Student well-being, academic performance, and life satisfaction during the COVID-19 pandemic

BY

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Declaration

I Nokulunga Winnie Mbuma, declare that this work has not been previously submitted in whole, or in part, for the award of any degree. It is my work. Each significant contribution to, and quotation in, this dissertation from the work, or works, of other people, has been attributed, cited, and referenced.

28 January 2023

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Date

Signature

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Abstract

Well-being includes emotional, psychological, and social well-being. Our well-being is inspired by our thoughts, feelings, actions, and how we react to stress, interact with others, and decision making. Well-being has the potential to negatively affect academic achievement and be a significant public health challenge. This study investigated the relationship between student mental health and life satisfaction, and academic performance during the COVID-19 pandemic. The study also assessed the extent of first-year university students flourishing and languishing. Cross-sectional survey data were collected from the first-year University of Cape Town Commerce students. A total of 395 first-year commerce students completed the questionnaire; however, after cleaning the data and applying the sample frame criteria, only 242 questionnaires were used N = 242; 132 females and 110 males for this study. Student well-being, resilience, and life satisfaction was measured using the Mental Health Continuum-Short Form (MHC-SF), Brief Resilience Scale (BRS), and Satisfaction with Life Scale (SWLS), respectively. Demographic variables were also included in the survey.

Multiple regression analyses were performed to assess the relationship between the three well-being dimensions, academic performance, and life satisfaction. Only emotional well-being (EWB) significantly explained the difference in academic performance. The results also show that increasing student well-being leads to positive outcomes such as higher perceived life satisfaction and improved academic performance. Resilience did not moderate the relationship between the three well-being dimensions of positive mental health and academic performance. Based on the results of this study, it appears that there is a need to explore ways to improve student well-being by providing universities and students with opportunities to access well-being interventions.

Keywords: Mental health, well-being, university students, academic performance, life satisfaction.

Table of Contents

List of Tables

List of Figures

List of Abbreviations

BRS	Brief resilience scale
COVID-19	Coronavirus disease of 2019
CFA	Confirmatory factor analysis
CFI	Comparative fit index
CRIRES	Centre for Research and Development Academic Achievement
CSM	Complete State Model of Mental Health
EFA	Exploratory factor analysis
EWB	Emotional well-being
GPA	Academic achievement
KMO	Kaiser-Meyer-Olkin
NSFAS	National Student Financial Aid Scheme
M	Mean
MHC-FS	Mental Health Continuum – Short Form
N	Number of samples
P	Probability levels
PAF	Principal axis factor analysis
PWB	Psychological well-being
R	Correlation coefficient
R	R-squared
RMSEA	Root means the square error of approximation
SD	Standard deviation
SE	Standard error
SWB	Social well-being
SWLS	Satisfaction with life scale
WHO	World Health Organisation
UCT	University of Cape Town

Introduction

Experiencing emerging adulthood and the transition into higher education can be difficult for first-year students (Knoesen & Naude, 2017). Students either languish or flourish at university depending on their diverse life experiences, opportunities, prospects, desires, and educational abilities (Fraser & Killen, 2003). The first-year experience can be frightening and overwhelming for some students, but it can also be challenging and productive (Mudhovozi, 2012). According to Hicks and Heastie (2008), life transitions provide possibilities for development and change. One of the most important interpreters of student accomplishment and retention in higher education is a student's first-year experience (Hillman, 2005).

In 2020, students experienced challenges due to the severe COVID-19 pandemic which resulted in the shifting of academic studies from a traditional method of teaching and learning to technology-based also known as online teaching and learning, which resulted in an increase in mental health, anxiety, and stress (Huisman, 2020). As a result of the COVID-19 pandemic, many universities in the world closed the on-campuses teaching and learning, and courses were moved to online platforms (Toquero, 2020). According to the World Economic Forum, the COVID-19 pandemic had significant negative impact on African higher education institutions, which exposed the unpreparedness of universities (Adotey, 2020). During the COVID-19 pandemic, higher education institutions were challenged to rethink teaching and learning as well as the approach to student support, in order to assist students to become more digitally oriented and shifting from traditional teaching to online platforms with customized experiences (Adotey, 2020). The stress and anxiety triggered by these shifts became a psychological and well-being issue for university students (Duraku & Hoxha, 2020; Toquero, 2020).

In an academic environment, there are challenges related to university studies. Overwork, group tasks, a shortage of technological equipment, insufficient supervision, and a shortage of timetables for administration can contribute to long-lasting anxiety. The COVID-19 pandemic has affected people in many ways. Many schools suffer from unclear, and sometimes undesirable educational outcomes,

diminished intellectual ability, managing challenges, and an inadequate academic world of studies are all consequences of stress (Pfeiffer, 2001). Moreover, preliminary university studies, problems in coping with stress, and learning abilities become a part of the problem.

The COVID-19 pandemic has had a significant impact on the well-being, academic performance, and life satisfaction of students. With the shift to remote learning, students have had to adjust to a new way of learning, often with limited access to resources (Kim & Kim, 2020). In addition, the social isolation caused by the pandemic has led to increased levels of stress and anxiety among students (Chen et al., 2020). The disruption to the normal school routine has caused a decline in student well-being, academic performance, and life satisfaction (Chen et al., 2020; Kim & Kim, 2020). Research has shown that the lack of face-to-face interactions with peers and teachers, as well as the limited access to physical resources, has led to a decline in student engagement (Kim & Kim, 2020). This decreased engagement has resulted in lower academic performance, which has been found to be significantly lower than pre-pandemic levels (Kim & Kim, 2020). Furthermore, the lack of physical activity and social interaction has resulted in increased in feelings of loneliness and isolation, which in turn has decreased student life satisfaction (Chen et al., 2020). Overall, the COVID-19 pandemic has had a negative impact on student well-being, academic performance, and life satisfaction. Thus, schools and parents should work together to ensure that students have access to the resources and support they need to adjust to the new learning environment. Additionally, schools should encourage students to maintain physical activity and social interactions as much as possible in order to mitigate the effects of the pandemic on their well-being, academic performance, and life satisfaction.

Consequently, along with university performance, satisfaction with life can be another sign of how students cope with daily obstacles. Life satisfaction has been recognized as a mental component of individual well-being and is specified as the individual's rating of the favorable aspects of his or her life in particular fields, such as a family, group of friends, and university life expectancy (Long & Huebner, 2014). As a result of frustration instigated by life uncertainties, a feeling of deprivation of control, and consistency triggered by university difficulties, students with school difficulties can suffer from lower levels of life satisfaction (Berger, Alcalay, Torretti, & Milicic, 2011).

According to Robyn Fivush (2020), students who started college in 2020 were given access to the whole universe. The line between childhood and adulthood had been crossed. Therefore, when the pandemic struck, their lives were turned upside-down. Does this affect their educational goals, travel plans, and professional goals? At a time when they were only beginning to focus on their interests and form adult identities, it created an even more unpredictable future. Students from low-income families who are first-generation students are already at a higher risk of dropping out and academic failure, so the pandemic's aftermath could be challenging for them to deal with. In many situations, pleasant interactions with colleagues and critical adults contribute to developing well-being in younger individuals (Chambel & Curral, 2015).

Well-being has been linked to crucial outcomes in higher education, including educational ambitions, university commitment, educational success, and dropout (Capone, Marino, & Park, 2021). As a result, the university plays a crucial role in the lives of young people, emphasising the need for belonging, collaboration, and acceptance. Indicators of student well-being have preservative significance in predicting longitudinal development or decreases in educational proficiency progress and university attendance. Additionally, colleges have played a massive role in student well-being because of the policies and procedures they implement, the beliefs they promote, the feeling of belonging fostered, and the venues and activities they provide (Suldo, Thalji & Ferron, 2011).

The concern about infection and a need for societal support was linked to mental health issues. Cao, Fang, Hou, Han, Xu, Dong, and Zheng (2020) discovered that 24.9% of college students expressed increased fear as the reason of the COVID-19 pandemic on their university activities, day-to-day life in terms of societal alienation, and financial expectations. Residing in towns, staying with parents, and maintaining a stable household revenue helped university students against anxiety (Cao et al., 2020). Based on available data, students' experiences during the pandemic might affect their mental health and emotional well-being.

Due to the COVID-19 pandemic, there is no doubt that all over the world and distresses of students to varying degrees. However, they might be affected to a

greater degree due to numerous factors, including where they live, their ages, family backgrounds, and the degree of access to education during the pandemic (Jones & Kessler, 2020). As a consequence of the COVID-19 pandemic, education systems are being overloaded, which is highly problematic in many respects for some of them (García & Weiss, 2020). Furthermore, given the disparities between socioeconomic groups and how these discrepancies play a role in education, educational biases are increasing. Children's academic performance and other developmental skills are negatively affected during the pandemic (García & Weiss, 2020). The closing of school resulted in significant contests for students and educators amid the economic and public health crises.

The objective and reasoning for this investigation are based on several variables. According to studies (the University of California Office of the President, 2006), student rates of mental disease symptoms are more significant than the general population. Students of all ages and backgrounds deal with various complicated health issues. The study by Parker, Duffy, Wood, Bond, and Hogan (2005) noted that first-year students often face psychological, emotional, and social issues that hinder their success in higher education and well-being. Fraser and Killen (2003) suggested that students' various life events, learning prospects, and the broad range of opportunities, demands, and educational possibilities could either lead to their stagnation or growth.

Because of the COVID-19 pandemic, some students may have experienced stress due to a potential drop in quality or satisfaction with teaching methods, as well as financial challenges, which could have sent them into a downward spiral in terms of their academic results and their mental health (Capone et al., 2021). Therefore, it is vital to investigate the students' well-being and coping strategies, such as resilience, in determining their life satisfaction and academic performance during the pandemic.

Studies about resilience in educational contexts focus on normative and external indicators, such as good academic performance (Sarriera, Bedin, Abs, Calza, & Casas, 2015), to infer whether students' adjustment is satisfactory. A student's ability to show and express their knowledge in a learning environment can be viewed as learning and acquiring academic knowledge during the teaching and learning process (Berger et al., 2011). It takes resilience and the ability to constantly adapt for

an organisation or university to succeed in these uncertain and unstable conditions (Lee, Vargo, & Seville, 2013). In recent studies, resilience in individuals appears to result in outcomes such as lower levels of psychological distress, positive attitudes toward work, and higher levels of optimism (Youssef & Luthans, 2007; Cooper, Flint-Taylor, & Pearn, 2013).

Therefore, the proposed Mental health Continuum (MHC-SF) is a concept developed by Keyes (2002). MHC-FS is based on the concept of well-being that can be enhanced by incorporating concepts of resilience, emphasizing what happens when students exhibit global confidence in their coping abilities (Keyes, 2002). Students' reactions to challenges, academic stress, and other obstacles are prejudiced by the same personal and interpersonal resources that encourage perseverance. How is student well-being predicting life satisfaction? Does resilience moderate the association between well-being and academic performance?

Aim of the study

This study investigated the relationship between student mental health, life satisfaction, and academic performance.

Research questions

1. What is the relationship between student mental health (as well-being), life satisfaction, and academic performance?
2. Does resilience moderate the relationship between student mental health and academic performance?
3. What is the relationship between the three dimensions of well-being and academic performance, over and above the variance explained by three control variables: age, gender, and source of funding)?

Research objectives

1. To investigate the relationship between student mental health, life satisfaction, and academic performance.
2. To determine whether resilience moderates the relationship between student mental health and academic performance.
3. To assess if there is a statistically significant relationship between academic performance and the three well-being dimensions.

Dissertation structure

In chapter 2, well-being will be discussed with an elaboration on student well-being, academic achievement, and life satisfaction. Additionally, resilience will be examined and discussed to link the concepts of academic performance and life satisfaction discovered within the university during the COVID-19 pandemic. In chapter 3, the research methods, including the sample, data gathering, and data analysis methods, will be explained. Chapter 4 will focus on the findings, and Chapter 5 will elaborate on the discussions and focus on the conclusion and recommendations based on this study.

A general introduction and problem statement of this study was provided. The link between well-being, academic achievement, and life satisfaction will be investigated, specifically to results retrieved from the university. The specific research questions, -objectives, and –propositions were identified and described. The following sections will unpack the concepts of student well-being during that time of the COVID-19 pandemic.

Literature review

The following section presents the theoretical background and empirical research around well-being. A healthy, coping, and productive society depends on every individual's well-being. The literature on well-being is extensive and distributed across multiple disciplines. However, few publications have reviewed the theoretical and empirical principles of well-being literature across university students. Therefore, the excess of research around well-being was used as the groundwork for understanding university students' well-being.

This section examines the nature and definition of well-being, the determinants of well-being, and its significance in university students. Furthermore, the study also focused specifically on theoretical underpinnings associated with explaining the importance of well-being, life satisfaction, and academic performance, and a discussion within higher education.

Literature search procedure

A literature search procedure was conducted across electronic databases such as Academic Search Premier, PsycINFO, and PsycTESTS, found on Ebscohost. Google Scholar was also utilized in the search process. The literature search took place over 12 months between March 2021 and January 2022. The search terms used to yield results for student well-being were 'student well-being,' 'student mental health,' 'well-being and academic performance, and 'student well-being and life satisfaction. The search also included terms such as 'emotional well-being,' 'social well-being,' and psychological well-being, which are used to measure student well-being. The initial searches were broad, and there were no date restrictions. This study conducted several searches using combinations of the search terms.

Well-being

The concept of well-being involves both feeling good and functioning well; having a clear understanding of life's purpose, using one's potential, experiencing constructive reactions, and partaking in the intelligence of achievement are qualities that constitute good and functioning well (Huppert, 2009). In 2005, World Health Organisation (WHO)

defined Mental health as a condition of well-being in which people recognise their potential, manage everyday challenges, work effectively, and give back to their communities. Mental health implies that a person is mentally stable or thriving, but mental health is a spectrum. This spectrum has flourishing at one end and mental illness or languishing at the other (Keyes, 2002). While complete mental well-being is defined as being free of mental illness, flourishing can occur even when a mental illness episode is present.

Furthermore, moderate mental well-being and languishing may occur with or without mental illness (Keyes, 2007). Individual strengths are moderators of mental illness or languishing (North, Holahan, Carlson, & Pahl, 2014). Well-being has been linked to professional, individual, and social achievement. Other individuals with high levels of well-being show better job efficiency, more successful learning, improved innovation, more prosocial activities, and enjoyable relationships.

Keyes' (2002) model of Complete Mental Health guides this study. The Keyes model of complete mental well-being is widely regarded as the most systematic, multi-faceted, and inclusive system for comprehending psychosocial well-being (Keyes, 2002, 2013). Earlier researchers generally believed that mental illness and well-being were opposite ends of the same mental health continuum and that imprints in well-being prevent individuals from suffering from mental illness (Huppert & So, 2013). However, Keyes (2005) suggested that mental illness and mental well-being are unipolar dimensions, not two ends of the same spectrum as previously believed. For example, mental illness and mental health are associated ideas but do not necessarily fall into the same category.

