic variables

All the studies focused on academics as the target population. **Table 4.7** summarises the demographic profile and sample details. Seven core demographic variables were identified as important in the body of literature reporting on occupational stress in higher education. These variables were considered important in studies in higher education and included based on theoretical considerations. These included gender, age, ethnicity, location, academic status, highest qualification and length of employment. **Table 4.7** below reflects the extent to which these factors were reported in the included studies. These variables were subsequently included in the following analysis.

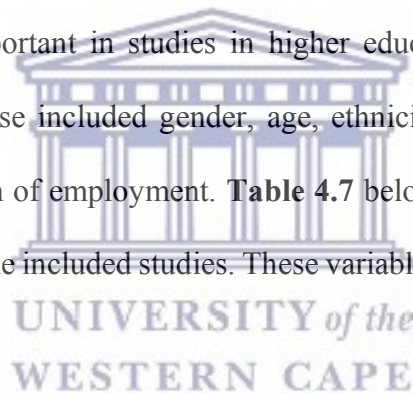


Table 4.7

Demographics of study cohorts

Index	Sample size	Sex	Age range (years)	Ethnicity	Academic status	Highest qualification	Length of employment
A	69	Majority female	23-72	Not specified	Lectures, senior lecturers	Not specified	N months-38 years
B	305	Majority female	Median age 44.5	Not specified	Lectures, senior lecturers	Masters, doctoral degree	>10 years

C	51	34 female, 17 male	Not specified	17 Caucasian, 24 mixed race, 4 black, 4 indian, 2 other	Associate lecturers, senior lecturers, associate professors, full/senior professors	Honours, masters, doctoral degree	3-35 years
D	424	50% male, 50% female	25-55	Not specified	Not specified	Majority post graduate degree	25-35 years
E	2607	Male & female	23-56	Not specified	Not specified	Majority of masters, minority doctoral degree	5-15 years

The data extracted revealed that there were inconsistencies in the reporting on these identified demographic variables, discussed below.



4.3.2.1 Gender

As noted in **Table 4.7** all five articles included the gender (female and male) of the participants. Two articles, A and B, did not elaborate on the number of female and male participants, however, they do stipulate that the majority of participants were female. Whereas, articles C and D differentiated female and male participants by quantity; 34 female and 17 male, 212 female and 212 males, respectively. Article E did not report on gender. Gender was reported routinely in the literature as the impact of stressors was often along with gendered patterns as reported by Schulze and Steyn (2007).

4.3.2.2 Age

Four out of the five articles (A, B, D and E) reported on age. Measures of central tendency and measures of variability were used to report on age. Article C, on the other hand, did not report on age. Age was consistently reported in the literature. For example, Barkhuizen and Rothmann (2008) identified that younger staff experienced more occupational stress. Junior academics of recent appointees experience greater levels of stress owing to a lack of familiarity with organisational functioning and clarity about their tasks as academics (Frantz & Smith, 2013). This was consistent with the literature. For example, Smith and Boyd (2012) stated that the stress of the transition period stems from the pressure to establish and comprehend the organisation, work requirements, and the skill-set required to function effectively.

4.3.2.3 Ethnicity

This variable was also referred to as race and required participants to self-identify. In the context of South Africa, ethnicity is an important variable that can be easily misconstrued. Thus, in three of the four articles reporting on South African studies, ethnicity was not reported. Article C reported on the ethnicity of the participants and ethnicity was specifically included in the analysis based on considerations from the literature (Frantz *et al.*, 2019). Article E also did not report on ethnicity as the target group in Ethiopia was more homogenous.

4.3.2.4 Academic status

This variable referred to the rank or academic status of participants. For example, the academic status of participants in articles A and B were reported as lecturers and senior lecturers. Article C reported a wider range and participants in the study ranged from associate lecturers (AL) to Full or Senior Professors. Academic status was consistently measured and reported on, and

literature has shown that career growth was a cause of stress for academic employees in junior positions (Szromek & Wolniak, 2020).

4.3.2.5 Level of qualification

Studies B, C, D and E reported the highest qualification of participants. The level of qualification was often linked as a source of stress (Frantz & Smith, 2013). It was also explored as a predictor of health outcomes among academics similar to Frantz and Smith (2013). Similarly, Frantz *et al.* (2019) reported that academics with higher qualifications experience less stress with regard to lack of autonomy, career advancements and job instrumentation.

4.3.2.6 Length of employment

All five articles included the length of employment of the participants involved in the respective studies. The period of employment was considered important as it impacted knowledge of the system, networks and the degree of change required to adjust to changes in the sector. The literature highlighted that academics within early career phases are in vulnerable positions. For example, Murray *et al.* (2020) reported that the demands placed on early career academics often result in negative outcomes including stress and disempowerment.

4.4 Category 2: Methodological details

This section included data about the methodologies of the included studies.

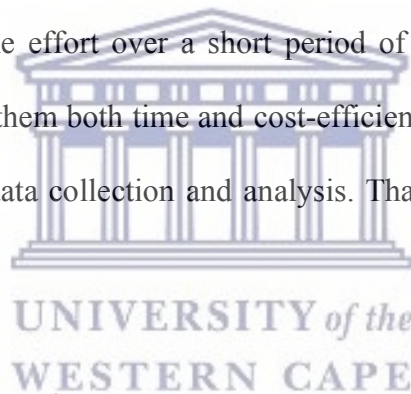
4.4.1 Samples

Table 4.7 reflected that sample sizes were either smaller than 100 or larger than 250. The smaller samples were in faculty-based studies. Larger samples were institutional or regional. Study E included a very large sample of 2607. Most importantly, samples all exceeded 50.

When N is equal to 50, the t-distribution and the z-distribution are identical which supports the use of inferential statistics regardless of the size of the sample (Field, 2013). Thus, the sample sizes supported the use of inferential statistics subject to the empirical testing of the parameters of those samples e.g., normal distribution.

4.4.2 Design

With regard to design, all five articles used to survey and correlational type designs that included self-reports at an instrumentation level. These designs were appropriate for taking cross-sectional measures of attitudinal constructs (Christ *et al.*, 2010). Such designs can be used to test models and depend on larger samples to satisfy the requirements for the intended analyses (Laschinger *et al.*, 2012). These studies are easier and faster to perform than others since they just need a one-time effort over a short period of time with a sample from the population of interest, making them both time and cost-efficient (Lau, 2017). All five articles used quantitative methods of data collection and analysis. That was consistent with surveys and correlational research.



4.4.3 The mode of administration

The mode of administration reportedly included online platforms to collect data. Participants completed electronic questionnaires in Articles A, C and D.

4.4.4 Instrumentation

The studies all used existing instruments to measure stress as an outcome variable. **Table 4.8** summarises the instruments that were used in the included studies.

Table 4.8

Instruments used by the reviewed articles

Construct	Instrument	Description	Source
Occupational Stress	Sources of Work Stress Inventory	Measures eight known sources of work stress	C
	Effort-Reward Imbalance Questionnaire ERI	ERI questionnaire is a standardized, self-report measure of ERI, which includes items regarding effort, reward and over-commitment. There are currently two versions of this questionnaire; long (22 items) and short (16 items).	D
Stress & Coping	Comprehensive Coping Strategies Questionnaire CCSQ	Measures occupational stress and different coping strategies	B
Chronic Fatigue	Chronic Fatigue Syndrome Symptom Inventory	A self-report instrument that collects information about the presence, frequency, and intensity of 19 fatigue and illness-related symptoms during the month preceding the collection.	A
Burnout	Maslach burnout inventory-Human Service survey	A 22-item survey that measures 3 areas: Emotional Exhaustion (EE), Depersonalization (DP), and low sense of Personal Accomplishment (PA).	E
	Oldenburg Burnout Inventory OLBI	The OLBI consists of 16 items, measuring burnout severity based on exhaustion and disengagement statements	A

Occupational stress was measured as stress, coping, chronic fatigue, job satisfaction and burnout. These represented different manifestations of stress. Other variables that were paired with stress in the included studies are summarised in **Table 4.9** below.

