Stress, burnout, and compassion fatigue of undergraduate nursing students at a public university during the COVID-19 pandemic

by

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DECLARATION

I declare that the research report hereby submitted in compliance with the requirements for the degree in Masters of Social Science in Nursing to the University of Free State is my own, independent work, and has not been submitted by me to any other university. I further cede copyright of this research report in favour of the University of the Free State.

10 November 2021

Beatrice Potgieter **Date**

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SUMMARY

The Professional Quality of Life conceptual framework forms the foundation for this study and was developed by Stamm (2010:8). This framework explains how stress, secondary trauma, burnout, and compassion fatigue have a negative effect on undergraduate nursing students' psychological wellbeing. Undergraduate nursing students have been found to have more stress than other students during their studies (Chow*et al.*, 2018:2; Labrague, 2013:424; Turner & McCarthy, 2017:21). This is due to their high academic workload and clinical hours required for nursing competency (Chernomas& Shapiro, 2013:1; Labrague, 2013:428). Stress over a prolonged period of time can lead to burnout (Ferri*et al*., 2015:106). Burnout in combination with secondary trauma can cause compassion fatigue (Stamm, 2010:13). Secondary trauma is caused by being exposed to someone else's extremely negative or traumatic experiences within a caring capacity (Stamm, 2010:13). Compassion fatigue summarises the negative effects of caring (Chachula, 2021:2). In opposition to the negative factors, there is compassion satisfaction (Stamm, 2010:12). Compassion satisfaction can be described as the psychological fulfilment of doing work well and acts as a protective agent against compassion fatigue and burnout (Hegney*et al*., 2014:507; Hinderer *et al*., 2014:161; Manson, 2013:28; Mason & Nel, 2012:451; Stamm, 2010:12).

The research design for this study was a descriptive cross-sectional survey. The levels of perceived stress, burnout, compassion fatigue, and compassion satisfaction experienced by undergraduate nursing students at a School of Nursing at a university in central South Africa were described. The levels of stress, burnout, compassion fatigue, and compassion satisfaction experienced by first- and second-year students during the coronavirus disease 2019 (COVID-19) pandemic were compared to the levels experienced by first- and second-year students prior to the pandemic in 2018, based on an existing dataset at the same university (Engelbrecht & Wilke, 2021:142). All students at the selected university who were enrolled in the Bachelor's Degree in Nursing were asked to participate. Of the 288 students, 108 participated in the study; the response rate was 38%. Three previously validated and reliable scales were used – namely, the Maslach Burnout Inventory Human Services Survey (MBI-HSS), Professional Quality of Life Scale (ProQOL-5), and the Perceived Stress Scale (PSS). Additional biographical information and information concerning COVID-19 was also added. Data collection took place just before the 'second wave' of COVID-19 at the end of 2020, during the final examinations. No undergraduate nursing students were completing practical hours at this time.

Data were cleaned and analysed in the Statistical Package for the Social Sciences (SPSS). Descriptive statistics, including frequency counts and percentages, were calculated for categorical variables. Means, medians, and standard deviations were calculated for continuous variables. Cronbach's alpha was used to test the internal consistency of the scales and sub-scales. One-way analysis of variance (ANOVA) was used to determine whether there were any statistically significant differences between the means of first-, second-, third-, and fourth-year students on perceived stress, emotional exhaustion, depersonalisation, personal accomplishment, compassion fatigue, and compassion satisfaction. Multiple regression was run to predict compassion fatigue in nursing students from year of study, emotional exhaustion, depersonalisation, and perceived stress. The independent sample t-test was used to determine if there was a statistically significant difference between the mean scores for perceived stress, emotional exhaustion, depersonalisation, personal accomplishment, compassion fatigue, and compassion satisfaction of first- and second-year nursing students who participated in the 2018 study and first- and second-year nursing students who participated in the current study.

Ethical clearance was obtained from the Health Science Research Ethics Committee of the Faculty of Health Sciences, University of the Free State.

The results of the study indicated that undergraduate nursing students had moderate levels of stress. These findings were similar to other studies that also used the PSS in South Africa (Engelbrecht &Wilke 2021:142) and in Saudi Arabia (Shdaifat *et al*. 2018:33; Waled & Mohammed*,* 2019:121). With regards to burnout, the emotional exhaustion sub-scale suggested moderate risk for emotional exhaustion – the first stage of burnout. The participants were at average risk for depersonalisation – the second stage of burnout. Moderate levels of personal accomplishment were also identified. These study findings for burnout correlated with findings of another South African study (Engelbrecht & Wilke, 2021:142).The students were found to have moderate levels of compassion fatigue, which was similar to several other studies that also used the ProQOL– both internationally (Beaumont *et al*., 2016:242; Cao*et al.,* 2021:1) and in South Africa (Engelbrecht & Wilke, 2021:142;Manson, 2013:28; Mason & Nel, 2012:454; Mathias &Wentzel, 2017:5). Moderate levels of compassion satisfaction were also reported, which correlates with several other South African studies (Engelbrecht & Wilke, 2021:142; Mason & Nel, 2015; Mathias & Wentzel, 2017:5). Second-year nursing students had higher mean scores for compassion fatigue than first-year nursing students. This might be due to the fact that second-year nursing students have to complete double the number of practical hours than first-year

students. Emotional exhaustion, depersonalisation, and perceived stress were all statistically significantly associated with compassion fatigue. When comparing the first- and second-year nursing students' levels of perceived stress, burnout, compassion fatigue, and compassion satisfaction in this study to that of a previous study done at the same public university in 2018 (Engelbrecht & Wilke, 2021:142), it was found that students in the current study (during COVID-19) had higher scores on personal accomplishment than the students in the 2018 (pre-COVID-19) group. This might be because data collection took place during exams, when no practical hours were being worked by undergraduate nursing students.

The findings of this study are similar to those identified in earlier international and national research publications. Therefore, the recommendations align with those of previous studies and include the introduction of stress- and time-management workshops (Langtree *et al*., 2018:94; Manson, 2013:23; Waled & Mohammed*,* 2019:121). It is recommended that future research explore how coping strategies could improve the psychological wellbeing of undergraduate nursing students.

Key words: stress, burnout, compassion fatigue, compassion satisfaction, nursing students, public university, COVID-19 and pandemic.

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AIDS:	Acquired Immunodeficiency Syndrome
ANOVA:	Analysis of variance
COVID-19:	coronavirus disease 2019
DoH:	Department of Health
HIV:	Human Immunodeficiency Virus
MBI-HSS:	Maslach Burnout Inventory Human Services Survey
ProQOL:	Professional Quality of Life Scale
PSS:	Perceived Stress Scale
SA:	South Africa
SAMRC:	South African Medical Research Council
SANC:	South African Nursing Council
SPSS:	Statistical Package for the Social Sciences
TB:	Tuberculosis
UFS:	University of the Free State
WHO:	World Health Organization

CHAPTER 1: INTRODUCTION

Chapter 1 provides a rationale for the study by highlighting relevant information about stress, burnout, and compassion fatigue in nursing students. These concerns are further contextualised within the current coronavirus disease 2019 (COVID-19) pandemic. The problem statement, research objectives, and questions are described. A brief discussion of the conceptual framework as well as clarification and operationalisation of key concepts are provided. The last section of this chapter concludes with an outline of the study.

1.1 Introduction and Background

Compassion is essential and fundamental to the nursing profession (Bramley & Matiti, 2014:2790; Pehlivan & Güner, 2020:64). Compassion takes place when a nurse has feelings of empathy towards a patient's suffering, pain, and misfortune (Mathias & Wentzel, 2017:1), and empathy is identifying and understanding someone else's emotions and perceptions (Harrington, 2013:477). Compassion is one step further than empathy; compassion is realising someone else's suffering and then taking action to try to relieve this suffering (Mathias & Wentzel, 2017:1; Radley & Figley, 2007:208). When nurses show compassion towards patients who have gone through extremely traumatic experiences, they are exposed to secondary trauma (Mathias & Wentzel, 2017:1; Stamm, 2010:13).

Secondary trauma in combination with burnout can cause compassion fatigue. Burnout is caused by long-term exposure to stress (Stamm, 2010:13). Some authors have indicated that nursing is specifically stressful in a country such as South Africa (Conradie *et al.,* 2017:1; Klopper *et al*., 2012:685), as the nursing profession in South Africa has numerous stressors above and beyond patient care, such as staff shortages, the quadruple burden of disease, limited resources, and lack of appreciation (Maphumulo & Bhengu, 2019:4-5; Massyn *et al*., 2020:263; Valizadeh *et al*., 2016:175). These challenging circumstances can cause nursing staff to feel overwhelmed and stressed, which may result in some nurses deciding to resign. This, in turn, means that the workload on the remaining staff increases, leading to more stress (Maphumulo & Bhengu, 2019:4). While compassion fatigue and burnout are considered the cost of caring (Sinclair *et al*., 2016:9), it can have negative effects on patient care when nurses suffer from these.

Burnout and compassion fatigue are complex and predisposed by many factors. An analysis conducted by Coetzee and Klopper (2010:240) that aimed to define compassion fatigue in the nursing context found that compassion fatigue was cumulative and progressive. Compassion discomfort can start with changes that are temporary and symptoms can be relieved with rest. Compassion discomfort can present with symptoms that include weariness, loss of enthusiasm, and desensitisation. The next stage is referred to as compassion stress; this occurs when stress is increased, and endurance is decreased. Symptoms of compassion stress include loss of strength, decreased performance, irritability, feeling overwhelmed, and impaired ability to concentrate. The final stage is compassion fatigue, where energy expenditure exceeds the restorative process, causing loss of power to recover. Compassion fatigue causes symptoms such as mental and emotional breakdown, callousness, indifference, poor judgement, fear, sleeping difficulties, distressing and disturbing thoughts that are unwanted, and avoidance of reminders of the person or traumatic experience (Coetzee & Klopper, 2010:240; Jack, 2017:2; Mason & Nel, 2012:451; Sabo, 2011). These symptoms can lead to a decreased level of patient care and an increase in clinical mistakes and negative emotions such as stress, depression, and anxiety (Mathieu, 2012:137). Burnout can lead to a nurse's behaviour becoming dysfunctional and dehumanising, causing the quality of care provided to deteriorate (Maslach &Leiter, 1997:193; Schaufeli & Enzmann, 1996:19). Not only is patient care affected, but the nurse's psychological wellbeing is also negatively influenced.

Stress, burnout, and compassion fatigue can have a negative effect on nurses' overall professional quality of life (Stamm, 2010:8). However, compassion satisfaction acts as an agent that defends against the negative consequences of burnout and compassion fatigue (Stamm, 2005:27). Compassion satisfaction is defined by Stamm (2010:12) as "satisfaction derived from doing your work well", and it can increase professional quality of life (Stamm, 2005:27). Nurses' professional quality of life is directly influenced by their psychological wellbeing. In this study context, the researcher looks at the psychological wellbeing of student nurses with specific reference to stress, secondary trauma, burnout, compassion satisfaction, and compassion fatigue as interlinked concepts. Student nurses might be even more at risk for burnout and compassion fatigue, as they do not yet have the healthy coping mechanisms needed to overcome the challenges they face (Labrague, 2013:430). Some authors have found that stress experienced by nursing students is also higher than that of students studying other courses (Sharma & Kaur, 2011:13). The effects of compassion fatigue and burnout are amplified in the nursing student community, as they have added stress due to course work, time constraints, fear of making mistakes in practical settings,

and inadequate coping mechanisms (Labrague, 2013:430). Coetzee and Klopper (2010:240) found that compassion fatigue has different levels, and the sooner it is addressed, the easier it is to reverse. Thus, if student nurses can be taught how to deal with stress, burnout, and compassion fatigue before they enter the working world as qualified nurses, they may be better equipped to deal with the difficulties they will be challenged with as part of the full-time workforce.

Nursing students' psychological wellbeing has been of concern and numerous studies have been done both internationally and locally (Alsaqri, 2017:6-7; Freer, 2018:4-5; Mathias & Wentzel, 2017:1; Senturk & Dogan, 2018:896). Research in Saudi Arabia among junior and senior student nurses found that academic workload and lack of professional skills were the most prevalent stressors (Alsaqri, 2017:6-7). Similarly, Senturk and Dogan (2018:903) did a study on nursing students in Turkey and found that nursing students' main stressors were equally caused by academic and clinical practice. Mathias and Wentzel's (2017:1) study on nursing students at a South African public university reported that the factor that contributed most to compassion fatigue and burnout was clinical practice settings where students were exposed to pain and suffering. Another South African study (Freer, 2018:50-51) among final-year students at a private college found that the main stressor was finances. Financial stress then caused a ripple effect and increased academic stress.

Given that nursing students under normal circumstances may experience increased stress, burnout, and compassion fatigue, the question arises as to how the COVID-19 pandemic has influenced the psychological wellbeing of nursing students (Alsaqri, 2017:6-7; Freer, 2018:4-5; Mathias & Wentzel, 2017:1; Senturk& Dogan, 2018:896). In times of intense change, the concern is that their stress, burnout, and compassion fatigue may escalate.

Wong *et al.* (2020:23) found that, during the COVID-19 pandemic, the majority of the Chinese public had moderate to severe stress, but female students (in general – not specific to nursing) had the highest levels of depression and anxiety. The main causes of increased stress among nursing students due to COVID-19 have been found to be related to economic uncertainty, fear of infection, and the challenges of distance education (Savitsky *et al*., 2020:6). Another Chinese study – specifically on nurses –identified psychological impacts that include depression, anxiety, and distress due to COVID-19 (Lai *et al*., 2020:10). Taylor *et al*. (2020:3) reported that nursing students experienced additional stress due to fear of being exposed to the virus, potentially bringing the virus home and exposing loved ones, and the constant need to adapt as placement and practical areas continually changed.

The current study took place during the beginning of the COVID-19 pandemic and describes the levels of stress, burnout, and compassion fatigue experienced by undergraduate nursing students at a public South African university. The study also compares these levels of stress, burnout, and compassion fatigue with the levels experienced by undergraduate students at the same university, just over a year before the outbreak of COVID-19 (Engelbrecht & Wilke, 2021:140-144).

1.2 Problem Statement and Objectives

While numerous international studies have been conducted on nursing students' psychological wellbeing (Aslan & Pekince, 2020:4; Gallego-Gómez *et al*., 2020:10-11; Huang *et al*., 2020:9-10; Husky *et al*., 2020:7; Taylor *et al*.,2020:3), information is lacking on the psychological wellbeing of undergraduate nursing students during the COVID-19 pandemic in South Africa. Limited international data concerning COVID-19 report that nursing students in China experience psychological stress as well as feelings that range from excitement to doubt and helplessness (Huang *et al.* 2020:8). If institutions cannot find a way to better equip undergraduate nursing students to deal with stress, burnout, and compassion fatigue, it could negatively affect students' academic achievement, career aspirations, personal relationships with loved ones and, ultimately, patient care. Therefore, it is important to equip student nurses with the necessary skills to deal with stress, burnout, and compassion fatigue. To do this, nursing students' levels of stress, burnout, and compassion fatigue must first be determined. Understanding local levels of stress, burnout, and compassion fatigue better could then help educators to improve the training and education practice of South African student nurses as well as their overall psychological wellbeing.

1.2.1 Research questions

- What are the levels of stress, burnout, and compassion fatigue experienced by undergraduate nursing students at a public university in South Africa during the COVID-19 pandemic?
- How do the levels of stress, burnout, and compassion fatigue of undergraduate nursing students in this study compare to the levels before COVID-19, as measured in a previous study conducted at the same public university in South Africa in 2018[1]?

1.2.2 Research aims and objectives

The overall aim of the study is to determine undergraduate nursing students' psychological wellbeing in terms of stress, burnout, compassion fatigue, and compassion satisfaction during the COVID-19 pandemic. More specifically, the objectives of the study are to:

- Describe the levels of stress, burnout, compassion fatigue, and compassion satisfaction of undergraduate nursing students at a public university in South Africa.
- Compare undergraduate nursing students' level of stress, burnout, compassion fatigue, and compassion satisfaction during the COVID-19 pandemic, with levels of stress, burnout, compassion fatigue, and compassion satisfaction experienced by undergraduate nursing students at the same public university in 2018.

1.3 Conceptual Framework

The foundation of this study is built on the professional quality of life theory described by Stamm (2010:8). The framework has been adapted to be applicable to student nurses in a South African context (Mason &Nel, 2015:56). Professional quality of life is a term used to describe how factors such as stress, burnout, secondary trauma, and compassion fatigue negatively influence the quality of life of undergraduate student nurses. At the other end of the spectrum, compassion satisfaction can increase quality of life by acting as a protective agent against burnout and compassion fatigue (Stamm, 2005:27). These concepts will be explained in more detail in Chapter 2.

1.4 Clarification and Operationalisation of Key Concepts

Stress is described by Lazarus and Folksman (1984:2-3) as a stressful situation that takes place when a stressor is perceived and appraised by a person as exceeding his/her

[1]The 2018 study entailed a cross-sectional self-administered survey among undergraduate and postgraduate nursing students. Information leaflets, informed consent forms and questionnaires were distributed during lectures and returned in sealed envelopes to ensure confidentiality. The response rate was 68.8%. The Maslach Burnout Inventory, Professional Quality of Life (ProQOL) Scale, Perceived Stress Scale and Coping Strategies Inventory Short Form were utilized.

resources and endangering his/her wellbeing. For the purposes of this study, stress was measured by using the Perceived Stress Scale (PSS) developed by Sheu *et al.* (cited by Khater *et al.,* 2014:198; see Addendum C).

Burnout is described as emotional exhaustion and depletion due to ongoing stress that can cause feelings of hopelessness and being ineffective in the workplace (Harrington, 2013:281; Stamm, 2010:13). Burnout encompasses three distinct components: emotional exhaustion, depersonalisation, and reduction in personal accomplishment (Maslach, 2001:397; Maslach & Leiter, 1997:158). Burnout was measured using the Maslach Burnout Inventory Human Services Survey (MBI-HSS) for medical personnel (Maslach *et al*.,1997:207; see Addendum C).

Compassion fatigue is a combination of two factors: burnout and secondary trauma. Secondary trauma is caused by being exposed to people who have been through an extremely traumatic or stressful event (Stamm, 2010:8). This can lead to fear, sleeping difficulties, distressing and disturbing thoughts that are unwanted, and avoidance of reminders of the person or traumatic experience (Jack, 2017:2; Mason & Nel, 2012:451; Sabo, 2011). Compassion fatigue was measured in terms of secondary trauma using the compassion fatigue scale, which is a sub-scale of the Professional Quality of Life Scale – ProQOL (Stamm, 2010:26; see Addendum C).

Compassion satisfaction is defined as the pleasure experienced by doing a task well (Stamm, 2010:12) and/or the feeling of fulfilment and enjoyment derived from caring for others (Manson, 2013:25). Compassion satisfaction is also considered to be a defensive agent that can be used to counteract the negative consequences of both compassion fatigue and burnout (Stamm, 2005:27). Compassion satisfaction was measured using the compassion fatigue scale, which is a sub-scale of the ProQOL (Stamm, 2010:26-27) (see Addendum C).

An undergraduate student nurse is a person registered with the South African Nursing Council (SANC) as a learner nurse or midwife in terms of Section 32 of the Nursing Act (SANC, 2013). Students in this study were registered with SANC and enrolled in a four-year Bachelor of Nursing programme at a public university in South Africa, which culminates in qualifying as a registered nurse. In 2020, a new curriculum was implemented by the selected public university, and the first-year students who participated in this study were using this new curriculum (R.174).

Public university is defined under the Higher Education Act 101 of 1997 (South Africa, 1997) as an establishment that provides higher education and has been subsidised by the government. In this study, one public university where a four-year Bachelor's Degree in Nursing can be obtained was selected.

COVID-19 is an infectious disease caused by the Corona virus (SARS-CoV-2); infection can cause mild to severe acute respiratory symptoms (World Health Organisation [WHO], 2020). According to the Centers for Disease Control and Prevention (CDC, 2021a), "COVID-19 spreads mainly from person to person through respiratory droplets from the infected person". The outbreak was declared a pandemic on 11 March 2020 (WHO, 2020). The disease caused panic and concern due to its rapid spread across borders, leading to lockdowns (restrictions in movement) and subsequent economic fallout in many counties (Gallego-Gómez et *al*., 2020:9; Husky *et al*., 2020:3; Lima et *al*., 2020:112915; Rajkumar, 2020:1). The pandemic led to millions of deaths in both high- and low-income countries across the planet (CDC, 2021b).

Pandemic: A disease that occurs worldwide (O'Toole, 2013:1322). Pandemics can occur when new viruses appear in humans and the population has minimal or no immunity, causing serious illness with high morbidity and mortality. The virus is able to spread easily from person to person (CDC, 2016).

1.5 Structure of the Dissertation

This section will list the chapters of this thesis and give a brief overview of the contents of each.