Positive well-being

Positive well-being refers to the existence of optimistic feelings and outstanding performance in personal and societal situations (Keyes, 2000). According to Keyes (2005), there are three components of well-being: emotional well-being, psychological well-being, and social well-being. These components are examined in detail below.

Emotional well-being

Emotional well-being is defined as the dominance of happy effects over negative affect and total life satisfaction (Diener, 1984; Ryff, 1989). Hedonic well-being includes emotions of enjoyment and satisfaction with life, and emotional well-being falls within that umbrella (Keyes, 2007). According to Diener, Suh, Lucas, and Smith (1999), the aspects of emotional well-being reflect the experiences that individuals have had throughout their life, contributing to these dimensions being autonomous and empirically different entities. Positive affect (being joyful, cheerful, tranquil, full of life, and engaged in life) and contentment with life (primarily satisfied with areas of life or with life generally) are these aspects (Diener & Ryan, 2009; Keyes, 2007). Positive feelings and the absence of negative emotions are indicators of emotional well-being, as is the extent to which people understand their lives to be fulfilling. Howell (2009) stated that emotional well-being negatively correlates with increasing performance variables like cultivating a mastery attitude, demonstrating self-discipline, and improved academic accomplishment. Emotional well-being is characterized as a person's well-being, which includes life satisfaction and positive and negative affect.

During challenging times, students with the best possible self-regulatory abilities and self-control of their feelings, perceptions, and behaviours will have greater resilience and positive outcomes (Tugade & Fredrickson, 2007). Furthermore, emotional well-being has been linked to performance interferences such as procrastination, mastery prevention, and negative identity perceptions (Howell, 2009). Furthermore, this implies that emotionally well-adjusted people are more likely to succeed educationally (Seligman, 2011). Positive functioning or eudaimonia happiness is based on both emotional and social well-being. (Keyes, 2009). The subjective feeling of happiness, the judgment of life satisfaction, and sound psychological functioning are all fundamental to well-being (Diener, 2006).

Psychological well-being

The psychological well-being construct is rooted in positive psychology, a scientific philosophy that focuses on expressing ability through positive well-being, positive traits, positive emotions, abilities, virtues, and values to achieve optimal human functioning. (Seligman & Csiksztmihalyi, 2000; Linley, Joseph, Harrington, & Wood, 2007). Ryff (1989) has conducted a significant study on the elements of vital well-being. She highlighted six

fundamental dimensions of human growth and development: Developing these factors involves accepting oneself, having loving relationships with others, mastering the environment, finding a purpose in life, and progressing personally (Ryff, 2014). Self-acceptance (recognizing and embracing oneself in all its facets), positive relationship with others (understanding the reciprocity of relationships), autonomy (being self-sufficient and in control of one's own life), environmental mastery (ability to regulate, control, and successfully use resources and opportunities), life purpose (having objectives and a feeling of direction in one's life), and personal development (to the desire to continue improving oneself).

Social well-being

Social well-being is the consistency of one's interpersonal relationships, including favorable evaluations of others and the belief that one contributes positively to the more extensive social system (Keyes, 2005). Based upon Keyes' (1998) five dimensions of social well-being, social cohesion was designed to encompass social contribution, social integration, social actualization, and social acceptance. As Compton (2005) outlined, social well-being exists when an individual exhibits positive behaviour towards others in their social context, believes that social change is possible, contributes to society, believes that society is reasonable, and feels part of a more significant social group.

The Mental Health Continuum

Keyes' (2005) research developed in the development of the Complete State Model of Mental Health (CSM), which maintains that an individual has 'complete well-being while they have both a low level of mental illness and a high level of well-being. According to Keyes (2007), the mental health continuum intertwined six subgroups: those with and without clinical problems and mental illness, as well as those with either high (flourishing), moderate (moderate), or low (languishing) levels of well-being.

A crucial consequence of the dual continua model is that mental well-being should distinguish performance levels between those who are well and those who are sick. Put another way, all people with and without mental illnesses suffer from impairment when their well-being is not optimum. The CSM is expected to demonstrate both the individual and societal benefits of flourishing in a world free of mental disorders (Keyes, 2007). The four elements

of the dual continua model and mental health and mental illness (Flourishing, languishing, suffering, floundering) will be discussed in detail. However, this research will focus mainly on the flourishing and languishing of university students.

Flourishing is defined as the state of being happy and having high levels of emotional, psychological, and social functioning most of the time; it is a form and measure of encouraging mental health and overall life well-being (Seligman, 2011). Psychology's focus on adverse effects led to the development of the concept of flourishing, which developed out of positive psychology (Seligman, 2002). Positive psychology focuses on improving positive functioning and helping clients thrive rather than on helping clients survive (Schreiner, 2010).

Based on Diener et al. (1999), emotional well-being is distinguished by a feeling of satisfaction with life and the existence of positive emotions. Ryff and Keyes (1995) developed the theory of positive well-being to contain a sense of personal accomplishment, purpose in life, and development or growth toward personal goals. Researchers have found that university-based well-being programs improve academic achievement, social and emotional well-being, and behaviours (Durlak, Weissberg, Dymnicki, Taylor & Schellinger, 2011). According to Seligman (2011), flourishing is a complicated term with core tenets such as optimism, true happiness, and flourishing. Seligman's (2011) PERMA model considers five circumstances linked with thriving; they include positive emotion (P), engagement (E), positive relationships (R), meaning (M), and accomplishment (A). To flourish, individuals need to experience a high sense of socioemotional and psychological well-being, thereby complementing the concept of subjective well-being.

The beginning of a student's university career is more susceptible to languishing (Knoesen & Naude, 2017) even though flourishing and languishing are both possible. Keyes (2002) developed the MHC-SF model, with languishing and flourishing on opposite ends. Fraser and Killen (2003) stated that students could languish or thrive due to their diverse life experiences, educational opportunities, expectations, needs, and academic potential. In positive psychology, Mirzaei-Alavijeh et al. (2020) describe flourishing as the art of living a lifestyle characterized by longevity and competence in human performance, as well as generativeness, growth, and resilience. Flourishing contrasts with depression and languishing (meaninglessness and emptiness). Students' experience of flourishing or languishing during their first year at university can be attributed to several dimensions of emotional,

psychological, and social well-being (Knoesen & Naude, 2017).

Keyes and Haidt (2003) described languishing as a condition in which people have no positive feelings about life, are not socially or mentally functioning correctly, and are not fulfilling their potential or realizing their goals or aspirations. Students need to manage stressful experiences sufficiently to improve the quality of their lives and move from languishing to flourishing. Individuals who use adaptive coping methods are more likely to flourish, while those who use maladaptive coping methods are more likely to languish (Gloria, Faulk & Steinhardt, 2013). People who languish are unhappy and unfulfilled with their lives (Compton & Hoffman, 2012). When a person exposed to negative emotions for an extended period, this is known as languishing (Fredrickson & Losada, 2005). Languishers are neither mentally ill nor mentally healthy; their well-being is defined as poor (Knoesen & Naude, 2017).

Struggling individuals are doing well in life but, at that moment, are experiencing distress regarding some issues. According to Slade's complete state model of well-being (2010), struggling indicates incomplete mental illness.

Floundering involves a situation that is difficult and unpleasant (Keyes & Lopez, 2002). Slade's complete state model of well-being (2010) suggested that floundering indicates complete mental illness and, according to Nelson and Padilla-Walker (2013), it is a sense of maladjustment. Individuals floundering in their lives exhibit more risk and less well-being-promoting behaviour (Keyes, 2013).

According to Keyes (2006), social and psychological scientists researching well-being have discovered thirteen dimensions that indicate well-being. These dimensions are classified into three categories, referred to as the critical components of well-being: Emotional, psychological, and social well-being. Individuals considered flourishing must demonstrate high levels of positive functioning in most dimensions of the three groups (Keyes, 2007). The researcher discussed three dimensions below in detail. Therefore, the following section will elaborate on student well-being, academic performance, and life satisfaction.

Therefore, the following section will elaborate on student well-being, academic performance, and life satisfaction.

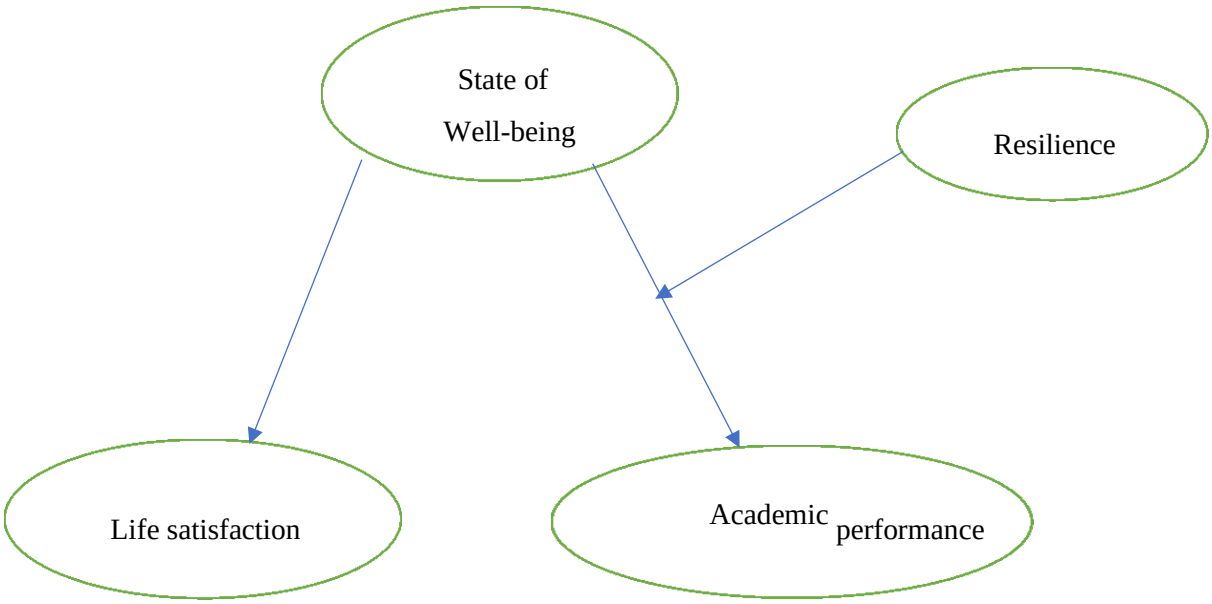

Figure 1. Moderation of model of resilience, between well-being, academic performance, and life satisfaction.

Students' well-being

The evaluation of student well-being in universities frequently relies on quantifiable metrics such as grades, test scores, attendance records, or the number of counseling sessions with the university counselor or principal. Global School Health Initiative (World Health Organization, 1998), a global initiative aimed at improving students' health in universities, has prompted educators to broaden their perspective of students' well-being. Policy and programming related to student well-being have emphasized constructs such as academic, physical, emotional, and psychological well-being, risk reduction, and resilience, as well as conditions, contexts, and climates that promote positive university behaviour such as safety, challenge, support, and relationships (Brown & Ryan,2003; Buijs, 2009).

Colleges and universities worldwide provide support for students' physical, psychological, social, and emotional well-being (Flinchbaugh, Moore, Chang, & May, 2012; Mahatmya, Thurston, & Lynch, 2018). Well-being could be defined in three ways: stress

reduction, an enhanced sense of purpose and involvement in the classroom, and an improved quality of life (Flinchbaugh et al., 2012). In terms of assisting students in studying and progressing through their degree programs, well-being entails attributes such as inspiration, personality, self-respect, self-usefulness, and self-control (Willis, Hyde & Black, 2019).

Research has shown that improving student well-being increases engagement; the role of learning activities is to engage students in learning, to create meaning, to engage them in meaningful relationships with others, to develop autonomy and competencies, and to reduce burnout, stress, frustration, and dissatisfaction with learning (Cox & Brewster, 2020). Therefore, ensuring students' well-being is a priority may help them achieve academic success and prepare them for long-term success (Mahatmya et al., 2018). Several aspects of the COVID-19 pandemic have been studied psychologically, including the effect of changes in academic procedures resulting from the epidemic. For example, the lack of social support has increased student distress (Cao et al., 2020).

Well-being and academic achievement

A state of positive well-being is defined as the capability of individuals and nations to prosper and achieve success (Keyes, 2006). An individual's psychological state of well-being can be described as their ability to work, feel satisfied in their life, and maintain a similar academic achievement level (Huppert & So, 2013). It has been shown that academic achievement is one of the most critical factors determining adult results, with a constructive link between higher educational success and more prospects later in life (Johnson, Johnson & Smith, 2014).

It is essential to evaluate students' well-being while considering their actual state and achievements and their ability to pursue what they value in life (Sen, 1999). To support students' well-being, both now and in the future, investments must be made into acquiring academic, non-cognitive, and work-related skills. Students may only enjoy well-being as adults if they invest enough in developing their capabilities during their university years (Statham & Chase, 2010). Developing skills in a supportive and caring environment does not require sacrificing health and preparation for the future (Seligman, 2011).

According to the Centre for Research and Development Academic Achievement

(CRIRES) report (2005), academic achievement is a concept applied to assess students' achievement, expertise, and abilities. Student age, student demographics, and student performance are considered holistically in this measurement. The purpose of academic assessment is to measure academic achievement. Furthermore, educators use various types of assessments to determine academic performance. Assessment involves continuous evaluations that provide valuable insights into learning (Hargis, 2003). Academic Achievement (GPA or grades) is one technique for assessing students' academic performance. Hargis (2003) stated that students should gain motivation and a sense of achievement in the grading process.

On the other hand, grades can provide incentives for students to cheat. In addition to the record of students' academic accomplishments, grading provides records of their academic progress (Ramberg & Modin, 2019). Academic success affects material success, well-being, fertility, and friend selection (Grøtan, Sund, & Bjerkeset, 2019). Until recently, most studies on individual characteristics associated with academic achievement focused on cognitive and social variables such as academic motivation and students' perceptions of their talents, interactions between students and teachers, and relationships with other students. In addition, university experience provides an excellent social setting for developing three competencies: autonomy, relatedness, and competence (Andrews & Wilding, 2004). However, suppose these requirements are not met at this formative period in their life. In that case, students may face academic failure owing to a lack of desire, alienation, psychopathology, or a combination of these factors. College-related stress has been linked to various adverse outcomes (Pascoe, Hetrick & Parker, 2020). Previous research on student performance has employed several definitions of student accomplishment. Some studies have concentrated on specific topics, such as financial accounting (Jansen & de Villiers, 2016) and commercial accounting (Guney, 2009). Gammie, Jones, and Robertson-Millar (2003) considered the student's final year degree classification by separating those who received a first or upper second and those who had received a lower second or third.