Table 4.9

Instruments that were used to measure constructs other than stress

Construct	Instrument	Description	Source
Social Support	Social Support Scale	This scale assesses how well individuals perceive that their needs for support, information, and feedback are being met by their friends and family members.	A
Emotional Intelligence	Assessing Emotions Scale	A 33-item self-report inventory focusing on typical emotional intelligence. Respondents rate themselves on the items using a five-point scale. Scores can range from 33 to 165, with higher scores indicating more characteristic emotional intelligence.	C

Job satisfaction	Overall Job Satisfaction Scale	Job satisfaction is related to overall satisfaction.	A
	Halpern's Job Satisfaction Questionnaire	Job content and job content factors	D

Upon reviewing the literature on this topic, it became apparent that positivist approaches dominated interpretative approaches in studying it. In terms of instruments used to examine mental health, the Maslach Burnout Inventory was by far the most common, which measures burnout in combination with other instruments to measure stress (e.g., Occupational Stress Scale, Perceived Stress Scale, Stress Prevalence Questionnaire, Job stress Questionnaire etc.) and wellbeing (e.g., The Warwick-Edinburgh Mental Well-being Scale, PGI General Well-being Measure, The Ryff Scale of Psychological Well-Being).

The researchers selected well-established instruments from literature as reflected in **Tables 4.8** and **4.9**. The instruments appear to be multi-faceted and yield multiple scores on sub-domains which are used for model testing.

Article A administered four instruments among academics at a tertiary institution. Firstly, the Centres for Disease Control (CDC) and Prevention Chronic Fatigue Syndrome Symptom Inventory (CFS) was used to determine whether chronic fatigue was present. This questionnaire measures the presence, frequency, and intensity of 19 fatigue-related symptoms, as well as eight symptoms that are characteristics of chronic fatigue syndrome. These eight symptoms are known as the core symptoms. Additionally, the tool assesses whether a person has diarrhoea, fever, chills, sleep-related problems, nausea, stomach or abdominal pain, sinus or nasal problems, breathing deficiencies, light sensitivity, or depression.

Symptoms other than core symptoms are called non-core symptoms. A 4-point Likert scale is used to rate how frequently each symptom occurs (1 - hardly ever, 2 - mostly, 3 - frequently, 4 - always). A Likert scale is used to determine the severity and intensity of the symptoms (1 - mild, 2 - moderate, 3 - severe). Lai *et al.* (2009) reported that their measure had a Cronbach's

alpha (α) value of 0.88. The Cronbach's alpha coefficient for the current sample is 0.94. Secondly, the Oldenburg Burnout Inventory (OBI) was used to measure burnout. The Oldenburg Burnout Inventory (OBI) was used for measuring burnout. Two subscales of the inventory are exhaustion and disengagement, both of which contains 16 items. Eight items make up each subscale. Based on a Likert scale, response analysis is provided from 1 - completely disagree to 4 - completely agree.

Test-retest of the measure yielded a Cronbach's alpha (α) value of 0.85. The Cronbach's coefficient for the current sample was 0.83. Thirdly, the Social Support Scale was developed by Caplan *et al.* (1977). It consists of 12 items measuring the support an individual receives at the workplace (from colleagues and managers) and personal environment (from friends and spouses). Participants respond using a 5-point Likert scale ranging from 0 – don't have any such person to 4 – very much. Cronbach's α values reported for the scale ranged 0.79–0.91 The Cronbach's α coefficient for the current sample was 0.83. Lastly, The Overall Job Satisfaction Scale consists of three items to identify an individual's level of job satisfaction. Participants respond to the following items based on a Likert scale of 1 - strongly disagree to 7 - strongly agree: "All in all, I am satisfied with my job;" "In general, I don't like my job;" "In general, I like working here."

The research conducted by Fields (2002) examined the reliability of the scale and reported Cronbach's α values of 0.67–0.95. The Cronbach's α coefficient for the current sample was 0.82 suggesting that the instrument was reliable and stable in that sample.

Article B administered one instrument to a sample of permanently employed university academics. The Comprehensive Coping Strategies Questionnaire (CCSQ), is a measuring

instrument developed by Du Plessis and Martins (2019). The questionnaire consists of two sections and is a self-reporting instrument. In Section A, four questions measure occupational stress. As part of the questionnaire, participants were asked to identify and describe an academic or research-related stressor; (2) classify the stressor as academic or research-related; (3) rate the intensity of the stressor (1 = mildly stressful; 10 = extremely stressful); and (4) identify what emotion(s) they experienced when confronted by the stressor.

There were 69 items in Section B that asked participants to indicate whether coping strategies had been used to cope with the stressor identified in Section A. These include cognitive coping (15 items), emotional coping (4 items), social support coping (8 items), leisure coping (11 items), religious coping (9 items) and EA (22 items) (Du Plessis & Martins, 2019). All items were rated using a six-point agreement scale, where 1 represented strongly disagree and 6 strongly agree.

Article C administered three instruments to a sample of health profession university academics. Firstly, a demographic questionnaire to measure gender, race, department, years in academia, highest qualification, and academic rank, a self-constructed questionnaire was used. Secondly, The Assessing Emotions Scale measures emotional intelligence (EI) along with four factors, including Perception of Emotions, managing own emotions, Managing others' emotions and Utilisation of emotion (Schutte *et al.*, 2009). Schutte *et al.* (2009) reported that the test had good reliability as evidenced by the Cronbach alphas computed for Perception of emotion ($\alpha = .86$; Managing own emotions ($\alpha = .81$); Managing other's emotions ($\alpha = .76$) and Utilization of emotions ($\alpha = .78$).

Lastly, several stress-related factors are accounted for in the Sources of Work Stress Inventory (SWSI). The General Work Stress Scale and the Sources of Work Stress Scale include eight work-related stress factors (De Bruin & Taylor, 2005). Several stress-related factors are accounted for in the Sources of Work Stress Inventory (SWSI). The SWSI demonstrated a range of .86 to .94 had acceptable psychometric properties, suggesting that the SWSI could be used for research. A high Cronbach alpha was reported for Role ambiguity ($\alpha = .85$); Tools and equipment ($\alpha = .88$); Career advancement ($\alpha = .89$); Work/home interface ($\alpha = .85$); Relationships ($\alpha = .93$); Job security (Cronbach's $\alpha = .91$); Lack of autonomy ($\alpha = .92$), and Workload ($\alpha = .96$).

Article D administered two instruments to academic staff in higher educational learning. An evaluation of job satisfaction was conducted based on Halpern's (1966) 10-item questionnaire instrument. It measures satisfaction with duties and responsibilities of various job content (motivator factors) and job context factors (hygiene factors), as well as overall job satisfaction. The items included in this scale are working conditions, opportunities for achievement, work itself and overall satisfaction. The respondents are to indicate their degree of certainty on whether or not they will have a job in the organisation after the merger (for the merging institution) or 'two years from now (in the case of the non-merging institution). The whole questionnaire was measured on a five-point rating scale ranging from 'strongly disagree' (1) to 'strongly agree' (5).

To check the reliability of the instrument the researchers of article D conducted a reliability analysis where item analysis was used to identify poor items. Following the recommendations of Pallant (2016), items correlating below 0.30 with the total score were considered poor items and were thus excluded from further analysis. The job satisfaction instrument contained two

subscales, namely the hygiene factors subscale and the motivator factor subscale, which obtained an alpha of 0.76 after removing one poor item. The uncertainty scale found an alpha of 0.77 after removing four poor items. The second instrument utilised was the 16-item Effort-Reward Imbalance questionnaire, to measure occupational stress. Items that formed part of the scale include the following: ‘I have constant pressure due to a heavy workload’ and ‘I receive the respect I deserve from my superiors.’ The Effort-Reward Imbalance scale, used to measure occupational stress, obtained a satisfactory internal consistency alpha coefficient of 0.78 after removing six poor items.

Article E administered one instrument to university academics. The Maslach Burnout Inventory-Human service survey (MBI-HSS) consists of 22 statements of feelings related to work and involves three independent aspects of burnout: emotional exhaustion (EE), depersonalization (DP) and reduced personal accomplishment (PA). The reliability coefficients for the subscales EE ($\alpha = .716$), DP ($\alpha = .753$) and PA ($\alpha = .820$) were satisfactory as estimated by Cronbach’s alpha. These reliability coefficients were determined by the use of pilot testing (Kebde & Gedfie, 2018). In order to test this hypothesis, pilot research was done at Bahir Dar University. All of the measurement elements were taken from the literature, it was deemed necessary to double-check their accuracy. The questionnaires were then delivered to 20 instructors/teachers who were not involved in the initial research.

