Dynamics of acculturation, posttraumatic growth and mental health of international students in South Africa: A multi-method study

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DECLARATION

I Nkarenbi Juliette Bih, declare that the thesis titled "**The dynamics of acculturative stress, posttraumatic growth and mental health of international students in South Africa: A multi-method study",** hereby submitted for the degree of Doctor of Philosophy in Psychology at the North-West University, has not previously been submitted by me for a degree at this or any other institution. I further declare that this is my own work in design and execution, and that all materials contained herein are accordingly acknowledged by means of complete references.

…… ……

Name and signature Date

CERTIFICATION

I certify that Nkarenbi Juliette Bih (Student Number 28360087) of the Department of Psychology, North-West University (Mafikeng Campus), South Africa under my supervision, carried out this research.

…… ……..……..

PROMOTER **DATE**

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DEDICATION

I dedicate this study to my parents, Mr. and Mrs. Nkarenbi, and to my daughter Kalianna, who is the reason I push beyond all obstacles I face. Thank for your support through all my studies.

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- To Almighty God, you are my strength and wisdom, no human being can match your strength. I appreciate you and thank you for giving me knowledge and for making me who I am today. Thank you for your blessings.
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"Que Dieu vous bénisse tous" – God bless you all.

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LIST OF ABBREVIATIONS

AMOS - Analysis of Moment Structure

AS - Acculturative stress

DoE - Department of Education

GHQ - General Health questionnaire

HICs - High-income countries

HREC - Health Research Ethics Committee

IMO - International Organization for Migration

LMICs - low- and middle-income countries

MDD - major depressive disorder

NWU - North-West University

OECD - Organization for Economic Cooperation and Development

PTG - Posttraumatic growth

PTGI - Post Traumatic Growth Inventory

SA - South Africa

SADC - Southern African Development Community

SEM - Structural Equation Model

SES - socio-economic status

SPSS - Statistical Package for the Social Sciences

SS - Student Stress

SSI - Student Stress Inventory

SSI - Student Stress Inventory

UK - United Kingdom

US - United States

WHO - World Health Organisation

ABSTRACT

Background: Acculturative stress has become one of the most serious social problems that have gained significant attention from social and behavioural scientists. Psychological malfunctioning among international students is a significant concern in both developed and developing countries, due to inadequate knowledge on how to prevent such challenges. This study focused on the moderation effects of posttraumatic growth on the association between acculturative stress, student stress and the psychological functioning (mental health) of international students in South African universities.

Methodology: This study was conducted using a mixed-method approach, comprising a mixed-method approach, comparative approach, and moderation. The Embedded Design was a mixed methods design in which one data set (qualitative) provides a supportive, secondary role in a study based primarily on the other data type (quantitative). A cross-sectional research design was used in the quantitative aspect of the study to investigate the acculturative stress, student stress, the posttraumatic growth and mental health of international students in South Africa. This research design embodies observations and scrutinizing data from a population at a given time. More so, since this was a mixed-method study design, the qualitative aspect of the study used a phenomenological design to collect the views of students to describe what they all have in common with regards to their experiences of acculturative stress, student stress, posttraumatic growth and mental health. A total of eight hundred and eleven (N= 811) female and male international students of age 18 to 49 years were randomly chosen using the simple random selection method from the participating universities. Both structured and standardized questionnaires comprising demographic questions, Goldberg Health Questionnaire-12, Acculturative Stress Scale for International Students, student stress inventory, and the posttraumatic growth inventory were used in this study.

Results: Acculturative stress factors of homesickness, perceived hate, fear, culture shock, guilt, and miscellaneous acculturative stress, as well as student stress, were directly associated with poor mental health. Posttraumatic growth also emerged as a significant moderator of the negative experiences of international students. With high posttraumatic growth, acculturative stress and student stress had a weaker effect on

mental health. Furthermore, age and gender had significant effects on mental health. Being older and being male were associated with improved mental health.

Conclusion: Findings of this study demonstrated that acculturative stress and student stress are determinants of international students' mental health. Posttraumatic growth as a protective factor proved to be a buffer against negative experiences of international students. While international students in South Africa will unavoidably experience acculturative stress in association with other student stress, which will in turn affect their mental health, having experienced some level of posttraumatic growth largely helps to alleviate such conditions.

Keywords: Acculturative stress, student stress, mental health, posttraumatic growth, international students.

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CHAPTER ONE

INTRODUCTION AND BACKGROUND OF THE STUDY.