1.5.1 Chapter 1: Introduction

The first chapter describes the background of the study, the rationale for undertaking the study, and the research questions, aims, and objectives. This chapter also includes a summary of the conceptual framework and clarification and operationalisation of concepts. The chapter concludes with an outline of the dissertation.

1.5.2 Chapter 2: Conceptual framework

The conceptual framework is the blueprint that forms the foundation on which a study is built and provides both clarity and vision for the thesis (Grant & Osanloo, 2014:12). The

conceptual framework is usually discussed after the literature review; however, as the conceptual framework is necessary to contextualise the entire study, it was discussed before the literature review. In this case, the conceptual framework is the Professional Quality of Life framework described by Stamm (2010:8). Within the Professional Quality of Life framework, Maslach's conceptual framework of professional burnout (Maslach, 2001:397; Maslach & Leiter, 1997:158; Newell & MacNeil, 2011:27-28) is discussed in more detail. The conceptual framework explains how stress, secondary trauma, burnout, and compassion fatigue negatively affect nursing students' professional quality of life. Furthermore, it describes how compassion satisfaction can positively affect nursing students' professional quality of life.

1.5.3 Chapter 3: Literature review

This chapter contextualises both the working conditions of nurses in South Africa and nursing education in South Africa. It reviews the literature on the concepts of stress, burnout, and compassion fatigue in relation to student nurses. Finally, it discusses recent study findings on how the COVID-19 pandemic has impacted the psychological wellbeing of nursing students.

1.5.4 Chapter 4: Research methodology

This chapter outlines the research design, setting, and methods. The content of the research instrument is discussed as well as the reliability and validity of the instrument. The procedure of data analysis is described. Finally, the ethical considerations are discussed as well as where and when ethical clearance was obtained.

1.5.5 Chapter 5: Results

Chapter 5 presents the analysis of the data that was collected in the study. The chapter starts by discussing background information about the study. Next, the analysis of the reliability of the scale is discussed. The findings of the PSS, MBI-HSS, and ProQOL were analysed, and results presented in table format. A standard multiple regression analysis related to the prediction of compassion fatigue in nursing students is displayed. T-test results on the comparison of levels of stress, emotional exhaustion, and compassion fatigue pre- and during COVID-19 are presented. COVID-19 information regarding self-isolation and testing positive for COVID-19 are also presented in table format. Finally, the chapter discusses responses to the open-ended question "Is there any way the university can help

emotionally support you through the COVID-19 pandemic?", which were coded, and similar answers grouped together.

1.5.6 Chapter 6: Discussion and recommendations

The levels of stress, burnout, compassion fatigue, and compassion satisfaction among undergraduate nursing students are discussed, and the findings of the multiple regression to predict compassion fatigue in undergraduate nursing students are presented. The levels of stress, burnout, compassion fatigue, and compassion satisfaction are compared with that of a previous study done before COVID-19 in 2018 at the same public university. The limitations of the study are identified, and recommendations given. Finally, the value of the thesis is discussed with regard to nursing education, practice, and policy.

CHAPTER 2: CONCEPTUAL FRAMEWORK

A conceptual framework identifies key concepts and connections that, as a whole, provide a helpful lens through which to examine certain events (Beaudry & Miller, 2016:50; Leedy & Ormrod, 2020:66). Conceptual frameworks also act as organisational and interpretative tools (Polit & Beck, 2017:129). For this study, the researcher used the Professional Quality of Life conceptual framework described by Stamm (2010:8).To explain burnout in more detail within the Professional Quality of Life framework, Maslach's conceptual framework of professional burnout (Maslach & Leiter, 1997:158) was incorporated.

By far the greatest risk factor for developing burnout and compassion fatigue is working in the human service industry, where repressing emotions and constantly using empathy are required (Maslach, 2001:397; Maslach & Leiter, 1997:158). As nursing students complete clinical hours with patients, they are required to repress emotions and display empathy, thus putting them at risk (Mason & Nel, 2015:54-55; Mathias & Wentzel, 2017:1). The aforementioned conceptual frameworks explain how burnout and compassion fatigue are multidimensional constructs that can interact and influence nursing students' psychological wellbeing(Maslach, 2001:397; Maslach & Leiter, 1997:158). The Professional Quality of Life conceptual framework explains how compassion fatigue is a combination of syndromes consisting of stress, burnout, secondary trauma, and compassion satisfaction (Newell & MacNeil, 2011:27-28). Professional burnout consists of emotional exhaustion, depersonalisation, and reduced personal accomplishment (Maslach, 2001:397).

2.1 The Theoretical Concepts

The Professional Quality of Life framework describes the quality of life a person experiences concerning their work in a helping or caring capacity (Stamm, 2010:8). Both negative and positive factors influence a person's professional quality of life. The negative factors are stress, burnout, secondary trauma, and compassion fatigue (Stamm, 2010:8). The positive factor is compassion satisfaction (Stamm, 2010:8). Professional quality of life is a term used in this dissertation to describe the psychological wellbeing of nursing students. As nursing students must work numerous practical hours as part of their degree and one of nursing's central functions is caring, this theory applies to nursing students. How both the negative and positive factors have an impact on nursing students' psychological wellbeing is illustrated in Figure 2.1 below (adapted from Stamm, 2010:8).

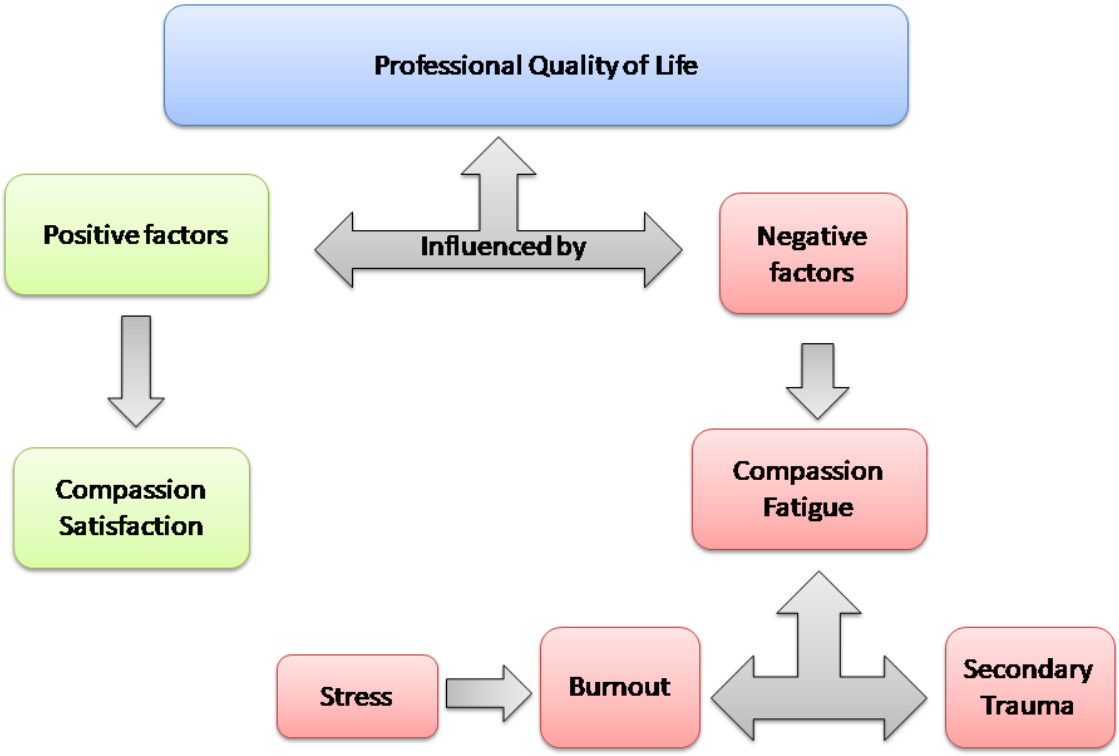

Figure 2.1: Factors influencing professional quality of life

Adapted from Stamm, 2010:8

2.2 Negative Factors

Compassion fatigue encompasses the negative effects of caring (Chachula, 2021:2). Compassion fatigue leads to symptoms that can include negative arousal, intrusive thoughts/ images of another's traumatic experiences, struggling to separate work from personal life, getting frustrated easily, increased anger, dread of going to work, being hyper-vigilant, assuming the worst of every situation, and depression (Gentry & Baranowsky, 2013:5). Ultimately, compassion fatigue diminishes nursing students' ability to care, thus negatively affecting patient care (Chachula, 2021:2) as well as the students' psychological wellbeing. In this study, compassion fatigue is measured using the compassion fatigue scale, which is a sub-scale of the ProQOL. Compassion fatigue is a combination of both secondary trauma and burnout.

Secondary trauma is the result of being exposed within a caring capacity to the suffering of others who are going through an extremely negative or traumatic event (Boyle, 2011:3-4; Stamm, 2010:8). When student nurses are exposed to the suffering, pain, and fear of their patients, they may experience similar feelings due to empathetic hardship (Chachula, 2021:2; Figley, 1995:156; Stamm, 2010:8). Secondary trauma can lead to feelings of fear and cause sleep disturbances, intrusive images, and avoidance of reminders of the person

or traumatic event (Stamm, 2010:8). Secondary trauma in this study is a contributing factor to compassion fatigue. Secondary trauma was measured as a component of compassion fatigue using the ProQOL scale (Stamm, 2010:8). The second contributing factor of compassion fatigue is burnout.

For this study, burnout is viewed as a component of compassion fatigue and was measured with the MBI-HSS. Professional burnout encompasses three distinct components: emotional exhaustion, depersonalisation, and reduction in personal accomplishment (Maslach, 2001:397; Maslach & Leiter, 1997:158). Emotional exhaustion is the first stage of burnout. Emotional exhaustion then leads to depersonalisation, which serves as a coping strategy against emotional exhaustion. Depersonalisation then leads to feelings of reduced personal accomplishment. Therefore, burnout is considered a combination of negative behavioural, attitudinal, and physical changes in response to work-related stress over time (Engelbrecht *et al.*, 2008:16). Figure 2 below (adapted from Newell & MacNeil, 2011:27) illustrates this concept.

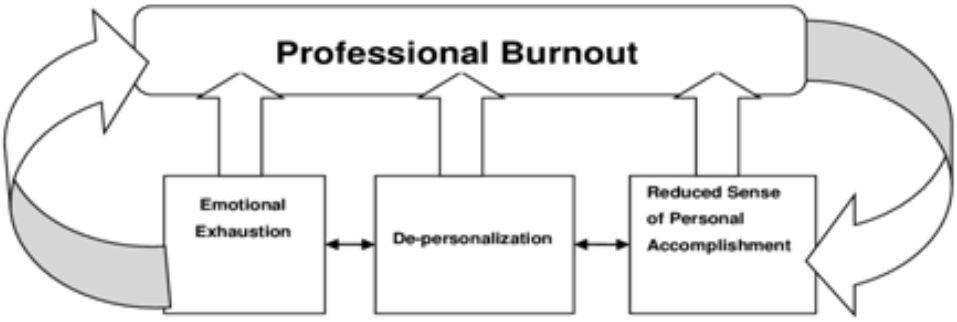

Figure 2.2: Maslach's conceptual framework of professional burnout
Adapted from Newell& MacNeil, 2011:27

Student nurses can experience burnout due to increased stress that can originate from high workload demands that, over a prolonged period, can lead to a reduction in personal accomplishment (Chachula, 2021:2; Hegney*et al.*, 2014:507; Stamm, 2010:21). Burnout has a slow onset and is a continual state of stress that can lead to feelings of anger, hopelessness, and depression. These feelings, in turn, lead to dehumanisation and ineffectiveness in the work environment (Gentry &Baranowsky, 2013:3). The main contributing factor of burnout is long-term consistent stress. In this study, stress was measured using the PSS. Nursing students have a history of above-average stress levels and are at high risk for developing burnout (Chow*et al.*, 2018:2; Labrague, 2013:424; Turner

& McCarthy, 2017:26). Nursing students tend to have high stress levels due to both academic and clinical demands (Chernomas & Shapiro, 2013:1; Gibbons *et al.,* 2011:622'; Labrague, 2013:428). Examples of stressors include lack of professional knowledge and skills, stress from practical assignments and academic workload, as well as stress from the environment, teaching and nursing staff, and feelings of judgement by professionals around them (Tomaschewski-Barlem*et al.*, 2014:80). Nursing students also do not have the skills to effectively deal with stressors, and this can leave them even more vulnerable to the negative effects of burnout and compassion fatigue (Labrague, 2013:428-429).

This section explained the negative components of caring – namely, stress, burnout, secondary trauma, and compassion fatigue (Stamm, 2010:8). These components are considered the 'cost of caring' and are negative factors (Sinclair *et al*., 2016:9; Stamm, 2010:8). However, compassion satisfaction is the 'payment of caring' and is the positive aspect of caring (Stamm, 2002:21; Stamm, 2010:8).

2.3 Positive Factor

The positive factor in the context of caring is compassion satisfaction, and this is a protective factor against compassion fatigue and burnout (Hegney*et al*., 2014:507; Hinderer *et al*., 2014:161; Manson, 2013:25; Mason & Nel, 2012:451). Compassion satisfaction can be described as psychological fulfilment that comes from helping people and doing work well (Mason & Nel, 2015:54; Stamm, 2010:21). This sense of satisfaction or fulfilment may come from a feeling of helping colleagues, patients, and society through the work done as a nurse (Stamm, 2010:21). It is important to note that that compassion satisfaction can co-exist with compassion fatigue and burnout, especially when nursing is viewed not only as a job but as a calling (Manson, 2013:26; Mason & Nel, 2012:451; Stamm, 2005:27).

2.4 Application of the Theory to this Study

The Professional Quality of Life conceptual framework has previously been successfully applied to student nurses internationally (Chachula, 2021:2; Durkin *et al*., 2016:110) and locally (Engelbrecht & Wilke, 2021:141; Manson, 2013:25; Mason & Nel, 2015:56).Chachula (2021:13) conducted a study among undergraduate nurses in Canada and concluded that student nurses are at risk for low levels of compassion satisfaction and high levels of burnout and compassion fatigue. Durkin *et al*. (2016:110), in the United Kingdom, found that higher levels of self-compassion and compassion satisfaction were associated with lower levels of burnout. Engelbrecht and Wilke (2021:144), in a South African study on undergraduate student nurses, concluded that compassion fatigue and burnout are present in nursing education and found that undergraduate nursing students experienced moderate levels of

both compassion fatigue and burnout. These results were similar to Mason and Nel (2015:61), whose study findings also identified moderate levels of compassion fatigue and burnout among undergraduate nursing students in South Africa. An earlier study by Manson (2013:29) found high levels of stress, compassion fatigue, and compassion satisfaction and moderate levels of burnout among undergraduate nursing students in South Africa.

Student nurses, under normal circumstances, have to deal with great levels of stress, burnout, secondary trauma, and compassion fatigue. COVID-19 has brought with it many uncertainties that can translate into fears. Student nurses, in particular, have been confronted by fears related to an ever-changing educational system, contracting and bringing home the virus, and working in conditions that expose them to additional pain and suffering due to insufficient resources (Savitsky *et al*., 2020:6; Taylor *et al*., 2020:3). These negative conditions can translate into increased stress, burnout, secondary trauma, and compassion fatigue, which, in turn, could have a devastating effect on the professional quality of life of student nurses and could harm their psychological wellbeing.

This study measured levels of perceived stress, emotional exhaustion, depersonalisation, personal accomplishment, compassion satisfaction, and compassion fatigue experienced by nursing students during COVID-19. In addition, the researcher investigated whether increased levels of perceived stress, emotional exhaustion, and depersonalisation were associated with compassion fatigue. The researcher also compared levels of perceived stress, emotional exhaustion, depersonalisation, personal accomplishment, compassion satisfaction, and compassion fatigue experienced during COVID-19 with those experienced before COVID-19.

2.5 Chapter Summary

The Professional Quality of Life framework explains how stress, burnout, and compassion fatigue can negatively influence nursing students' psychological wellbeing. It is important to note that burnout and compassion fatigue are multidimensional constructs that can interact and influence nursing students' psychological wellbeing. Burnout, according to the professional burnout framework, starts as emotional exhaustion and then, as a defence mechanism, depersonalisation takes place,which can lead to a reduction of personal accomplishment. In contrast to the negative factors that affect nursing students' psychological wellbeing, there is compassion satisfaction. Compassion satisfaction can act as a defence agent againststress, burnout, and compassion fatigue. Findings from several studies (Chachula, 2021:2; Durkin *et al*., 2016:110; Engelbrecht & Wilke, 2021:141; Mason &

Nel, 2015:56; Manson, 2013:25) where the Professional Quality of Life framework has been successfully applied are discussed. Finally, the chapter concludes by focusing on how the Professional Quality of Life framework has been applied in the current study.

CHAPTER 3: LITERATURE REVIEW

A literature review provides a foundation for research. It also serves as a way to identify where more research is needed in a field and simultaneously prevents duplication of research (Gerrish *et al*., 2015:12; Polit & Beck, 2017:87). The literature review chapter starts by describing the South African healthcare system, the role of nurses within the healthcare system, and the challenges experienced by nurses. The second half of the chapter focuses on nursing education and on stress, burnout, compassion fatigue, and compassion satisfaction among nursing students. The chapter concludes with a discussion of the impact of COVID-19 on nursing students' psychological wellbeing.

3.1 Healthcare in South Africa

When a healthcare system is functioning optimally, it is sensitive to the needs of individuals, families, and communities and can adapt to their needs. The healthcare system should protect against illness and, in so doing, help to prevent the financial consequences of illness. The healthcare system is also responsible for providing accessible and people-centred care (care that includes patients as partners in their health and healthcare professionals see the context of the patient as an essential part of treatment) (WHO, 2010).

South Africa's healthcare system is overwhelmed by a quadruple burden of disease (South Africa, 2019:7). The quadruple burden of disease that contributes to the high mortality and morbidity of South Africans consists of four major categories – namely, maternal, newborn, and child health; HIV (human immunodeficiency virus) and AIDS (acquired immunodeficiency syndrome), which are fuelling the TB (tuberculosis) epidemic; non-communicable diseases; and violence and injury (WHO, 2018:1). South Africa is known as the epicentre of the HIV pandemic worldwide, with over 20% of all people with HIV living in South Africa and is ranked second highest in the world on cases per 100,000 of TB (Avert, 2020; Low, 2020). In addition to a high burden of communicable disease, South Africa also has high maternal and under-five child mortality rates, at119 deaths per 100,000 live births and 35 deaths per 1,000 live births, respectively (Macrotrends, 2021; World Bank, 2021). Non-communicable disease accounts for 43% of total deaths in South Africa (Ajaero*et al*., 2021:2). Finally, violence and other injuries lead to 35 deaths per 100,000 people – a far higher rate than in war-torn countries such as Afghanistan, Iraq, and Yemen (World Bank, 2017). The challenge of high and varying types of epidemics, in combination with limited resources, increases the pressure on the South African healthcare system (Massyn *et al*.,

2020:263). Ultimately, the abovementioned burdens of disease and insufficient resources then increase pressure on nursing staff as they are the main human resource in the South African healthcare system.

South Africa's healthcare system contains two distinct sectors: public and private. The public sector has been described as overused and under-resourced (Maphumulo & Bhengu, 2019:4). The private sector is continuing to grow but is only available to individuals with medical aid or enough private funds. Private health care caters to 20% of the population; however, it is responsible for 50% of the healthcare system expenditure. The public sector has to see to the health needs of 80% of the inhabitants of the country, but only accounts for 48% of the total healthcare system expenditure. The remaining2%of healthcare system expenditure is by non-governmental organisations (RH Bophelo, 2021). Healthcare professionals are also unequally distributed. The overall density of medical specialists in South Africa is 16.5 per 10,000. However, in the private sector, it is estimated that there are 69 medical specialists per 10,000 patients; in the public sector, there are only seven specialists per 10,000 patients (South African Department of Health [SA DoH], 2020a:20). The public sector then also unequally divides resources between the provinces in South Africa, with rural areas often being the most neglected (Maphumulo & Bhengu, 2019:4). The healthcare system in South Africa was struggling in terms of governance, equity, resources and quality. The fear is that the healthcare system will not cope with the added pressure of COVID-19.

COVID-19 has aggravated the pre-existing weaknesses in the healthcare system (Hoffman & Madhi, 2020:698). The effects of COVID-19 on the healthcare system in South Africa have led to a lack of personal protective equipment, increased mortality rates, mental health problems, and increased substance abuse (Mbunge, 2020:1809). During the COVID-19 pandemic, there were nationwide lockdowns (the first lockdown was declared on 5 March 2020) that hindered access to healthcare services throughout South Africa (Pillay *et al*., 2021:6), such that many routine primary healthcare services saw a decline in users. From March to December 2020, 3.44 million fewer HIV tests were conducted than during the same period in 2019. This appears to be the trend across routine care clinics in South Africa. Lack of staff due to COVID-19 infection, fear, and stigma seem to be the main reasons for the reduction in routine healthcare services delivered across South Africa (Pillay *et al*., 2021:4).