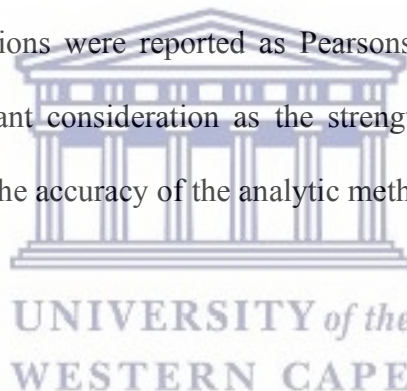
4.4.5 Analysis

All five articles reportedly used descriptive statistics including frequencies and measures of variability and a central tendency to summarise sample characteristics. Item analysis and data reduction techniques were used to assess the performance of the scales in studies D and B respectively. Studies D and B respectively articulate in higher quality as general validation

studies most commonly only report on the internal consistency. Although, the aforementioned studies went above the norm by computing data reduction and confirmatory factor analysis. Study D used both exploratory and confirmatory factor analysis to assess the factor structure of the Halpern's Job Satisfaction Questionnaire and Effort-Reward Imbalance Questionnaire ERI. Inferential statistical techniques were used to test associations, differences, predictions and modelling relative to the study objectives.

4.4.6 Associations

Associations were tested with correlation in Study C. An observation was that the researchers did not consistently indicate which type of correlation was used relative to the type of variables that were studied. All correlations were reported as Pearsons while not all variables were continuous. This is an important consideration as the strength and significance testing of associations are influenced by the accuracy of the analytic method (Tredoux & Smith, 2006).



4.4.7 Group difference

Article D reported using t-tests for independent samples to assess group differences. The selection of the t-test was appropriate given the nature of the grouping variables and the discreteness of subsequent groups for comparison purposes. Sizes of groups were not consistently reported which impacts the sensitivity of the t-tests.

4.4.8 Prediction

Articles B and C used multiple regression analyses to test predictive relationships. Regression models were stipulated and tested as indicated below. Article B's multiple regression analysis yielded significant results. A statistical significance was observed, with the model accounting

for 33% of the variability in the data ($\beta^2 = 0.33$, $p \leq 0.05$) of the variance in coping success. Coping success was mostly explained as a function of nine empirically validated strategies, including cognitive coping ($\beta = 0.249$; $p = 0.000$) and social support coping ($\beta = 0.172$; $p = 0.002$), and there was an inverse relationship with avoidant coping ($\beta = -0.146$; $p = 0.019$), social disengagement ($\beta = -0.140$; $p = 0.011$) and rumination ($\beta = -0.115$; $p = 0.055$). Therefore, the following nine empirically validated strategies that emerged were explained as follows; (1) cognitive coping, (2) emotional coping, (3) social support coping, (4) active leisure coping, (5) vacation time, (6) religious coping, (7) avoidant coping, (8) social disengagement, and (9) rumination emerged as scientifically proven coping methods. The findings showed that academics used adaptive coping techniques (such as cognitive coping, social support coping, and vacation time) to modify their felt emotions and change their views of the stressor. Previous research has revealed that academics use adaptive coping methods to deal with workplace stresses (Darabi *et al.*, 2017; Kersh, 2018; Mark & Smith, 2012). Adaptive coping methods are also linked to coping success as well as physical and mental health and well-being.



As mentioned above the inverse (negative) relationship found refers to avoidant coping, social disengagement, and rumination was found to have negative (inverse) correlations with coping success. These findings suggest that academics who use maladaptive coping mechanisms are unable to alter the unpleasant experiences or situations that trigger emotions, and hence continue to be distressed (Holahan *et al.*, 2005; Newman & Llera, 2011). As a result, they will continue to re-evaluate the stressor until they can develop adaptive coping methods.

According to Article C, Model 1 regressed the subscales of Emotional Intelligence and level of qualification onto General Work Stress. Based on a .05 alpha level test the model tested

significant, the model further explains 24.8% of the variance on general work stress. Model 6 significantly regressed the subscales of emotional intelligence and level of qualification and job security ($p < 0.05$). The model explained 23.1% of the variance in job security. Lack of autonomy was regressed onto emotional intelligence and level of qualification in Model 7. In the model, 35% of the variance was explained by a lack of autonomy and was significant at the .01 alpha level. The subscales of Emotional Intelligence and level of qualification were regressed onto work/home interfaces in Model 8. Work/home interfaces were found to be significantly correlated at the .01 alpha level and to explain 34.7% of the variance. Utilisation of emotions ($p < .05$) and managing own emotions ($p < .01$) significantly predicted work/home interface, controlling for level of qualification, perception of emotions and managing others' emotions. In models 2, 3, 4, 5 and 9, null findings were reported, indicating that combining level of qualification and EI factors was not significantly predictive of Role Ambiguity, Relationships, Tools and Equipment, Career Advancement and Workload.

4.4.9 Modelling

Study A and B used structural equational modelling (SEM) to test hypotheses related to model testing. Article E analysed the data using inferential statistics. According to Article E, academics at public universities were at high risk of burnout in the majority of levels. The prevalence rates for emotional exhaustion (EE), depersonalization (DP), and personal accomplishment (PA) were 55.5%, 67.8%, and 65.1% respectively. Neither working experience nor educational status contributed significantly to burnout in any of the three dimensions. Furthermore, there was no statistically significant difference in the level of EE and DP among academics based on class credit hours and the university they worked for. Overall, the samples and resulting data supported the analyses. The impact of required conventions in

quantitative techniques can be seen as the studies confirmed threshold requirements for conducting the respective analyses.

4.4.10 Qualitative analysis

Article B reportedly used thematic analysis. The data were coded using a deductive approach into categories. A categorisation matrix was developed based on the literature on occupational stress, specifically that which academics face. A prevalence analysis determined the frequency of the codes in relation to each category and across the dataset. In addition to categorising their identified stressors as academic, administrative, or research-related conditions (classification of the stressors), the participants had to describe how they handled it (explanation of the stressor) to indicate on a sliding scale of 1 to 10 (1 = slightly stressful; 10 = extremely stressful) how stressful the stressor was for them.

4.5 Category 3: Core findings

All five articles found numerous variables of stress, occupational stress, and burnout. Sub-categories were identified: sources of stress, symptoms of stress, effects of stress and burnout.

4.5.1 Sources of stress

Three of the five articles identified sources of stress as an experience to varying degrees. It's worth noting that academics are frequently confronted with factors relating to the professional demands they face daily (Beheshtifar & Nazarian, 2013). Frantz *et al.* (2019) concluded that occupational stress in higher education was due to unmanageable workload, and rapid change in academic roles due to the transformational shift in higher education. These authors identified that long work hours, the inability to balance personal and work demands, and job interferences pertaining to the work environment are all sources of stress. Du Plessis (2020) echoed that

administrative tasks, job overload, time pressures and lack of support were frequent sources of stress. Mjoli and Ngirande (2020) reported that job uncertainty and the impact it holds on job satisfaction were factors contributing to stress.

The data extracted here resonates with the broader body of literature reporting on occupational stress in Higher Education. For example, Tytherleigh* *et al.* (2005) reported that excessive workloads, a lack of balance between work and life, work relationships, control, communication, and job security were all factors that contribute to occupational stress experienced by academics.

4.5.2 Symptoms of stress

Two out of five articles reported on symptoms which academics experience. Frantz *et al.* (2019) reported that academics often experience irritability, agitation, the overwhelming feeling of pressure and urgency. Similarly, Du Plessis (2020) stated that the emotional responses felt by academics were anxiety, frustration, irritability and helplessness. Based on the evidence available, Kyriacou (2000) stated that academic stress is when academics suffer unpleasant negative emotions, such as anger, frustration, anxiety, depression and nervousness, as a result of some aspect of their work as educators.

4.5.3 Effects of stress

The effects of occupational stress have been found to be debilitating for both individuals (Darabi *et al.*, 2017) and organisational outcomes (Bauwens *et al.*, 2019). Du Plessis (2020) reported that a common and direct consequence of emerging stress by academics was poor leadership and poor communication from superior staff members. Frantz *et al.* (2019) stated that the above emotional responses may lead to conflict within the work and personal life of

the individual. Burnout is seen by many researchers as a job-related stress disorder or a general work-related stress reaction (Awa *et al.*, 2010). Burnout is also linked to other mental health issues including anxiety and depression. However, research supports that burnout is distinct from other mental health illnesses, a general stress reaction, and other workplace phenomena like job dissatisfaction (Awa *et al.*, 2010; Maslach *et al.*, 2001).