1.1 Introduction and Background to the Study

Globalisation embodies the interconnectedness of the nations of the world. The connection of people and businesses leads to economic, political and cultural integration. Technology has been a significant aid to the rapid spread of globalisation in the 21st century, through the ease of movement of people, materials, and information. Globalisation results in cultural diversity in most countries (International Organization for Migration [IOM], 2019). One foremost outcome of globalisation is the concept of international study. Because of the opportunities for the advancement of learning and knowledge, people from different parts of the world seek educational opportunities outside their home countries.

Consequently, international study plays a central role in cross-cultural encounters, as people from different cultures mingle and bring cultural awareness and appreciation to each other and the host community (Scheel & Ustek-Spilda, 2019; McAuliffe & Ruhs, 2018). The adaptation process of learning in an environment of great intercultural mix can impose much stress on international students, according to Prieto-Welch (2016). While there may be a potpourri of cultures in an international student's immediate environment, the host country's overriding culture is usually of utmost concern to the student, as Riaño and Piguet (2016) stipulated. This is because this culture informs all aspects of the experiences of an international student. For instance, values, food, clothing, worldviews, language, aesthetics and other critical cultural facets of the host community will intricately affect the lives of international students.

The push-pull migration model proposes that students are pushed out of their home country due to poor quality education and fewer opportunities. They are pulled by the prospects of better education and opportunities outside their country. According to a report by the Organization for Economic Cooperation and Development [OECD] (2014), 4.5 million students chose to study in universities outside their home country. As a nation, South Africa has been the destination for immigrants in Africa (IOM, 2019); as a result, South Africa is home to over 4 million immigrants (IOM, 2019).

This nation attracts international students from within the continent and outside it (Lee & Sehoole, 2015). Of the international students who choose South Africa as the country of choice for their educational pursuits, students from the African continent constitute a large portion of them (Lee & Sehoole, 2015). Some reasons for the large influx of African international students into South Africa have been historical connections, language, high-quality education, proximity to the region, and affordability, among other factors. Given that immigrants, in general, contribute to the economic development of South Africa (Organisation for Economic Cooperation and Development [OECD], 2018; Sparreboom et al., 2018); it becomes paramount that the citizens of this country and its government pay attention to the welfare of those who come to reside within its borders.

A peculiar characteristic of the South African nation that could taint its appeal to international students and significantly affect its immigrant population is its recurrent xenophobia crises. South Africa has been known for a xenophobic attitude and attacks on foreigners, particularly foreigners of African descent (Angen, 2016; Crush & Ramachandran, 2017; Tafira, 2011). These attacks have sometimes occurred on a massive scale, destroying lives and properties. Xenophobic sentiments in South Africa are widespread and cause concern (Crush & Ramachandran, 2017; Tafira, 2011). Anti-immigrant sentiments have been used in South Africa since the early 1990s, when South Africa transitioned into a democracy and experienced increased immigration from other African countries (Crush & Ramachandran, 2017; Tafira, 2011). Since then, violence against immigrants from other African nations has been on the rise (Crush & Ramachandran, 2017; Tafira, 2011). Such problems and other integration challenges inevitably extend to the educational system, affecting international students.

South Africa's HEIs have reported incidences of discrimination and xenophobic sentiments at some of the nation's most prestigious universities (DoE, 2019). The 2019 Report of the Ministerial Committee on Transformation and Social Cohesion and the Elimination of Discrimination in Public Higher Education Institutions shows that racism, xenophobia, sexual harassment, and gender discrimination have become rampant in tertiary educational institutions. More precisely, tensions between South African students and students from other African countries, especially Zimbabwe, Mozambique, Nigeria and the Democratic Republic of Congo, have been apparent at historically black universities (Nwokedi, 2020; Moagi et al., 2018; Crush & Ramachandran, 2017).

Regrettably, universities in South Africa remain potent mechanisms for social exclusion and injustice towards international students. This is because such institutions impose higher tuition fees on international students, requiring them to pay the total amount upfront and purchase health care insurance (medical aid) before registration (Adediran & Coetzee, 2019). Furthermore, in South Africa, international students may come from many countries, but according to its legislation, only students who come from neighbouring countries, namely Botswana, Lesotho, Mozambique, Namibia, Swaziland, Zambia, and Zimbabwe, and the Southern African Development Community (SADC) member states (Angola, Democratic Republic of the Congo, Malawi, Mauritius, the Seychelles, and Tanzania) may receive education subsidies from the South African government (Lee & Sehoole, 2015; Ramphele, 1999). This policy has aggrieved many other international students, who feel left out and discriminated against, because the Home Affairs policy suggests it is trying to discourage them from coming to South Africa (Ramphele, 1999).