3.2 Factors Contributing to the Shortage of Nurses in South Africa

Many severe challenges are facing the South African healthcare system, and these challenges, directly and indirectly, influence nurses. One of the greatest impediments is the lack of human resources in the medical field (Maphumulo & Bhengu, 2019). According to the SA DoH (2020a:20), the greatest hindrance to service delivery in the health sector in South Africa is the congestion of human resources. South Africa has a nursing-led healthcare system, positioning nurses at the forefront of healthcare system (South Africa, 2019:7). In 2019, 56% of all health professionals in the South African public sector were nurses (SA DoH, 2020a:28).

Nurses are confronted with severe staffing shortages due to educational system challenges, lack of interest in the profession (resulting in an ageing workforce), shortages in speciality fields, casualisation, and nurses seeking better opportunities in other countries (Maphumulo & Bhengu, 2019:4; Rispel & Bruce, 2014:120). Nursing education and training are in jeopardy due to the closure of many public nursing colleges following new government regulations post1994. In response, the private sector started several training facilities that produce nurses of varying quality (ASSAf, 2018:27). Consequently, the SANC has difficulty regulating the training of nursing students due to the diverse means of obtaining a nursing qualification in South Africa. There are 19 public universities, 50 public-sector nursing colleges, and 24 private nursing colleges that can offer nursing programmes (SANC, 2021a). Furthermore, university programmes are expensive, resulting in many potential nurses being unable to afford to study there (ASSAf, 2018:27)

The nursing educational reform in South Africa was introduced to improve the healthcare system and increase the standard of care given by nurses. The reform was influenced by post-democracy transformation and higher educational changes (Blaauw *et al*., 2015:14-15). The fundamental elements of this reform are the requirement to obtain a baccalaureate degree to qualify as a professional nurse and replacement of the two-year enrolled nurse qualification with a three-year diploma. The reform was implemented in the hope sof modernising nursing practices, improving the nursing professional status, and helping to regulate South African nursing standards with international nursing standards (Blaauw *et al*., 2015:15; Rispel & Bruce, 2014:119). However, the slow implementation of these reforms has been criticised and highlights the poor governance by both the SANC and the SA DoH (Blaauw *et al*., 2015:15; Rispel & Bruce, 2014:119). The new Bachelor of Nursing (R.174) was implemented in 2020 with the first years and the previous Bachelor of Nursing (R.425) is continuing as a legacy programme (SANC, 2021b). The post-basic training programmes

have been severely affected due to the reform, and 2019 was the last year of new intakes for legacy post-basic courses (South Africa, 2019:8). The stagnation of the educational system exacerbates the problem of nursing shortages in both general and specialised fields.

A South African study undertaken by Pretorius and Klopper (2012:66) indicated that critical care units were understaffed and that only 72% of positions at public hospitals and 80% of positions at public hospitals were filled. Another area of concern is the ageing nursing population, with 40% of the professional nurse population being between the ages of 50–65 years old and due to retire in the near future (South Africa, 2019:8). Due to understaffing, the remaining nurses are under tremendous strain. To deal with the issue of staffing shortages, the nursing profession has been forced to some degree to use casualisation. However, there is concern that casualisation may be creating more problems than solutions (Daouk-Oyry *et al*., 2014:93; Rispel *et al*., 2015:35,40; Rispel & Bruce, 2014:120; Rispel & Moorman, 2015:71).

The casualisation of nursing is one way in which both the public and private sectors try to contain the nursing shortage (Rispel *et al*., 2015:37; Rispel & Moorman, 2015:69; Rispel & Bruce, 2014:120). Casualisation is described as the employment of workers on short-term contracts, without the benefits or responsibilities of long-term employment (Rispel & Bruce, 2014). Two forms of casualisation are working through agencies (short-term contracts) and 'moonlighting', which refers to having a second job (e.g., picking up extra shifts at one's current health facility or another health facility) outside normal working hours as an additional source of income (Rispel & Bruce, 2014:119). In a study conducted in South Africa by Rispel *et al.* (2015:35), over 3,000 nurses across the country participated in a survey that indicated that 40% of nurses moonlighted or partook in agency work during the 12 months prior to the survey. The study suggested that 52% of South African nurses reported feeling too tired to work while on duty. Fatigue while on duty raises serious concerns regarding the quality-of-care patients receive as well as the state of nurses' physical and psychological wellbeing. Another study conducted in South Africa found that agency work and moonlighting predicted an intention to leave the current work environment (Rispel *et al.,* 2015:35). Nursing staff that are not committed can increase the turnover of staff (Rispel *et al.,* 2015:39). The problems associated with a high turnover of nursing staff include increased recruitment costs, staff shortages, and increased workload for remaining staff (Daouk-Oyry *et al*., 2014:93; Rispel *et al*., 2015:40). Agency work and moonlighting have been associated with lack of commitment from staff, unreliability, sub-optimal quality of care, and lack of skills and lead to constant checking and supervising being required from permanent staff (Rispel *et al.* 2015:40; Rispel

& Bruce, 2014:120; Rispel & Moorman, 2015:71). The conditions that nurses work under cause concern for their psychological wellbeing.

3.3 Burnout and Compassion Fatigue Among South African Nurses

The nursing profession in South Africa is in crisis as a result of staffing shortages, educational and training insufficiencies, casualisation, unfair division of resources, the quadruple burden of disease, and limited resources. All these factors cause stress for South African nurses, and high-stress environments can lead to burnout (Khamisa *et al*., 2015:652; Van der Colff & Rothmann, 2014b:385), mental health issues, decreased productivity, and diminishing quality of patient care (Khamisa *et al*., 2015:562). The psychological wellbeing of South African nurses has been a topic of interest as well as concern for several years (Coetzee *et al*., 2013:162; Klopper *et al.*, 2012:685; Engelbrecht *et al*., 2008:15; Maila *et al*., 2020:1; Payne *et al.*, 2020:1; Van der Colff & Rothmann, 2014b:375).

Engelbrecht *et al*., (2008:15) found that, in public health clinics in the Free State Province, registered nurses experienced high levels of burnout and compassion fatigue and that nurses' psychological wellbeing was affected by chronic work overload and occupational stress. Van der Colff and Rothmann (2014b:375) reported similar results among South African professional nurses, with the most severe stressors being staff shortages, inadequate salaries, and excessive administrative duties. Another South African study among 935 critical care nurses from both private and public hospitals reported high levels of burnout(Klopper *et al.*, 2012:658). Similar findings were attained in a South African study that was conducted with more than 1,000 registered nurses, with high levels of burnout identified in both the public and private sectors (Coetzee *et al*., 2013:162). There are also indications that different categories of nurses experience different levels of burnout, compassion fatigue, and compassion satisfaction. Maila *et al.* (2020:1) undertook a study in the Western Cape and found that psychiatric nurse specialists and registered nurses experienced higher levels of burnout, compassion fatigue, and compassion satisfaction than the other categories of nurses (enrolled nurses and nursing assistants). A study conducted by Payne *et al*. (2020:7) on psychiatric nurses in the Western Cape revealed that levels of burnout were high but job satisfaction was also high.

A study conducted by Coetzee and Klopper (2010:240) found that the further compassion fatigue and burnout had advanced, the harder they became to treat. Therefore, it is can be reasoned that it is of cardinal importance to help equip undergraduate student nurses to deal

with stress, compassion fatigue, and burnout early on in their career path, as these are occupational hazards that appear to be unavoidable in the South African healthcare context.

3.4 Nursing Education in South Africa

Currently, there is a transition taking place at South African universities from the legacy programme Bachelor of Nursing (R.425) to the new Bachelor of Nursing (R.174). With the former programme, successful individuals qualified as a professional nurse (general, community, and psychiatry) or a professional midwife with a baccalaureate degree (South Africa, 2019:10). With the new programme, nurses graduate as a professional nurse (general nursing only) or as a professional nurse with a degree in general nursing and midwifery (South Africa, 2019:10).

The integration of theory and practice is essential to ensure nursing competency (Chernomas& Shapiro, 2013:1; Labrague, 2013:428). For the theoretical component of nursing, a minimum of 120 credits per year is required, which translates into 1,200 hours of academic time per year (SANC, 2020:4). In addition to the theoretical component, nursing students completing the new (R.174) curriculum need to work a total of 1,830 practical hours in clinical environments over four years (SANC, 2020:4; University of the Free State [UFS], 2020:11-13). The first-year nursing students who participated in this study were thus required to work 1,830 hours over four years compared to the 4,000 hours required of the second-, third-, and fourth-year nursing students who participated in the study, who were still following the pre-2020 guidelines of the legacy (R.425) programme (UFS, 2018:8-9). Less practical work may place less pressure on students while studying, leaving more time for academic endeavours. However, there is not data available yet to evaluate how this will affect students' competency after graduation.

3.5 Impact of COVID-19 on Nursing Education

COVID-19 has been described as the worst pandemic in more than 100 years, with more than 41 million cases of COVID-19 and 1.1 million deaths reported globally up to October 2020 (Rosenthal, 2020). South Africa had their first confirmed case of COVID-19 on the 5th of March 2020. Lockdown and a state of national disaster were declared shortly after this on the 27th of March 2020 (Karim, 2020:1). The national lockdown led to a disruption of everyday life, with the closing of schools, universities, and non-essential businesses. Severe travel restrictions, mask mandates, increased hand hygiene, and physical distancing became the new normal. The isolation measures implemented caused widespread feelings

of anxiety, depression, frustration, irritability, and chronic stress (Brooks *et al*., 2020:913). However, COVID-19 is more than a health crisis, impacting various aspects of individuals' lives and psychological wellbeing (Bedford *et al*., 2020; Mukhtar, 2020:512). Higher education in general, and nursing education specifically, were not spared.

COVID-19 has created several challenges for nursing education (Carolan *et al*., 2020:1;Dewart *et al*., 2020:1;Esterhuizen, 2020:4; Husky, 2020:4;Jackson *et al*., 2020:2042-2043; O'Flynn-Magee *et al.*, 2021:1-2; Rajab *et al*., 2020:1-2; Spurlock, 2020:303-304). Findings from a survey conducted by the International Council of Nurses revealed that 73% of undergraduate nursing education had been disrupted and 41% of countries reported that placements for practical components of qualifications were restricted to certain clinical areas (International Council of Nurses, 2021:1). For example, in Australia, Canada, the United Kingdom, and the United States, nursing was severely disrupted due to practical placement that needed to be postponed or cancelled (Carolan *et al*., 2020:1; Dewart *et al*., 2020:1; Jackson *et al*., 2020; Spurlock, 2020:303-304).

Clinical hours are a fundamental part of all nursing qualifications around the world, although the number of hours differs from country to country and even between geographical areas within a country (Bowling *et al*., 2018:27;Miller & Cooper, 2016:34; O'Flynn-Magee *et al.*, 2021:2). Educators did not only have to consider the physical safety of students during the COVID-19 pandemic; difficult ethical questions arose, such as whether the benefits of clinical placements to complete a degree outweigh the dangers to student health. The ethical dilemma continues with the worldwide deficiency of personal protective equipment and with travel restrictions that could prevent students from going home for extended periods (Spurlock, 2020:303). On the other hand, delaying completion of studies decreases the number of qualified nurses and exacerbates the shortage of nurses (O'Flynn-Magee *et al.*, 2021:2). In Italy, the COVID-19 pandemic led to severe staff shortages, and final-year nursing students were fast-tracked through their qualifications so that they could help struggling frontline workers (Al-Arshani, 2020). Other first-world countries, such as Canada, did not have much trouble moving to online systems for academic purposes, as these infrastructures already existed. However, Canada still experienced problems with clinical placements and the ethical dilemma of exposing nursing students to the dangers of COVID-19 (O'Flynn-Magee *et al.*, 2021:1-2).

Africa, a continent already experiencing economic distress, was severely affected by the COVID-19 pandemic. The greatest impact of COVID-19 was the economic effect on

governments', households', and development partners' ability to fund nursing education; as a result, nursing students were unable to complete their degrees due to lack of funding (Al-Samarrai*et al.*, 2020:1-2). Nursing students across Africa had to endure challenges linked to lockdowns and outbreaks of COVID-19. Some schools reported that education came to an abrupt halt, while others continued to operate and evolved using distance learning methods (Ossai& Ogbuoji, 2021:1).

South Africa has been severely affected by lockdowns that made in-person classes impossible for extended periods of time and necessitated virtual classes (Esterhuysen, 2020:4; Mahlaba, 2020:120). Within a resource-poor setting, access to virtual classes is hampered by a lack of access to electronic devices and limited internet connectivity – often due to the high cost of data (Mahlaba, 2020:121-122). Nursing education has had to deal with these challenges but, in addition, nursing students have had the added concern of delays in clinical placements (O'Flynn-Magee *et al.*, 2021:1-2). At the University of the Western Cape, nursing students lost academic time and placement opportunities due to national lockdowns (Chipps *et al.*, 2021). This meant that students had less time to complete practical hours that were compulsory to gain access to examinations at the end of the year. The University of the Western Cape was lenient and made exceptions so that students could attend examinations without completing the practical hours and then had the opportunity to complete their practical hours after examinations. There were also cases where simulation opportunities could count towards students' practical hours (Chipps *et al.,* 2021). The UFS used a block system(bootcamps) for practical classes that allowed students to complete several practical demonstrations in one day with a small group of students (Damons, 2021).

A surprising and positive outcome of the COVID-19 pandemic has been the renewed interest in the nursing profession. The International Council of Nurses reported that international applications for nursing students grew by 30% (International Council of Nurses, 2021:1). South Africa has also reflected this trend, with the University of the Western Cape receiving more than 8,000 applications for the 150 available places in the Bachelor of Nursing programme for 2020(Chipps *et al.,* 2021).

3.6 Psychological Wellbeing of Student Nurses

As previously mentioned, the view of psychological wellbeing of nursing students in this study is guided by the concept of professional quality of life, which encompasses stress, secondary trauma, burnout, and compassion fatigue as negative factors influencing the

psychological wellbeing of nursing students (Stamm, 2010:8). Compassion satisfaction is viewed as a positive contributing factor to student nurses' psychological wellbeing and acts as a defensive agent against stress, burnout, and compassion fatigue (Hegney*et al*., 2014:507; Hinderer *et al*., 2014:161; Manson, 2013:26; Mason & Nel, 2012:451). The following section will discuss stress, burnout, compassion fatigue, and compassion satisfaction in more detail.

3.6.1 Stress in nursing students

Nursing is one of the most stressful professions in the world (Khamisa *et al.*, 2017:252). Stress is defined as not having the resources to overcome certain demands (Lazarus & Folkman, 1984:7-8). Demands are referred to as stressors. When the perceived stressor is greater than the resources available to an individual, stress is experienced (Crary, 2013:74). When there is too much stress, this can lead to susceptibility to negative effects that include anxiety, depression, burnout syndrome, and post-traumatic stress disorder (Azimi*et al*., 2017:1).

Stress during tertiary education is a general occurrence (Mohamed & Ahmed, 2012:608). When students enter university, they are confronted with high levels of stress related to worrying about success, time constraints, academic workload, many assignments, and exposure to new settings (Shdaifat *et al.,* 2018:33). Nursing students have a higher level of stress than other students, even when compared to other health disciplines where high stress levels are reported (Chow*et al*., 2018:2; Labrague, 2013:428; Turner& McCarthy, 2017:21). The higher stress levels among nursing students are thought to occur due to the combination of academic and practical experiences (in clinical settings) that are considered essential to acquiring a nursing degree and achieving competency (Chernomas& Shapiro, 2013:1; Labrague, 2013:428). Nursing students' long hours of study and not having enough time for other activities add to their stress (Gibbons *et al.,* 2011:622). Furthermore, nursing students spend a considerable amount of time in clinical areas and are burdened with the responsibility of patient care (Reeve *et al*., 2013:420).

Multiple studies have been conducted to explain the reasons nursing students experience higher stress levels (Altiok & Ustun, 2013:747; Blomberg *et al.*, 2014:2264; Labrague, 2013:424; Senturk& Dogan, 2018:896; Turner & McCarthy, 2017:21). The stressors experienced by these students can be divided into three main categories: academic, clinical, and personal/social (Senturk& Dogan, 2018:903). Academic stressors include tests,

evaluations, high workload, implementing theory in practice, lack of motivation, and fear of academic failure (Altiok & Ustun, 2013:747; Labrague, 2013:424-425). Clinical stressors include lack of knowledge, unknown situations, heavy workload, working in overcrowded environments, physicians' attitudes towards nursing students, nursing staff not treating students with respect, and fear of making mistakes (Altiok &Ustun, 2013:747; Blomberg *et al.*, 2014:2264; Labrague, 2013:428). Personal and social stressors include economic problems, the imbalance between social responsibilities at home and academic workload, the family having negative attitudes towards nursing as a profession, students having time-management problems, and lacking self-confidence (Altiok & Ustun, 2013:747; Senturk& Dogan, 2018:902-903). These are all stressors that may cause nursing students to experience higher levels of stress. High levels of stress have been linked to poor academic performance (Yamashita *et al*., 2012:489), alcoholism, drug dependency, eating disorders, sleep disorders, and psychological symptoms (Gomathi *et al*., 2017:108). High levels of stress have a detrimental effect on students' psychological wellbeing (Labrague, 2013:429).

A study among 184 undergraduate nursing students in Saudi Arabia reported that students had moderate levels of stress and that the most prominent stressors could be categorised as assignments and workload, teachers and nursing staff, peers and daily life, and taking care of patients (Shdaifat *et al.,* 2018:33). A similar study conducted in Saudi Arabia among 220 undergraduate nursing students also found that the highest source of stress was from assignments and workload. Furthermore, the authors reported a connection between being interested in the nursing profession and experiencing less stress due to teachers and nursing staff (Hamaideh *et al.,* 2017:197). In Turkey, a survey was conducted to identify undergraduate nursing students' perceived levels of clinical stress, to evaluate their responses to stress, and to describe their coping behaviours. Over a 1,000 student nurses participated in the study, and the most frequent causes of stress were lectures, professional nurses, homework, and workload. Furthermore, the first-year nursing students had high levels of environmental stress due to a lack of professional knowledge (Karaca *et al*., 2017:38). Labrague (2013:428) undertook a study among Filipino nursing students and found that they had moderate levels of stress, with the most common stressors being assignments and workload. Labrague (2013:428) argues that assignment and workload stress might be high due to the number of clinical hours (2,346 hours) students had to complete during the four-year degree in the Philippines. This was higher than in Hong Kong (1,500 hours in four years) and in the United States (1,000 hours in four years).

In South Africa, a study was conducted to determine the factors that cause stress among first-year nursing students (Langtree *et al*., 2018:90). The study determined that the major sources of stress were academic commitments, financial pressure, and illness that affects the families of students. Rossouw (2018:87) conducted research on undergraduate nursing students at a South African university and reported that students' main stressor was finances. This resonates with other studies done in South Africa that indicate that financial stress is a major stressor (Freer, 2018:50-51; Langtree *et al*., 2018:94). Furthermore, Roos (2014:110) found that financial stress was the main reason for undergraduate nurses not completing their degrees. Engelbrecht and Wilke (2021:143) also conducted a study on undergraduate nursing students and reported that levels of perceived stress were higher among undergraduate nursing students when compared to postgraduate nursing students.

Stress is an unavoidable part of nursing students' daily life (Ahmed & Mohammed, 2019:117). However, when this stress remains too high over time, it has negative consequences for nursing students' psychological wellbeing (Labrague, 2013:429). One of these consequences is burnout (Stamm, 2010:21).

3.6.2 Burnout in nursing students

Herbert Freudenberger coined the term burnout to describe a state of physical, emotional, and mental exhaustion due to long-term stress of an occupational nature (Ferri *et al*., 2015:106). Burnout is also referred to as chronic occupational stress, which leads to decreased interest in work and causes symptoms similar to depression (Ferri *et al*., 2015:106). Burnout occurs when stress exceeds the individual's capacity to utilise coping strategies to overcome stress. This can lead to both physical and psychological vulnerability and can manifest as feelings of decreased self-confidence and a negative attitude towards work (less enthusiasm and vigour), which ultimately leads to decreased quality of nursing care (Ferri *et al*., 2015:106; Mathias &Wentzel, 2017:1; Stamm, 2010:21).

Burnout is explained as a three-dimensional syndrome consisting of three aspects – namely, emotional exhaustion, depersonalisation, and a decrease in personal accomplishment. The first aspect, emotional exhaustion, occurs due to physical and emotional overloads. Emotional exhaustion can lead to physical and mental fatigue, low morale, lack of sleep, decreased energy, and depression. The second aspect of burnout – depersonalisation – relates to a cynical attitude towards life, co-workers, and patients. Depersonalisation can result in treating life and patients in an impassive and impersonal manner. This is a

defensive agent against emotional exhaustion. The third aspect is a decrease in personal accomplishment. A lack of personal accomplishment can cause lower self-esteem and decreased productivity. Lack of personal accomplishment typically occurs when a work environment is unrewarding (Ferri *et al.*, 2015:106; Lecovich & Avivi, 2017:327; Stamm, 2010:22).