4.5.4 Burnout

Burnout was an outcome variable in three of the five publications. According to Kebde and Gedfie (2018) the majority of participants reported significant levels of burnout, with 55.05 % reporting high levels of emotional exhaustion, 67.08 % reporting depersonalisation, and 65.1% reporting low levels of personal accomplishment. According to Coetzee *et al.* (2019) social support, work satisfaction, and the number of symptoms reported by participants all contribute to burnout and chronic fatigue syndrome. Burnout has a significant relation to job satisfaction (Coetzee *et al.*, 2019). The findings of Coetzee *et al.* (2019) reported a significant correlation between academic exhaustion and burnout in academics. The data concluded that chronic fatigue syndrome and academic burnout are two distinct constructs.

The data extracted resonated with the literature where several studies found that academics in higher education institutions suffer from burnout (Lambert *et al.*, 2007; McCann & Holt, 2009; Okwaraji *et al.*, 2014). Adekola (2012) attributed burnout to a variety of work-related and interpersonal factors that result in a negative impact on the organisation's wellness.

4.6 Category 4: Conclusions and recommendations

An overview of the article's findings and recommendations are stated below

4.6.1 Conclusion

According to Kebde and Gedfie (2018) the majority of teacher participants experienced considerable burnout, including emotional exhaustion, depersonalisation, and low personal success. The three parts of burnout, emotional exhaustion, depersonalisation, and personal success, have no statistically significant connection with the differences among teachers' burnout levels that can be attributed to their work experience. The level of burnout experienced by university professors was not due to the educational status or employment experience of academics, according to the study's findings.

According to Ngirande and Mjoli (2020), there is a considerable difference between work satisfaction and occupational stress. The study suggests that uncertainty influences the relationship between job satisfaction and occupational stress. Furthermore, the link/relationship between job satisfaction and occupational stress is influenced by uncertainty within the workspace. According to Coetzee *et al.* (2019) findings stated that despite the lack of evidence of significant correlations between chronic fatigue syndrome, burnout, job satisfaction, social support, and age in the structural equation model (SEM), the model pointed to certain relationships between the constructs. Burnout and its symptoms have also been associated with significant physical symptoms, according to Coetzee *et al.* (2019) study. The study, therefore, concludes that although chronic fatigue and burnout are distinct concepts, they share some characteristics in the academic context.

The findings of Frantz *et al.* (2019) highlighted that the university's historical nature still manifests in patterned ways, as do issues of gender, race, and professional status as they relate to academic occupational stress. The study revealed that academics possess emotional intelligence skills that enable them to cope with occupational stress. The academics who work

in health professions are very adept at managing and regulating their emotions when faced with challenging situations. Participants in the study demonstrated an ability to use emotional information as guidance in handling particular occupational stress sources. It is further supported by the predictive relationships between the variables that EI, combined with qualification level, can significantly predict sources of occupational stress for academics.

Du Plessis (2020) established a model for coping with occupational stress in academics in which occupational stress can be attributed to organisation-specific and job-specific pressures that produce negative feelings. Academics use adaptive coping methods in response to occupational stressors.

4.6.2 Recommendations

Three out of the five articles (C, D, E) recommended a need for university academics to design programs that focus on burnout prevention and reduction in order to maintain their psychological well-being. Kebde and Gedfie (2018) recommended that the Ministry of Education and universities should establish programmes aimed at preventing and reducing burnout by maintaining the psychological well-being of university academics. The Ministry of Education, in partnership with universities, should implement measures such as occupational health management training for instructors (Kebde & Gedfie, 2018). Ngirande and Mjoli (2020) recommended that management of higher education should monitor the behaviour and attitudes of their employees. Similarly, Frantz *et al.* (2019) recommended the further exploration of academic staff's emotional management or regulation.

In terms of further research, all five articles suggested that more research should be conducted. Frantz *et al.* (2019) recommended replication of their study using samples from different universities. Similarly, Ngirande and Mjoli (2019) recommended that future studies should

include more than two institutions of higher learning using the same constructs (job satisfaction, occupational stress and uncertainty). Coetzee *et al.* (2019) stated that further research should be conducted on lead outcomes of burnout and occupational stress such as absenteeism and low productivity within the work environment specifically in South Africa due to their high-stress conditions. Du Plessis (2020) echoed that future studies should look at testing the SEM model for the harmful side effects of occupational stress among employees. Similarly, a recommendation for further research to identify factors such as the work environment responsible for the association between burnout and higher education was stated by all articles. Du Plessis (2020) recommended research be conducted on the moderating effects of individual characteristics and external variables on an academic's ability to cope with occupational stress.




CHAPTER FIVE

Conclusion

5.1 Conclusion

The literature available on burnout and occupational stress in higher education employees was evaluated in this study for methodological rigour and quality. A systematic review of articles published between January 2016 to June 2021 was conducted in order to consolidate the literature. The review followed the PRISMA process and identified that there was a lack of good quality literature reporting on burnout and occupational stress in higher education employees conducted in Africa. In comparison to worldwide studies, the African continent presents a dearth of literature, with South Africa and Nigeria accounting for the majority of it.



The current study aimed to determine the relationship between occupational stress and burnout among African academics. The findings suggest that academics experienced occupational stress and burnout from a variety of sources and confirms that academia is a stressful work environment. Occupational stress among academics was reported largely due to increased workloads resulting from change and transformations in the educational sector. Furthermore, it became apparent that the vestiges of Apartheid in South Africa continue to influence educational institutions. The study revealed that historical influences continue to impact educational institutions and the occupational stress academics experience in South Africa. This can often be seen in the patterned manifestation of socio-demographic factors.

Now more than ever, academics are expected to produce knowledge and have increasingly high demands associated with that role. This has led to academic careers becoming increasingly

stressful. There was a variety of stresses noted, including severe workloads, administrative responsibilities, and time constraints. Occupational stress and burnout can adversely affect not only academic achievement and productivity but also the well-being of academic staff, according to the research and possible future studies. Therefore, the higher education system must be cognisant of the pressures and demands placed on academic staff and provide support and protection to keep their employees from becoming overworked and stressed. Only then can staff productivity, organisational performance, and the intellectual health of the society be preserved. Furthering an understanding of these factors could provide insight for future interventions aimed at improving the well-being of academic staff.

Only minimal studies have been done to establish the key stresses impacting employees' mental health, as well as how employees cope with stressors effectively. These findings have opened up new possibilities for enhancing our knowledge and understanding of the additional stresses that academics describe, as well as how their perspective plays a role in affecting mental health. Given the subjective character of psychological categories like well-being, stress, and burnout, it is critical to analyse the key stress sources, as well as how academics manage these stressors (Ryff, 2014).

5.2 Limitations of the study

The following limitations were identified for the present study:

- The database search was limited to the data basis to which UWC subscribed. The decision to not use other library facilities, such as neighbouring institutions, to potentially access complementary databases was reasonable, yet it was nevertheless restrictive. The study did not look at the pattern of database subscriptions, it's possible that bias was introduced inadvertently into the study.
- Possible language bias was introduced by the decision to omit publications published in other languages.

- Bias may have been introduced by the decision to omit content that required payment to access. This choice was made based on what the university community as a whole would readily have access to. The decision to exclude these articles was based on accessing the general body of literature that would readily be available. Other options, such as inter-library lending or obtaining membership in the libraries of sister universities, were not considered at the time.

5.3 Recommendations for future studies

As a psychological impediment in academic settings, occupational stress and burnout are important factors to consider. It might be beneficial to develop a better understanding of this construct and to examine these constructs independently within the higher education sector, for a broader understanding of the emotional turmoil academics experience. Research in the future might examine whether academics from different fields experience different levels of occupational stress and burnout and whether these experiences vary based on discipline and modes of coping and intervention. Intervention research can start to formulate strategies for reducing occupational stress.

5.4 Significance of the study

The present study provided insight into the challenges faced by academics and highlighted the necessity of addressing occupational stress in higher education institutions on the African continent. The results of this study provide evidence that academics experience moderate to high levels of occupational stress. Further, this study has provided a platform to engage with how demographic variables may contribute to the experience and management of occupational stress.

Research on occupational stress and burnout, including future studies, is considered important since it is evident that these factors can not only have an adverse economic impact but also affect academic staff's well-being. For these reasons, universities should consider how pressures and demands are placed on academic staff and provide support and protection to their staff. This will ensure staff well-being and organizational performance are preserved. Providing information for future well-being interventions among academic staff could be facilitated by a deeper understanding of these factors.