Academic achievements of university students may be measured by their well-being on two fronts: their decision to stay in university and their productivity, or performance, while in university (Andrews & Wilding, 2004). For any of the following reasons, poor well-being may diminish the marginal return to continued education: reducing one's academic performance, which may limit the acquisition of both genuine talents and external signs, such as a high GPA, which increases predicted career chances and productivity. In turn, this

decreases one's expected future well-being, which decreases one's expected reliability as a future employee, and, in turn, shortens the timeframe expected to be in the labour force (Grøtan et al., 2019). In theory, these factors indicating poor well-being could increase schooling due to the income effect at lower income levels; however, well-being may not be the primary factor (Grøtan et al., 2019).

Well-being and life satisfaction

Shin and Toohey (2003) defined life satisfaction as a worldwide consideration of an individual's quality of life based on their criteria. As a result, life pleasure involves a cognitive evaluation process. Individuals evaluate their degree of happiness with their present circumstances by comparing it to the criteria they have established for themselves (Diener, 2000). Satisfaction with life is explained as an international reasoning self-assessment of well-being around a wide range of individual interests such as university, employment, family life, and societal life (Diener, Emmons, Larsen & Griffin, 1985). Researchers Seligman and Csikszentmihalyi (2000) found that people's level of satisfaction with life could be determined by how frequently they confront positive and negative events that lead to greater happiness. Haybron (2008) asserted that life satisfaction is largely or entirely responsible for happiness and prosperity (Haybron, 2008). Sentimental states and relevant factors may inspire life satisfaction. Although all these factors can make a person feel satisfied with life, their level of satisfaction ultimately depends on how they view their own lives (Diener, Lucas, & Scollon, 2006).

In support of the above, it has been stated that life satisfaction has a positive association with flourishing factors, including well-being, enthusiasm, and self-respect (Huppert & So, 2013). Life satisfaction is a person's self-appraisal of their quality of living as judged by their standards (Pavot & Diener, 2008). The cognitive element of individual well-being is life satisfaction, which is an essential characteristic representing an individual's life situation and well-being (Pavot & Diener, 2008). When associated with people with average or poorer life happiness, undergraduates with higher life satisfaction do better academically, have less educational anxiety, and are more objectively concerned (Seok, Ching, & Ismail, 2020). An analysis of longitudinal studies found a relationship between the development of career flexibility over time and the growth of life satisfaction over time (Hirschi, 2009). Capone, Caso, Donizettiti, and Procentese (2020) reported that students felt more stress related to

their academic activities and a decrease in their sense of accomplishment and belonging to the university; as a result, students with lower levels of well-being are at a disadvantage.

The findings showed that having a positive outlook on life and feeling joyful leads to improved academic achievement and higher personal values (Kato, Zweig, Schechter, Barzilai & Atzmon, 2016). When undergraduates effectively postulate a place at university, they are more likely to flourish (Yun, Rhee, Kang, & Sim, 2019). Acquiring a better education is often seen as a symbol of an individual's success in Asian society (Yun et al., 2019). Malaysian research discovered that life happiness among second and third-year students at public institutions has no significant association with academic success. Life satisfaction that encourages feeling good about oneself is more likely to develop and conquer challenges in one's job and life (Malik, Nordin, Zakaria, & Sirun, 2013). Feeling content with one's life fosters positive psychology, which aids in one's ability to succeed in life. Although thriving has piqued the interest of academics in positive psychology settings, just a few research have looked at the link between satisfaction and flourishing (Seok et al., 2020).

Therefore, the following section discusses resilience as the moderator in the relationships between students' well-being, life satisfaction, and academic performance.

Resilience as a moderator

As described by Kim-Cohen (2007), resilience refers to a dynamic process of adjusting to challenging life circumstances, which has been linked with well-being. Resilience is characterised by self-esteem, emotional stability, the capacity to cope with stress, and the ability to receive social support (Mealer, Jones & Moss, 2012). Academic resilience means that a student can cope with academic adversity that might adversely affect their education.

According to van Breda (2018), resilience is a process that mediates the effects of adversity on outcomes, such as becoming resilient. A resilient person experiences immunity to adversity even if stress is present for a long time (Ayed, Toner & Priebe, 2019); rebounds (the act of recovering mental stability after experiencing a stressful event or period) from adversity (Amering & Schmolke, 2009), and may even do better after adversity than before it (Ayed et al., 2019). Resilient people often display traits such as dedication, optimism, or

humour. Hobbies, other skillful activities, and social connections further protect them from the adverse effects of adversity. (Ayed et al., 2019).

In resilience theory, individuals have the ability to cope with various challenges based on their abilities to solve problems, express emotions, and gain motivation, social (interpersonal connections), and environmental (university facilities) factors (Masten, 2015). To succeed in their academic pursuits, resilient students identify resources they can use or seek assistance from (Ainscough, Stewart, Colthorpe, & Zimbardi, 2018). In addition, a sense of belonging and support, along with strength, drive, and future orientation, were found to be inherent characteristics of resilient students (Bailey, 2020). Specifically, positive psychology studies on psychological resilience suggest that individuals living in socially disadvantaged situations have different well-being than those living in more privileged conditions.

Researchers have shown that people with greater psychological resilience are less likely to suffer mental distress, have better well-being, and experience stress and mental discomfort less intensely (Ratelle, Simard, & Guay, 2013). Resilience improves coping, assists individuals in overcoming stress, and helps reduce the emotional consequences of traumas and catastrophes (Mealer et al., 2012). All these principles are influential in keeping young people psychologically secure and preventing mental illnesses. In interpersonal relationships, resilience has significant mental, emotional, and societal consequences. Experts believe a resilient person will behave in a stable and typical manner in difficult situations (Tomyn & Weinberg, 2016).

Hamid, Babamiri, and Dehghani (2012) stated that resilient students deal with problems more efficiently and have fewer tensions and mental struggles. In one research of students in Kermanshah, resilience was found to be positively connected to well-being, with mentally well individuals experiencing higher levels of resilience (Hamid et al., 2012). Consistent research shows that stress impairs the academic performance of around one-third of the American university population, causing sleep and food issues, medical illnesses, and anxiety and depression (Tomyn & Weinberg, 2016). A functional, supportive environment contributes to resilience.

Many potential difficulties are associated with the university setting, particularly at major institutions. High-pressure academics, a lack of academic support compared to high

school, social isolation, and long-term financial burdens are frequent obstacles (Fletcher & Sarlcar, 2013). In addition to contributing to students' mental health and well-being, resilience is associated with academic engagement and achievement. This study aimed to assess students' resilience to identify the basics that contribute to high or low levels of engagement with others.

Research propositions

1. Student well-being explains significant variance in student life satisfaction.
2. Student well-being explains significant variance in academic performance
3. Resilience significantly moderates the relationship between well-being and academic performance.
4. Academic performance is significantly correlated with life satisfaction
5. MHC explained academic performance over and above demographic control variables.

Summary

Generally, well-being is varying among individuals, and it is a very complex issue because it can be influence by many things including the environment as well as the emotional state. Thus, one needs to handle the issue of well-being very carefully to ensure inclusiveness…. etc. The COVID-19 pandemic has had a significant impact on the well-being, academic performance, and life satisfaction of students across the world. Studies have found that the pandemic has caused an increase in levels of stress, anxiety, depression, and loneliness. Academic performance has also suffered, with students struggling to maintain focus and motivation due to the lack of social interaction and resources. Additionally, many students have reported lower levels of life satisfaction due to the disruption to their regular routines and the uncertainty of the future. To mitigate the impact of the pandemic, it is important to prioritize students' mental health and provide resources to help them cope with the stress and anxiety of the situation. Furthermore, schools and universities should provide support and resources to help students maintain their academic performance during this difficult time.

Research methods

This section discussed all the research methods, such as research design, sampling techniques, study participants, information about the measures used, ethical considerations, what steps were taken, and the procedure followed, as well as the statistical analysis utilized in this investigation. The purpose of this chapter is to provide an overview of the methodology used during the study to apply the Mental Health Continuum -Short Form (MHC-SF), the Brief Resilience Scale (BRS), the Satisfaction with Life Scale (SWLS), and academic performance for first-year university students. Exploratory factor analysis was used to determine the validity of each scale.

Cronbach's coefficient alpha was used to assess each scale's reliability. A descriptive statistics section follows the reliability analysis. To determine the strength of the correlations between the variables of interest, Pearson product-moment correlation analyses are performed. We determined the statistical significance using a significance level of .01 ($p < 0.001$). The causal relationship between MHC, SBWLS, BRS, and academic performance was determined by standard multiple regression analysis based on demographic variables.

Research design

A descriptive, cross-sectional design was used in this study. The design was assumed to be appropriate for measuring the characteristics of a representative sample at a particular point in time (Terre Blanche, Durheim, & Painter, 2006). It was possible to describe existing phenomenon, namely the relationship between MHC, SBWL, and BRS, by means of a deductive approach. To collect quantitative data, self-report questionnaires were used to conduct a survey of the sample, allowing statistical analysis and inferences to be drawn between variables (Terre Blanche et al., 2006). As a result, constructs were defined, and variables played an important part in characterizing and analyzing commerce students' well-being, academic achievement, and life satisfaction were measured using statistical techniques (Babbie & Mouton, 2001; Bhat, 2020).

The quantitative research allowed for high accuracy of results, with no personal bias on the part of the researcher, as well as replication of the study (Basson & Rothmann, 2019). A cross-sectional survey was utilized to gather information. A significant number of cases were compared in the cross-sectional study (Druckman, 2005). The cross-sectional analysis will be used in this study. Despite being able to measure multiple variables simultaneously, this method does not require time-related data on how variables change over time (Setia, 2015). This study used electronic self-administered surveys to measure constructs of interest. On the Qualtrics platform, participants completed a self-report questionnaire. Using a questionnaire to measure subjective phenomena in this study was appropriate since the variables being assessed represent subjective phenomena; research shows that questionnaires are most effective for measuring subjective phenomena (Veenhoven, 2012). A cross-sectional, quantitative descriptive approach with self-administered surveys was the most appropriate approach because of the time constraints associated with completing this master's dissertation and the fact that the country was under lockdown as a result of the COVID-19 pandemic, which prohibited people from meeting other people or leaving their homes.

Sampling

The sampling method used in this study was non-random and purposeful. A purposeful sample identifies and selects individuals or groups with relevant knowledge and skills about a phenomenon of interest (Bernard, 2002). Thus, choosing the method of obtaining data and who will collect it carefully is of utmost importance, especially since no analysis can make up for incorrectly collected data (Cresswell & Clark, 2011). The data was collected from first-year Commerce students in South Africa at the University of Cape Town 395 students completed the questionnaire. Of these, 242 questionnaires were suitable for data analysis after cleaning the data and excluding those who did not fit the sample frame and those that left most of the questionnaire blank.

The distribution of the demographics of the respondents was similar to the population of first-year business students under study (see later). Applying a poststratification weighting technique is an option to correct sampling errors. Weights are often applied based on demographic characteristics, such as age, gender, location, and education. Weighting also accounts for differences between those who participate in research studies and those who do not (known as self-selection bias) (Biemer & Christ, 2008). Research projects are affected by

self-selection bias when participants choose to participate, and the group choosing to participate is not equivalent to the group choosing not to participate (based on the research criteria) (Toepoel, 2016). Post-stratification has disadvantages, such as over-representing the viewpoints of one or a few people who may not reflect their entire demographic group. Datasets can be biased inadvertently when these methods are used. The standard deviation of answers can be increased, as a result, making the findings more variable (Biemer & Christ, 2008). In this research, poststratification was not used but has been suggested as a consideration for future studies. Not all first-year business students participated in the survey but using poststratification may lead to over-representing those students who did not participate. Poststratification is often used in medical research but is rarely used in organisational psychology research. See later for a comparison of the sample demographics and the demographics of those registered as first-year commerce students in 2021 at the participating university.

Participants

The participants in this research involved first-year students from the faculty of Commerce at the University of Cape Town. This section presents the numerous biographical data that was obtained during the study, and these secondary variables were measured in this study; age, gender, ethnicity, qualification, and university, but due to the nature of the study, the focus was on the university. The sample participants' average age ranged from 17 to 38 years old (M = 19.04; SD = .1.98; Mo= 19.00; R=21.00; N = 242). These results indicated that most university students who participated in the study were young adults.

Descriptive statistics were used to gain a better understanding of the data collected. These statistics showed how the scores for each variable were distributed within the sample. The following descriptive statistics were analysed; frequency, percentage (%), and the total.

Table 1 shows the comparative frequency of demographic variables of participants. The females were the majority (n=132; 54.5%) of the total sample in comparison with males (n=110; 45.5%). The most respondents of the sample that were included in this study were Black African (n=122; 50.4%), followed by white (n=63; 23.6%) and then coloured student (n=43; 16.1%) of the sample of the sample. Lastly, other respondents' groups of ethnicities represented the minority of the sample at (n=27; 10.1%) of the sample. These results indicated that most university students who participated in the study were Black Africans.

The results showed that most of the student studies are financially supported by NSFAS (n=115; 46.6%) followed by parents (n=73; 29.6%), loans or bursaries (n=46; 18.6%) as a third source of funding, while other family member as financial support scored (n=8; 3.2%). Lastly, other respondents' groups regarding the source of funding for studies represented the minority of the sample at (n=5; 2.0%) of the sample. These findings suggest that most of the students are funded by NSFA.

The results indicate that the gender distribution of the respondents was 45.5% male and 54.5% female, which is similar but not identical to that of the first-year student in Commerce at the University of Cape Town. The total number of first-year commerce students registered in 2021 is 1290, with the majority males (686; 53%), see Table 1.

Regarding race, it should be noted that the majority of respondents in the survey were black, and the population student profile for this university indicated that most students are black. Most respondents included in this study were Black African (n=581; 45%), followed by self-declared white students (n=348; 26.9%) and then self-declared coloured students (n=153; 11.8%).

Table 1.

Comparative frequency of demographic variables of participants

Demographic	Variables	Frequency	Percentage (%)	Total	Demographic for UCT registered students in 2021	Variables	Frequency	Percentage (%)	Total
Gender	Female	132	54.5	242	Gender	Female	615	47.6	1290
	Male	110	45.5			Male	686	53	
Ethnicity	Black African	134	50.2	242	Ethnicity	Black African	581		1290
	White	63	23.6			White	348	26.9	
	Coloured	43	16.1			Coloured	153	11.8	
	Others	27	10.1			Others	208	16.1	
Source of funding	NSFAS	115	46.6	242					
	Parents	73	29.6						
	Loan or bursaries	46	18.6						
	Other family	8	3.2						
	Others	5	2.0						

NSFAS = National Student Financial Aid Scheme; UCT = University of Cape Town

Procedure

The ethical application was approved, and the approval reference number is REC 2021/07/022; the approval letter can be found in Appendix A. The ethical clearance to conduct this research was acquired from the Commerce Faculty Ethics in Research Committee at the University of Cape Town before conducting the research. Approval was obtained to gather data from the Department of Student Affairs (DSA) at the University of Cape Town. The American Psychological Association (2009) guidelines were followed, and the participating organisations and participants were guaranteed anonymity and confidentiality.