Burnout can present in the following symptoms: psychological distress, alcohol and drug abuse, weakness, insomnia, anxiety, depression, aggression, irritability, and isolation (Ferri *et al*., 2015:106). In nursing students specifically, burnout is manifested as feelings of exhaustion, cynicism (detached and unprofessional behaviour), and seeing oneself as incompetent (Da Silva *et al*., 2014:2). Several factors can increase nursing students' susceptibility to burnout, including exposure to traumatic content, witnessing others suffering, increased stress levels, and undergoing academic training (Mathias &Wentzel, 2017:2).

Michalec *et al.* (2013:319) utilised the Maslach MBI to conduct research among undergraduate nursing students in the United States and found moderate levels of burnout. In addition, the fourth-year undergraduate nursing students expressed their concern about developing burnout in their future careers (Michalec *et al.,* 2013:319). In Brazil, a study investigated the relationship between burnout and hardiness personality using the MBI and hardiness scale. The results indicated no evidence of burnout; however, emotional exhaustion was noted, which is one of the first signs of burnout (Da Silva *et al*., 2014:5). Corresponding results were obtained from a Spanish study on undergraduate nursing students that utilised both the KEZKAK questionnaire and the MBI (Valero-Chilleron *et al*., 2019:169). The study reported no evidence of burnout syndrome in any of the participating undergraduate nursing students. However, depersonalisation did increase as the academic year progressed. A Turkish study that was conducted on over 300 undergraduate nursing students using the MBI indicated moderate levels of burnout (Aktan *et al*., 2020:1123). Additionally, the study also found that students who chose the profession unwillingly had higher levels of burnout.

Several South African studies have been undertaken to investigate burnout(Engelbrecht & Wilke, 2021:141; Mason & Nel, 2012:451; Mathias & Wentzel, 2017:1). All these studies had similar results, indicating that undergraduate nursing students in South Africa experienced moderate levels of burnout.

Long-term stress can lead to burnout (Ferri *et al*., 2015:106), which can decrease nursing students' quality of life and psychological wellbeing (Mason & Nel, 2012:451). Burnout in combination with secondary trauma can cause compassion fatigue (Stamm, 2010:8) in nursing students. Compassion fatigue can also have negative effects on student nurses' quality of lifeand psychological wellbeing(Manson, 2013:25).

3.6.3 Compassion fatigue in nursing students

Compassion fatigue is often referred to as the cost of caring (Figley, 1995:1-2). Joinson (1992:116-122) was the first to refer to the phenomenon of professionals losing their ability to care due to ongoing human suffering as compassion fatigue. Compassion fatigue is not only caused by being exposed to a traumatised person, it also involves being exposed to the person within a helping capacity (Elkonin & Van der Vyver, 2011:2). This implies feeling empathy for a person and then taking action to try to alleviate their pain (Mathias & Wentzel, 2017:1). The compassion aspect of nursing is central to the profession and is unavoidable (Mason & Nel, 2012:451). According to Stamm (2010:8), compassion fatigue is the combination of secondary trauma and burnout.

Compassion fatigue can lead to symptoms that include preoccupation with traumatised patients; intrusive thoughts, feelings, and images; sadness, avoidance, detachment, hyper-arousal, and change in beliefs (Jack, 2017; Mason & Nel, 2012:451; Sabo, 2011). These symptoms are devastating not only to the nurse but also to patient care and lead to health care that is below standard (Mathias & Wentzel, 2017:1). Nursing students are trained in an environment where empathy is taught as a part of nursing and this increases their susceptibility to compassion fatigue (Da Silva *et al.,* 2014:1; Mathias & Wentzel, 2017:2; Michalec *et al.,* 2013:314). Student nurses are exposed to secondary trauma in clinical placements in the same way that professional nurses are, making them vulnerable to compassion fatigue (Mathias & Wentzel, 2017:1; Michalec *et al.,* 2013:314). However, student nurses may be even more at risk for compassion fatigue as they have not yet developed healthy coping mechanisms to overcome obstacles that arise during clinical placements (Labrague, 2013:429-430).

A study conducted in the United Kingdom among first years using reflective poems as a source of data found that first-year student nurses experienced compassion fatigue and needed support (Jack, 2017:1). A Chinese study on undergraduate nursing students reported that cognitive empathy and resilience had a protective function against low to

moderate levels of compassion fatigue (Cao *et al*., 2021:1). This is similar to the findings of Beaumont *et al*. (2016:242), where student midwives also reported low to moderate levels of compassion fatigue. Several South African studies had similar findings that all indicated that undergraduate nursing students experienced moderate levels of compassion fatigue (Engelbrecht & Wilke, 2021:144;Manson, 2013:29; Mason & Nel, 2012:454; Mathias & Wentzel, 2017:4).

Thus far, the focus of this discussion has been on how stress, burnout, and compassion fatigue can influence students' professional quality of life negatively (Stamm, 2010:8). In the next section, the focus shifts to how compassion satisfaction can act as a protective agent against stress, burnout, and compassion fatigue and in this way promote student nurses' quality of life (Elkonin & Van der Vyver, 2011:2; Manson, 2013:25) and ultimately their psychological wellbeing.

3.6.4 Compassion satisfaction in nursing students

Although nursing students do experience stress, burnout, and compassion fatigue due to the nature of their profession, compassion satisfaction is the positive consequence of caring (Stamm, 2002:7). Compassion satisfaction is referred to as the 'payment' of caring and stands in opposition to the cost of caring (burnout and compassion fatigue) (Stamm, 2002:7; Stamm, 2010:8). Compassion satisfaction is the feeling experienced when doing work (usually of a caring nature) to the best of your abilities; this feeling can be described as gratification, enjoyment, fulfilment, and pleasure (Manson, 2013:25; Stamm, 2010:12). Compassion satisfaction can act as a protective function against compassion fatigue and burnout (Hegney*et al*., 2014:507; Hinderer *et al*., 2014:161; Manson, 2013:25; Mason & Nel, 2012:451). This does not mean that when compassion fatigue and burnout are present there is no compassion satisfaction; they can be present simultaneously (Manson, 2013:26; Stamm, 2005:27). Mason and Nel (2012:451-452) concur that compassion satisfaction, compassion fatigue, and burnout can co-exist in nursing students due to them seeing their career as a calling. When nurses view their jobs as a calling, compassion satisfaction seems to be higher (Boyle, 2011:3-4; Manson 2013:26). Compassion satisfaction is the positive and potentially growth-enhancing consequence of compassion that can take place as a result of interaction between nursing students and their patients (Chachula, 2021:2; Stamm, 2002:7).
Michalec *et al.* (2013:317) conducted a study on undergraduate nursing students in the United States and reported moderate levels of compassion fatigue and burnout, while at thesame time students all reported high levels of compassion satisfaction. A Canadian study

on undergraduate psychiatric students found that high levels of self-efficacy and less intent to leave the profession were predictive of having higher levels of compassion satisfaction (Chachula, 2021:12-13). In the United Kingdom, a study was conducted on undergraduate student midwives that indicated that most students had high levels of compassion satisfaction (Beaumont *et al.*, 2016:242).

In South Africa, Engelbrecht and Wilke (2021:144), Mathias and Wentzel (2017:4), and Mason and Nel (2015:61) report that undergraduate nursing students experience moderate levels of compassion satisfaction. Mason and Nel (2012:454)found that undergraduate nursing students reported high levels of compassion satisfaction, even though they also had high levels of compassion fatigue and moderate levels of burnout. These findings correlate with a study undertaken by Manson (2013:26) among undergraduate students at a South African university. Manson (2013:28) found that the majority of students had high levels of compassion fatigue, moderate levels of burnout, and high levels of compassion satisfaction. This seems to be the trend among helpers in high-risk contexts (Stamm, 2010:23).

3.7 COVID-19'sImpact on Nursing Students' Psychological Wellbeing

As previously discussed, nursing students already have more stress than the average student (Chow*et al.*, 2018:2; Kim *et al*., 2021:36; Labrague, 2013:424; Turner & McCarthy, 2017:21). The interruption of their nursing education has been problematic due to the practical hours required to complete the qualification(Carolan *et al*., 2020:1; Dewart *et al*., 2020:1; Jackson *et al*., 2020:2042-2043; Kim *et al*., 2021:36; Spurlock, 2020:304-304). When nursing students do not have enough opportunities to implement these practical skills, it might cause more stress (Aslan &Pekince, 2020:4). Furthermore, if nursing students are placed in clinical settings, they have to deal with the uncertainty of changing placements as well as fears around lack of personal protective equipment, contracting COVID-19, or possibly spreading the virus to loved ones (Taylor *et al.,* 2020:3). Over and above the practical implications that COVID-19 has for nursing students, there are also the academic implications. In addition to the challenges experienced with practical placements, nursing students, like other students, have challenges with online (virtual classes). In some cases, it has been found that nursing students were less likely to participate in online discussions compared to in-person discussions within a classroom (Wang *et al.,* 2021:3-4). Nursing students do not always have the correct software to support downloaded academic materials(Wang *et al.,* 2021:3-4; Zis *et al.*, 2021:5-6). Online teaching does not have direct

supervision and some students may be tempted to decrease the time spent on and effort put into their studies (Wang *et al.,* 2021:4). Students are also confined to staying at home and do not know when they will be able to go back to university, which can cause anxiety (Huang *et al*., 2020:8).

International research identified increased levels of stress among nursing students during the COVID-19 pandemic (Aslan &Pekince, 2020:4; Gallego-Gómez *et al.*, 2020:10-11; Husky *et al.*, 2020:7; Kim *et al*., 2021:36;). A study conducted in France among first-year nursing students found that lockdown caused an increase in anxiety, with most of the students also reporting moderate to severe levels of stress (Husky *et al.*, 2020:2). In Spain, a study was conducted on nursing students throughout lockdown and the study concluded that stress levels of students increased during the lockdown. Students who reported less stress, performed better academically (Gallego-Gómez *et al.* 2020:11). Aslan and Pekince (2020:4) conducted a study on nursing students in Turkey and reported that students' stress levels were increased due to COVID-19. Factors that affected students' stress levels were watching the news, curfews, and risk of contracting COVID-19. Results of another Turkish study by Temiz (2020:1) indicated that undergraduate nursing students experienced moderate levels of anxiety. The study also found that students who had more self-confidence and looked for social support during stressful times had decreased levels of anxiety. A study conducted in the United States found that self-reported stress, anxiety, and depression were significantly higher during the COVID-19 lockdown when compared to levels before COVID-19 lockdown (Kim *et al*., 2021:40-41). Almost 25% of undergraduate nursing students indicated high stress levels and 50% of undergraduate nursing students reported moderate to severe symptoms of anxiety during the COVID-19 lockdown. A Chinese study on undergraduate nursing students found that almost 40% of nursing students reported burnout during the COVID-19 pandemic (Wang *et al*., 2021:1). In Saudi Arabia, a study conducted on undergraduate nurses reported that there was a definite correlation between high grade averages and increased resilience in students as well as between high mental wellbeing and the ability to cope with higher academic workloads (Grande *et al.*, 2021:1). An Icelandic study that was conducted during the first wave of the COVID-19 pandemic found that nursing students had moderate levels of burnout. This was significantly higher than the burnout experienced by the general population in the same timeframe (Sveinsdóttir *et al*., 2021:1).

From previous research, it is evident that COVID-19 has had an impact on nursing students' psychological wellbeing. More research is needed to determine the full extent of COVID-19's impact on undergraduate nursing students, especially in lower-income countries.

3.8 Chapter Summary

The South African healthcare system is facing several challenges, and this situation has been aggravated by the COVID-19 pandemic. Nurses – the backbone of the healthcare system in South Africa – are under tremendous strain due to numerous and complex issues. Since nursing is such a highly stressful profession in South Africa, it is even more important to equip nursing students to manage stress, burnout, and compassion fatigue during their undergraduate studies. After reviewing the literature, it can be argued that the majority of studies conducted during the COVID-19 pandemic have indicated increased levels of stress, anxiety, and burnout among nursing students (Aslan &Pekince, 2020:4; Gallego-Gómez *et al.* 2020:10-11; Husky *et al.*, 2020:7; Kim *et al*., 2021:36; Sveinsdóttir *et al*., 2021:1; Wang *et al*., 2021:1). Currently, there is very little published data specifically on the psychological wellbeing of nursing students during the COVID-19 pandemic.

CHAPTER 4: RESEARCH METHODS

This chapter provides the practical blueprint of how the research was conducted and includes sufficient detail related to the research process so that replication can be achieved (Babbie, 2016:91; Terre Blanche *et al*., 2012:6). More specifically, the research design, setting, sampling, research instrument, data collection, analysis, as well as the ethical considerations are explained.

4.1 Research Design

A descriptive cross-sectional survey was undertaken. A quantitative design, which is situated in the positivist paradigm, was utilised (Lobiondo-Wood & Haber, 2018:8-9; Polit & Beck, 2017:10). The quantitative method is systematic and consists of an empirical investigation via statistical analysis that can be used to describe the correlation between relationships. A cross-sectional design refers to data that is collected at a single point in time, and results do not need to be followed up (Nardi, 2018:128). A descriptive method was selected, as the researcher aims to describe levels of stress, burnout, compassion fatigue, and compassion satisfaction during the COVID-19 pandemic. In addition, the levels of perceived stress, burnout, compassion fatigue, and compassion satisfaction that were identified in this study were compared to the results of a similar study undertaken in 2018 among first- and second-year nursing students at the same university.

4.2 Research Setting

The study was limited to the School of Nursing at a university in central South Africa. Data was collected during the COVID-19 pandemic, a few weeks before the 'third wave'. At the time, COVID-19-positive cases were on the rise, with more than 3,000 new cases per day (SA DoH, 2020b). Strict regulations were in place to prevent the spread of COVID-19. All theoretical classes took place online, and practical classes where students had the opportunity to practice skills were very limited. The selected university used a block system(bootcamps) for practical classes that allowed a small group of students to complete several practical demonstrations in one day. The students rotated through different practical skill sets and scenarios. Instead of having weekly classes, they would do monthly sessions for their practical content (Damons, 2021). Assessments were done in simulation or were postponed to timeframes when it was safer to undertake practical placements. Due to time constraints, practical and academic time was missed due to COVID-19 lockdowns. Some

practical assignments were postponed until the following year. Lecturers also allowed students more freedom in completing practical assignments. For example, students were allowed to complete projects in their hometowns and send in their presentations via video instead of doing them in person.

Data collection took place from the 22nd of November 2020 to the 13th of December 2020. All undergraduate nursing students at the selected university were invited to participate. Data collection took place during the students' final exams for the year. At this time, students were focusing on studying for exams and no practical hours were being worked in clinical placements.

4.2.1. Population and sampling

The population for this study were all students registered for a four-year Bachelor's Degree in Nursing at a purposively selected university in South Africa. Purposive sampling is used when prior knowledge is used to select a case (Neuman, 2013:169). The university was purposively selected as a similar study, using the same scales for measurement, was conducted at the university in 2018. The levels of perceived stress, burnout, compassion fatigue, and compassion satisfaction that were identified among first- and second-year nursing students during the 2018 study were compared to the levels identified among first- and second-year nursing students during the current study. During 2020, there were 288 registered undergraduate nursing students. All the undergraduate nursing students from the selected university were invited to participate in the study in order to obtain as many participants as possible. Of the 288 students invited to participate, 108 students completed the survey. The response rate for this study was thus 38%.

4.3 Research Instrument

An online self-administered questionnaire using Evasys® was utilised. A self-administered questionnaire refers to a structured instrument that is completed by the respondents themselves (Polit & Beck, 2017:269-270). A self-administered questionnaire was selected as the population consists of undergraduate students. Studying at a higher education institution implies a certain level of English literacy and proficiency and the primary language of instruction at the university is also English. The questionnaire had to be available online due to health regulations enforced by the university to combat the spread of COVID-19, which entailed as little personal contact as possible. Using an online survey meant the

questionnaires could be filled out in safety, with no physical contact. In order to ensure anonymity and increase respondent honesty, the questionnaire did not use any personal identifiers. The questionnaire was comprised of six sections. Section One focused on biographic and background characteristics, including sex, age, relationship status, financial dependence, home language, place of residence, manner of payment of university fees, and year of the current study.

Section Two was comprised of the MIB-HSS for medical personnel (Maslach *et al*.,1997:207), which consists of 22 questions, answered on a Likert scale which ranged from 0 (never) to 6 (always). The scale has three sub-scales: emotional exhaustion, depersonalisation, and personal accomplishment. Scores on the sub-scales are interpreted as follows: emotional exhaustion – low score ≤18, average score 19-26, high score ≥27; depersonalisation – low score ≤5, average score 6-9, high score ≥10; and personal accomplishment – low score ≥40, average score 39-40, high score ≤33 (Maslach *et al*.,1997:209). The scale was found to be reliable for South African nurses, with a Cronbach's alpha coefficient exceeding 0.75 (Van der Colff& Rothman, 2014a:640) and 0.70 (Mostert *et al.,* 2017:7). Engelbrecht and Wilke (2021:141) found the emotional exhaustion and personal accomplishment sub-scales reliable, with a Cronbach's alpha of 0.86 and 0.76, respectively. However, the sub-scale for depersonalisation was found unreliable, with a Cronbach's alpha of 0.55. Cronbach's alpha is used to estimate the extent to which scales of an instrument are reliable (Polit & Beck, 2017:308; Taber, 2018:1274). The most desirable value that indicates the highest internal consistency is a Cronbach's alpha of 0.70 (Taber, 2018:1277). However, values higher than 0.70 also indicate adequate internal consistency (Polit & Beck, 2017:308).

Section Three of the questionnaire was comprised of two of the three sub-scales of the ProQOL and consisted of 20 questions that were answered on a Likert scale ranging from 1 (never) to 5 (very often). The two sub-scales that were used measured compassion satisfaction and compassion fatigue. For both sub-scales, a low-risk score was set at a total of ≤ 22, between 23 and 41 for average risk, and ≥ 42 for high risk (Stamm, 2010:29-30). The burnout sub-scale of the ProQOL scale was removed, as this sub-scale was not found to be reliable in a study conducted by Engelbrecht and Wilke (2021:141) among nursing students at the same university, where a Cronbach's alpha of 0.63 was reported. This scale was also found to be unreliable with undergraduate nursing students in the United States, with a Cronbach's alpha of 0.48 (Michalec *et al.,* 2013:317). A Cronbach's alpha of less than 0.7 indicates that the scale does not have a reliable internal consistency (Taber, 2018:1277).

In addition, the MBI-HSS for medical personnel (used in Section Two) already measures burnout. The removal of the burnout sub-section eliminated duplication and reduced possible respondent fatigue. The ProQOL scale has been validated and found reliable by Stamm (2010:31). Wentzel and Brysiewicz (2018:83) found a Cronbach alpha of above 0.80 for the compassion satisfaction and compassion fatigue scale in a study on South African nurses. A study on South African nursing students had a Cronbach's alpha of 0.87 for both the compassion satisfaction and compassion fatigue scales (Mathias &Wentzel, 2017:4). Engelbrecht and Wilke (2021:141) found the two sub-sections of the ProQOL scale to be reliable, with an average Cronbach alpha of 0.80 for the compassion satisfaction and compassion fatigue scales administered to student nurses at a South African university.

Section Four of the questionnaire consisted of the PSS (Sheu *et al.*, cited in Khater *et al.* 2014:198), which contains 29 items answered on a Likert scale ranging from 0 (never) to 4 (always). The PSS examined nursing students' stress levels due to different types of stressors. The scale is comprised of six factors related to sources of stress: taking care of patients, stress from teachers and nursing staff, stress from assignments and workload, stress from peers and daily life, stress from lack of professional knowledge and skills, and stress from the clinical environment. The following cut-off points have been suggested when interpreting scores on this scale (Labrague, 2013:427): 2.67–4.00, high levels of perceived stress; 1.34–2.66, moderate levels of perceived stress; and 0–1.33, low levels of perceived stress. The PSS had a Cronbach's alpha of 0.93 for the total scale among students at a public university in South Africa, thus the scale was deemed reliable (Engelbrecht & Wilke, 2021:141).

The Fifth section included questions about COVID-19. The questions asked the student to confirm if they had to self-isolate due to COVID-19 exposure or if they had tested positive for COVID-19. The final section contained one open-ended question that focused on how students would like to receive support, especially under the COVID-19 pandemic: "Is there any way the university can help support your emotional wellbeing through the COVID-19 pandemic?" See Addendum C for the questionnaire.

4.4 Pilot Study

A pilot study refers to a small-scale version of the study, which is used to test some aspect of the study (Polit & Beck, 2017:177). Due to the time sensitivity of the study, the first three

completed questionnaires received were treated as the pilot study. No changes had to be made to these three questionnaires, and they were included in the study.