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APPENDICES

Appendix A

Databases

1. AccessPharmacy
2. AccessScience
3. ACM (Association for Computing Machinery)
4. Academic Search Complete
5. Africa Development Indicators
6. African Journals Online (AJOL)
7. Africa Knowledge Project (AKP)
8. World Newspaper Archive: African Newspapers database 1800-1922
9. African Writers Series
10. Agricola
11. AllAfrica.com
12. ALUKA
13. American Association of Petroleum Geologists (AAPG)
14. American Chemical Society (ACS)
15. American Physical Society (APS) Journals
16. The African Journals Archive
17. Annual Reviews
18. ATLA (CD ROM)
19. Biological Abstracts (BA)
20. BioMed Central
21. BioOne Complete
22. Business Source Complete (EbscoHost)
23. Cambridge Journals Online (Now called "Cambridge CORE")
24. Cambridge Textbooks
25. CINAHL Plus with Full Text



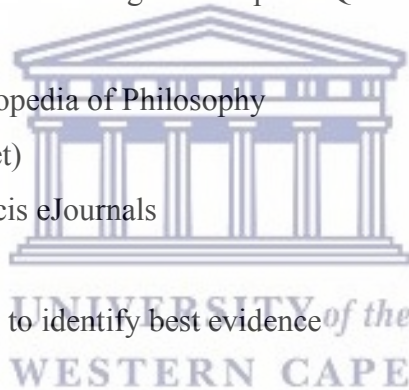
26. ChemSpider (Open Access search engine and repository for Chemistry)
27. Cochrane Library
28. Credo Reference
29. CUDOS (Commonwealth Universities Database Online Service)
30. Dentistry & Oral Sciences Source (DOSS)
31. Directory of Open Access Journals (DOAJ)
32. EbscoHost Web
33. EbscoHost Greenfile
34. EconLit (via Proquest)
35. Emerald eJournals Premier
36. Encyclopedia of Electrochemical Power Sources 2009
37. ERIC
38. ETDs (Electronic Theses and Dissertations - Sabinet)
39. EndNote
40. Faculty of 1000
41. OCLC FirstSearch Service (with WorldCat)
42. Forestry
43. FSTA - Food Science and Technology Abstracts
44. Gender Watch
45. Global Development Finance
46. Global Economic Monitor
47. Google Scholar
48. GreenFILE (free, open access database)
49. Geofacets
50. Gale Virtual Reference Library (GVRL)
51. Health Source: Consumer Edition
52. Health Source: Nursing/Academic Edition
53. HeinOnline
54. IEEE Computer Society Journals and Proceedings
55. InCites (a Thomson Reuters product)
56. Institute of Physics (IOP) Electronic Journals
57. IMF Free Data web site
58. ISAP (Sabinet)
59. JSTOR



60. Juta e-Publications
61. Kovsidex (Sabinet)
62. Knovel
63. Labour Library
64. Legal Products Portal (Sabinet)
65. Library and Information Source (Previously called LISTA)
66. Martindale
67. MasterFILE Premier (EbscoHost)
68. MathSciNet
69. Medicines Complete
70. MEDLINE (EbscoHost)
71. MEDLINE (Pubmed)
72. My LexisNexis
73. Nature
74. Navtech (Sabinet)
75. Netlaw: South African Legislation
76. Newspaper Source (EbscoHost)
77. NEXUS (National Research Foundation)
78. OCLC FirstSearch Service
79. Ovid
80. Oxford Journals Online
81. Parliamentary Bills (Sabinet)
82. Poverty Monitoring Database
83. Provincial Gazettes (Sabinet)
84. Provincial Legislation (Sabinet)
85. PsycARTICLES
86. PubMed
87. Research Data Management
88. SA Citation Plus
89. SA Criminal Law Reports (1990 to date)
90. SA ePublications (Sabinet)
91. SA Government Gazette (formerly on Sabinet, now on My LexisNexis)
92. SA Law Reports (1947 to date)
93. SA Media (Sabinet)



94. Sabinet Abstracts
95. Sabinet African Journals Archive
96. Sabinet Judgements (Trail till January 2021)
97. Sabinet Reference
98. SACat (Sabinet)
99. SACat Plus
100. Sage Journals Online
101. Sage Research Methods Online (SRMO)
102. SAGEOLIT (Sabinet)
103. ScienceDirect
104. SciFinder-n
105. SCOPUS
106. SocINDEX (EbscoHost)
107. South African National Bibliography (SANB)
108. S&P Global Market Intelligence: Capital IQ
109. SpringerLink
110. Stanford Encyclopedia of Philosophy
111. Subsidie (Sabinet)
112. Taylor and Francis eJournals
113. Tax Alert
114. TRIP Database - to identify best evidence
115. UCTD (Sabinet)
116. Web of Science
117. WebLinks Research
118. Westlaw
119. Wiley Online Library
120. Writefull
121. The Complete World Development Report Online
122. World Development Indicators (WDI) Online
123. World Newspaper Archive: African Newspaper database 1800-1922
124. WorldCat OCLC FirstSearch Base Package



Appendix B

Critical Appraisal Tool Checklist for A Systematic Review

Bibliographic Author Title Source
Details

Title Year

	Purpose	Yes (1)	No (0)
1.	Is there evidence that literature has been consulted in providing context or background?		
2.	Is there a clear problem statement?		
3.	Is there a clear rationale for the study?		
4.	Are the aims of the study clearly stated?		
5.	Are the aims explicitly related to the problem?		
Total Points for this section: 5			
	Study design	Yes (1)	No (0)
1.	Is the theoretical orientation of the study reported?		
2.	Was the theoretical orientation described in detail?		
3.	Is the design of the study reported?		
4.	Did the Authors motivate their design choices?		
5.	Were the elements of the design reported on?		
6.	What is the relationship of the design to the aim of the study		

a.	Minimal to no relevance (0)		
b.	Moderate relevance (1)		
c.	Highly relevant (2)		
Total Points:			
	Ethics	Yes (1)	No (0)
1.	Was ethics approval obtained from an identifiable committee?		
2.	Was informed consent obtained from the participants of the study?		
3.	Have ethical issues been reported?		
a.	Confidentiality?		
b.	Anonymity?		
c.	Withdrawal?		
d.	Informed Consent?		
Total Points for this section: 6			
	Data collection	Yes (1)	No (0)
1.	Were data collection methods identified?		
2.	Was the choice of data collection methods motivated?		
3.	Were methods of collection appropriate for the outcomes identified?		
	For quantitative studies:		
a.	Did they report on psychometric properties?		
b.	Did they report on the psychometric properties of the scale for this sample?		
c.	Did the authors report by the type of data produced by the instruments?		
d.	Did the instruments produce data that supported the data analysis		
	For qualitative studies: (Did they report on)		
a.	Trustworthiness?		
b.	Credibility?		

c.	Reflexivity?		
d.	Respondent validation?		
Total Points for this section: 7			
	Data analysis	Yes (1)	No (0)
1.	Was the method of analysis made explicit?		
2.	Was the method of analysis motivated?		
3.	Was the method of analysis appropriate relative to the research question?		
4.	Were the conclusions drawn appropriate and supported by the data?		
5.	Were the inferences drawn supported by the type of sampling		
Total Points for this section: 5			
	Sample	Yes (1)	No (0)
1.	Was the source population identified?		
2.	Were the inclusion/ exclusion criteria specified?		
3.	Was the sampling choice motivated?		
4.	Was the sampling method appropriate?		
5.	How was the size of the study sample determined?		
a.	Not reported (0)		
b.	Using threshold numbers (1)		
c.	Formulas (2)		
d.	Statistical requirements (3)		
e.	Saturation (3)		
6.	Were techniques used to ensure optimal sample size?		
Total Points for this section: 6			
	Results	Yes (1)	No (0)
	For Quantitative studies:		

1.	Were alpha levels reported?		
2.	Were results correctly interpreted?		
3.	Were the results linked to research questions?		
	For qualitative studies:		
1.	Was saturation reached?		
2.	Were multiple reviewers used?		
3.	Were the results linked to the research questions?		
Total Points for this section: 3			
	Conclusion	Yes (1)	No (0)
1.	Was a clear conclusion drawn?		
2.	Was the conclusion supported by the findings?		
3.	Were relevant recommendations made based on the findings?		
4.	Were limitations identified?		
Total Points for this section: 4			



Percentage	Score	Total Score/Score (%)	
Weak (<40%)	Moderate (41-60%)	Strong (61-80%)	Excellent (>80%)
Overall Appraisal:	Include:	Exclude:	Seek Further Info:



Appendix C

Extraction Tool

Data Extraction Sheet Authors:			General description:		
Target group:	Study level:	Personal: demographic variables addressed	Academic field:	Geographical location:	
Authors:			Methodological appraisal:		
theoretical orientation:	Design:	Sample type:	Sample size:	Data collection:	Analysis:
Quantitative:	Effect size:	Qualitative:	Saturation:		
Authors:			Results:		
Findings:	Conclusion:	Recommendation:	Limitations:		

Appendix D

Proof of registration



UNIVERSITY of the
WESTERN CAPE

LETTER OF CONFIRMATION

ISSUED BY THE

UNIVERSITY OF THE WESTERN CAPE

The University of the Western Cape is a Public Higher Education institution established and regulated by the Higher Education Act, No. 101 of 1997 (Republic of South Africa), with the language of instruction being English. The University is duly accredited by the Council on Higher Education and its degrees and diplomas are registered on the National Qualifications Framework in terms of the South African Qualifications Authority Act, No. 58 of 1995.