Qualtrics (https://www.qualtrics.com) was used by the researcher to generate an electronic questionnaire. Before beginning data collecting, the researcher ran a pilot study with roughly 10 participants to discover formatting difficulties, confusing phrasing, and mistakes before making the questionnaire available to the remaining participants. In the pilot research, participants commented on the questionnaire's interpretation. When participants clicked on the survey link, they were taken to a cover page that explained the study's objectives and the anonymity of completing the survey. Participants were also informed that they could withdraw from the study anytime.

Participants were also informed that they could withdraw from the study anytime. Participants were given specific instructions on how to respond to the questions. When the survey was finished, Qualtrics automatically recorded the responses. It took about 7 minutes to complete the survey. Data gathering took place over about five weeks between 10 October 2021 and 11 November 2021.

Ethical considerations

Ethical clearance will be obtained from the Faculty of Commerce Ethics in Research Committee. Participation in the study is entirely voluntary and anonymous. The study was formally reviewed and approved by the UCT Faculty of Commerce Ethics in Research Committee (REF: REC 2021/07/022) and will be conducted under the ethical conditions stipulated in the ethical clearance certificate. The first page of the online questionnaire detailed the confidential and voluntary nature of the study (refer to Appendix A). UCT, or the

researcher, will use the electronic questionnaire survey method to protect individuals and other participants from being identified from the information provided in this survey. The information collected will be used for research only and will not be shared with anyone else. Participating in the study is optional; if you prefer not to participate, you are free not to.

Measures

An electronic questionnaire was used to collect demographic and quantitative data. Qualtrics MX Software (https://www.qualtrics.com) was used to collect data for the current study. The questionnaire sought information on student well-being, academic performance, and life satisfaction during the COVID-19 pandemic from first-year commerce students in the two institutions under study. Regarding student well-being, questions were drawn from the MHC-SF. Regarding academic performance, the Grade Point Average (GPA) from the first semester or student-reported average grade for the first semester. On the concept of life satisfaction, questions were drawn from the SWLS. Regarding resilience, the six items of the BRS were used in this study.

Well-being. Mental health will be measured using the Mental Health Continuum – Short Form (MHC-SF) (Keyes, 2005). Based on the Mental Health Continuum-Long Form (MHC-LF), which initially contained 40 items, Keyes (2005) developed a shorter version of the MHC-SF. The MHC-SF includes 14 items that are supposed to cover the same topic (Keyes, 2002) as the original questionnaire (Keyes, 2002). Based on Keyes's (2002, 2005) theoretical framework, MHC-SF recognizes emotional, psychological, and social well-being as three interrelated elements. This is a short version of the MHC-LF, which contains six three-item scales (Totaling 18 items) measuring Ryff's (1989) six dimensions of psychological well-being and five three-item scales (totaling 15 items) measuring Keyes' (1998) five dimensions of social well-being. In the first 1 to 3 items of the questionnaire, the scale focuses on emotional well-being (happiness, satisfaction, interest in life); in the following 4 to 8 items, it measures social well-being (social acceptance, social actualization, social contribution, social cohesion, and social integration). The following 9 to 14 items measure psychological well-being (autonomy, environmental mastery, personal growth, positive interpersonal relationships, life purpose, and self-acceptance). The reliability of the sub-scales and the overall scale has been demonstrated in many studies (see Lupano Perugini, Iglesia, Castro-Solano, and Keyes, 2017).

Life Satisfaction. A widely used measure of life satisfaction is the Satisfaction with Life Scale (SWLS) (Diener, Emmons, Larsen, & Griffin, 1985). The SWLS comprises five items to measure global cognitive judgments of overall life satisfaction. The five items measure the extent to which respondents agree or disagree with each item of the SWLS; each participant will be given a Likert-style response scale (1 = strongly disagree to 7 = strongly agree). The Cronbach's alpha has been calculated at 0.87, and the 2-month test-retest reliability is 0.82, as revealed by Diener et al. (1985).

The original sample was based on 176 American college students for the SWLS (Diener et al., 1985), (Pavot et al., 1991) sample size of 130 American college students (Frisch, 1991) 271 (Pavot & Diener, 1993) sample size of 244 French-Canadian college students. As a result, this study also replicated the results of previous SWLS studies. For example, Cronbach's alpha ranges from 0.74 to 0.81).

Academic performance. The Grade Point Average (GPA) from the first semester, or the average grade reported by the student for the first semester, is used to measure academic performance. Evaluating academic achievement through exams or continuous assessments is widespread. However, there needs to be a universal agreement on assessing it or, most importantly, procedural information such as skills or declarative information such as facts (Ward, Stoker & Murray-Ward, 1996). When it comes to standard criteria, the operative assessment of academic achievement at the university level is the grades that lecturers give students following the completion of some evaluation system, most notably the oral, written, or practical exam that students complete throughout the school year. Measuring performance indicates how successfully pupils have met their educational objectives. According to Hoyle (1986), universities are founded to teach information and skills to people who attend them and underlying all of this is the concept of improving academic performance. Hoyle (1986) further explained that the results of examinations determine the amount of knowledge and skills gained by students attending a university. Hoyle (1986) suggests that the amount of knowledge and skills students acquire will vary regardless of the university. In this study, self-report data were collected about academic performance.

The Brief Resilience Scales. Smith, Dalen, Wiggins, Tooley, Christopher, and Bernard (2008) developed the brief resilience scale (BRS), which consists of six items. It is positively

worded in items 1, 3, and 5 and negatively worded in items 2, 4, and 6. Scores are obtained by reversing coding items 2, 4, and 6 and finding the average of the six items. Using a five-point scale (1 = strongly disagree, 5 = strongly agree), the BRS will score the extent to which participants agree upon each statement based on their responses. Using well-established measures for well-being, optimism, self-esteem, self-efficacy, and mental health, as recommended in resilience literature, the BR's scales demonstrated high levels of criterion validity (Cronbach's alpha of 0.71). The sample consisted of 395 all first-year commerce students from a single university in South Africa, the University of Cape Town. Most students majored in business and finance with accounting, organizational psychology, and economic sciences. The concept of resilience has primarily been applied to studies of patients with medical conditions. Despite this, the findings might be limited to other contexts since this study did not recruit samples from clinical settings. Nevertheless, only 195 American undergraduate students were included in the original BRS. The results of this study are also consistent with those found in previous BRS studies. As an example, Cronbach's alpha ranged between 0.74 and 0.80, even when clinical samples were used.

Data collection

Qualtrics MX software was used to administer the survey. Participants got the link and completed the questionnaire individually, freely, and anonymously. Each participating university requires that the study adheres to ethical research guidelines. Online surveys or questionnaires using Qualtrics were chosen as the appropriate data collection instrument (Hasa, 2016). The advantages of using questionnaires include cost-effectiveness, a fast manner of gathering data from a sample as part of a large population, and the opposite claim of lack of truthfulness later from participants with less chance of bias from the researcher (Hasa, 2016). However, some limitations should be considered, including the inadequate recognition of information such as emotions, behaviour, and feelings, the absence of an explanation for answers, and the respondents' truthfulness (Bhat, 2020). To overcome the limitations of the study, the link for questionnaires was emailed to the sample. Participants were asked to complete questionnaires with their broad experience in mind and not how they felt explicitly on the day of completing the questionnaire. Finally, the researcher thanked everyone for taking part in this data collection.

Results

The results of the data analysis are summarized in the following section. The first section focuses on assessing whether the measures in the study are appropriate. Utilizing confirmatory factor analysis (CFA), we examine the three dimensions of well-being in the first section. The satisfaction with life scale (SWLS) and academic performance (GPA) was measured using exploratory factor analysis (EFA). Both confirmatory factor analysis (CFA) and exploratory factor analysis (EFA) are used in psychological research to understand relationships between variables. CFA is used to test a predetermined model of latent variables, while EFA is used to explore the structure of relationships among variables and identify underlying factors. Using both CFA and EFA allows researchers to test the validity of the underlying factor structure and improve the accuracy of their findings (Schumacker & Lomax, 2004)

The reliability analysis for the measure is described in section two. Descriptive statistics are discussed in section three.

Correlation analysis results are outlined in section five. Pearson product-moment correlation analyses (Hinkle, Wiersma, & Jurs, 2014) were conducted to determine the strength of the relationships between the variables of interest. The results showed that the relationships were significant at a level of $p < 0.01$. Standard multiple regression analysis (Hinkle et al., 2014) was then used to assess the causal linkages between academic performance outcomes and well-being, life satisfaction, resilience, and demographic variables (age, gender, and source of funding) as independent variables.

A moderation analysis based on PROCESS (Hayes, 2012) will be used in section five to determine whether resilience has a moderating effect. Multiple regressions were performed, and the findings of the study will also be summarized in this section based on the preposition. This report was prepared following the guidelines and format of Field (2013) and Pallant (2016).

Confirmatory Factor Analysis CFA

CFA is a multivariate statistical test that verifies that there are factors underlying the

variables observed by relating the measured variables to the study's latent variables (Hu & Bentler, 1999). CFA examines the relationship between manifest variables (observed indicators) and latent variables (factors) (Naragon-Gainey, Gallagher & Brown, 2013). The covariances and correlations among latent variables in CFA represent the relationships among late. Much like other statistical tests, a set of assumptions must be met before the actual CFA can be deployed; these will be discussed briefly in Table 2.

The results for the CFA were presented in Table 2. The first assumption was that the sample group under investigation was selected randomly, which was met due to the use of a specific sampling from one higher education institution-UCT. The second assumption was that the P-Plots needs to show the multivariate normality of the data, which was met by looking at the P-Plots and the data along the diagonal line. The third assumption was that the sample size must be sufficient to run a CFA; sufficient refers typically to a sample size above 200. Once the survey was closed, there were 395 participants; however, after cleaning the data and removing cases with less than 50% of the information, the sample size left for investigation was 242. No imputation and casewise deletion for missing data was used. However, this assumption is still met since research.

The CFA was conducted to examine whether the three variables used in this study to measure the level of EWB (three items), SWB (five items), and PWB (six items) can be differentiated from one another. Model fit was established by analysing the chi-square value, the comparative fit index (CFI), and the root means the square error of approximation (RMSEA).

Varying models were compared to determine which model generates the best-fit statistics. Table 2 shows the different models. Table 2 indicates the model fit statistics for 4 models, M1: emotional well-being + SWB & PWB, M2: emotional well-being + SWB & PWB, and M4: Three-factor oblique. The first statistic that the CFA provides is the chi-square value which examines the variance between the observed and expected covariance matrices of the variables; a smaller value closer to zero indicates minimal differences (Hair, Black, Babin, Anderson, & Tatham, 2006). In the context of this study, the lowest chi-square value was found in M5: three-factor oblique.

Table 2.

Overall fit indices analysed for the varying models

Model	χ	DF	CFI	RMSEA	90% CI Low	90% CI High
One factor model M0: EWB&SWB&PWB	345.166	77	0.825	0.126	0.133	0.138
Two-factor M1: EWB+ [SWB &PWB]	389.759	77	0.796	0.120	0.07	0.132
M2: EWB+ [SWB &PWB] (oblique)	246.767	76	0.888	0.097	0.084	0.110
Three factors M3: Three-factor M4: Three-factor (oblique)	541.185	77	0.697	0.151	0.138	0.163
	223.652	74	0.902	0.092	0.079	0.106

Exploratory Factor analysis (EFA)

An exploratory factor analysis (EFA) was conducted by conducting each scale (BRS, SWLS, and MHC-FS) determinant using principal axis factoring. Principal axis factoring was selected because of its ability to allow for the presence of measurement error. At the same time, oblique rotation was chosen as literature demonstrates that it can be more effective than varimax rotation due to its ability to provide a more straightforward structure despite underlying factors being related to each other and more complex to explain (Tabachnick & Fidell, 2013). The purpose of the EFAs was to prove uni-dimensionality whereby the items represented each scale determinant. Once all the EFA's were conducted, item analysis was run on the constructs being examined in this study for the researcher to make final item selections for the tests of the analyses that were to be conducted.

The EFA allows the researcher to distinguish the number of latent variables which represent the construct(s) of interest, as well as the patterns of relations (i.e., factor loadings) between the observed items and latent variables (Naragon-Gainey et al., 2013).

Kaiser-Meyer-Olki (KMO) measures the rationality of a sample to determine whether a response to the sample is appropriate and should be close to 0.5 for satisfactory factor analysis. Kaiser (1974) recommends 0.5 (the value for KMO) as the minimum (nearly acceptable), values between 0.70.8 are acceptable, and values above 0.9 are suitable. Secondly, Bartlett's sphericity test analyses whether scale items are linked. For EFA to be suitable, this test must be substantial (p.05) (Tabachnick & Fidell, 2013). Kaiser's (1974) criteria removed factors with eigenvalues more significant than one. Factor loadings larger than.30 were deemed acceptable (Field, 2013). EFA was carried out to establish if the scales truly measure the variables they are supposed to assess (Field, 2013). Factors were extracted using principal axis factor analysis (PAF). Based on table 3 below, the KMO measure was .873, which is acceptable. The initial eigenvalues and the extracted sums of squared loadings are all that we are interested in for analysis and interpretation. The presence of eigenvalues from more than one set of variables is the key to identifying the number of components or factors the variables represent. The KMO measure is .846, which is acceptable combined with a significant Bartlett's Test of Sphericity (X2 15 =366.061, p <.000), indicating that it was suitable to run a principal factor analysis with direct oblimin across the 6 items. The 6 items loaded onto one factor (with item numbers 4 & 6 loadings greater than .711) with an eigenvalue of 49.21, accounting for 39.88 % of the total variance. Therefore, resilience is considered to be unidimensional.

Table 3.

Factor analysis for resilience

Item number	**Item description**	**Factor 1**
6	I tend to take a long time to get over setbacks in my life.	.711
4	It is hard for me to snap back when something bad happens.	.711
3	It does not take me long to recover from a stressful event.	.665
2	I have a hard time making it through stressful events.	.659
1	I tend to bounce back quickly after hard times.	.626
5	I usually come through difficult times with little trouble.	.335
Eigenvalue		49.213
% of variance explained		39.888

Note. N=242 Extraction method: Principal Axis Factoring; Rotation method: Direct Oblimin with Kaiser normalization; Rotation converged in 5 iterations.

Table 4 below indicates the KMO measure is .798, which is acceptable combined with a significant Bartlett's Test of Sphericity (X2 10 = 431.791, p < .000), indicating that it was suitable to run a principal factor analysis with direct oblimin across the 5 items. The 5 items loaded onto one factor (with item number 3 loading greater than .860) with an eigenvalue of 58.95, accounting for 49.46 % of the total variance. Therefore, life satisfaction is considered to be unidimensional.

Table 4.

Factor analysis for life satisfaction

Item number	Item description	Factor 1
3	I am satisfied with my life.	.860
1	In most ways, my life is close to my ideal.	.727
2	The conditions of my life are excellent.	.682
4	So far, I have gotten the important things I want in life.	.646
5	If I could live my life over, I would change almost nothing.	.568
Eigenvalue		49.213
% Of variance explained		39.888

Note. N=242; Extraction method; Principal axis factoring; Rotation method: Direct Oblimin with Kaiser; Rotation converged in 5 iterations.