4.5 Data Collection

The online questionnaire was constructed using Evasys®. The Evasys® system allows for anonymous surveys to be completed Evasys® licensing is available to students at the selected university. The link to the questionnaire was made available via a student portal that is available to all students at the selected university. Lecturers also posted the link for the survey on WhatsApp® groups for the different year groups (i.e., first-, second-, third-, and fourth-year students) that are used for communication between the lecturers and students. The researcher collaborated with lecturers at the nursing school to find a suitable time to encourage students to participate in the study while on campus. This was done to motivate students to complete the questionnaire using the campus's free Wi-Fi. The lecturers also reminded students of the link to the study and allowed them to use the university's computers to complete the questionnaires after they had finished their practical examination and were waiting for their fellow students to finish before they left the facility.

Informed consent was obtained by implied consent before the students could proceed to complete the questionnaire. After clicking on the link to the questionnaire, the students were taken to an information sheet where the following information was provided: study duration, the reason for the study, as well as potential benefits and risks (see Addendum B for information sheet). After reading this information, students who wanted to proceed to the questionnaire clicked on 'yes', indicating that they understood the above information and wanted to participate in the study. Students were reminded once again that their participation was voluntary when the survey opened in Evasys®. Only students who again indicated that they understood the study was voluntary by selecting 'next' could proceed to fill in the questionnaire. The questionnaire took approximately 30 minutes to complete.

4.6 Data Analysis

The electronic data were cleaned and analysed using the Statistical Package for the Social Sciences 27(SPSS). Descriptive statistics, including frequency counts and percentages, were calculated for categorical variables. Means, medians, and standard deviations were calculated for continuous variables. Composite scores were calculated for all sub-scales. Cronbach's alpha –the most common measure of internal consistency or "reliability – was

used to test the internal consistency of the scales and sub-scales. An alpha value of 0.7 is considered a sufficient measure of reliability (Taber, 2018:1277).

One-way analysis of variance (ANOVA) was used to determine whether there were any statistically significant differences between the means of first-, second-, third-, and fourth-year students on perceived stress, emotional exhaustion, depersonalisation, personal accomplishment, compassion fatigue, and compassion satisfaction. For a one-way ANOVA to provide a valid result, the following three assumptions must hold and must be tested before running the analysis (Laerd Statistics, 2021a):

- There are no outliers in any of the groups.
- Each group's data is normally distributed.
- There is homogeneity of variances.

The one-way ANOVA is fairly robust to violations of normality. This means that the assumption can be violated (a little) and still provide valid results. Therefore, this test is often used on approximately normally distributed data. Tukey post-hoc tests were used to determine exactly which of the groups differ from which other groups. This test allows a comparison of all possible combinations of group differences when the assumption of homogeneity of variances is not violated (Laerd Statistics, 2021a).

Standard multiple regression was performed to predict compassion fatigue, perceived stress, emotional exhaustion, and depersonalisation in nursing students from the different years of study. Several assumptions need to be met when performing multiple regression (Laerd Statistics, 2021b):

- The dependent variable is measured on a continuous scale.
- There are two or more independent variables, which can be either continuous or categorical.
- Independence of observations.
- A linear relationship between the dependent variable and each of the independent variables as well as between the dependent variable and the independent variables collectively.
- Homoscedasticity, where the variances along the line of best fit remain similar as you move along the line.
- No multicollinearity, which occurs when two or more independent variables are highly correlated with each other.
- No significant outliers, high leverage points, or highly influential points.

- The residuals are approximately normally distributed.

An independent sample t-test was used to determine if there was a statistically significant difference between the mean scores for perceived stress, emotional exhaustion, personal accomplishment, compassion fatigue, and compassion satisfaction of nursing students who participated in the 2018 study and students who participated in the current study. Assumptions to be met when running a t-test include (Laerd Statistics, 2021a):

- No significant outliers.
- The dependent variable should be approximately normally distributed for each group of the independent variable.
- Homogeneity of variance (i.e., the variance of the dependent variable is equal in each group of the independent variable).
- The t-test is fairly "robust" to violations of normality. This means that the assumption can be violated (a little) and still provide valid results. Therefore, this test is often used on approximately normally distributed data.

Responses to the open-ended question were carefully read and then quantified by assigning codes to the responses and thereafter grouping similar codes together.

4.7 Ethical Considerations

The South African Medical Research Council (SAMRC) explains ethics for health research as “the enterprise that determines norms and values to guide the systematic reflection and scientific evaluation or assessment of clinical knowledge and any form of experimentation or survey, with the prime objective of promoting health care. Its sole intent is to benefit patients, to alleviate pain and to prevent suffering” (SAMRC, 2002:13). In this study, a risk-benefit analysis was done (Polit & Beck, 2017:743). The risk to the respondents is short-term emotional upset. Though there is no direct benefit for respondents themselves, the information obtained from the study will strengthen the knowledge base around stress, burnout, and compassion fatigue among nursing students during the COVID-19 pandemic. Close attention was given to complying with the Belmont Report’s (Loseke, 2017:45) ethical principles as well as the Singapore Statement on Research Integrity (World Conferences on Research Integrity, 2010:1). The principles of the Belmont Report include respect for persons, beneficence, and justice (Loseke, 2017:45), while the principles of the Singapore Statement on Research Integrity include “honesty in all aspects of research, accountability in the conduct of research, professional courtesy and fairness in working with others and good stewardship of research on behalf of others” (World Conference on Research Integrity,

2010:1). Table 4.1below illustrates how these ethical principles were respected and applied in the study.

Table 4.1: Ethical principal application

Ethical principle	Practical application
Respect for persons (autonomy). Professional courtesy and fairness in working with others.	Student participation was voluntary. Students had the option to withdraw from the study at any time before submitting the questionnaire, with no negative consequence. As the questionnaire was anonymous, it was not possible to withdraw once it was submitted. Informed consent was obtained through implied consent. Students received a link that took them to an information sheet. Once students had read this information, they could select 'no' or 'yes'. Only students who indicated 'yes' were taken to the questionnaire in Evasys®. Once the questionnaire opened, students were again reminded that participation was voluntary and had to selected 'next' if they wanted to continue with the questionnaire. Data were anonymous, responses were aggregated, and specific responses were not linked to specific respondents.
Beneficence. Good stewardship of research on behalf of others.	There may not have been any direct benefit to undergraduate students themselves; however, the questionnaire may have helped them to become more self-aware. The main benefit of the study is to strengthen the knowledge base around stress, burnout, and compassion fatigue. The study gathered information on the influence of the COVID-19 pandemic on the students' levels of stress, burnout, and compassion fatigue. This information may help future educators and undergraduate nursing students. No physical harm was done to participants, but short-term emotional upset could have been experienced. Consequently, the Student Counselling and Development Centre's on-campus contact information (telephone number and email address) was made available on the electronic information sheet. In addition, there also was an address provided for the website MobieG on the information sheet. MobieG is a mobile and web guide with reliable advice and information concerning emotional and mental health. Free online counselling is also available on the MobieG website. Informed consent was ensured through implied consent by giving information about the study in the form of an information sheet that preceded the link to the questionnaire. Students were also able to complete the questionnaire at a time that was most convenient to them and with no coercion. A standardised and validated questionnaire of approximately 30 minutes in duration was used, ensuring students' time was not wasted.
Justice.	All undergraduate students at the specific university had an equal opportunity to participate and disengage. The privacy of the respondents was respected, as the questionnaires were completed anonymously. Students had ample time to complete the survey while on campus, where free Wi-Fi was available. Students were provided with access to electronic devices (computers) after a practical examination session. Thus, all students were given the opportunity to complete the questionnaire by all having access to both Wi-Fi and electronic devices.
Honesty in all aspects of research.	During the course of the research project, strict measures were taken to avoid plagiarism. Therefore, appropriate references and citations were used where applicable (NWU Harvard referencing style was used for referencing). A Turnitin report is attached (Addendum E). Any future publications from the study will be

	discussed beforehand and authorship agreed upon.
Accountability in the conduct of research.	This research protocol underwent review by the Health Science Research Ethics Committee of the Faculty of Health Sciences, UFS, to ensure that the research conducted was adherent to accepted ethical norms and standards before permission was granted for the initiation of the research process as required by the National Health Act (SA DoH, 2015). Research approval number: UFS-HSD2020/1894(see Addendum A for approval letter from the ethics committee).

Compiled from Polit and Beck (2017:139-142) and World Conferences on Research Integrity (2010:1).

4.8 Chapter Summary

This chapter discussed the research design, population, and sampling method of this study. The research instrument, reasons for selection of each scale, method used for data collection, and approach to the pilot study were explained. The technique for data analysis using SPSS was also clarified. The chapter concluded with a risk-benefit assessment and a discussion of the ethical considerations applicable to the study.

CHAPTER 5: RESULTS

The focus of this chapter is on the statistical analysis of the data to answer the research aim and objectives. Chapter 5 commences with an elaboration of the biographic and background characteristics of the respondents. Before presenting the findings of the study, the reliability of the scales is discussed. The levels of burnout, compassion fatigue, perceived stress, and compassion satisfaction are explained. Standard multiple regression is used to highlight which variables contribute to compassion fatigue. The differences in levels of perceived stress, burnout, compassion fatigue, and compassion satisfaction experienced by the 2018 and 2020 students are unpacked. The chapter concludes by focusing on how the university can provide emotional support for students during the COVID-19 pandemic.

5.1 Background Information

A total of 108 out of 288 registered undergraduate nursing students at the selected university participated in the study; the response rate was 38%. Most of respondents were female (n = 102; 94.4%). Almost a quarter (n = 26; 24.3%) of the respondents were married or in a long-term relationship. Only five (4.6%) of the undergraduate nursing students had financially dependent children. The three main home languages were Afrikaans (n = 31;29.2%), Sesotho (n = 25; 23.6%), and English (n = 21;19.8%). Approximately one in five (n = 23; 21%) of the students lived at home with family, with most (n = 41; 38%) living in student houses off campus. Slightly less than two thirds (n = 76; 60.3%) of the participants had bursaries, and a quarter (n = 31; 24.6%) indicated that their parents paid their tuition fees. Participation in the study across the year groups was distributed as follows: first years (n = 31), 29%; second years (n = 31) 29%; third years (n = 21), 19.8%; and fourth years (n = 23), 21.7%. The biographic data for the respondents are presented in Table 5.1 below.

Table 5.1: Biographic information

Characteristics	n	%
Sex		
Male	6	5.6
Female	102	94.4
Married/in a long-term relationship	26	24.3
Financially dependent children	5	4.6
Home language	**106***	
Afrikaans	31	29.2
English	21	19.8
Sesotho	25	23.6
isiXhosa	3	2.8
isiZulu	4	3.8
English and another language	4	3.8
Other South African languages	17	16.0
Other European languages	1	0.9
Place of residence	**108**	
At home with family	23	21.3
Student house off campus	41	38.0
Rent accommodation off campus	17	15.7
Residence on campus	27	25.0
Payment of university fees (students could select multiple answers)		
Bursary	76	60.3
Pay myself	6	4.8
Parents pay	31	24.6
Student loan	5	4.0
NASFAS	6	4.8
Private loan/ sponsor	2	1.6
Undergraduate	**106****	
First-year	31	29.2
Second-year	31	29.2
Third-year	21	19.8
Fourth-year	23	21.7

**Total 107, one missing answer. **Total 108, two missing answers.*

5.2 Reliability of the Scales

A Cronbach's alpha of 0.70 or higher is considered reliable (Taber, 2018:1277). The reliability of the scales calculated in Table 5.2 indicates that three sub-scales– depersonalisation, stress from the environment, and stress from peers and daily life – had Cronbach's alpha values of 0.60, indicating that these scales were not as reliable as the researcher would like them to be subsequently the results were interpreted with caution. This is a limitation, but the results were still used.

Table 5.2: Reliability of the scales

Scales	No of items	Cronbach's alpha
Maslach Burnout Inventory	**22**	
Emotional exhaustion	9	0.8
Depersonalisation	5	0.6
Personal accomplishment	8	0.7
Professional Quality of Life	**30**	
Compassion satisfaction	10	0.8
Compassion fatigue	10	0.8
Perceived Stress Scale	**29**	**0.8**
Stress from taking care of patients	8	0.9
Stress from assignments and workload	5	0.8
Stress from lack of professional knowledge and skills	3	0.8
Stress from the environment	3	0.6
Stress from peers and daily life	4	0.6
Stress from teachers and nursing staff	6	0.8

5.3 Stress

A categorisation of scores for perceived stress revealed that 69.4% (n = 75) of the nurses had moderate levels of perceived stress, 21.3% (n = 23) had low levels of perceived stress, and 9.3% (n = 10) had high levels of perceived stress. Table 5.3 illustrates the means and standard deviations for the overall PSS and all the sub-scales. While the scores on the sub-scales indicate that the students were experiencing moderate levels of stress in all the categories, the most problematic areas were stress from assignments and workload (M = 2.5; SD= 0.8) and stress from peers and daily life (M= 1.9; SD= 0.8). The least problematic areas were stress from taking care of patients (M = 1.5; SD = 0.7) and stress from lack of professional knowledge and skills (M = 1.5; SD = 0.8).

Table 5.3: Descriptive statistics of PSS

	Range	Mean	SD
Perceived Stress Scale	0–4	1.8	0.6
Stress from taking care of patients	0–4	1.5	0.7
Stress from assignments and workload	0–4	2.5	0.8
Stress from lack of professional knowledge and skills	0–4	1.5	0.8
Stress from the environment	0–4	1.6	0.8
Stress from peers and daily life	0–4	1.9	0.8
Stress from teachers and nursing staff	0–4	1.7	0.8

A closer look at the individual items on each of the sub-scales is provided in Table 5.4. For the sub-scale “stress from taking care of patients”, undergraduate nurses’ highest mean score was for the question “do not know how to help patients with physio-psycho-social problems” (M = 1.8; SD = 0.9). For the sub-scale “stress from assignments and workload”, the highest mean value was for the question “worry about bad grades” (M = 3.1; SD = 1.1). With regards to the sub-scale” stress from lack of professional knowledge”, the question with the highest mean value was “unfamiliar with patients' diagnoses and treatments” (M = 1.8; SD = 1.0). When inspecting the sub-scale” stress from the clinical environment”, the question with the highest mean value was “feel stressed from the rapid change in patient's condition” (M = 1.9; SD = 1.1). With regards to the sub-scale “stress from peers and daily life”, the question with the highest mean value was “feel that clinical practice affects one's involvement in extracurricular activities” (M = 2.6; SD = 1.1). For the sub-scale” stress from peers, teachers, and nursing staff”, the question that had the highest mean value was “feel stressed that teacher's instruction is different from one's expectations” (M = 2.0; SD = 1.1).

Table 5.4: Frequency distribution of responses to the Perceived Stress Scale

Scales	Never		Seldom		Sometimes		Often		Always		M	SD
	n	%	n	%	n	%	n	%	n	%		
Stress taking care of patients												
Lack of experience and ability in providing nursing care and in making judgements	15	13.9	28	25.9	50	46.3	10	9.3	5	4.6	1.7	1.0
Do not know how to help patients with physio-psycho-social problems	8	7.4	34	31.5	44	40.7	19	17.6	3	2.8	1.8	0.9
Unable to reach one's expectations	5	4.7	38	35.5	50	46.7	13	12.1	1	0.9	1.7	0.8
Unable to provide appropriate responses to doctors', teachers', and patients' questions	18	16.7	35	32.4	36	33.3	18	16.7	1	0.9	1.7	0.8
Worry about not being trusted or accepted by patients or patients' families	19	17.8	35	32.7	28	26.2	15	14.0	10	9.3	1.6	1.2
Unable to provide patients with good nursing care	48	44.9	30	28.0	21	19.6	7	6.5	1	0.9	0.9	1.0
Do not know how to communicate with patients	44	41.5	32	30.2	12	11.3	14	13.2	4	3.7	1.1	1.2
Experience difficulties in changing from the role of a student to that of a nurse	16	15.0	31	29.0	35	32.7	20	18.7	5	4.7	1.7	1.1

Scales	Never		Seldom		Sometimes		Often		Always		M	SD
	n	%	n	%	n	%	n	%	n	%		
Stress from assignments and workload												
Worry about bad grades	2	1.9	10	9.3	15	14.0	27	25.2	53	49.5	3.1	1.1
Experience pressure from the nature and quality of clinical practice	1	0.9	19	17.8	43	40.2	23	21.5	21	19.6	2.4	1.0
Feel that one's performance does not meet teachers' expectations	6	5.7	15	14.2	39	36.8	27	25.5	19	17.9	2.4	1.1
Feel that the requirements of clinical practice exceed one's physical and emotional endurance	7	6.5	21	19.6	36	33.6	30	28.0	13	12.1	2.2	1.1
Feel that dull and inflexible clinical practice affects one’s family and social life	8	7.5	12	11.2	35	32.7	28	26.2	24	22.4	2.5	1.2
Stress from lack of professional knowledge												
Unfamiliar with medical history and terms	13	12.1	41	38.3	39	36.4	12	11.2	2	1.9	1.5	0.9
Unfamiliar with professional nursing skills	27	25.5	32	30.2	37	34.9	8	7.5	2	1.9	1.3	1.0
Unfamiliar with patients' diagnoses and treatments	10	9.3	30	28.0	48	44.9	14	13.1	5	4.7	1.8	1.0

Scales	Never		Seldom		Sometimes		Often		Always		M	SD
	n	%	n	%	n	%	n	%	n	%		
Stress from the clinical environment												
Feel stressed in the hospital environment where clinical practice takes place	16	15.0	44	41.1	24	22.4	14	13.1	9	8.4	1.6	1.1
Unfamiliar with the ward facilities	25	23.4	39	36.4	26	24.3	15	14.0	2	1.9	1.4	1.0
Feel stressed from the rapid change in patient's condition	9	8.5	29	27.4	42	39.6	15	14.2	11	10.4	1.9	1.1
Stress from peers and daily life												
Experience competition from peers in school and clinical practice	16	15.0	23	21.5	33	30.8	19	17.8	16	15.0	2.0	1.3
Feel pressure from teachers who evaluate students' performance by comparison	17	15.9	15	14.0	28	26.2	30	28.0	17	15.9	2.1	1.3
Feel that clinical practice affects one's involvement in extracurricular activities	6	5.6	10	9.3	31	29.0	36	33.6	24	22.4	2.6	1.1
Cannot get along with other peers in the group	35	32.7	46	43.0	18	16.8	5	4.7	3	2.8	1.0	1.0

Scales	Never		Seldom		Sometimes		Often		Always		M	SD
	n	%	n	%	n	%	n	%	n	%		
Stress from teachers and nursing staff												
Experience discrepancy between theory and practice	9	8.5	33	31.1	36	34.0	19	17.9	9	8.5	1.9	1.1
Do not know how to discuss patient's illness with teachers or medical and nursing personnel	26	24.3	41	38.3	22	20.6	12	11.2	6	5.6	1.4	1.1
Feel stressed that teacher's instruction is different from one's expectations	11	10.2	23	21.3	43	39.8	19	17.6	12	11.1	2.0	1.1
Doctors lack empathy and are not willing to help	12	11.1	29	26.9	39	36.1	24	22.2	4	3.7	1.8	1.0
Feel that teachers do not give fair evaluation on students	19	17.6	35	32.4	34	31.5	15	13.9	5	4.6	1.6	1.1
Lack of care and guidance from teachers	23	21.3	32	29.6	33	30.6	12	11.1	8	7.4	1.5	1.2

5.3.1 Perceived stress differences in relation to year of study

A one-way ANOVA was conducted to determine if perceived stress in student nurses was different for nurses in different years of study (i.e., First-, second-, third-, and fourth-year). There were a few outliers, but these were not due to data entry errors; thus, it was decided to keep them in the analysis. Data was normally distributed as assessed by Normal Q-Q plots, and there was homogeneity of variances (p = 0.576) as assessed by Levene's test for homogeneity of variances. There were no significant differences for the students in different years of study when it came to levels of perceived stress F (3, 102) = 0.530, p = 0.663.

5.4 Burnout

A categorisation of scores for the MBI revealed that 37% (n = 40) of undergraduate students experienced moderate levels of emotional exhaustion, 35% (n = 38) had high levels of emotional exhaustion, and 27.8% (n = 30) had low levels of emotional exhaustion. With regards to depersonalisation, approximately three in five (n = 64; 59%) students had low levels of depersonalisation. There was an equal spread across the categories of personal accomplishment: 34.3% experienced high/moderate levels of personal accomplishment and 31.5% experienced low levels of personal accomplishment.

Table 5.5: Categorisation of emotional exhaustion, depersonalisation, and personal accomplishment sub-scales

Sub-scales	High		Moderate		Low	
	n	%	n	%	n	%
Emotional exhaustion	38	35.2	40	37.0	30	27.8
Depersonalisation	18	16.7	26	24.1	64	59.3
Personal accomplishment	37	34.3	37	34.3	34	31.5

Table 5.6 illustrates the means and standard deviations for the sub-scales' emotional exhaustion, depersonalisation, and personal accomplishment. Undergraduate student nurses had an average score of 22.9 (SD = 10.8; range of 0–54) for emotional exhaustion, indicating a moderate risk for burnout. For depersonalisation, participants had an average score of 6.3 (SD = 6.8; range 0–28), indicating moderate levels of depersonalisation. On the personal accomplishment scale, students had average levels of personal accomplishment (SD = 8.1; range 11–48).