PROOF OF REGISTRATION

This letter is to confirm that **FAAHIRAH SAMUELS** is a registered student at the University of the Western Cape.

**UNIVERSITY of the
WESTERN CAPE**
TAAHIRAH SAMUELS
Student number: 3986099
is registered for the following programme

Programme name : **MASTER OF ARTS
PSYCHOLOGY**

Year of registration : **2020**

Yours sincerely

DR AHMED SHAIKJEE
DEPUTY REGISTRAR
UNIVERSITY OF THE WESTERN CAPE



Appendix E

Permission for SFS scoring system

Ms T. Samuals
Department of Psychology
UWC
15 June 2020

Re: Permission to use the SFS scoring system – Version D

Dear Ms. Samuals

Thank you for your interest in using the SFS scoring system. I hereby give you permission on behalf of the collaborating authors to use the critical appraisal tool in your research towards the M.A.Psych degree. I would like to request that you provide us with feedback as to how you found the tool in your research. Your feedback will be valuable for future refinement

The SFS scoring system is currently being reviewed for publication. You can include a copy of the tool in your examination copy of the thesis provided that you insert a watermark on the appendix to indicate that it is not for reproduction. The final copy of your thesis that is uploaded into the library should not contain the critical appraisal tool. You can provide my contact details for anyone who is interested in using or reviewing the tool. This letter must be included as an appendix and the conditions stipulated reflected in your ethics section.

You can use the following references to support your thesis write up:

1. Smith, M.R., Franciscus, G. Swartbooi, C. Munnik, E. & Jacobs W. (2015). The SFS scoring system. In Smith, M.R. (Chair). *Symposium on Methodological Rigour And Coherence: Deconstructing The Quality Appraisal Tool In Systematic Review Methodology* conducted at the 21st National Conference of the Psychological Association of South Africa, South Africa.
2. Smith, M.R. (2015). Methodological Rigour and Coherence: A concept paper. In Smith, M.R. (Chair). *Symposium on Methodological Rigour And Coherence: Deconstructing The Quality Appraisal Tool In Systematic Review Methodology* conducted at the 21st National Conference of the Psychological Association of South Africa, South Africa.



UNIVERSITY OF
WESTERN CAPE

The following references represent a sample of studies in which the scoring system and specifically version D was piloted

3. Trimble, L. & Smith, M.R. (2015) Strategies aimed at developing capacity in research supervisors. In Smith, M.R.. (Chair). *Symposium on Research Capacity Building: Identifying Elements From Supervision And Staff Development* conducted at the 21st National Conference of the Psychological Association of South Africa, South Africa.
4. Hendricks, A. Simons, A. & Smith, M.R. (2015). Strategies to develop research capacity in graduate students. In Smith, M.R.. (Chair). *Symposium on Research Capacity Building: Identifying Elements From Supervision And Staff Development* conducted at the 21st National Conference of the Psychological Association of South Africa, South Africa.
5. Simons, A. & Smith, M.R. (2015). Strategies to enhance research capacity in early career academics: A Systematic review. In Smith, M.R. (Chair). *Symposium on Research Capacity Building: Identifying Elements From Supervision And Staff Development* conducted at the 21st National Conference of the Psychological Association of South Africa, South Africa,.
6. Rae, N. & Smith, M.R. (2015). Demographic and personal factors that impact completion of student research. In Smith, M.R. (Chair). *Symposium on Research Capacity Building: Identifying Elements From Supervision And Staff Development* conducted at the 21st National Conference of the Psychological Association of South Africa, South Africa.

You can also cite the references of the unpublished theses of

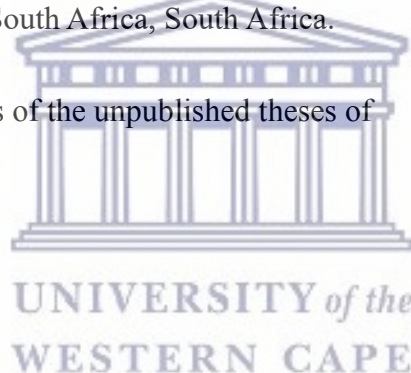
Abigail Simons

Nicolette Rae

Lyle Trimble

Erica Munnik

Gershwin Robertson



I wish you well on your research and academic endeavours.

Sincerely

.....
Prof. Mario R. Smith

Appendix F

Proof of NRF Grant

AGREEMENT FOR GRANTHOLDER-LINKED STUDENT SUPPORT 2019



THIS DOCUMENT MUST BE INITIALED (by all signatories), SIGNED AND UPLOADED TO THE NRF ONLINE SUBMISSION SYSTEMS, WITH THE STUDENT NOMINATION FORM AS WELL AS OTHER RELEVANT DOCUMENTS AS PRESCRIBED FOR NOMINATIONS. NO NOMINATION WILL BE PROCESSED IF SUCH DOCUMENTS HAVE NOT BEEN MADE AVAILABLE TO THE NRF.

I, Taahirah Samuels (full names and surname) (hereinafter referred to as the **Bursar**), hereby accepts the terms and conditions set out in this Agreement should the Grantholder-linked student assistantship/bursary/fellowships/staff development grant (hereinafter referred to as 'Bursary') be awarded to me. I acknowledge that the Grantholder's 'Conditions of Grant' attached to the Grantholder's Grant Award Letter, and the 'NRF Bursary, Scholarships Values Rules and Guidelines', or such other terms and conditions as may be imposed by the NRF and of which I shall be advised in writing, by the Grantholder, shall form an integral part of this Agreement. I acknowledge that the Bursary is subject to the following terms and conditions:

A. GRANTHOLDER-LINKED STUDENT SUPPORT CONDITIONS

1. The Bursary will be awarded for one year at a time only. It may, in the sole discretion of the NRF, be renewed on submission of annual nominations for the subsequent year(s), up to the allowable maximum period of support indicated below within the tenure of the Grant under which the Bursary is awarded, depending on the -

- duration of the Grant awarded to the Grantholder;
- programme funded under
- availability of funds and/or change of priorities by the Government and/or other funders; and
- academic progress by the Bursar.

i. Nothing herein contained shall, however, create an expectation that the bursary shall be renewed for subsequent years.

LEVEL	MAXIMUM PERIOD OF SUPPORT
Student Assistantships	
Final-year Undergraduate degree/diploma (only full-time)	1 year
BTech/Honours (only full-time)	1 year
Post-graduate Bursaries	
Masters full-time	2 years
Masters part-time	3 years
Doctoral full-time	3 years
Doctoral part-time	5 years
Masters degree upgraded to Doctoral study	4 years
Postdoctoral Fellowships	2-3 years
Staff Development Grants	
Masters level	3 years
Doctoral level	5 years

- The Bursar (SA or non-SA citizens) will be registered and based at the university as stipulated in the nomination form during the tenure of the Bursary. Foreign nationals, employed Full-time who have been awarded leave/sabbatical for the period of study and who receive a bursary from their employers do not qualify for full-time bursaries.
- The Bursary may not be held concurrently with any other NRF or South African Government funded bursary schemes or organisations like the CSIR, MRC, etc.
- The Bursar registered on a full-time basis for the degree, may not hold full-time salaried employment during the tenure of the scholarship, but he/she will be allowed to undertake teaching, tutorials, assistance or demonstration duties and be remunerated for his/her services at the normal university tariff for services rendered.
- The following conditions will apply with regard to supplementary funding (top-ups/supplementation):
 - The bursary may be supplemented by other sources to the Institution's maximum value at Masters and Doctoral levels
 - The Bursary may be supplemented by the NRF Grantholder's running costs up to a maximum value of R20 000 p.a.
- The Bursar must obtain the degree for which the Bursary was awarded within one (1) year after NRF funding has ceased and notify the NRF via the university authority, by that date, of the status of completion of the degree. Should the Bursar not obtain the degree for which the Bursary was awarded, relinquish his/her studies, or leave the university during the award, he/she will have to refund all payments of the Bursary already received for study towards the particular degree, plus interest at the prevailing prime rate charged by the NRF bankers. Should he/she not complete the Doctoral degree, having been upgraded from a Master's degree during the period of funding, the NRF support awarded for both Masters and Doctoral studies, will have to be refunded, in the same manner as specified in this Clause of the Agreement.