Reliability analysis

Tables 10, 11 and 12 (see appendix F) showed the results for the reliability of the BRS, SWLS, and MHC-SF scales. Cronbach's coefficient alpha (a) was used to assess the scales' internal consistency. Nunnally (1978) noted that alpha values between .60 and .70 were considered to demonstrate adequate internal consistency, while alpha values below .50 indicated an unacceptable level of internal consistency. Corrected item-total correlations above. There were 20 retained (Parker, Bagby, Taylor, Endler & Schmitz, 1993). In order for the reliability to increase the internal consistency of a scale, a corrected item-total correlation

analysis was used. In the following sections, reliability tables 10 F1, 11 F2, and 12 F3 (see appendix F) are discussed.

BRS and SWLS both had Cronbach's alpha values of .79 and .78, which are good values for exploratory research. Items 5 on table 10 had low corrected item-total correlations of .30, respectively, and were not removed because an item-total correlation of .30 or higher per item is considered to be sufficient. A measure is considered unidimensional if it measures a single latent characteristic or construct (Tavakol & Dennick, 2011). MHC-S in table 12 has also been shown to have internal reliability of .85 for emotional well-being, 82 for psychological well-being, and .78 for social well-being (Cronbach's alpha).

Descriptive statistics

Table 5 displays descriptive data for each scale utilized in the research. The standard error (SE) of the mean, skewness, and kurtosis measures in table 5 was used to assess whether the data were normally distributed (Field, 2013).

The continuous variables were examined through skewness and Kurtosis. Burns and Burns (2008) argued that examining how skewed distribution is to either have too many low or too many high scores in a distribution. Field's (2013) skewness is related to the symmetry of the distribution. Based on the study conducted by Field's (2013), Kurtosis focuses on width and height. It is highly likely that the data are not normally distributed if Kurtosis and skewness are large values (Field, 2013). In social sciences research, it is acknowledged that normal distributions of data rarely occur, despite the assumption of normal distribution being applied to many statistical analyses.

Table 5.

Descriptive statistics for summary scale

Variables	SE	Skewness	Kurtosis
Age	.127	6.61	54.36
Life satisfaction	.447	.025	-.877
Resilience	.323	-.239	-.284
Emotional well-being	.242	-.147	-.859
Social well-being	.360	.370	-.610
Psychological well-being	.447	-.265	-.658
GPA	.093	.043	-1.49

Notes; N=242; *SE* = Standard error of the mean; *GPA* = Academic performance.

Correlational analysis

According to Field (2013), multiple regression and correlation both concern the relationship between variables, and regression is a correlational technique. Multiple regression need not be conducted if the proposed variance is not correlated with the proposed outcome variables. Multiple regression extends beyond correlation in that it helps explain how much variance in an outcome variable is explained by the variance variables in a specific, theoretically sound direction (Field, 2013). Both correlation and regression results are presented, although some may argue that this is not necessary. The convention in organisational psychology is to present the correlation analysis regardless of any other analyses that are conducted. As a precursor to regression analysis, correlation analysis allows for a check of the possible utility of regression analysis and an early indication if there is any serious multicollinearity amongst the variance variables. The Pearson product-moment correlation analyses were therefore conducted to establish the significance of the relationships between the variables of interest and the strength of these relationships. A significance level of .01 was set ($p < 0.01$) in determining the statistical significance.

A linear relationship is measured by the correlation coefficient (r) as a measure of the strength and direction of the relation. The correlation coefficient r ranges from -1.0 to +1.0.

Values closer to ±1.0 denote stronger correlations. Correlation coefficients are signified by their direction of slope (- or +). Using Guilford's informal interpretation: r < 0.19 is interpreted as a slight, almost null relationship; r between 0.20-0.39 is interpreted as a low correlation (a definite but small relationship); r between 0.40 - 0.69 is interpreted as moderate (a considerable relationship); r between .70-0.89 is interpreted as a high, strong relationship; r between 0.90 – 1.00 is interpreted as a very high correlation, a very dependable relationship.

Table 6 displays the calculated means (M) and standard deviations (SD) of each scale in order to examine the distribution of scores for each variable, as displayed in table 6. The mean scores indicate that students' Age on the last birthday was (M = 19.04, SD = 1.98). Life satisfaction mean scores indicated were higher (M = 19.28, SD = 6.95), comparing resilience with the mean scores (M = 19.17, SD = 5.02), which suggests that the students are generally more satisfied with life. Students reported that emotional well-being (M = 10.95, SD = 3.77), social (M = 14.38, SD = 5.60), and psychological well-being (M = 23.40, SD = 6.96) coped well with their mental health. These results suggest that students are coping well with their mental health during the time of the COVID-19 pandemic. Students reported low mean scores on their GPA (M = 2.80, SD = 1.46). The Cronbach alpha coefficients for the BRS, SWLS, and MHC-SF scales are provided in the diagonal of Table 6 and are the results of the reliability analysis.

There were non-significant (P = .099) and positive, correlations between age and almost all the measured variables (Table 6). There was a significant and positive (r= .421; p < .0001) correlation between resilience and life satisfaction. There was a significant (P < .0001) and positive correlations for emotional well-being with life satisfaction (r = .631) and resilience (r = .479). There were significant (P < .0001) and positive correlations for social well-being with life satisfaction (r = .551), resilience (r = .312) and emotional well-being (r = .552). There were significant (P < .0001) and positive correlations for psychological well-being with life satisfaction (r = .60), resilience (r = .404), emotional well-being (r = .644) and social well-being (r = .720). There were significant (P < .0001) and positive for GPA with life satisfaction (r = .429), resilience (r = .235), emotional well-being (r = .389), social well-being (r = .233) and psychological well-being (r = .296). There was a significant (P < 0.05) and positive correlations for GPA with age (r = .162).

Table 6.

Mean, standard deviation, and correlation analysis for indicators

Variables	***M***	***SD***	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
1. Age	19.04	1.98	(-)								
2. Life satisfaction	19.28	6.95	.106	(.78)							
3. Resilience	19.17	5.02	.113	.421**	(.79)						
4. Emotional well-being	10.95	3.77	.025	.631**	.479**	(.85)					
5. Social well-being	14.38	5.60	.043	.551**	.312**	.552**	(.78)				
6.Psychological Well-being	23.40	6.96	.053	.603**	.404**	.644**	.720**	(.82)			
7. GPA	2.80	1.46	.162*	.429**	.235**	.389**	.233**	.296**	(-)		

Notes. N=242 * $p \leq 0.05$; ** $p \leq 0.01$; *M* = Mean; *SD* = Standard deviation; *GPA*= Academic performance.

Regression analysis

Regression analysis was conducted to test propositions 1 and 2. This analysis aimed to establish the proportion of the variance in life satisfaction and academic performance explained by emotional, social, and psychological well-being.

The dependent variable should be quantitative, and the coefficients should be estimated for each independent variable (Alexopoulos, 2010). Multiple regression states that for us to examine something, variables must be related in a significant way. In Table 7 below, multiple regression analysis was used to examine the well-being dimensions' significant relationship with life satisfaction (R2 = .478, adjusted R = .471, F 3,238 = 72,660 $p < .0001$). Emotional well-being strongly correlates significantly with life satisfaction ($\beta = .38$, $t = 6.26$, $p < .001$).

Social well-being significantly correlates with life satisfaction (β = .17, t = 2.52, p < .05). Psychological well-being explains a significant relationship of life satisfaction (β = .22, t = 3.06, p < .01) (Table 7). Therefore, the well-being dimensions seem to be as explains as expected with life satisfaction since all three well-being dimensions are significant variables of life satisfaction accounting for 47.8%. Therefore, proposition 1 was supported.

Table 7.

Regression analysis for life satisfaction

Variance	***B***	***SE(B)***	***95% CI***	**β**	***t***	***p***
Emotional well-being	1.16	.092	{.982,1.34}	.389	6.26	.000
Social well-being	.363	.071	{.223,.502}	.172	2.52	.012
Psychological well-being	.228	.074	{.081,.375}	.228	3.06	.002

Notes. N=242; *B* = Unstandardised beta coefficient; *SE(B)* = Standard error of the unstandardised beta coefficient; *CI* = Confidence interval for the unstandardised beta coefficient.

This study conducted a regression analysis to discover if well-being dimensions (IV) are significant to life satisfaction (DV). It is essential to first determine whether the assumptions for regression are accurate before conducting regression analysis. Level of measurement: IVs should be measured using categorical or interval data - this assumption is met by using interval scales or Likert scales (Field, 2013). To conduct multiple linear regression analyses, several assumptions must be met. First, the sample size must be considered. To determine the adequacy of the sample size, Pallant (2016) proposed using Tabachnick and Fidell's (2013) formula (2007: N > 50 + 8m (where m = the number of independent variables). This assumption was tested using the guideline provided by Tabachnick and Fidell (2013), a sample size equal to the number of independent variables needed within the model should be eight times greater than the number of independent variables. With a total sample size of 242, the assumption of adequate sample size can be fulfilled since the current sample size is considered acceptable.

The Durbin-Watson test was used to assess the assumption of independent errors. This assumption is met because the Durbin-Watson score used was 1.9, which was greater than 1 and less than 3. A P-P plot was used to test the assumption that the data are normal (see

Appendix G Figure 2). Hence, the scores all followed the central diagonal, proving the assumption to be correct. A histogram was used to further infer this (see Appendix G Figure 3). A scatterplot was used to test homoscedasticity by comparing standardised residuals to standardised explained values. Due to the absence of pattern or tunneling in the residuals, homoscedasticity was assumed. We also investigated linearity using the scatterplot (Appendix G Figure 4). The assumption of linearity was therefore met since no curved pattern was shown.

Table 8 below, showed multiple regression that was conducted to explain academic performance (DV) based on scores of well-being dimensions (IV). The model was seen to significant (R2 =.154; adjusted R = .143 F3.238 = 14.402, $p < .0001$). Emotional well-being was a significant indicator of academic performance ($\beta = .20$, $t = 2.55$, $p < .0001$). Social well-being was a non-significant variance of academic performance ($\beta = .02$, $t = 279$, $p = 814$). Psychological well-being was a non-significant variance of academic performance ($\beta = .10$, $t = 1.06$, $p = 328$). Therefore, the well-being dimensions do not seem as statistically significant as expected with emotional well-being being the only significant variance of academic performance for 15.4% of the variance in academic performance. Social and psychological well-being are seen to be insignificant variances therefore proposition 2 was seen to be rejected in favour of the null proposition.

Table 8.

Regression analysis of academic performance

Variance	***B***	***SE(B)***	***95%CI***	**β**	***t***	***p***
Emotional well-being	.194	.041	{.032, 247}	.209	2.55	.000
Social well-being	.036	.033	{.029,.101}	.025	.279	.814
Psychological well-being	.038	.035	{.032,.108}	.105	1.06	.328

Notes. N = 241; *B* = Unstandardised beta coefficient; *SE(B)* = Standard error of the unstandardised beta coefficient; *CI* = Confidence interval for the unstandardised beta coefficient.

This study conducted a regression analysis to discover if well-being dimensions (IV) are significant in relation to academic performance (DV). Regression analysis is based on the following assumptions. Before multiple regression was run, the following assumptions were

tested. Firstly, the Durbin-Watson test was used to assess the assumption of independent errors. This assumption is met because the Durbin-Watson score used was 2.0, which was greater than 1 and less than 3. A P-P plot was used to test the assumption that the data are normal (see Appendix H Figure 5). Hence, the scores all followed the central diagonal, proving the assumption correct. A histogram was used to further infer this (see Appendix Figure 6). A scatterplot was used to test homoscedasticity by comparing standardised residuals to standardised explained values. Due to the absence of pattern or tunneling in the residuals, homoscedasticity was assumed. Scatterplots were conducted for further investigation (Appendix H Figure 7). The assumption was therefore met since no curved pattern was shown.

Hierarchical regression analysis

Hierarchical multiple regression was run to measure the three control variables (mhc_swb, mhc_ewb, and mhc_pwb) to explain academic performance in the first semester-GPA or estimated average percentage, after controlling the influence of age at last birthday, female, and Black African. Analyses were conducted to make sure that the normality, linearity, multicollinearity, and homoscedasticity assumptions were not violated. Age at last birthday, female, and Black African were entered in the step 1, explaining 10.5% of the variance in Academic Performance in the first semester - GPA or estimated average percentage as the dependent variable. After entry, in the second step 2, mhc_swb, mhc_ewb, and mhc_pwb, the total variance explained by the model as a whole was 14.5%, F (6.160) = 4.65, p= <.001. The two control measures explained an additional 4.1% of the variance in Academic Performance, after controlling for Age at the last birthday, female, and Black African responding, R squared change = .4.4, F change (3.160) = 2.736, p < .045. In the final model, only the two variances were statistically significant, with the mhc_ewb, recording a higher beta value (beta = .189, p < .054) than the Black African (beta = –.247, p= .002).

The following assumptions were tested before hierarchical multiple regression was run. Firstly, independent errors were evaluated utilising the Durbin-Watson test. Field (2013) suggests that a value between 1 and 3 meets the assumption of independent errors. The Durbin-Watson score that was calculated was 1.7, therefore the value is less than 3 but greater than 1 meeting the outlined criteria. This indicated that any errors within the data are random and independent. The scores must follow the central diagonal to indicate a perfectly normal distribution. The P-P plot shows a general cluster of the scores along the central diagonal

therefore the assumption of normality is met. A scatterplot was created that did not show a pattern or tunneling of the residuals that met the homoscedasticity assumption. The scatterplot was also used to test linearity. No curved pattern was shown therefore the assumption of linearity was met. Lastly, the assumption relating to the sample size needs to be met. As Tabachnick and Fidell (2006) outlined, the sample size should be eight times greater than the number of independent variables. The first model had 3 independent variables and the second model had 6. The sample size is 167, therefore, the sample size would need to be at least 24 for model 1 and 48 for model 2, and therefore, this assumption is met.

Table 9.

Summary of hierarchical multiple regression analysis for academic performance (DV)

		Unstandardized coefficients		Standardized coefficients		
M 1		B	Std. Error	Beta	*t*	*p*
	Age	.475	.941	.038	.505	.614
	Female	-1.063	1.665	-.048	-.638	.524
	Black African	-6.696	1.811	-.287	-3.697	<.001
M 2						
	Age	.866	.940	.070	.921	.358
	Female	-.636	1.654	-.029	-.384	.701
	Black African	-5.756	1.821	-.247	-3.160	.002
	EWB	.543	.279	.189	1.944	.054
	SWB	-.119	.212	-.061	-.563	.574
	PWB	.116	.188	.074	.616	.539

Notes. *N* =.167; *B* = Unstandardized beta coeffiencts; *p*<001; *Constant* = Academic performance. *mhc_ewb* = Emotional well-being. *mhc_ swb* = Social well-being. *mhc_pwb* = psychological well-being.