Table 5.6: Descriptive statistics – burnout

	Range	Mean	SD
Maslach Burnout Inventory			
Emotional exhaustion	0–54	22.9	10.8
Depersonalisation	0–28	6.3	5.8
Personal accomplishment	11–48	34.8	8.1

A closer look at the individual items on each of the sub-scales is provided in Table 5.7. With regards to the emotional exhaustion sub-scale, the item with the highest mean score was “I feel used up at the end of the workday” (M = 3.8; SD = 1.8). When investigating the depersonalisation sub-scale, the item with the highest mean value was “I worry that this job is hardening me emotionally” (M = 2.2; SD = 2.1). The item on the personal accomplishment sub-scale with the highest mean value was “I can easily understand how my patients feel about things” (M = 5.0; SD = 1.3).

Table 5.7: Frequency distribution of responses to the MBI

Scales	Never		A few times a year		Monthly		A few times a month		Every week		A few times a week		Every day		M	SD
	n	%	n	%	n	%	n	%	n	%	n	%	n	%		
Emotional exhaustion																
I feel emotionally drained from my work	1	0.9	19	17.6	5	4.6	26	24.1	13	12.0	24	22.2	20	18.5	3.7	1.7
I feel used up at the end of the workday	4	3.7	17	15.7	2	1.9	23	21.3	17	15.7	20	18.5	25	23.1	3.8	1.8
I feel fatigued when I get up in the morning and have to face another day on the job	4	3.7	18	16.7	4	3.7	27	25.0	13	12.0	25	23.1	17	15.7	3.6	1.8
Working with people all day is really a strain for me	41	38.0	28	25.9	4	3.7	20	18.5	5	4.6	6	5.6	4	3.7	1.6	1.8
I feel burned out from my work	11	10.2	30	27.8	12	11.1	18	16.7	15	13.9	11	10.2	11	10.2	2.7	1.9
I feel frustrated by my job	33	30.6	29	26.9	7	6.5	15	13.9	5	4.6	11	10.2	8	7.4	2.0	2.0
I feel I'm working too hard on my job	27	25.2	19	17.8	10	9.3	20	18.7	10	9.3	8	7.5	13	12.1	2.4	2.1
Working with people directly puts too much stress on me	35	32.4	38	35.2	9	8.3	11	10.2	6	5.6	5	4.6	4	3.7	1.5	1.7
I feel like I'm at the end of my rope	32	29.9	33	30.8	8	7.5	15	14.0	5	4.7	9	8.4	5	4.7	1.8	1.8

Scales	Never		A few times a year		Monthly		A few times a month		Every week		A few times a week		Every day		M	SD
	n	%	n	%	n	%	n	%	n	%	n	%	n	%		
Depersonalisation																
I feel I treat some patients as if they were impersonal objects	84	77.8	12	11.1	1	0.9	3	2.8	1	0.9	7	6.5	0	0.0	0.6	1.4
I've become more callous towards people since I took this job	52	49.1	11	10.4	4	3.8	14	13.2	5	4.6	3	2.8	17	16.0	1.9	2.3
I worry that this job is hardening me emotionally	30	27.8	28	25.9	9	8.3	11	10.2	7	6.5	12	11.1	11	10.2	2.2	2.1
I don't really care what happens to some patients	87	80.6	8	7.4	2	1.9	5	4.6	2	1.9	2	1.9	2	1.9	0.5	1.3
I feel that patients blame me for some of their problems	62	57.4	16	14.8	5	4.6	10	9.3	3	2.8	6	5.6	6	5.6	1.2	1.9

Scales	Never		A few times a year		Monthly		A few times a month		Every week		A few times a week		Every day		M	SD
	n	%	n	%	n	%	n	%	n	%	n	%	n	%		
Personal accomplishment																
I can easily understand how my patients feel about things	0	0.0	1	0.9	5	4.6	11	10.2	12	11.1	21	19.4	58	53.7	5.0	1.3
I deal very effectively with problems of my patients	2	1.9	6	5.6	8	7.4	7	6.5	16	14.8	24	22.2	45	41.7	4.6	1.6
I feel I'm positively influencing other people's lives through my work	4	3.7	5	4.7	4	3.7	17	15.9	7	6.5	18	16.8	52	48.6	4.6	2.3
I feel very energetic	8	7.4	11	10.2	9	8.3	28	25.9	13	12.0	27	25.0	12	11.1	3.4	1.8
I can easily create a relaxed atmosphere with my patients	1	0.9	6	5.6	4	3.7	11	10.2	14	13.0	26	24.1	46	42.6	4.7	1.5
I feel exhilarated after working closely with my patients	7	6.5	7	6.5	8	7.5	16	15.0	11	10.3	29	27.1	29	27.1	4.1	1.9
I have accomplished many worthwhile things in this job	4	3.7	12	11.2	9	8.4	12	11.2	10	9.3	27	25.2	33	30.8	4.1	1.9
In my work, I deal with emotional problems very calmly	2	1.9	9	8.3	5	4.6	16	14.8	16	14.8	24	22.2	36	33.3	4.3	1.7

5.4.1 Emotional exhaustion, depersonalisation, and personal accomplishment differences in relation to year of study

One-way ANOVAs were conducted to determine if emotional exhaustion, depersonalisation, and personal accomplishment in student nurses were different for nurses in different years of study (i.e., first-, second-, third-, and fourth-year). There were a few outliers, but these were not due to data entry errors. Thus, it was decided to keep them in the analysis. Data was normally distributed as assessed by Normal Q-Q plots. There was homogeneity of variances for emotional exhaustion ($p = 0.327$) and personal accomplishment ($p = 0.879$) but not for depersonalisation ($p = 0.038$), as assessed by Levene's test for homogeneity of variances. There were no significant differences for the students in different years of study when it came to levels of: emotional exhaustion $F (3, 102) = 1.420$, $p = 0.241$; depersonalisation Welch $(3, 56.168) = 1.217$, $p = 0.312$; and personal accomplishment $F (3, 102) = 0.806$, $p = 0.493$.

5.5 Compassion Fatigue and Compassion Satisfaction

A categorisation of scores for compassion fatigue and compassion satisfaction revealed that slightly more than half of the students had high levels of compassion fatigue (n = 56; 51.9%) and high levels compassion satisfaction (n = 57; 52.8%). For full results, please see Table 5.8 below.

Table5.8: Categorisation of compassion fatigue and compassion satisfaction sub-scales

Sub-scales	High		Moderate		Low	
	n	%	n	%	n	%
Compassion fatigue	56	51.9	52	48.1	-	-
Compassion satisfaction	57	52.8	51	47.2	-	-

Table 5.9 illustrates the means and standard deviations for the compassion fatigue and compassion satisfaction sub-scales. Undergraduate student nurses were at moderate risk (M = 23.9; SD = 6.6; range of 10–47) for compassion fatigue. While they also had a moderate score for compassion satisfaction, it was at the high end of the spectrum, bordering on high levels of compassion satisfaction (M = 40.7; SD = 6.7; range of 10–50).

Table 5.9: Descriptive statistics for compassion fatigue and compassion satisfaction sub-scales

	Range	Mean	SD
Professional Quality of Life			
Compassion fatigue	10–47	23.9	6.6
Compassion satisfaction	10–50	40.7	6.7

A closer look at the individual items on each of the sub-scales is provided in Table 5.10. For the compassion fatigue sub-scale, the item with the highest mean value was “I am preoccupied with more than one person I help” (M = 3.3; SD = 1.1). With regards to the compassion satisfaction sub-scale, the item with the highest mean value was “I get satisfaction from being able to help people” (M = 4.5; SD= 0.8).

Table 5.10:Frequency distribution of responses to the ProQOL

Scales	Never		Rarely		Sometimes		Often		Very often		M	SD
	n	%	n	%	n	%	n	%	n	%		
Compassion fatigue												
I am preoccupied with more than one person I help	4	3.8	19	17.9	37	34.9	30	28.3	16	15.1	3.3	1.1
I jump or am startled by unexpected sounds	11	10.3	27	25.2	34	31.8	13	12.1	22	20.6	3.1	1.3
I find it difficult to separate my private life from my life as a helper	34	32.1	32	30.2	23	21.7	13	12.3	4	3.8	2.3	1.1
I think that I might have been “infected” by the traumatic stress of those I help	28	26.4	35	33.0	31	29.2	8	7.5	4	3.8	2.3	1.1
Because of my helping, I feel “on edge” about various things	19	17.8	28	26.2	37	34.6	16	15.0	7	6.5	2.7	1.1
I feel depressed as a result of my work as a helper	37	34.9	33	31.1	28	26.4	8	7.5	0	0.0	2.1	1.0
I feel as though I am experiencing the trauma of someone, I have helped	32	29.6	31	28.7	32	29.6	11	10.2	2	1.9	2.3	1.1
I avoid certain activities or situations because they remind me of frightening experiences of the people, I help	39	36.1	41	38.0	22	20.4	3	2.8	3	2.8	2.0	1.0
As a result of my helping, I have sudden, unwanted frightening thoughts	38	35.5	37	34.6	17	15.9	12	11.2	3	2.8	2.1	1.1

Scales	Never		Rarely		Sometimes		Often		Very often		M	SD
	n	%	n	%	n	%	n	%	n	%		
I can't remember important parts of my work with trauma victims	34	32.1	36	34.0	22	20.8	11	10.4	3	2.8	2.2	1.1
Compassion satisfaction												
I get satisfaction from being able to help people	0	0.0	3	2.8	8	7.5	27	25.2	69	64.5	4.5	0.8
I have more energy after working with those I help	6	5.6	14	13.1	33	30.8	31	29.0	23	21.5	3.5	1.1
I like my work as a helper	2	1.9	19	17.8	39	36.4	47	43.9	47	43.9	4.2	0.9
I am pleased with how I am able to keep up with helping techniques and protocols	4	3.7	5	4.6	25	23.1	45	41.7	29	26.9	3.8	1.0
My work makes me feel satisfied	0	0.0	2	1.9	16	15.0	47	43.9	42	39.3	4.2	0.8
I have happy thoughts and feelings about those I help and how I could help them	0	0.0	1	0.9	19	17.6	36	33.3	52	48.1	4.3	0.8
I believe I can make a difference through my work	0	0.0	2	1.9	17	15.7	27	25.0	62	57.4	4.4	0.8
I plan to be a helper for a long time	6	5.6	4	3.7	18	16.8	24	22.4	55	51.4	4.1	1.2
I have thoughts that I am a "success" as a helper	4	3.7	4	3.7	26	24.3	40	37.4	33	30.8	3.9	1.0
I am happy that I chose to do this work	3	2.8	5	4.6	24	22.2	28	25.9	48	44.4	4.1	1.1

5.5.1 Perceived stress differences in relation to year of study

One-way ANOVAs were conducted to determine if compassion fatigue and compassion satisfaction were different for nurses in different years of study (i.e., first-, second-, third- and fourth-year). There were a few outliers, but these were not due to data entry error. Thus, it was decided to keep them in the analysis. Data was normally distributed as assessed by Normal Q-Q plots, and there was homogeneity of variances for compassion fatigue ($p = 0.387$) and satisfaction ($p = 0.901$), as assessed by Levene's test for homogeneity of variances. There were no significant differences for the students in different years of study when it came to levels of compassion satisfaction $F (3, 102) = 1.295$, $p = 0.280$. There were significant differences in levels of compassion fatigue for students in different years of study, $F (3,102) = 4.527$, $p = 0.005$. Tukey post-hoc analysis revealed that there was a statistically significant difference in mean compassion fatigue scores between first- and second-year nursing students ($p = 0.004$). Second-year nursing students had significantly higher mean scores for compassion fatigue ($M = 26.42$) than first-year nursing students ($M = 20.97$).

5.6 Prediction of Compassion Fatigue

Multiple regression was run to predict compassion fatigue in nursing students from year of study, emotional exhaustion, depersonalisation, and perceived stress. The assumptions of linearity, independence of errors, homoscedasticity, unusual points, and normality of residuals were met. These variables statistically significantly predicted compassion fatigue $F (4, 101) = 14.628$, $p<0.000$, adjusted $R2 = .375$. Three variables made a statistically significant unique contribution to the prediction: emotional exhaustion ($t = 2.078$, $p = .040$), depersonalisation ($t = 3.019$, $p = .003$), and perceived stress ($t = 3.363$, $p = .001$). Table 5.11 below shows the full results for standard multiple regression analysis related to the prediction of compassion fatigue in nursing students.

Table 5.11: Standard multiple regression analysis related to the prediction of compassion fatigue in nursing students

Independent variables	B	Std Error	β	t	P
Year of study	0.895	0.466	0.154	1.919	0.058
Emotional exhaustion	0.118	0.057	0.195	2.078	0.040
Depersonalisation	0.319	0.106	0.265	3.019	0.003
Perceived stress	3.261	0.970	0.304	3.363	0.001

5.7 Comparison of Levels of Emotional Exhaustion, Compassion Fatigue, and Stress Prior to and During COVID-19

There were 141 first- and second-year students in the pre-COVID-19 (2018) group and 62 first- and second-year students in the group that participated in the study undertaken during COVID-19 (i.e., the 2020-group). Third- and fourth-year students were excluded from this analysis to ensure that no students from the pre-COVID-19 group were included in the 2020 group. Independent sample t-tests were run to see if there were differences in emotional exhaustion, depersonalisation, personal accomplishment, compassion fatigue, compassion satisfaction, and perceived stress scores between the 2018 and 2020 groups. Some outliers were observed; however, as these were not due to data entry errors, they were kept in the analysis. Data was approximately normally distributed as assessed by Normal Q-Q plots. Homogeneity of variance, as assessed by Levene's test for equality of variance, was found for emotional exhaustion ($p = 0.673$), compassion fatigue ($p = 0.665$), compassion satisfaction ($p = 0.870$), and perceived stress ($p = 0.187$), but not for depersonalisation ($p = 0.005$) and personal accomplishment ($p = 0.017$). No significant differences were found between the 2018 and 2020 groups in terms of emotional exhaustion scores. These were higher for the 2018 group ($M = 25.33$, $SD = 11.056$) than for the 2020 group ($M = 22.10$, $SD = 10.404$), but the difference between the two groups was not statistically significant at a 95% confidence interval: [-0.033–6.495], $t(201) = 1.952$, $p = 0.052$.

The depersonalisation scores were similar for both groups – 2018 ($M = 6.89$, $SD = 4.569$) and 2020 ($M = 6.389$, $SD = 6.192$) – with no statistically significant difference between the two groups at a 95% confidence interval: [-1.237–2.241], $t(91.423) = 0.574$, $p = 0.250$ (using "equal variances not assumed").

The compassion fatigue scores were slightly higher for the 2018 group ($M = 24.33$, $SD = 5.805$) than for the 2020 group ($M = 23.694$, $SD = 7.210$), but with no statistically significant difference between the two groups at a 95% confidence interval: [-1.247–2.517], $t(201) = 0.665$, $p = 0.507$.

The compassion satisfaction scores were slightly higher for the 2020 group ($M = 40.89$, SD6.836) than the 2018 group ($M = 39.89$; $SD = 7.061$), but with no statistically significant difference between the two groups at a 95% confidence interval: [-3.103–1.099], $t(201) = -0.940$, $p = 0.348$.

The perceived stress scores were slightly higher for the 2020 group (M = 1.83, SD = 0.613) than the 2018 group (M = 1.74, SD = 0.554), but with no statistically significant difference between the two groups at a 95% confidence interval: [-0.262–0.082], t (201) = -0.027, p = 0.306.

There was a statistically significant difference between the 2018 and 2020 groups at the 95% confidence interval for personal accomplishment: [-10.727—10.945], t (95.873) = -7.297, p = 0.000. The personal accomplishment scores were significantly higher for the 2020 group (M = 34.50, SD = 8.226) than for the 2018 group (M = 25.895, SD = 6.494). According to Cohen's d = -1.218, this is large effect size.

5.8 COVID-19

There were four questions asked concerning COVID-19 in the study. The first was: “Have you needed to self-isolate due to exposure to COVID-19?” There were 106 responses to this question, and almost two in five (n = 42; 39.6%) students indicated that they needed to isolate due to exposure to COVID-19. Table 5.12 displays the full results.

Table 5.12: Have you needed to self-isolate due to exposure to COVID-19?

	Yes		No	
	n	%	n	%
Have you needed to self-isolate due to exposure to COVID-19?	42	39.6	64	61.4

The second question was: "If you have needed to self-isolate due to COVID-19, please indicate the number of times." More than two thirds (n = 32; 72.7 %) indicated that they needed to self-isolate once due to COVID-19 and ten (22.7%) students indicated that they needed to self-isolate twice due to COVID-19. Table 5.13 displays the full results.

Table 5.13: If you have needed to self-isolate due to COVID-19, please indicate the number of times

Number of times self-isolated due to COVID-19	1		2		3		>3	
	n	%	n	%	n	%	n	%
	32	72.7	10	22.7	1	2.3	1	2.3

The students were also asked “Have you tested positive for COVID-19?” Out of the 107 student nurses who answered this question, 7 (7.5%) indicated that they had tested positive for COVID-19.

Out of the 108 surveys that were completed in the study, 56 participants responded to the question: “Is there any way the university can help emotionally support you through the COVID-19 pandemic?”. These 56 responses were then further categorised into nine possible response groupings, totalling 69 responses in all categories (see Addendum D for the original student responses and Table 5.14 for the types and frequency of different responses). The most frequent request from students was more emotional support and empathy from lecturers (n = 16; 23.1%). Below is an example of one of the undergraduate nursing student’s answers:

“*They can just not make degrading remarks or have this attitude by which they try to tell you that you do not work hard enough ...or ask questions like...'did you still not open my PowerPoint'* [sic] *or say 'don't think I will help you in the last minute'*.”

The second most frequent request from students was that communication and organisation needs to be improved between the lecturers and students (n = 11; 15.9%). The following statement came from a student who was requesting more communication and organisation from lecturers.

“*More communication from lecturers would be nice. Would be nice if they get a bit more organised as well and communicate AMONGST EACH OTHER a bit more*.”

However, there were a number of responses (n = 7; 10.1%) from students who indicated that they were satisfied with the emotional support that was offered by the university during the COVID-19 pandemic. One of the responses reads as follows:

“*At the moment I can't think of anything more that can be done as we already have access to psychologists/ therapists and social workers that we can contact and talk to when things get rough*.”

The answer to the question how regarding the university can help emotionally support students are categorised in Table 5.14below.

Table 5.14: Open-ended question analysis

Category	Frequency	Percentage
1) Students need more empathy and emotional support from lecturers	16	23.1
2) Communication and organisation need to be improved between the lecturers and students	11	15.9
3) More academic support and resources	9	13.0
4) Satisfied with the university emotional support	7	10.1
5) More psychological support	7	10.1
6) Special COVID-19 interventions and preparations	5	7.2
7) Financial aid (food, Wi-Fi, accommodation) from the university	5	7.2
8) Time off before exams	3	4.3
9) Other	6	8.7
	69	

5.9 Chapter Summary

After analysing the results for the MBI-HSS, ProQOL, and PSS, it was found that nursing students experienced moderate levels of perceived stress, burnout, compassion fatigue, and compassion satisfaction. Three variables were found to make a statistically significant unique contribution to the prediction of compassion fatigue – namely, emotional exhaustion, depersonalisation, and perceived stress. T-tests were run to see if there were significant differences between the pre-COVID-19 (2018) and COVID-19 (2020) groups. The only statistically significant difference was found with regard to personal accomplishment, where the 2020 nursing students had higher levels of personal accomplishment than the 2018 pre-COVID-19 nursing students. Information regarding COVID-19 showed that 42 (39.6%) of the students had to self-isolate due to COVID-19, but only 7 (7.5%) of the students tested positive. Analysis of the open-ended question regarding emotional support from the university revealed that nursing students wanted more empathy and emotional support from lecturers.

CHAPTER 6: DISCUSSION AND RECOMMENDATIONS

Nursing in South Africa is a stressful profession with numerous challenges that lead to professional nurses suffering from stress, burnout, and compassion fatigue (Coetzee *et al*., 2013:162; Engelbrecht *et al*., 2008:15; Klopper *et al*., 2012:685;Maila*et al*., 2020:7; Payne *et al*., 2020:1; Van der Colff & Rothmann, 2014b:375).The concern is that if educational institutions cannot find a better way to prepare undergraduate nursing students for the inevitable challenges ahead, the profession will suffer. Burnout and compassion fatigue are cumulative and progressive, and this is why it is of paramount importance to not only treat burnout and compassion fatigue but to also give students the skills to deal with these challenges before they manifest (Coetzee & Klopper, 2010:240). Under normal circumstances, undergraduate nursing students are already under extreme pressure. With the outbreak of the COVID-19 pandemic in South Africa in March 2020, life as we know it changed. Information is lacking on the psychological wellbeing of undergraduate student nurses during the COVID-19 pandemic in South Africa. Consequently, in order to find effective ways to support undergraduate nursing students, it is important to first determine the state of their psychological wellbeing. Understanding levels of stress, burnout, compassion fatigue, and compassion satisfaction better could help nursing schools and educators to better support student nurses in order to improve their psychological wellbeing. With this in mind, the aim of the study was to determine undergraduate nursing students' psychological wellbeing in terms of stress, burnout, compassion fatigue, and compassion satisfaction during the COVID-19 pandemic at a selected university.