Taahirah Samuels
 TS- CS

7. Should the Bursar fail to fulfil any of the aforesaid conditions or should it transpire that the Bursary was awarded on the basis of false information supplied to the NRF, the NRF is entitled to forthwith cancel the Bursary, in which event the Bursar will be liable to refund the scholarship plus interest at the prevailing prime rate charged by the NRF bankers.
 8. If a Bursar wishes to change the research project or field of study, supervisor or institution for which the bursary was awarded, a formal request for the transfer should be submitted by the bursar and endorsed by the current and new supervisor in writing. Details must be submitted to the NRF through the appropriate university authority for consideration prior to such a change.
 9. Upgrading of a Bursary from Masters to a Doctoral level is not automatic and Grantholders must apply to the NRF to have the Bursary upgraded providing proof of upgrading from the Institution, and provided that sufficient funds are available.
 10. The Bursar will acknowledge the financial assistance of the NRF on the title page of the (mini) thesis/dissertation as well as in all articles and publications that emanate from the study funded by the NRF as follows:

The financial assistance of the National Research Foundation (NRF) towards this research is hereby acknowledged. Opinions expressed and conclusions arrived at, are those of the author and are not necessarily to be attributed to the NRF.
 11. If statements concerning the research are made to the media, it should be stated explicitly that the Bursar initiated the research and that it should under no circumstances be regarded as research done on behalf of, or commissioned by, the NRF.
 12. This Bursary must be used in compliance with all South African and international laws, where these do not contradict South African laws, and the research outputs must be used entirely and wholly for legal purposes.
 13. All NRF awards are subject to the NRF Statement on Open Access to Research Publications. Please refer to the copy of this document on the NRF Website regarding terms and conditions around publications (<http://ir.nrf.ac.za/handle/10907/103>).
 14. On having been awarded the degree to which this Bursary pertains, the Bursar must inform the institutional within 30 days after obtaining the qualification.
 15. For postgraduate degrees (Masters and Doctoral) the Bursar is required to upload the final corrected version of the dissertation or thesis in an approved electronic format (single Adobe readable file (PDF)) to the NRF. The institutional office responsible for the award should ensure that the bursar submits the handle or link of the dissertation or thesis deposited in the University Library's digital repository to the NRF, either before or latest one month after their graduation ceremony to the following address: http://www.nrf.ac.za/nrf_funded_thesis_dissertation_requirements. Failure to comply with the requirement, will lead to the bursar being liable to refund all support provided by the NRF for the degree under which the funding was awarded.
 16. **Notwithstanding the conditions referred to in the clauses of this Agreement, the NRF reserves the right to adjust or cancel the bursary, at any point of the award due to unavailability of funds and/or change of priorities by the Government and/or other funders.**
- B. REGULATORY CLAUSES**
1. The Bursary will be cancelled if it is not claimed by the Grantholder, within the Grant Year of his/her Grant.
 2. The Bursar will notify the NRF, via the institutional authorities, immediately of any change in the circumstances under which the Bursary was awarded that might affect the award. Should the Bursar fail to do this, the Bursary may be cancelled by the NRF with immediate effect.
 3. The Bursar will notify the NRF, via the institutional authorities immediately of any change of residential address.
 4. Should the Bursar not perform in terms of this Agreement, the NRF will be entitled to institute legal action for the recovery of any funds pertaining to this Bursary. The Bursar will be liable for all costs incurred on the scale of attorney and client and further agrees to the jurisdiction of the Magistrate's Court in accordance with Section 45 of Act 32 of 1944, as amended, for any action that may arise from this Agreement.
 5. By signing this Agreement, the Bursar gives permission to the NRF to use his/her information as required from time to time for statistical purposes, beyond the date of completion of the bursary requirements.
 6. The Bursar must register for ORCID (www.orcid.org) for integration into RISA processes and systems. This is a requirement in an effort to create and maintain a registry of unique researcher identifiers and a transparent method of linking research activities and outputs to these identifiers. Linking the identifier to institutional systems minimises the effort from institutions and researchers and ensures integrity of system content.
 7. A unique identifier, as provided by ORCID, which the Bursar can associate with their name variations and their research works, is a way to ensure that these links can be made accurately and reliably. This will help the Bursar to uniquely identify him/her as the author of his/her work across all systems integrated with the ORCID registry. The aforementioned identifier must be provided to the NRF by the bursar on acceptance of the Agreement.
 8. The Bursar hereby gives the NRF permission, in terms of the POPI Act, to process personal information received from him/her for funding or ORCID. For purposes of this sub-clause and any other sub-clause, "process" and "processing" shall have the meaning assigned to it in section 1 of the POPI Act.
 9. The Bursar hereby elects the following address as his/her *domicilium citandi et executandi* for the service of all notices or court processes in terms of this Agreement:

Jenais
UR- 05

30 Rochester Road

Heathfield 7945

NB: Please provide a residential address only.

ACCEPTANCE OF AGREEMENT

Accepted and signed at UWC this 27 day of March 2019

Bursar's signature: [Signature] Date: 27 March 2019

WITNESSES

(1) Mogamad Samuels [Signature]
(Print name of Witness) Signature

(2) Gaironessa Samuels [Signature]
(Print name of Witness) Signature

Bursar's ORCID Unique Identifier: 0000-0003-2816-6064

Bursar's ID Number:

9	5	0	5	0	7	0	0	7	1	0	8	8			
---	---	---	---	---	---	---	---	---	---	---	---	---	--	--	--

Grantholder's signature: _____ Date: _____

ON BEHALF OF THE INSTITUTION:

The above Conditions of Grant apply to the named Grantholder. These Conditions of Grant must be read in conjunction with the signed Master Funding Administration Agreement. Both the Grantholder and the Institution are responsible to adhere to these Conditions of Grant.

As authorised signatory, I (print name of Institution's Designated Authority)

_____ in my capacity as _____ (print description of position) accept on behalf of

Student studying institution _____ the responsibility associated with this grant.

SIGNATURE: _____ DATE: _____



[Signature]
[Signature] [Signature]

AGREEMENT FOR GRANTHOLDER-LINKED STUDENT SUPPORT 2020

THIS DOCUMENT MUST BE INITIALED (by all signatories), SIGNED AND UPLOADED ON THE NRF ONLINE SUBMISSION SYSTEM, WITH THE STUDENT NOMINATION FORM AS WELL AS OTHER RELEVANT DOCUMENTS AS PRESCRIBED FOR NOMINATIONS. NO NOMINATION WILL BE PROCESSED IF SUCH DOCUMENTS HAVE NOT BEEN MADE AVAILABLE TO THE NRF.

I, Taahirah Samuels (full names and surname) (hereinafter referred to as the **Bursar**), hereby accept the terms and conditions as set out in this Agreement, should the Grantholder-linked student assistantship/bursary/fellowships/staff development grant (hereinafter referred to as 'Bursary'), be awarded to me. I acknowledge that the Grantholder's 'Conditions of Grant' attached to the Grantholder's Grant Letter, and the 'NRF Bursary and Scholarships Values Rules and Guidelines', or such other terms and conditions as may be imposed by the NRF and of which I shall be advised in writing by the Grantholder, shall form an integral part of this Agreement. I acknowledge that the Bursary is subject to the following terms and conditions:

A. GRANTHOLDER-LINKED STUDENT SUPPORT CONDITIONS

1. The Bursary will be awarded for one year at a time only. It may, in the sole discretion of the NRF, be renewed on submission of annual nominations for the subsequent year(s), up to the allowable maximum period of support indicated below within the tenure of the Grant under which the Bursary is awarded, depending on the -
 - a. duration of the Grant awarded to the Grantholder;
 - b. availability of funds and/or change of priorities by the Government and/or other funders; and
 - c. academic progress by the Bursar.
 - i. Nothing herein contained shall, however, create an expectation that the bursary shall be renewed for subsequent years.