Moderation analysis

The purpose of moderation analysis is to identify conditions under which a particular relationship between variables is affected by the level of another variable (Field, 2013). Field (2013) recommends using the PROCESS tool for running moderation analysis. PROCESS script was added to SPSS to run the analysis. Using PROCESS v4 by Andrew. F. Hayes. Table 13 (see appendix) indicated the moderation results.

The overall model is significant (R=3530, R2=.1246; F3.238, =11, 2893 p<.000). A moderation analysis was conducted to examine whether resilience moderates the relationship

between GPA and MHC- total. The analysis was run at a 95% level of confidence, 1000 bootstrap samples were used to estimate the indirect effect and were mean centered before analysis. The result of the effects of the interaction term (IV) on resilience (MV) is presented in Table 13 (see appendix).

The results obtained on MHC-total indicated that GPA does not have effects (b= 0.0076, t = 0.2968, p = 0.7669. The lower limit confidence interval (LLCI) was -0.0429 and the upper limit confidence interval (ULCI) is 0.0581. This supports the insignificant results found in the moderation analysis, indicating that as resilience increases or decreases, the relationship between well-being dimensions and academic performance is unaffected. Therefore, proposition 3 is not supported. Overall, the relationship between GPA and MCH-total is not moderated by resilience.

Final notes

Table 10.

This section presents the propositions that were investigated in this study:

	Proposition	**Findings**
Proposition 1	Student well-being explains significant variance in life satisfaction.	Supported.
Proposition 2	Student well-being explains significant variance in student academic performance	Not significant. Proposition rejected in favour of the null proposition.
Proposition 3	Resilience significantly moderates the Relationship between well-being and academic performance.	Not supported.
Proposition 4	Academic performance is significantly correlated with life satisfaction.	Supported.
Proposition 5	MHC explained academic performance over and above demographic control	Not significant. Proposition rejected in favour of the null proposition.

Discussion

The current study investigated the model of Complete Mental Health in the sense of well-being (Keyes, 2011) with university students during that time of COVID-19 pandemic, as well as the relationships between well-being and academic performance (Youssef et al., 2007), life satisfaction, and resilience of university students. The research was conducted using cross-sectional data collected at a single point; therefore, it is difficult to derive causal relationships from the cross-sectional analysis.

Findings are discussed in four areas: student well-being, academic performance, life satisfaction, and resilience. The detailed findings and recommendations are summarized in the following sections. Finally, a summary of the limitations and recommendations for future research will be discussed.

Student well-being and academic performance

Students' academic performance during their first year of college was examined to determine if the COVID-19 pandemic affected their well-being. Regression analysis was used to measure three dimensions of well-being to help to explain academic performance. There were significant differences in students' emotional well-being in academic performance. It suggests that the student's academic performance depends on their emotional state. These results could suggest that students who experience distress will have poor academic performance, and the student's increased emotional state will result in good academic performance throughout the year. The non-significant differences in students' social and psychological well-being observed in this study could indicate that not many students were social or psychological affected by the COVID-19 pandemic. These results could be attributed to the fact that during the time the traditional education was adjusted and changed to hybrid or online teaching and learning, the university provided enough support in terms of communications as well as technology equipment including laptops and internet data. Thus, such support measures had a positive impact on student social and psychological well-being.

The significant and positive correlation between the student academic performance and well-being indicated that an increase or improvement in the well-being of students will have a positive impact on their academic achievement and vice versa. For example, student that are

not achieving good grades at schools they are mostly likely to be distress which can lead to poor well-being. Poor well-being has been linked to lower academic achievement, while students who report higher well-being often have higher grades (Ferrari et al., 2021). When students are struggling with their well-being, it can be difficult to focus on their studies. Poor well-being can lead to too much or too little sleep, unhealthy eating habits, and a lack of motivation (Hirsh, 2021). All these attributes or factors can affect a student's academic success in a negative way. The physical and mental toll of poor well-being can also lead to a lack of energy and focus, making it difficult to complete assignments and succeed in exams (Ferrari et al., 2021). It is important for universities to support students' well-being to ensure their academic success. Universities should focus on providing student well-being services, such as mental health counseling, career counseling, and health services (Hirsh, 2021). They should also provide students with access to social and recreational activities, such as clubs and student organizations, to promote a sense of belonging and community (Ferrari et al., 2021). Universities should also focus on creating an environment where students feel safe and supported. This includes addressing issues such as racism, sexism, and homophobia on campus, as well as providing resources to combat any type of discrimination or harassment (Hirsh, 2021). By creating an inclusive environment, universities can help students feel supported and comfortable, allowing them to focus on their studies and achieve their academic goals (Ferrari et al., 2021).

For the students to achieve academically and mentally during the critical times of transition, it is crucial to better understand the university setup and school well-being during these key times. In the study by Howell (2009), it has been shown that increased levels of emotional well-being led to positive outcomes in life and the workplace, an increase in academic performance and a decrease in procrastination, an increase in energy and self-control, happiness, satisfaction, interest in life, and the experience of satisfying careers (Westerhof & Keyes, 2010). A significant and positive correlation between emotional well-being and academic achievement was observed indicated that an improvement in the emotional well-being is most likely to increase the academic achievement. Previous researchers (Pietarinen, Soini, & Pyhalto 2014) investigated the relationship between academic achievement and school-related well-being and reported a positive correlation between well-being (thriving in university) with academic success (Pietarinen et al., 2014).

According to Miller, Connolly, and Maguire (2013), academic performance is associated with well-being, however, this is inconsistent and unpredictable due to various factors such as mental health, the environment, and other unforeseen circumstances. According to Berger et al. (2011), social mobility, classroom social climate, and peer social networks were not associated with academic achievement when measured using a 52-item Chilean well-being scale. Students' life satisfaction scale (Huebner, 1991) as well as the positive and negative affect scale (Laurent et al., 1999) were used to measure well-being in a sample of 349 ten- to 16-year-olds (Suldo & Shaffer, 2008). They stated that well-being alone was not enough for academic success measured by grades and standardised tests, but rather a low level of psychopathology had to be present to facilitate better academic performance. Academic success and positive peer relationships are promoted by teaching self-regulation skills for emotional regulation and behavior. The program did not have a measurable impact on behavioral outcomes in two randomized controlled trials with 389 students and 30 schools (Bradley-Johnson, Morgan & Nutkins, 2004). However, it improved social skills and academic achievement. Generally, the expectation is that the academic performance of students studying from "home" will be poor compared to the ones that are based at the university; this is because the students studying from home also must perform household chores. Surprisingly, the academic year will not negatively affect students' academic performance as much as it would appear when they receive adequate support at home (e.g., social support), even if the academic year is disrupted.

In conclusion, student well-being and academic performance are strongly correlated. Universities should focus on creating an environment where students feel safe and supported, as well as providing resources for their physical and mental health. By doing so, universities can ensure their students' academic success and overall well-being.

Student well-being and life satisfaction

Regression analysis indicated that all three positive well-being dimensions were strong positive variances in life satisfaction. These results were similar to the ones that were found in emotional well-being and academic performance in this study. Consequently, an increase in well-being will translate into increased levels of life satisfaction. This positive relationship between life satisfaction and well-being proved to be the strongest (refer to appendix G). Satisfaction with life enables successful relationships, skills, and fulfillment that contribute to a successful lifestyle. Petrillo, Capone, Caso, and Keyes (2015) found that all the subscales of

the MHC, for example, satisfaction with life and the corresponding aspects of well-being and performance, are correlated positively with positive emotions, therefore demonstrating convergent validity.

Easterlin (2005) and Lelkes (2008) report that a high level of life satisfaction is significantly related to having a good job, providing better physical and mental health, having positive life events, having healthy interpersonal relationships, and having a high income. Emotions largely determine life satisfaction, and thus, emotions play an important role in determining life satisfaction. According to various studies, positive and negative emotions affect human life satisfaction differently, and life satisfaction is positively related to positive emotional experiences (Kuppens, Realo & Diener, 2008).

In a study by Cohn, Fredrickson, Brown, Mikels, & Conway (2009), positive emotions were associated with increased life satisfaction. They also argued that happiness could be derived from positive emotions and evaluations of one's life. Guney (2009) claimed that psychological well-being is strongly associated with life satisfaction. Thus, those who suffer from poor well-being will not be satisfied with their lives. The needs, desires, and wishes of everyone play an important role in determining what constitutes life satisfaction for them. Therefore, during this period of complex distress, it is essential to address the well-being of students to support them in adjusting to university life.

The findings in recent studies on student well-being and life satisfaction have been quite varied. In a study of college students in Australia, for example, it was found that overall levels of life satisfaction and well-being were lower than those reported by non-student peers (McMahon, Tham, & McEntee-Atalianis, 2019). This could be due to factors such as academic pressures, financial stress, and the transition to adult life. Furthermore, the study found that while life satisfaction was not affected by gender, certain demographic variables such as race, ethnicity, and socio-economic status did have an impact. In another study of university students in the United States, researchers found a positive correlation between subjective well-being and life satisfaction (Hou, Li, & Liu, 2020). Specifically, the study found that students who had higher levels of self-esteem and social support tended to report higher levels of well-being and life satisfaction. Additionally, the study found that students who spent more time in leisure activities, such as physical exercise, also had higher levels of well-being and life satisfaction.

Lastly, a study of university students in the Netherlands found that levels of life satisfaction were positively correlated with levels of engagement in academic activities (Van der Geest, Schreurs, & Van der Linden, 2019). Specifically, the study found that students who were more engaged in their classes and had better relationships with their peers and professors had higher levels of life satisfaction. Additionally, the study found that students who were more confident in their academic abilities also had higher levels of life satisfaction.

Overall, these studies indicate that student well-being and life satisfaction are influenced by a variety of factors, such as demographic variables, self-esteem, social support, leisure activities, and academic engagement. It is important for universities to be aware of these factors and to provide resources and support to ensure that all students have access to a positive and supportive environment.

Relationship between student well-being and resilience

The results obtained on a correlational analysis (see Table 6) in this study indicated positive statistically significant correlations between well-being dimensions and resilience. According to this study's findings, these results benefit both students and educational practices. Well-being programs can help students maintain their good mental health, which will help them face difficult challenges in their university lives with better psychological resilience. In support of the results obtained in this study, several studies have shown that promoting well-being and higher levels of resilience leads to greater life satisfaction, enhanced creativity, and improved learning (Seligman, Gillham, Reivich & Linkins, 2009).

This study aimed to examine and compare SBWLS, BRS, MHC, and resilience on academic performance among undergraduate students across the faculty of commerce. Results from the sample suggested that students with higher well-being reported greater resilience. Positive emotion is positively correlated with resilience among undergraduate students, indicating those with greater positivity levels tend to have greater resilience levels. Previous studies suggest emotional positivity can significantly contribute to resilience and a resilient life (Sophie, 2016). Furthermore, a study found that undergraduates from the University of Michigan who were more resilient exhibited more eagerness, excitement, and happiness are all positive emotions (Tugade & Fredrickson, 2007). In one research of students in Kermanshah, resilience was found to be positively connected to well-being, with mentally well individuals

experiencing higher levels of resilience (Hamid et al., 2012). Thus, practicing values like resilience, being creative, and problem-solving can help students succeed in their careers and life. Among university undergraduate students, resilience and well-being have a medium and positive relationship. The degree of resilience also significantly explains perceived well-being among this group of students. In previous studies, resilience was linked to well-being. Our findings support that association. Hamid et al. (2012) discovered that high resilience levels significantly explain better psychological well-being in psychology undergraduates.

Resilience is an important factor in overall well-being and has been studied extensively to gain insight into its relationship with various aspects of health and wellness. Studies have found that resilience is associated with better physical and mental health and well-being, and is associated with lower levels of stress, depression, and anxiety (Luthar, Cicchetti & Becker, 2000; Rutter, 2012). This indicates that resilience plays an important role in the promotion of well-being. Recent studies have looked at the relationship between different dimensions of well-being and resilience. A study by Park and You (2020) examined the associations between well-being dimensions and resilience in Korean adults. The study found significant correlations between resilience and all dimensions of well-being, including physical health, psychological health, social relationships, and environmental health. This indicates that resilience plays an important role in overall well-being, with strong associations between resilience and each of the well-being dimensions. Similar findings have been reported in a study by Liu et al. (2020) which explored the relationship between resilience and well-being in college students. The study found significant correlations between resilience and all five dimensions of well-being, including emotional, physical, environmental, social, and spiritual well-being. These findings suggest that having greater resilience is associated with better overall Well-being. In addition, a study by Kim et al. (2020) looked at the relationship between resilience and well-being among older adults in South Korea. The study found significant correlations between resilience and all five dimensions of well-being, including physical, psychological, social, environmental, and spiritual well-being. These results suggest that resilience plays an important role in overall well-being among older adults. Overall, there is a strong correlation between resilience and well-being, indicating that resilience plays an important role in overall Well-being. The findings from the studies discussed above suggest that having greater resilience is associated with better physical and mental health and well-being, and is associated with lower levels of stress, depression, and anxiety.

Zeng, Hou, and Peng (2016) found a moderately positive correlation between resilience and psychological well-being in Chinese primary and secondary school students. They reported that resilience mediates between psychological well-being and a mature mindset, which refers to an individual's ability to view challenges as opportunities for intellectual growth. Resilient people can find positive meaning in adversity, which helps to buffer their negative emotions, and such adaptive emotion regulation is linked to increased well-being. As a result, positive thinking should be emphasized in university because it plays an important role in mediating resilience and well-being.

Relationship between academic performance and life satisfaction

The current study has provided evidence of a statistically significant relationship between academic performance and life satisfaction for first-year students. This finding is consistent with previous research that suggests that academic performance is a major contributor to well-being (Baker & Sirin, 2005). In other words, students who have higher academic performance tend to have higher life satisfaction. The connection between academic performance and life satisfaction is likely since academic performance is often associated with positive outcomes such as higher income, better job prospects, and improved self-esteem. For example, students who perform well academically are more likely to be accepted into prestigious universities, which can lead to higher-paying jobs and more opportunities for advancement (Brown & Schultheiss, 2007). Similarly, students who achieve high grades often experience improved self-esteem and confidence, which can in turn contribute to their overall life satisfaction (Oswald et al., 2001). The findings from this study suggest that college administrators and counselors should focus on providing students with the resources and support necessary to help them achieve success in their academic pursuits. For example, providing students with access to academic counseling, tutoring services, and other support programs can be beneficial in helping them achieve their academic goals (Oswald et al., 2001). Additionally, it may be beneficial for universities to provide students with incentives for achieving academic success, such as scholarships or other forms of recognition (Brown & Schultheiss, 2007). By equipping students with the skills and resources necessary to reach their academic goals, universities can help foster an environment in which students are more likely to experience higher levels of life satisfaction. According to Kumar and Dileep (2005), academic life satisfaction is the degree to which one is satisfied with his or her academic life based on the achievement of important academic goals or aspirations (Kumar & Dileep, 2005).