In this thesis, the psychological wellbeing of undergraduate nursing students refers to levels of stress, secondary trauma, burnout, compassion fatigue, and compassion satisfaction. This is in line with the Professional Quality of Life framework that was developed by Stamm (2010:8) and forms the conceptual framework for this study. The Professional Quality of Life framework relates to the negative effect that stress, secondary trauma, burnout, and compassion fatigue can have on undergraduate nurses' psychological wellbeing (Newell & MacNeil, 2011:28). In contrast to this, compassion satisfaction is a protective agent against stress, secondary trauma, burnout, and compassion fatigue and can help prevent these phenomena, thus acting as a positive component in the Professional Quality of Life framework (Hegney*et al*., 2014:507; Hinderer *et al*., 2014:161; Manson, 2013:25; Mason & Nel, 2012:451).

The professional burnout conceptual framework was incorporated within the Professional Quality of Life conceptual framework to demonstrate that burnout consists of three dimensions: emotional exhaustion, depersonalisation, and a reduction in personal accomplishment (Maslach, 2001:397; Maslach & Leiter, 1997:158). Emotional exhaustion is the first stage of burnout, and if it is not addressed and the stress continues, depersonalisation will take place as a protective feature against emotional exhaustion. As depersonalisation progresses, it leads to a reduction in personal accomplishment (Engelbrecht *et al*., 2008:16).

The ultimate consequence of stress, secondary trauma, burnout, and compassion fatigue is a reduction in professional quality of life. This can cause undergraduate nurses' psychological wellbeing to be negatively affected, leading to both personal distress and a decrease in the quality of patient care (Chachula, 2021:12-13; Stamm, 2010:8).

6.1 Stress

Nursing is one of the most stressful professions in the world (Conradie *et al.,* 2017; Khamisa *et al.*, 2017). Undergraduate nursing students in general experience more stress than other students, even within the medical field (Chow*et al.*, 2018:2; Labrague, 2013:424; Turner& McCarthy, 2017:21). These higher stress levels could be due to the combination of high academic workloads and numerous clinical hours that are considered essential for achieving nursing competency (Chernomas& Shapiro, 2013:1; Gibbons *et al.,*2011:622; Labrague, 2013:428). The concern is that if undergraduate nursing students are exposed to high stress levels for an extended period of time, it can affect their psychological wellbeing negatively (Labrague, 2013:429).

Overall, the undergraduate nursing students in this study experienced moderate levels of stress during COVID-19. Moderate levels of stress were also identified in other research using the PSS conducted among undergraduate nursing students prior to COVID-19in South Africa (Engelbrecht & Wilke 2021:144) and in Saudi Arabia (Shdaifat *et al*., 2018:33; Waled& Mohammed, 2019:121). In this study, the PSS sub-scale with the highest mean value was stress for assignments and workload. These results are similar to findings from previous studies in Saudi Arabi (Hamaideh *et al*., 2017:197; Shdaifat *et al*., 2018:33) and the Philippines (Labrague, 2013:428) that also utilised the PSS and identified assignments and workload as the main stressors. Labrague (2013:428) argues that assignment and workload stress might be prevalent due to not only the high academic workload (120 credits in South Africa, which translate into 1,200 hours per year) but also the practical clinical hours that

students need to do to complete their degree (1,830 hours across four years for first-year students who were doing the new curriculum and 4,000 hours across four years for the second-, third- and fourth-year undergraduate nursing students who were doing the legacy programme).

6.2 Burnout

Within the Professional Quality of Life conceptual framework, the professional burnout conceptual framework explains in more detail how burnout negatively affects the psychological wellbeing of undergraduate student nurses (Maslach, 2001:397; Maslach & Leiter, 1997:158). The professional burnout conceptual framework consists of three different constructs: emotional exhaustion, depersonalisation, and a reduction in personal accomplishment. Emotional exhaustion is the first consequence of burnout and is caused by long-term persistent stress. In reaction to emotional exhaustion, depersonalisation takes place as a defence mechanism in an attempt to protect against emotional exhaustion. Depersonalisation causes a detachment from the environment and a cynical attitude towards life. It also causes a reduction in personal accomplishment, and this can lead to feelings of worthlessness and low self-esteem (Da Silva *et al*., 2014:5; Engelbrecht *et al*., 2008; Newell & MacNeil, 2011:27;). Burnout has a slow onset and is a multidimensional construct influenced by many facets (Engelbrecht *et al*., 2008:16; Maslach, 2001:397; Maslach & Leiter, 1997:158).

Undergraduate nursing students in this study had average scores for emotional exhaustion during COVID-19, which indicates that they have a moderate risk for emotional exhaustion – the first stage of burnout. This is similar to other studies conducted prior to COVID-19 that also used the MBI-HSS and found average scores for emotional exhaustion prior to COVID-19 in the United States (Michalec *et al.,* 2013:314) and South Africa (Engelbrecht & Wilke, 2021:144). With regards to depersonalisation, undergraduate nursing students who participated in this study had average levels of depersonalisation, indicating a moderaterisk for development of depersonalisation. Michalec *et al*. (2013:319) argue that this might be due to students in the clinical enviroment feeling protected when they work under a qualified nurse, and the real danger for burnout is most likely to occur when students enter the working environment as qualified nurses without a support system. The results that indicatedmoderate levels of depersonalisation are interesting, as students were not working as many practical hours during the data-gathering period, and it was expected that levels of emotional exhaustion and depersonalisation would be low. This was not the case, as the emotional exhaustion sub-scale question with the highest mean value was “ I feel used up at

the end of the work day". For the depersonalisation sub-scale, the question with the highest mean value was "I've become more callous towards people since I took this job".

6.3Compassion Fatigue

Compassion fatigue embodies the negative effects of caring (Chachula, 2021:2). Compassion fatigue, according to the Professional Quality of Life conceptual framework, is caused by two main components: secondary trauma and burnout (Stamm, 2010:8). Secondary trauma is caused by exposure to suffering and the traumatic/negative experiences of others within a caring capacity (Boyle, 2011:3-4; Stamm, 2010:21).Undergraduate nursing students are exposed to the intense feelings of fear, suffering, and pain experienced by their patients, and because they are trained to be empathetic, they feel similar feelings as their patients (Chachula, 2021:2; Figley, 1995:156;Stamm, 2010:21). Compassion is one step further than empathy, and this takes place when nurses not only feel with their patients, but they also want to relieve the suffering of their patients. Consequently, they are at risk for secondary trauma (Mathias &Wentzel, 2017:1; Stamm, 2010:12). Secondary trauma, in combination with burnout, leads to compassion fatigue (Stamm, 2010:8). Compassion fatigue decreases undergraduate nursing students' ability to care, thus negatively affecting patient care as well as the students' psychological wellbeing (Chachula, 2021:10). The other component of compassion fatigue is burnout – as discussed in Section 6.2. Compassion fatigue and burnout are multidimensional constructs, and they are influenced by numerous factors (Maslach, 2001:397; Maslach & Leiter, 1997:158).

The results for the compassion fatigue scale indicate average levels of compassion fatigue for undergraduate nursing students in this study. These results are similar to several different international and South African studies using the ProQOL scale (Beaumont *et al*., 2016:242; Cao *et al.,* 2021:1), which found that undergraduate nursing students had average levels of compassion fatigue prior to COVID-19 (Engelbrecht & Wilke, 2021:142; Manson, 2013:28; Mason & Nel, 2012:454; Mathias & Wentzel, 2017:4).

One-way ANOVAs were conducted to determine if levels of compassion fatigue in student nurses were different for nurses in different years of study (i.e., first-, second-, third-, and fourth-year). There was a significant difference between the first-year nursing students and the second-year nursing students, with the second years having higher mean scores for compassion fatigue. This might have been due to second-year students completing double the number of practical hours (440) in a different context and first-year nursing students only

having to complete 224 practical hours (UFS, 2018:8-9; UFS, 2020:11-13). When students complete practical hours, they are exposed to patients' trauma and need to show empathy to their patients' feelings; this can cause secondary trauma and lead to compassion fatigue (Da Silva *et al.,* 2014:2; Mathias & Wentzel, 2017:1; Michalec *et al.,*2013:314). The working environment might also contribute to second-year undergraduate nursing students having more compassion fatigue. During the first year of study at the selected university, students are placed at private hospitals to give them a more protected environment to start their practical training in. Second-year students are placed at public clinics and hospitals, where the environment in general is more abrasive and has more stressors and challenges.

6.4 Compassion Satisfaction

Compassion satisfaction, according to the Professional Quality of Life conceptual framework, is a positive factor for student nurses' psychological wellbeing (Stamm, 2010:8). Compassion satisfaction acts as a protective agent against stress, secondary trauma, burnout, and compassion fatigue (Hegney*et al*., 2014:507; Hinderer *et al*., 2014:161; Manson, 2013:25; Mason & Nel, 2012:451). Compassion satisfaction introduces feelings of psychological fulfilment that are derived from a sense of helping other people as well as doing your work well (Mason & Nel, 2015:451; Stamm, 2010:12).

The compassion satisfaction sub-scale indicated that nursing students in the study had moderate levels of compassion satisfaction. It should be noted that the scores were on the high end of the moderate scale, moving towards higher levels of compassion satisfaction. More specifically, a categorsiation of scores for compassion satisfaction revealed that over half of the students had high levels of compassion satisfaction. This correlates with several South African studies conducted prior to COVID-19 (Engelbrecht & Wilke, 2021:142; Mason & Nel, 2015:61; Mathias &Wentzel, 2017:4),which also found that undergraduate nursing students had moderate levels of compassion satisfaction. The finding that more than half of the students had high levels of compassion satisfaction correlates with several other studies using the ProQOL that were conducted internationally (Beaumont *et al*., 2016:242; Michalec *et al.,* 2013:314) and locally (Manson, 2013:28; Mason & Nel, 2012:454).

6.5 Professional Quality of Life

In this study, the outcome variable used to measure professional quality of life was compassion fatigue. In this regard, the study aimed to predict compassion fatigue from stress, emotional exhaustion, depersonalisation, and year of study. Universal analysis found

that second-year nursing students experienced higher levels of compassion fatigue than first-year students. Furthermore, the findings indicate that emotional exhaustion, depersonalisation, and perceived stress were significantly associated with compassion fatigue. This confirms what was illustrated in the Professional Quality of Life conceptual framework – namely, that stress (perceived stress) and burnout (emotional exhaustion and depersonalisation) contribute towards compassion fatigue.

6.6 Comparison of Levels of Emotional Exhaustion, Compassion Fatigue, and Stress Prior to and During COVID-19

Nursing students experience greater stress levels than other students (Chow, 2018:2; Labrague, 2013:424; Turner & McCarthy, 2017:21). During COVID-19 pandemic, international research identified increased levels of stress among nursing students (Aslan &Pekince, 2020:4; Gallego-Gómez *et al.* 2020:10-11; Husky *et al.*, 2020:7; Kim *et al.*, 2021). In contrast, this study did not find a difference in the levels of stress, emotional exhaustion, depersonalisation, compassion fatigue, and compassion satisfaction experienced by first- and second-year nursing students in 2018 (pre-COVID) and 2020 (during COVID-19). This was an unexpected result, as it was anticipated that the students might have experienced more stress, burnout, and compassion fatigue as a result of COVID-19.

There were, however, differences between the two groups of students with regard to personal accomplishment. The first- and second-year students from 2020 experienced a higher level of personal accomplishment than their counterparts in 2018. This was also an unexpected finding as, according to the Professional Quality of Life conceptual framework, burnout levels should increase when stress levels are elevated, causing a reduction in personal accomplishment (Stamm, 2010:8). However, at the time of data collection for the 2020study, undergraduate student nurses had already completed the required clinical hours for the year. Due to the lapse of about two weeks between completion of clinical hours and administration of the questionnaire, it could be reasoned that the nursing students would not have been as emotionally exhausted, as they were no longer directly exposed to patients. This, in turn, could have led to less depersonalisation and more personal accomplishment. When investigating the MBI-HSS sub-scale for depersonalisation, all the questions related to working with patients. The question on this scale that had the highest mean value was the question “I worry that this job is hardening me emotionally”. The question that had the second highest mean value was “I’ve become more callous towards people since I took this job.” As students were not working practical hours at the time of data collection, their answers may not have been a true representation of the levels of depersonalisation

experienced throughout the year. The other element that might have increased undergraduate nurses' personal accomplishment during the COVID-19 pandemic is an improved public opinion of the nursing profession, helping students to believe that the work they are doing is important and increasing their self-esteem and personal accomplishment.

6.7 COVID-19 Support Needs

The COVID-19 pandemic holds many uncertainties, and this can lead to students feeling unsupported. Furthermore, when there is a lack of effective communication between lecturers and students, students may feel more confused and uncertain. Responses that were generated by student nurses in this study (deduced from the open-ended question) indicated that undergraduate nursing students felt emotionally unsupported by lecturers and that they wanted more communication and organisation from lecturers. This correlates with the study findings of Sveinsdóttir *et al.* (2021:16), who also reported that nursing students are in need of more emotional support and better communication and organisation during the COVID-19 pandemic.

6.8 Limitations of the Study

The response rate was low (38%); as a result, the sample size was smaller than anticipated. Due to the small sample size and the fact that students from only one university were included in the study, the results cannot be generalised to the larger population of undergraduate nursing students in South Africa.

At the time of data collection, students were writing exams and were not completing any practical clinical hours. Due to lockdown restrictions, all academic classes had been conducted online and practical classes happened in a boot-camp format (Damons, 2021), limiting student contact. Curfews were in place during this time, and regulations at residences and the university library may have restricted student contact with their peers. Furthermore, data collection was carried out at the end of the year, when undergraduate nursing students had already completed the required clinical hours for the year. The lapse in time between patient exposure and the study could have influenced the levels of stress, burnout, and compassion fatigue. The time of data collection may thus have had an impact on the levels of burnout that were experienced by undergraduate nursing students. Da Silva *et al.* (2014:2) reported that higher levels of burnout could be induced by academic stressors. Academic stressors may have been at a peek at the end of the year, as undergraduate nursing students prepared for and wrote exams.

When data was compared using independent sample t-tests, the third-year and fourth-year students were excluded from this analysis to ensure that no students from the pre-COVID-19 group (2018) were included in the 2020 group (at the time of this study, the third- and fourth-year students had been first- and second-year students in the study done in 2018 prior to COVID-19). This is a limitation, as levels of stress, burnout, compassion fatigue, and compassion satisfaction could not be compared for third-year and fourth-year students.

6.9 Recommendations

The response rate for the study was low and, as only one university was investigated, more studies need to be conducted across the country with larger samples so that results can be generalised. Levels of stress, burnout, compassion fatigue, and compassion satisfaction may change as a result of time of data collection (relating to time of year) and year of study. As such, longitudinal studies of undergraduate students with regard to stress, burnout, compassion fatigue, and compassion satisfaction may be of benefit to the knowledge base by providing richer information on undergraduate nurses' psychological wellbeing (Beaumont *et al*., 2016:242).

The strengthening of the existing knowledge base with regards to psychological wellbeing of undergraduate nursing students is important, as evidence from research proves that compassion fatigue and burnout do exist in the nursing profession and in nursing education (Engelbrecht & Wilke, 2021:144; Mason& Nel, 2015:66; Mathias & Wenzel, 2017:5). This is why it is critical to find strategies to prevent and manage stress, burnout, and compassion fatigue in nursing education and continue to monitor the psychological wellbeing of nursing students (Engelbrecht & Wilke, 2021:144; Mathias & Wenzel, 2017:5). The introduction of stress and time-management workshops – especially for first-year students as they enter the nursing education environment – have been shown to be beneficial and are recommended (Langtree *et al.*, 2018:94; Manson, 2013:23; Waled & Mohammed*,* 2019:121). Future investigations that may improve the psychological wellbeing of nursing students could focus on the use of coping strategies by nursing students to determine their effectiveness in improving undergraduate nurses' psychological wellbeing (Engelbrecht & Wilke, 2021:144; Mohamed & Ahmed, 2012:616).

COVID-19, like all previous pandemics, has a psychological health impact and psychosocial consequences for the general population (Mukhtar, 2020). Nursing students already experience more stress than other students at tertiary institutions under normal

circumstances and may feel the effects of the COVID-19 pandemic more deeply (Chow, 2018:2; Labrague, 2013:424; Turner & McCarthy, 2017:21). Although the results from this study did not indicate that student nurses' levels of stress, burnout, and compassion fatigue were significantly increased during the COVID-19 pandemic, undergraduate nurses' psychological wellbeing remains important. Teaching undergraduate nursing students effective coping skills and continuing to monitor their psychological wellbeing remain of cardinal importance (Grande *et al.* 2021:8; Majrashi *et al*., 2021:458; Temiz, 2020:5). COVID-19 also holds many uncertainties, and this can lead to students feeling unsupported. Furthermore, when there is not effective communication between lecturers and students, students may feel confused and uncertain. Responses that were given by student nurses in this study also indicated that undergraduate nursing students felt emotionally unsupported by lecturers and that they wanted more communication and organisation from lecturers. To combat the effects of COVID-19 on undergraduate nursing students' education, it is advised that distribution of workload is addressed through regular meeting among lecturers and also with students (Sveinsdóttir *et al.*, 2021:7). During times of crisis such as COVID-19, it is important for lecturers to detect early signs and symptoms of stress, burnout, and compassion fatigue in undergraduate nursing students both in academic and clinical settings (Majrashi *et al*., 2021:458; Sveinsdóttir *et al.*, 2021:1).

6.12 Value of the Study

This study provides increased knowledge about undergraduate nursing students' psychological wellbeing, which can be utilised to help improve support practices in nursing education in the future. Nursing practice may benefit from the study if future nurses are more competent to deal with the inevitable challenges of stress, burnout, and compassion fatigue.

6.13 Conclusion

Undergraduate nursing students at the selected university experienced moderate levels of stress, burnout, compassion fatigue, and compassion satisfaction. These findings are in line with those of previous studies involving undergraduate nursing students (Engelbrecht & Wilke, 2021:142; Mason & Nel, 2012:454; Mathias &Wentzel, 2017:5; Shdaifat *et al.,* 2018). When comparing the levels of stress, burnout, compassion fatigue, and compassion satisfaction among undergraduate (first- and second-year) nursing students in this study to those of a previous study done at the same public university in 2018 with the same scales for measurement, only one significant difference was noted in relation to the MBI-HSS sub-scale of personal accomplishment. The study results indicate that students in the current

study (during COVID-19) had more personal accomplishment than the undergraduate nursing students of the previous study conducted in 2018 (pre-COVID-19). This might be because data collection took place during exams when no practical hours were being worked by undergraduate nursing students.

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ADDENDUM A: ETHICAL CLEARANCE

UNIVERSITY OF THE FREE STATE
UNIVERSITEIT VAN DIE VRYSTAAT
YUNIVESITHI YA FREISTATA

UFS·UV
HEALTH SCIENCES
GESONDHEIDSWETENSKAPPE

Health Sciences Research Ethics Committee

12-Nov-2020

Dear **Miss Beatrice Potgieter**

Ethics Clearance: **Stress, burnout and compassion fatigue of undergraduate nursing students at a public university during the COVID-19 pandemic**

Principal Investigator: **Miss Beatrice Potgieter**

Department: **School of Nursing Department (Bloemfontein Campus)**

APPLICATION APPROVED

Please ensure that you read the whole document

With reference to your application for ethical clearance with the Faculty of Health Sciences, I am pleased to inform you on behalf of the Health Sciences Research Ethics Committee that you have been granted ethical clearance for your project.

Your ethical clearance number, to be used in all correspondence is:**UFS-HSD2020/1894/2411**

The ethical clearance number is valid for research conducted for one year from issuance. Should you require more time to complete this research, please apply for an extension.

We request that any changes that may take place during the course of your research project be submitted to the HSREC for approval to ensure we are kept up to date with your progress and any ethical implications that may arise. This includes any serious adverse events and/or termination of the study.

A progress report should be submitted within one year of approval, and annually for long term studies. A final report should be submitted at the completion of the study.