LEVEL	MAXIMUM PERIOD OF SUPPORT
Student Assistantships	
Final-year Undergraduate degree/diploma (only full-time)	1 year
BTech/Honours (only full-time)	1 year
Postgraduate Bursaries	
Masters full-time	2 years
Masters part-time	3 years
Doctoral full-time	3 years
Doctoral part-time	5 years
Masters degree upgraded to Doctoral study	4 years
Postdoctoral Fellowships	2 years
Staff Development Grants	
Masters level	3 years
Doctoral level	5 years

2. Concerning citizenship, the Bursar must comply with the conditions as applicable to each academic level as stated in the documents mentioned above.
3. The Bursar (SA or non-SA citizens) should be registered at the university as specified in the nomination form during the tenure of the Bursary. Foreign nationals, employed Full-time who have been awarded leave/sabbatical for the period of study and who receive a bursary from their employers, do not qualify for full-time bursaries.
4. The Bursary may not be held concurrently with any other NRF or South African Government-funded bursary scheme or organisations like the CSIR, MRC, etc.
5. The Bursar registered on a full-time basis for the degree, may not hold full-time salaried employment during the tenure of the scholarship, but he/she will be allowed to undertake teaching, tutorials, assistance or demonstration duties and be remunerated for his/her services at the normal university tariff for services rendered.
6. The following conditions will apply with regard to supplementary funding (top-ups/supplementation):
 - a. The bursary may be supplemented by other sources to the Institution's maximum value at Masters and Doctoral levels
 - b. Where the institution does not have a maximum allowable amount, measures should be put in place to accommodate the supplementation from other sources.
 - c. The Bursary may be supplemented by the NRF Grantholder's running costs up to a maximum value of R20 000 p.a.
7. The Bursar must obtain the degree for which the Bursary was awarded within **one (1)** year after NRF funding has ceased and notify the NRF via the university authority, by that date, of the status of completion of the degree. Should the Bursar not obtain the degree for which the Bursary was awarded, relinquish his/her studies, or leave the university during the award, he/she will have to refund all payments of the Bursary already received for study towards the particular degree, plus interest at the prevailing prime rate charged by the NRF bankers. Should he/she not complete the Doctoral degree, having been upgraded from a Master's degree during the period of funding, the NRF support awarded for both Masters and Doctoral studies will have to be refunded, in the same manner as specified in this Clause of the Agreement.
8. Should the Bursar fail to fulfil any of the aforesaid conditions or should it transpire that the Bursary was awarded on the basis of false information supplied to the NRF, the NRF is entitled to forthwith cancel the Bursary, in which event the Bursar will be liable to refund the scholarship plus interest at the prevailing prime rate charged by the NRF bankers.
9. Upgrading of a Bursary from Masters to Doctoral level is not automatic and Grantholders must apply to the NRF to have the Bursary upgraded providing proof of upgrading from the Institution, and provided that sufficient funds are available.
10. The Bursar will acknowledge the financial assistance of the NRF on the title page of the (mini) thesis/dissertation as well as in all articles and publications that emanate from the study funded by the NRF as follows:

"The financial assistance of the National Research Foundation (NRF) towards this research is hereby acknowledged. Opinions expressed and conclusions arrived at, are those of the author and are not necessarily to be attributed to the NRF."
11. If statements concerning the research are made to the media, it should be stated explicitly that the Bursar initiated the research and that it should under no circumstances be regarded as research done on behalf of,

or commissioned by, the NRF.

12. This Bursary must be used in compliance with all South African and international laws, where these do not contradict South African laws, and the research outputs must be used entirely and wholly for legal purposes.
13. All NRF awards are subject to the NRF Statement on Open Access to Research Publications. Please refer to the copy of this document on the NRF Website regarding terms and conditions around publications (<http://ir.nrf.ac.za/handle/10907/103>).
14. On having been awarded the degree to which this Bursary pertains, the Bursar must inform their institution within 30 days after obtaining the qualification.
15. For postgraduate degrees (Masters and Doctoral), the Bursar is required to upload the final corrected version of the dissertation or thesis in an approved electronic format (single Adobe readable file (PDF)) to the NRF. The institutional office responsible for the award should ensure that the bursar submits the handle or link of the dissertation or thesis deposited in the University Library's digital repository to the NRF, either before or latest one month after their graduation ceremony to the following address, http://www.nrf.ac.za/nrf_funded_thesis_dissertation_requirements. Failure to comply with the requirement, will lead to the bursar being liable to refund all support provided by the NRF for the degree under which the funding was awarded.
16. **Notwithstanding the conditions referred to in the clauses of this Agreement, the NRF reserves the right to adjust or cancel the bursary, at any point of the award due to unavailability of funds and/or change of priorities by the Government and/or other funders.**

B. ETHICAL CLEARANCE

It is the responsibility of the Bursar, in conjunction with the supervisor and the University, to ensure that all research activities carried out in or outside South Africa comply with the laws and regulations of South Africa and/or the foreign country in which the research activities are conducted. These include all human and animal subjects, copyright and intellectual property protection, and other regulations or laws, as appropriate. A research ethics committee must review and approve the ethical and academic rigour of all research prior to the commencement of the research and acceptance of the grant.

Please also refer to the "Statement on Ethical Research and Scholarly Publishing Practices" on the NRF website at <https://www.nrf.ac.za/media-room/news/statement-ethical-research-and-scholarly-publishing-practices>.

C. REGULATORY CLAUSES

1. The Bursary will be cancelled if it is not claimed by the Grantholder, within the Grant Year of his/her Grant.
2. The Bursar will notify the NRF, via the institutional authorities, immediately of any change in the circumstances under which the Bursary was awarded that might affect the award. Should the Bursar fail to do this, the Bursary may be cancelled by the NRF with immediate effect.
3. The Bursar will notify the NRF, via the institutional authorities immediately of any change of residential address.
4. Should the Bursar not perform in terms of this Agreement, the NRF will be entitled to institute legal action for the recovery of any funds pertaining to this Bursary. The Bursar will be liable for all costs incurred on the scale of attorney and client and further agrees to the jurisdiction of the Magistrate's Court in accordance with

Section 45 of Act 32 of 1944, as amended, for any action that may arise from this Agreement.

5. By signing this Agreement, the Bursar gives permission to the NRF to use his/her information as required from time to time for statistical purposes, beyond the date of completion of the bursary requirements.
6. The Bursar must register for ORCID (www.orcid.org) for integration into RISA processes and systems. This is a requirement in an effort to create and maintain a registry of unique researcher identifiers and a transparent method of linking research activities and outputs to these identifiers. Linking the identifier to institutional systems minimises the effort from institutions and researchers and ensures integrity of system content.
7. A unique identifier, as provided by ORCID, which the Bursar can associate with their name variations and their research works, is a way to ensure that these links can be made accurately and reliably. This will help the Bursar to uniquely identify him/her as the author of his/her work across all systems integrated with the ORCID registry. The aforementioned identifier must be provided to the NRF by the bursar on acceptance of the Agreement in the section below.
8. The Bursar hereby gives the NRF permission, in terms of the POPI Act, to process personal information received from him/her for funding or ORCID. For purposes of this sub-clause and any other sub-clause, "process" and "processing" shall have the meaning assigned to it in section 1 of the POPI Act.
9. The Bursar hereby elects the following address as his/her *domicillum citandi et executandi* for the service of all notices or court processes in terms of this Agreement:

30 Rochester Road, Heathfield

Western Cape, Cape Town 7945

NB: Please provide a residential address. PO Box numbers and university residence or departmental addresses are not acceptable.

ACCEPTANCE OF AGREEMENT
UNIVERSITY of the
WESTERN CAPE

Accepted and signed at UWC this 13 day of May 2020

BURSAR'S SIGNATURE:



DATE: 2020.05.13

WITNESSES

(1) Gaironesa Samuels

(Print name of Witness)



Signature

(2) Mogamad Samuels

(Print name of Witness)



Signature

Bursar's ORCID Unique Identifier: 0000 - 0003 -2816 -6064



Bursar's ID Number:

9	5	0	5	0	7	0	0	7	1	0	8	8
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Grantholder's signature: _____

Date: _____



UNIVERSITY *of the*
WESTERN CAPE

September 2019

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Version 1.2

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