Several longitudinal studies point to a reciprocal relationship between academic achievement and life satisfaction, with life satisfaction influencing later university achievements indicated by grades and academic achievement influencing later life satisfaction (Suldo et al., 2011).

In addition, the evidence also indicates that a positive educational outcome is associated with life satisfaction. Numerous researchers have shown that a high level of life satisfaction contributes to academic performance among university students, along with the absence of psychological distress (Renshaw & Cohen, 2014; Ojeda, Flores, & Navarro, 2011). There is also an association between greater life satisfaction and higher academic expectations, higher academic self-efficacy, and lower academic stress (O'Sullivan, 2011; Howell,2009). Some studies have linked higher grades (GPAs) to positive life satisfaction, especially among college students (Howell, 2009). In contrast, other researchers have found no correlation between academic achievement and life satisfaction scores in several cross-sectional studies, and no difference was found in levels of global life satisfaction between students at different achievement levels, such as students at risk for university failure and normally achieving students (Huebner, 1991; Huebner & Alderman, 1993). According to recent research, various outcomes, such as good psychological well-being, socialization relationships, and academic achievement, can be linked to high life satisfaction (Park, 2004).

Similar findings have been reported in the management literature regarding the relationship between work satisfaction and job performance. In the most recent meta-analysis by Judge, Thorsen, Bono, and Patton (2001), the authors found a negative correlation between job satisfaction and job performance. There has been some debate over whether job satisfaction is directly related to job performance since performance is determined by features such as ability, training, motivation, tools, and technologies (Judge et al., 2001). There is also the possibility that the lack of consistent positive findings could be attributed to the choice of independent variables rather than the choice of dependent variables: the relationship between job satisfaction and student well-being and job performance is not established, nor is the relationship between student satisfaction and university performance, but rather that individual performance is determined by overall life satisfaction. An important characteristic of life satisfaction is that it encompasses many factors that may affect an individual's performance, specifically academic performance in this case. As emerging research in management literature indicates, life satisfaction has a significant relationship with student performance.

In conclusion, the current study has provided evidence of a statistically significant relationship between academic performance and life satisfaction for first-year students. This finding suggests that universities should prioritize providing students with the resources and support necessary to help them succeed academically, as this can have a positive impact on their overall levels of life satisfaction.

MHC explained academic performance over and above demographic controls

Multiple regression analysis was conducted to test whether the MHC explained academic performance over and above demographic controls. According to the data collected, there is no statistically significant relationship between age at the last birthday and academic performance. The age of the student and the year of entry into university are among the effects we consider on the individual level. There may be variations in the age of students in a class due to repeated classes, inability to enter university immediately after high school, or being on leave. Since older students tend to be more mature, we might expect them to perform better than their younger counterparts. In contrast, if they are composed of class repeaters, their performance may be affected by either a lack of ability or motivation. Student achievement is also determined by a student's university entrance score and high school type, as both are measures of the student's motivation and ability.

The results of the regression analysis showed that emotional well-being as a component of MHC was significantly associated with academic performance ($\beta = .189$, $p < .054$), over and above controls such as gender, and age. This finding suggests that well-being is an important variance of academic performance. Previous research has highlighted the importance of well-being for academic success (Vuori et al., 2020). For example, student well-being has been associated with lower academic performance, lower grades, and increased academic difficulties (Kazak, 2017). Moreover, students with a higher level of mental health were more likely to attend classes, complete assignments, and have higher academic performance (Lam & Wong, 2017). Thus, the findings of this study support the notion that well-being is an important variance of academic performance. The findings of this study have important implications for practitioners, educators, and policymakers. For example, the results suggest that well-being interventions may be beneficial for students' academic success.

Moreover, the findings suggest that mental health should be considered when assessing the academic performance of students. As such, practitioners should consider assessing mental health in addition to traditional academic measures, such as grades and test scores. Furthermore, the findings of this study suggest that mental health should be addressed during the educational process. Educators should also be aware of the potential impact of mental health on academic performance and should strive to create a safe and supportive learning environment for all students, regardless of their mental health. Finally, policymakers should consider the impact of mental health on academic performance when developing educational policies. In conclusion, the results of this study suggest that the MHC-SF is a significant variance of academic performance over and above demographic controls. The findings of this study have important implications for practitioners, educators, and policymakers and suggest that Well-being should be considered when assessing and promoting academic success.

There was no correlation between female students and academic performance as per the analysis. In support of the result found in this study, more than 77,000 eighth-grade students from 19 developed and developing countries were analysed (Baker & Jones, 1993). They found no evidence of a significant gender gap. There seems to be little-to-no innate male intelligence superiority due to cross-national variations and the trend toward fewer differences between males and females. In higher education, women are often found to outperform men. Hyde and Kling (2000) state this regardless of the measure of success used. Bridgeman and Wendler (1991) found that when they investigated achievement in course grades, women often received grades in math classes equal to or greater than men. A review of the research on gender variations in academic achievement at various levels yielded mixed results. However, one consistent trend is that females outperform males in higher education.

Emotional well-being was found to explain significant variance in academic performance, whereas social and psychological well-being did not. These findings are already discussed in the section on student well-being and academic performance.

Limitations and suggestions for future research

The research was conducted using cross-sectional data collected at a single point; therefore, it is difficult to derive causal relationships from the cross-sectional analysis. Future studies may wish to conduct similar research in different higher education institutions. The non-

probability convenience sampling technique was employed, and caution against the generalisability of the findings should be made. The result of this study is likely to have limited generalisability to the entire higher education institutions nationally and internationally, which questions whether the conditions of external validity are met. However, this study offered an acceptable sample size for results in higher education institutions. Future studies may consider conducting similar studies with larger sample sizes across the universities in South Africa. In this study, females, respondents were54.5%and males were 45.5% of the sample size. Future studies may consider data fairly in size or where male respondents represent most of the sample size. An increase in sample size and probability sample is suggested in future research for increased accuracy in generalising the findings (Mostert, Peeters & Rost, 2011).

This study investigated a correlation between well-being, life satisfaction, and academic performance at higher education institutions. For future studies, it is recommended to investigate the relationship between student well-being and life satisfaction dimensions to examine the gap between them.

A survey of the sample using self-report questionnaires was used to collect quantitative data and the reason to use self-report questionnaires is that the survey was anonymous, which allowed for the data to be statistically analysed and inferences made between the variables due to COVID-19 pandemic and having no full access to students and certain places of the institution. The limitation of self-report data has the possibility of recall and reporting bias which could influence the results of this study (Wang et al., 2010). As with most survey research, a common method bias in social-desirability response bias may be present since all the data were self-reported.

Another limitation of the study was the quality of the literature review. Particularly was difficulty in finding literature on the correlations with student well-being, resilience, academic performance, and life satisfaction. This could be seen as a limitation of the study, and if future research could improve on those sections, the quality of this research would also be enhanced.

Confirmatory factor analysis (CFA) is to be conducted, and further psychometric work on the factor structure of MHC-SF in the South African context. It is very important to assess students' well-being and life satisfaction responses to pandemics, given the importance of human life satisfaction and well-being in managing epidemics. Universities must put their

students' well-being first to prepare them for future challenges, and it may be beneficial to build adequate psychological resources in early life. Additionally, to the best of our knowledge, this is the first study to estimate mental well-being in students during the pandemic following the classification proposed by Keyes in South Africa. Future studies may want to explore similar studies using the same model. This positive relationship will serve as an informative tool for future research. The variables that did not correlate should not be overlooked as they form the basis for further investigation.

This study was only done at the University of Cape Town; therefore, future studies are needed to comprehensively investigate the magnitude and nature of social and psychological well-being on students' academic performance across the universities of South Africa under similar circumstances such as the COVID-19 pandemic and unrest or riots.

Despite the limitations, the current research has contributed to investigating student well-being in different circumstances. Firstly, the research has contributed to using the MCH-SF in the South African context. Secondly, the research has contributed to creating additional information about the awareness of student well-being and academic performance.

Practical implications

Tertiary institutions must consider adding a mandatory orientation for first-year students to ensure they remain productive and flourishing during the COVID-19 pandemic. As a result of these interventions, students can improve their academic performance, develop better relationships, develop self-control, master goals (short-term), manage their energy, become more motivated to learn and work hard, show improved interest in studies and work engagement, and be more satisfied in their daily lives in general (long-term). Developing a compassionate educational system in which faculty, students, and administrators thrive as interconnected communities is critical.

As discussed previously, poststratification weighting techniques were not used in this study. Future studies may want to reconsider this to reduce sampling errors and potential non-response bias.

We must learn to improve faculty productivity to achieve a higher level of student performance. Happiness, well-being, and productivity are promoted when faculty thrive. The faculty's subject knowledge, positivity, values, and soft skills encourage student performance and well-being. In turn, this encourages better learning in the classroom, achieving higher academic success for the students and bringing satisfaction to the faculty.

Conclusions

This study found that life satisfaction and well-being had a positive, statistically significant relationship. This indicates that life satisfaction plays a role in student well-being. In other words, when student well-being increases, life satisfaction also increases. According to this study, a positive correlation exists between academic performance and life satisfaction. Although, the results of this study indicated that student well-being and academic performance are not moderated by resilience. The correlational analysis indicated a positive relationship between well-being and resilience, but statistically insignificant. Thus, improving students' emotional, social, and psychological well-being could improve their academic performance since they can function more effectively if they are well-nourished.

Unhappiness, dissatisfaction in life, and low self-esteem are some of the symptoms of low psychological well-being among students, leading them to face higher levels of pressure. Their academic performance may be affected by this situation. This study's findings align with research conducted by Abdullah, Kong, and Talib (2014), which also proved that university students' well-being is more important to adjust well academically, socially, and emotionally to university life. It can be concluded that there is a need for conducting studies related to students' well-being in the university to maintain good academic performance and increase life satisfaction during their university time.

The COVID-19 pandemic has caused a great deal of disruption to the lives of students. It has caused many students to experience a decline in their well-being, academic performance, and life satisfaction. These effects are likely to be long-lasting and will require careful consideration and planning to mitigate. Schools and universities should focus on providing students with the necessary resources to help them manage the impact of the pandemic, such as access to mental health services, online learning platforms, and social support networks. In

addition, students should be mindful of their own well-being and take steps to manage their stress and anxiety, including using relaxation techniques, engaging in physical activity, and finding ways to stay connected with friends and family. With the right resources, students can continue to thrive during this difficult time.

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Appendix A

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29 07 2021

Nokulunga Winnie Mbuma

School of Management Studies

University of Cape Town

REF: REC 2021/07/022

Students' well-being, academic performance, and life satisfaction during Covid-19

We are pleased to inform you that your ethics application has been approved. Unless otherwise specified this ethical clearance is valid until 31-Dec-2022 .

Your clearance may be renewed upon application.

Please be aware that you need to notify the Ethics Committee immediately should any aspect of your study regarding the engagement with participants as approved in this application, change. This may include aspects such as changes to the research design, questionnaires, or choice of participants.

The ongoing ethical conduct throughout the duration of the study remains the responsibility of the principal investigator.
We wish you well for your research.

Signed by candidate 2021.07.29 14:14:26 +02'00'

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Appendix B

Adult MHC-SF (ages 16 or older): Mental Health Continuum – Short Form (MHC-SF) (Keyes, 2005). Please answer the following questions about how you have been feeling during the past month. Place a check mark in the box that best represents how often you have experienced or felt the following:

During the past month, how often did you feel …	NEVER	ONCE OR TWICE	ABOUT ONCE A WEEK	ABOUT 2 OR 3 TIMES A WEEK	ALMOST EVERY DAY	EVERY DAY
1. happy						
2. interested in life						
3. satisfied						
4. that you had something important to contribute to society						
5. that you belonged to a community (like a social group, or your neighbourhood)						
6. that our society is becoming a better place for people likes you						
7. that people are basically good						
8. that the way our society works makes sense to you						
9. that you liked most parts of your personality						
10. good at managing the responsibilities of your daily life						
11. that you had warm and trusting						

relationships with others						
12. that you had experiences that challenged you to grow and become a better person						
13. confident to think or express your own ideas and opinions						
14. that your life has a sense of direction or meaning to it						

Appendix C

Satisfaction with life scale

The Satisfaction with Life Scale (SWLS) (Diener, Emmons, Larsen, & Griffin,1985) is a widely used measure of life satisfaction. The SWLS consists of five items designed to measure global cognitive judgments of satisfaction with life. Below are five statements that you may agree or disagree with. Using the 1 - 7 scale, indicate your agreement with each item. Please be open and honest in your responding.

RESPONSE SCALE: Strongly disagree to strongly agree (with neutral) 7-point scale

Item 1: In most ways my life is close to my ideal.

Item 2: The conditions of my life are excellent.

Item 3: I am satisfied with my life.

Item 4: So far, I have gotten the important things I want in life.

Item 5: If I could live my life over, I would change almost nothing.

Appendix D

The Brief Resilience Scale.

The six items of the brief resilience scale (BRS) Smith, Dalen, Wiggins, Tooley, Christopher, & Bernard (2008). Items 1, 3, and 5 are positively worded, and items 2, 4, and 6 are negatively worded. The BRS is scored by reverse coding items 2, 4, and 6 and finding the mean of the six items. Below are six statements that you may agree or disagree with. Using the 1 - 5 scale, indicate your agreement with each item.

RESPONSE SCALE: Strongly disagree to strongly agree (with neutral) 5-point scale

Item 1: I tend to bounce back quickly after hard times

Item 2: I have a hard time making it through stressful events

Item 3: It does not take me long to recover from a stressful event

Item 4: It is hard for me to snap back when something bad happens

Item 5: I usually come through difficult times with little trouble

Item 6: I tend to take a long time to get over setbacks in my life

Appendix E

Age at last birthday?

_____

Gender?

Female / Male / Other

What is your ethnicity?

Black African /Coloured/Indian/White/ prefer not to answer

Source of majority funding of studies

NSFAS/ Parents / Other family /Loans or bursaries / Other

Academic Performance

GPA in first semester (if known): _____

Estimated average of marks in required subjects in first semester: _____

I am satisfied with my academic performance in the first semester [scale: strongly disagree to strongly agree]

My academic performance in the first semester accurately indicated my academic ability [scale: strongly disagree to strongly agree]

My grades are important to me [scale: strongly disagree to strongly agree]

Appendix F

Table 10.

Reliability analysis for Resilience

Item number	Item description	Correlated item- total correlation	Cronbach's alpha (@) if Item Deleted	Cronbach's alpha (@)
				.79
5	I usually come through difficult times with little trouble.	.30	.80	
1	I tend to bounce back quickly after hard times.	.55	.75	
2	I have a hard time making it through stressful events.	.58	.74	
3	It does not take me long to recover from a stressful event.	.58	.74	
6	I tend to take a long time to get over setbacks in my life.	.60	.74	
4	It is hard for me to snap back when something bad happens.	.61	.74	

Table 11.