The HSREC functions in compliance with, but not limited to, the following documents and guidelines: The SA National Health Act. No. 61 of 2003; Ethics in Health Research: Principles, Structures and Processes (2015); SA GCP(2006); Declaration of Helsinki; The Belmont Report; The US Office of Human Research Protections 45 CFR 461 (for non-exempt research with human participants conducted or supported by the US Department of Health and Human Services- (HHS), 21 CFR 50, 21 CFR 56; CIOMS; ICH-GCP-E6 Sections 1-4; The International Conference on Harmonization and Technical Requirements for Registration of Pharmaceuticals for Human Use (ICH Tripartite), Guidelines of the SA Medicines Control Council as well as Laws and Regulations with regard to the Control of Medicines, Constitution of the HSREC of the Faculty of Health Sciences.

For any questions or concerns, please feel free to contact HSREC Administration: 051-4017794/5 or email EthicsFHS@ufs.ac.za.

Thank you for submitting this proposal for ethical clearance and we wish you every success with your research.

Yours Sincerely

Dr. SM Le Grange
Chair : Health Sciences Research Ethics Committee

Health Sciences Research Ethics Committee
Office of the Dean: Health Sciences
T: +27 (0)51 401 7795/7794 | E: ethicsfhs@ufs.ac.za
IRB 00011992; REC 230408-011; IORG 0010096; FWA 00027947
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ADDENDUM B: INFORMED CONSENT

UNIVERSITY OF THE FREE STATE
UNIVERSITEIT VAN DIE VRYSTAAT
YUNIVESITHI YA FREISTATA
UFS UV

2020

Dear nursing student

You are kindly invited to participate in an electronic survey. Before you decide whether to take part, here is why I am doing this study and what it involves:

I am a nursing student, busy with my Masters degree. I am conducting this study to assess the emotional well-being of undergraduate nursing students at the University of the Free State during the COVID-19 pandemic. You are invited to participate in this study, as you are a registered undergraduate nursing student at the University of the Free State. If you agree to participate, you will be forwarded to an online questionnaire which focuses on issues regarding emotional well-being, including stress, burnout and compassion fatigue. The questionnaire should take approximately 30 minutes to complete.

Your participation is entirely voluntary and you have the right to withdraw at any stage, prior to submitting the questionnaire without any consequences. Once you have submitted, it will not be possible to withdraw your questionnaire as it is anonymous. Your responses cannot be linked in any way with your personal information. To give informed consent and participate in the study please lick next. If you do not wish to continue the study please exit the site.

You may experience some short-term emotional upset when you are asked about stressful situations. I anticipate that the emotional upset that you might experience during your participation in the study would be minimal. Nonetheless, should you feel that you require mental health support, please feel free to go to www.mobieg.co.za where free advice and information is available, there is also online counselling available in the form of an anonymous chat. Or contact Student Counselling at:

Telephone during office hours: 051-4512853 or by email: scd@ufs.ac.za

Note that you will receive no payment for participating in the study nor will there be any fees asked. I suggest that you do the survey when on campus if the data cost is a concern. You might not benefit from this study, however your participation would assist with future student support.

Should you require any additional information concerning this study at any time, please contact:

Beatrice Potgieter: 083 616 4829

If you have any queries related to ethics, you may contact:

The Chairperson: Health Sciences Research Ethics Committee (HSREC)
Mrs MGE Marais
T: 051 401 7795
E: ethicsfhs@ufs.ac.za

I have read and understand above information and by selecting yes below I am agreeing to participate.

Yes ☐ No ☐

ADDENDUM C: QUESTIONNAIRE

UNIVERSITY OF THE FREE STATE
UNIVERSITEIT VAN DIE VRYSTAAT
YUNIVESITHI YA FREISTATA
UFS UV

STRESS, BURNOUT AND COMPASSION FATIGUE IN UNDERGRADUATE STUDENT NURSES

You have been asked to participate in a research study to identify challenges faced by student nurses. Participation is voluntary. I aim to strengthen the knowledge basis of stress, burnout and compassion fatigue and in doing this find ways to better support students in the future. By completing this questionnaire, you are voluntarily agreeing to participate. Your information will be treated confidentially at all times. Please try to answer all the questions. If you wish to continue to fill in the questionnaire please click 'next below.

Next>>>

BIOGRAPHIC AND BACKGROUND INFORMATION

	Male	Female
1. What is your sex?	1	2
	Years:	
2. How old are you?		
	Yes	No
3. Are you married/in a long-term relationship?	1	2
	Yes	No
4. Do you have any children who are financially dependent on you?	1	2
	Number:	
4.1 If yes, how many children depend on you financially?		
	Number:	
5. How many other people (other than your children) depend on you financially?		
	Language	
6. What is your home language?		

	At home with family	Residence on campus	Student house off campus	Other (Specify)
7. Where do you live while pursuing your studies?	1	2	3	

	Parents pay	Pay myself	Bank loan	Bursary	Other (Specify)
8. How do you pay your university fees (Please select all applicable answers, more than one option can be selected)?	1	2	3	4	

	1st	2nd	3rd	4th
9. What year of study are you currently in?	1	2	3	4

SCALE 1 [BURNOUT (MASLACH BURNOUT INVENTORY HUMAN SERVICES SURVEY FOR MEDICAL PERSONNEL)]

Please read each statement and decide whether you ever feel this way about your job. If you have never had this feeling, mark 0 (zero) with a X. If you have had this feeling, indicate how often you feel it by marking the number (1-6) that best describes how frequently you feel this way. Mark only one per statement.

	Never	A few times a year	Monthly	A few times a month	Every week	A few times a week	Every day
1. I feel emotionally drained from my work	0	1	2	3	4	5	6
2. I feel used up at the end of the workday	0	1	2	3	4	5	6
3. I feel fatigued when I get up in the morning and have to face another day on the job	0	1	2	3	4	5	6
4. I can easily understand how my patients feel about things	0	1	2	3	4	5	6
5. I feel I treat some patients as if they were impersonal objects	0	1	2	3	4	5	6
6. Working with people all day is really a strain for me	0	1	2	3	4	5	6
7. I deal very effectively with problems of my patients	0	1	2	3	4	5	6
8. I feel burned out from my work	0	1	2	3	4	5	6
9. I feel I'm positively influencing other people's lives through my work	0	1	2	3	4	5	6
10. I've become more callous toward people since I took this job	0	1	2	3	4	5	6
11. I worry that this job is hardening me emotionally	0	1	2	3	4	5	6
10. I've become more callous toward people since I took this job	0	1	2	3	4	5	6
11. I worry that this job is hardening me emotionally	0	1	2	3	4	5	6
12. I feel very energetic	0	1	2	3	4	5	6
13. I feel frustrated by my job	0	1	2	3	4	5	6
14. I feel I'm working too hard on my job	0	1	2	3	4	5	6
15. I don't really care what happens to some patients	0	1	2	3	4	5	6
16. Working with people directly puts too much stress on me	0	1	2	3	4	5	6
17. I can easily create a relaxed atmosphere with my patients	0	1	2	3	4	5	6
18. I feel exhilarated after working closely with my patients	0	1	2	3	4	5	6
19. I have accomplished many worthwhile things in this job	0	1	2	3	4	5	6
20. I feel like I'm at the end of my rope	0	1	2	3	4	5	6
21. In my work, I deal with emotional problems very calmly	0	1	2	3	4	5	6
22. I feel that patients blame me for some of their problems	0	1	2	3	4	5	6

SCALE 2 [COMPASSION SATISFACTION AND COMPASSION FATIGUE (PROQOL-5)]

Below are some questions about your experiences, both positive and negative, as a nurse(nursing student). Consider each of the following questions about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the last 30 days. Mark only one per statement.

	Never	Rarely	Sometimes	Often	Very often
1. I am preoccupied with more than one person I help	1	2	3	4	5
2. I get satisfaction from being able to help people	1	2	3	4	5
3. I jump or am startled by unexpected sounds	1	2	3	4	5
4. I have more energy after working with those I help	1	2	3	4	5
5. I find it difficult to separate my private life from my life as a helper	1	2	3	4	5
6. I think that I might have been "infected" by the traumatic stress of those I help	1	2	3	4	5
7. Because of my helping, I feel "on edge" about various things	1	2	3	4	5
8. I like my work as a helper	1	2	3	4	5
9. I feel depressed as a result of my work as a helper	1	2	3	4	5
10. I feel as though I am experiencing the trauma of someone I have helped	1	2	3	4	5
11. I am pleased with how I am able to keep up with helping techniques and protocols	1	2	3	4	5
12. My work makes me feel satisfied	1	2	3	4	5
13. I have happy thoughts and feelings about those I help and how I could help them	1	2	3	4	5
14. I believe I can make a difference through my work	1	2	3	4	5
15. I avoid certain activities or situations because they remind me of frightening experiences of the people I help	1	2	3	4	5
16. I plan to be a helper for a long time	1	2	3	4	5
17. As a result of my helping, I have sudden, unwanted frightening thoughts	1	2	3	4	5
18. I have thoughts that I am a "success" as a helper	1	2	3	4	5
19. I can't remember important parts of my work with trauma victims	1	2	3	4	5
20. I am happy that I chose to do this work	1	2	3	4	5

SCALE 3 [PERCEIVED STRESS SCALE(PSS)]

Please consider the statements below and indicate how often you experience these situations? Mark only one per statement.

	Never	Seldom	Sometimes	Often	Always
1. Lack of experience and ability in providing nursing care and in making judgments	1	2	3	4	5
2. Do not know how to help patients with physio-psycho-social problems	1	2	3	4	5
3. Unable to reach one's expectations	1	2	3	4	5
4. Unable to provide appropriate responses to doctors', teachers', and patients' questions	1	2	3	4	5
5. Worry about not being trusted or accepted by patients or patients' family	1	2	3	4	5
6. Unable to provide patients with good nursing care	1	2	3	4	5
7. Do not know how to communicate with patients	1	2	3	4	5
8. Experience difficulties in changing from the role of a student to that of a nurse	1	2	3	4	5
9. Worry about bad grades	1	2	3	4	5
10. Experience pressure from the nature and quality of clinical practice	1	2	3	4	5
11. Feel that one's performance does not meet teachers' expectations	1	2	3	4	5
12. Feel that the requirements of clinical practice exceed one's physical and emotional endurance	1	2	3	4	5
13. Feel that dull and inflexible clinical practice affects one's family and social life	1	2	3	4	5
14. Unfamiliar with medical history and terms	1	2	3	4	5
15. Unfamiliar with professional nursing skills	1	2	3	4	5
16. Unfamiliar with patients' diagnoses and treatments	1	2	3	4	5
17. Feel stressed in the hospital environment where clinical practice takes place	1	2	3	4	5
18. Unfamiliar with the ward facilities	1	2	3	4	5
19. Feel stressed from the rapid change in patient's condition	1	2	3	4	5
20. Experience competition from peers in school and clinical practice	1	2	3	4	5
21. Feel pressure from teachers who evaluate students' performance by comparison	1	2	3	4	5
22. Feel that clinical practice affects one's involvement in extracurricular activities	1	2	3	4	5
23. Cannot get along with other peers in the group	1	2	3	4	5
24. Experience discrepancy between theory and practice	1	2	3	4	5
25. Do not know how to discuss patients' illness with teachers or medical and nursing personnel	1	2	3	4	5
26. Feel stressed that teacher's instruction is different from one's expectations	1	2	3	4	5
27. Doctors lack empathy and are not willing to help	1	2	3	4	5
28. Feel that teachers do not give fair evaluation on students	1	2	3	4	5
29. Lack of care and guidance from teachers	1	2	3	4	5

INFORMATION CONCERNING COVID-19

	YES		NO	
1. Have you needed to self-isolate due to exposure to COVID-19?	1		2	
	Number of times self-isolated			
2. If you have needed to self-isolate due to COVID-19 please indicate the number of times.	1	2	3	More than 3
	Yes		No	
3. Have you tested positive for COVID-19?	1		2	

OPEN ENDED QUESTION

Is there any way the university can help emotionally support you through the COVID-19 pandemic?

THANK YOU FOR YOUR TIME AND GOODWILL

ADDENDUM D: OPEN-ENDED QUESTIONS

Is there any way the university can help emotionally support you through the COVID-19 pandemic?

1) Communicate better (2).
2) More communication from lecturers would be nice. Would be nice if they get a bit more organised as well and communicate AMONGST EACH OTHER a bit more (2). It also feels they expect us to carry on as if nothing has nothing has changed and we didn't just do 6 months' worth of work in 3. There has been no emotional support and no empathy. I am unwilling to go to them for emotional support as they are unwilling to give it (1).
3) A break, for example one week off, would have helped (8).
4) Yes, evaluation of student is essential, and university needs to understand what we go through personal and how sometimes our lack of knowledge is fore front in terms of nursing stuff at facilities being scared to do some of the things and students are being the ones sent to do specific tasks. Again, there should be tests of COVID 19 available at university and we should be referred or at least able to go through, not exactly what is happening at the hospitals because we are treated as workers and there's no way we will be given isolation times (6).
5) The most valuable change the School of Nursing could consider implementing is upfront and transparent communication. This specifically relates to communication regarding the academic aspect of the course. Working in a healthcare facility during a pandemic in itself is stressful and brings about many concerns and uncertainties to the students. Failing to engage openly and honestly with students regarding academic requirements to successfully complete the academic year, clinical hours required due to the impact of COVID-19 and the related clinical outcomes required for OSCE entrance upfront causes additional stress, concerns and uncertainties. In addition, this sort of communication tends to have many positive ripple effects which ultimately enhance the relationship between facilitators and students. All positively cont4ributing to the emotional wellness of each student (2).
6) Not at the moment (not counted).
7) Give a testing station that charges less for the test (6). Because due to the financial strain of Covid, it was heavy emotionally. They are also not very supportive (1). Most university personnel I was in contact with made me feel very guilty about having Covid; like it was my own fault for having it.
8) By giving students food allowance and accommodation (7).
9) I have received multiple SMS regarding psychologist and counsellors' guidance. However, the school of nursing has not done much to assist us through COVID-19 (1).
10) Make more videos on how to do procedures (3).
11) Not having online classes (3).
12) The staff can help us academically (3) and ways to deal with stress as well as pressure (5).
13) Lower unrealistic expectations (9).
14) Through good communication (2).
15) No (not counted).
16) Firstly, by being more open to the new way of online learning not only because it benefits the students but the lecturers as well (9). Understanding that we are still in a

pandemic, and we are also human under a lot of stress (1). To force students to attend a class when they have fear or stress is inhumane. Most of the students lost one or more family members or friends and this needs to be considered when putting so much strain on them for example placing them in clinical wards not reducing the hours that need to be completed. Practical classes are understandable but compiling 5 months' worth of work in a month or two is unachievable. THEREFORE, please consider our emotional and financial (7) state at this moment.

17) Lectures need to have sympathy to students and realise that the pressure they put on us makes us feel like we chose to be Covid-19 first-year students (1)
18) Not applicable (not counted).
19) Instead of just sending out surveys, divide the learners in your class among lecturers and make sure that they are actually okay because anonyms survey is not going to help anyone, and it will only provide statistics for the varsity. Actually, check the you students are coping with work, class (3) and emotionally (1). Don't provide certain information to certain students because you know them out of class as well. Equal opportunities for everyone (9). Thank you.
20) Personally, the lack of structure (2) makes it very easy for me to isolate myself and fall into patterns of depression, poor academic performance and lack of motivation. Face to face sessions were often not possible, but perhaps scheduled online zoom classes could have been initiated, rather than leaving that as an option (3).
21) Yes, the study resources of some modules included YouTube links of which i was unable to access because i have no wi-fi access where I live, this emotionally strained me because my lectures saw me as someone who does not prepare well for some classes when we are asked questions with regard to the YouTube given content (1). This also affected my self-esteem as a student in front of other students. living in the location has been unfortunate for me as well because most of the time i was unable to attend classes and this affected my marks, I feel very demotivated (7).
22) week of uninterrupted holiday for all nursing students (8).
23) No there isn't (not counted).
24) I would really appreciate it if we could receive dates further in advance so that we can plan accordingly (2). It is very frustrating to receive exam timetables and term holidays and other dates in such short notice. Some students want to plan in advance and not having these dates makes it very difficult and causes unnecessary stress. Due to the amount of clinical hours we need to work whilst simultaneously having to focus on academics it would be helpful if we could receive more guidance regarding our academics (3). It would be very helpful if our lecturers were able to help us to narrow down the theory more so that we can just focus on what is most important. Although I'm not sure if it would be possible, I would also really appreciate it if we had a few set days (maybe three) in the week to go to clinical practice and have the other days just for academics. I feel that if we work more effectively, we don't necessarily need as much time for academics. The amount of clinical hours can become very stressful to try and finish.
25) They can be more understanding and open minded when it comes to traditional rituals and life (1).
26) Allow students to write tests missed during isolation (6).
27) We are in need of allowance. We don't know where we are going to get our meals from. Other hand we are expected to study pass how on hungry stomachs? Some of us are not privileged enough to have employed parents we are the hope that will turn around the situation at home (7).
28) No (not counted).
29) No (not counted).

30) Try to be more understanding towards the students (1). Heavy workload and emotional strain will most likely result in decreased quality of work for the students.
31) Be more understanding and concerned about the student's wellbeing it sometimes feels as if they do not care about the students (1)
32) No, thank you (not counted).
33) MENTAL SCREENING (5).
34) each school may be allocated a psychologist that comes physical to classes during orientations to let students that they are available for them. Include counseling contacts on black board. (5).
35) If possible, create a way for students to complete clinical outcome from clinics and hospitals near their family/hometowns. This would reduce the financial strain that has been placed on many families due to the pandemic and give them a familiar support system that may help them academically and emotionally (9).
36) i think the university should not try to finish semester in a limited time as that puts pressure on the students (8). it also affects our mental wellbeing (5).
37) hey can try and show us that they actually care and aren't just selling face (1).
38) I believe the university has been helpful in proving guidelines and assistance in how to handle living through the pandemic time and how to stay safe (4).
39) Reduce the number of assignments due in a month (3).
40) At the moment I can't think of anything more that can be done as we already have access to psychologists/ therapists and social workers that we can contact and talk to when things get rough (4).
41) Send out important exam and class and name lists dates of classes earlier (2).
42) providing video on blackboard to motivate us (1).
43) Continue online courses (3).
44) Provide students will room to move around in the open (9).
45) Not acting like we inflicted this pandemic on ourselves. The school of nursing is very insensitive and is more of a stress than the pandemic itself (1). The lecturers are rude and in compassionate. There is poor communication (2) and inconsistencies that are blamed on the students. It seems as if we are being punished for a pandemic.
46) No (not counted).
47) Better plans in place so that I don't have to decide whether to skip class to work and miss hours and vice versa (2).
48) Show their appreciation more to the students exposing themselves without even getting compensation (1).
49) Be more supportive (1).
50) I am satisfied (4).
51) The University can help by enforcing more stronger regulations regarding COVID-19 so as to ensure there's no exposure of virus among people (6).
52) No (not counted).
53) No (not counted).
54) Continue with BB collaborations as self-study is not always effective (3).
55) No (not counted).
56) They are doing their best so am satisfied (4).
57) By preparing us as student about the long-term living with covid-19, (6) creating more social activities for student as this was one of the aspects mostly affected that lead to depression (9) ...and planning or distributing the content accordingly for the upcoming year (2) so that workload doesn't affect our mental and social life as it lead to depression and lack of being effective in school work.
58) Non that I can think of (not counted).
59) More stress management sessions can help (5).

60) The university can provide mobile data especially for those students who continue their academics online (7).
61) They have supported enough Can’t really complain or expect more (4).
62) No (not counted).
63) No (not counted).
64) No, already they provide PPEs and a health care student social worker (4).
65) It should do depriving sessions for student's that are not emotional coping (5).
66) Create compulsory mental health classes and regulate students’ marks making sure they are still performing well and living well (5).
67) No (not counted).
68) They can just not make degrading remarks or have this attitude by which they try to tell you that you do not work hard enough...or ask questions like...'did you still not open my PowerPoint' or say 'don't think I will help you in the last minute'. If they can be just a bit more understanding that the last minute is sometimes extremely stressful for us as well but sometimes, we do not have anything other than the last minute and that is not because we've not been working hard. They must trust us as well that we are trying our absolute best and we cannot trust and depend on them for some help if we always have to, they and ask our questions in such a way that they won't snap on us (1).
69) I think the university has really tried to have as many platforms as possible for emotional and mental support for staff and students (4).
70) Check up on students through surveys (5).
71) More communication regarding academic and clinical arrangements (2).

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Stress, burnout, and compassion fatigue of undergraduate nursing students at a public university during the COVID-19 pandemic

by

Beatrice Potgieter

Student number: 2013025578

Submitted in fulfilment of the requirements for the degree
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In the Faculty of Health Sciences, School of Nursing
at the University of the Free State,
South Africa

Supervisor: Prof. Michelle Engelbrecht, PhD (Sociology)
Co-supervisor: Dr Marisa Wilke, PhD (Nursing)

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ADDENDUM F: LETTER FROM THE LANGUAGE EDITOR

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To whom it may concern,

It is hereby confirmed that the thesis document described below has undergone language editing, formatting, and reference checking by myself, Esley van der Berg. I am an independent contractor who provides editing and research support services.

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Kind regards,

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