Reliability for life satisfaction

Item number	Item description	Correlated item- total correlation	Cronbach's alpha (@) if Item Deleted	Cronbach's alpha (@)
				.82
5	If I could live my life over, I would change almost nothing.	.52	.81	

4	So far, I have gotten the important things I want in life.	.58	.79
2	The conditions of my life are excellent.	.60	.78
1	In most ways, my life is close to my ideal.	.64	.77
3	I am satisfied with my life.	.73	.74

Table 12.

Reliability for mental health three dimensions

Item number	**Item description**	**Correlated item- total correlation**	**Cronbach's alpha (@) if Item Deleted**	**Cronbach's alpha (@)**
				.85
1	happy	.73	.78	
2	Interested in life	.71	.80	
3	satisfaction	.72	.79	
				.78
4	contributions to society	.52	.75	
5	belong to the community	.59	.73	
6	society is becoming a better place	.68	.70	
7	people are basically Angry the way our society works	.45	.77	
8	the way our society works	.54	.74	
				.82
9	personality	.63	.78	
10	managing the responsibility	.56	.79	

11	warm and trusting relationships	.53	.80
12	experience challenges	.54	.80
13	confident to think	.59	.79
14	sense of direction	.65	.77

Table 13.

Moderation analysis using a process

	B	***Se(B)***	***t***	***p***
MHC-total	,0076	,0256	,2968	,7669
Resilience	-,0208	,0631	-,3300	,7417
Int-1	,0011	,0012	,8719	,3841

Notes. N=242 * $p \leq 0.05$; ** $p \leq 0.01$; R 2 = .35; Dependent variable = academic performance; B = unstandardised beta coefficient; SE(B) = standard error of the unstandardised beta coefficient

Appendix G

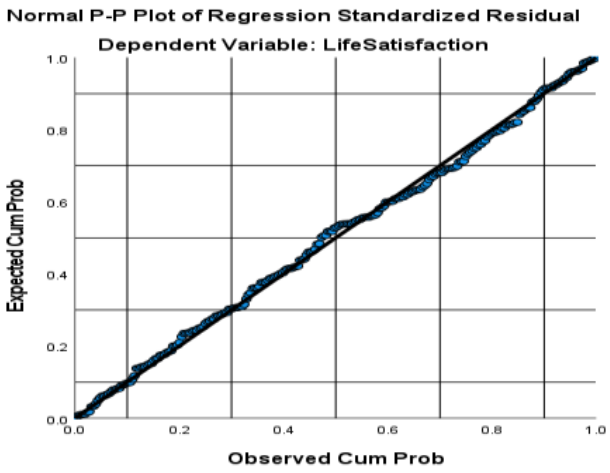

Figure 2: Assumption testing - P-P Plot used to test normality in simple linear regression analysis.

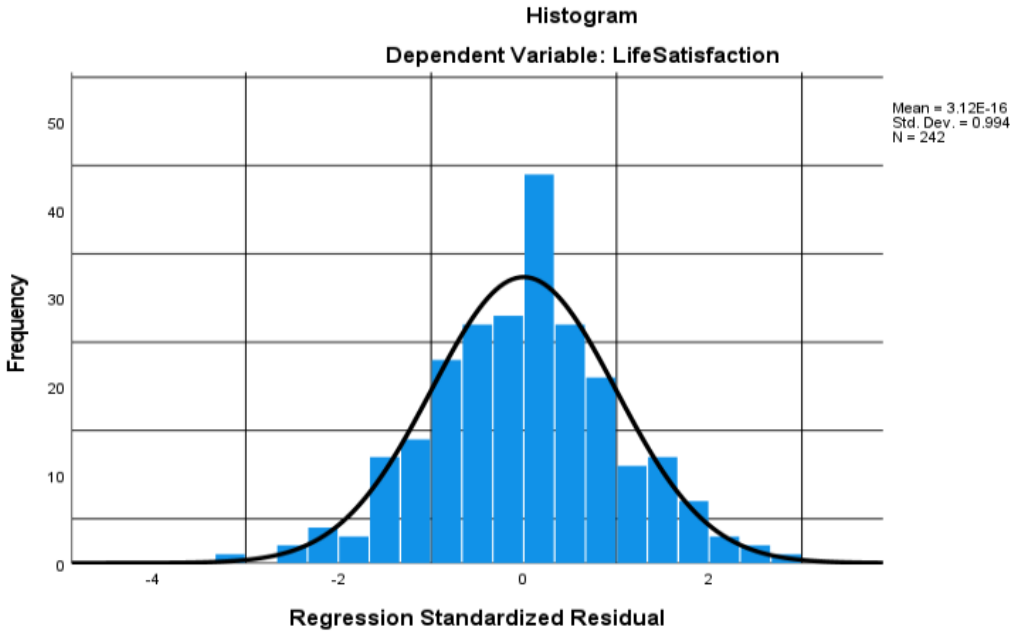

Figure 3: Assumption testing – Histogram used to test normality in simple linear regression analysis

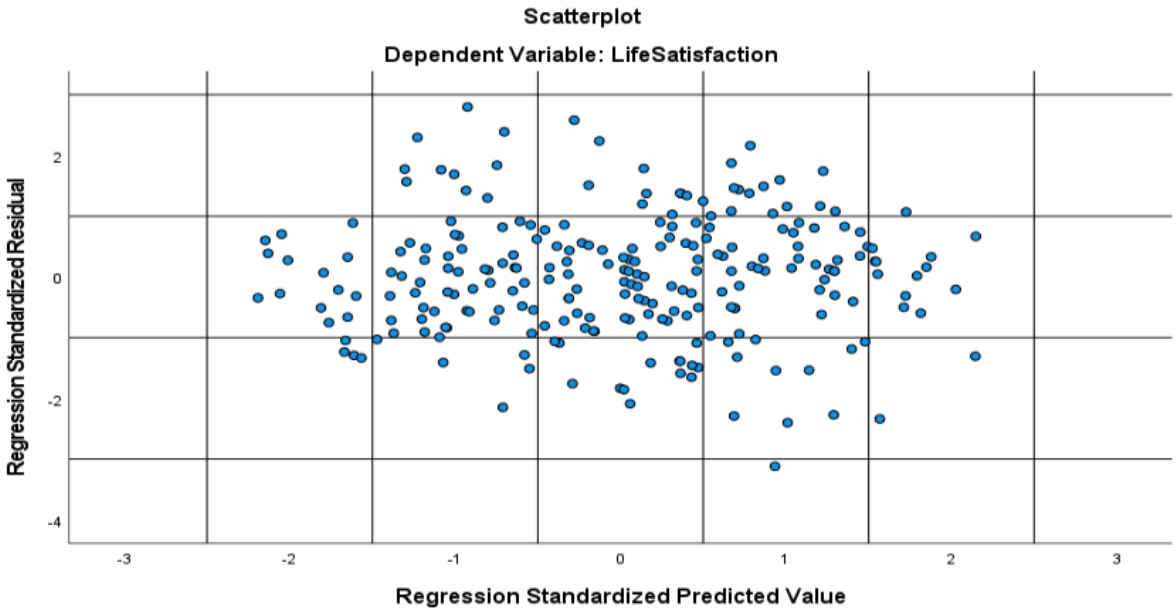

Figure 4: Assumption testing - Scatterplot testing linearity and homoscedasticity in simple linear regression analysis.

Appendix H

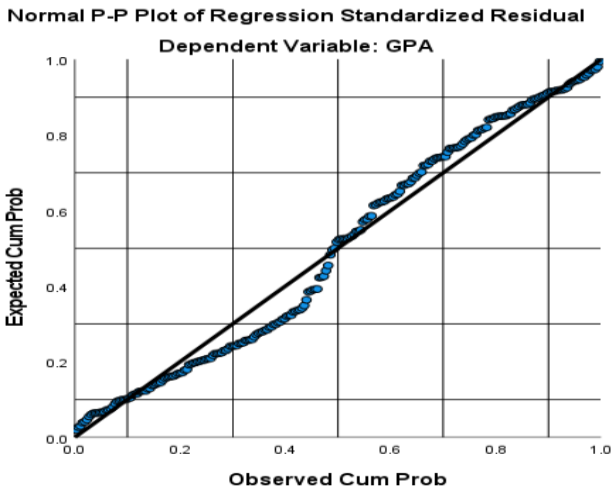

Figure 5: Assumption testing - P-P Plot used to test normality in simple linear regression analysis.

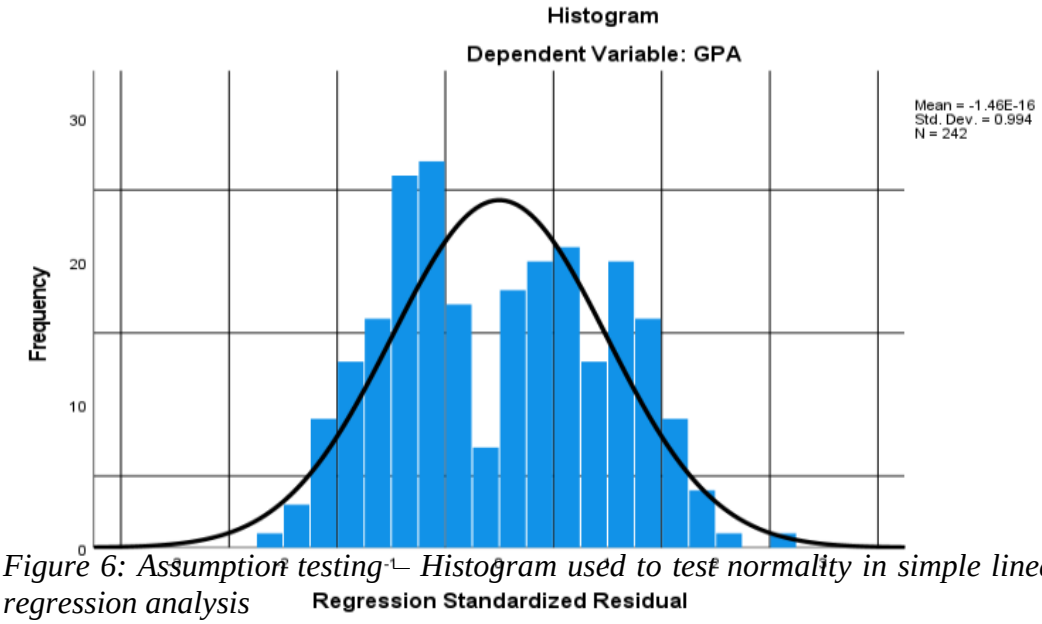

Figure 6: Assumption testing – Histogram used to test normality in simple linear regression analysis

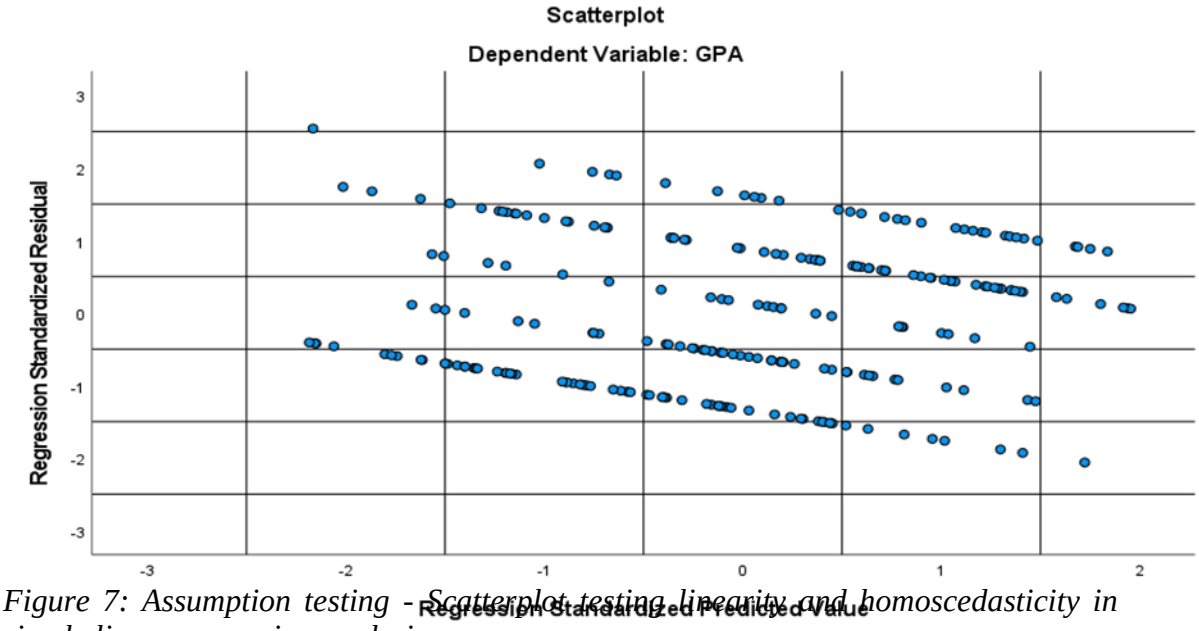

Figure 7: Assumption testing - Scatterplot testing linearity and homoscedasticity in simple linear regression analysis.

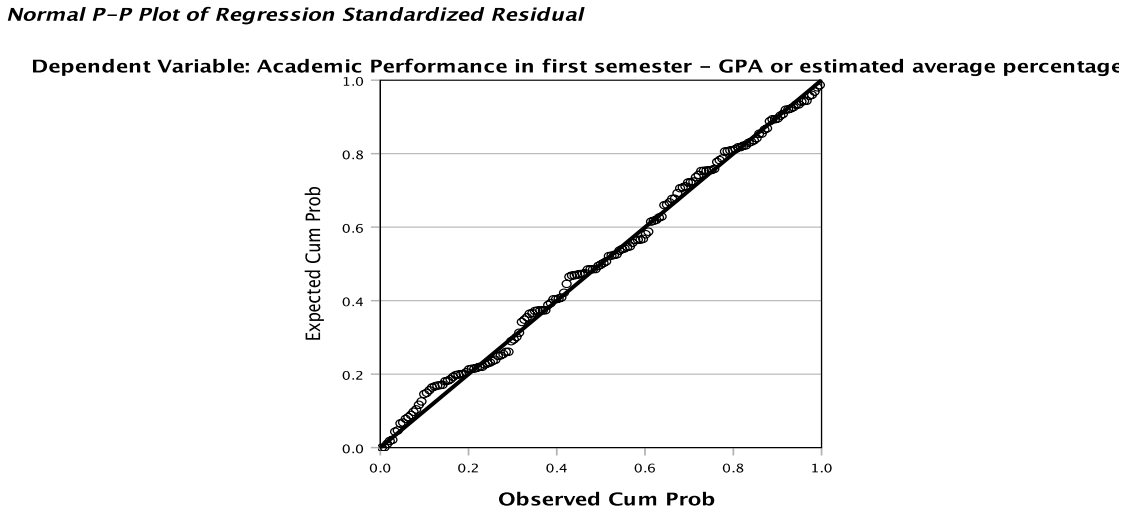

Figure 8: Assumption testing - Scatterplot testing linearity and homoscedasticity in hierarchical multiple regression analysis.