The process of relocating to a new country comes with challenges, such as becoming integrated and accustomed to the new culture, while living a successful and meaningful everyday life (Yan, 2020).

International students occasionally face rejection, threats to their identity and opportunity deprivation. Scholars have shown that these three constructs are significantly related, forming assaultive socio-environmental barriers to smooth acculturation (Borghese, 2020).

Furthermore, relocating to a new country brings trials and worries for international students because they leave behind their families and other support networks. Numerous questions arise when international students arrive and begin making a new land their home. While putting together all the responsibilities of being a student, international students must often gain confidence in using a second language and learn how to adjust to the new culture. The process of acculturating is not only a cultural change but also a psychological one (Berry, 2005).

Acculturative stress, therefore, comes from anxiety related to the difficult times individuals have living in the new culture (Jacobson et al., 2017). How well an international student adapts to the host culture can significantly affect stress (Hans et al., 2017).

The problems international students encounter living in the more significant population and within educational institutions will always exist. Hence, it is essential to acquire knowledge and a better understanding of the issues surrounding the experiences of students, who are the leaders of the future and the hope of the continent of Africa. Based on the reasons mentioned above, the researcher set out to examine the role that acculturative stress will play in the psychological functioning of international students in South Africa. International students in South Africa are faced with the pressure of adapting to the host country's culture while also being acutely aware of the xenophobic tendencies of the host community. Without a doubt, such pressure to adapt and the constant awareness of the history of relations between the citizens and foreigners can take a toll on the health of international students. This study is therefore concerned with examining the health of international students in South Africa, with a particular focus on mental health. The effect that acculturative stress will have on mental health will be examined. In addition, the role of posttraumatic growth in helping to cushion the effect of acculturative stress on mental health will also be examined.

Concepts of Acculturative Stress, Student Stress, Posttraumatic Growth, and Mental Health.

Acculturative Stress

Acculturative stress is how an individual learns to adapt to a host community or country's new and unfamiliar culture. It is the process by which an individual undergoes cultural and psychological changes due to prolonged contact with people of a different culture (Berry, 2005). Such a change process can be stressful to the individual undergoing it due to the personal, social and environmental adjustments that must be made (Jang & Chiriboga, 2010). This contact with the unfamiliar tends to exert much stress, potentially resulting in adverse psychological outcomes for the individual (Poteet & Simmons, 2016; Yan, 2020). Such adverse outcomes are predicated on the individual's attempt to incorporate him or herself into the new culture and make changes or adjustments to previously-held values, traditions, food, clothing, weather conditions and beliefs, while still holding on to their original identity and ways of life. Adverse outcomes may be

experienced when an individual meets with obstacles and challenges in his or her efforts to adjust to the new environment.

International students experience numerous stresses as they try to adapt to the demands of their new environment. Sandhu and Asrabadi (1994) developed a theory of acculturative stress to capture perceived discrimination, homesickness, culture shock, hate/rejection, fear, guilt, and miscellaneous stress. These components of acculturative stress have mainly been researched as the different sources of stress experienced by international students.

Perceived Discrimination

This source of stress emanates from the feeling or experience of being considered unworthy (Schmitt et al., 2014). It implies a rejection or exclusion of an individual or group and its members, which threatens their need for inclusion and acceptance and, as a result, negatively affects mental health (Wirth & Williams, 2009). It involves a perception of adverse differential treatment from others based on differences in social and cultural identity. Such differential treatment may create feelings of exclusion and powerlessness; such exclusion and powerlessness caused by discrimination can negatively affect mental health (Schmitt et al., 2014). Discrimination experienced by international students could involve unequal access to funding opportunities, inability to secure a job, housing discrimination, and differences in educational cost, which can grossly affect the learning experience in the host nation. Such discriminatory practices may make international students withdraw from social activities and interactions that could improve their study experience.

Homesickness

Homesickness captures a feeling of being sad in unfamiliar surroundings (Sandhu & Asrabadi, 1994). It occurs due to the loss or absence of social and emotional support from family and friends, feelings of alienation, and considerations to return to one’s previous environment (Stroebe et al., 2002).

Culture Shock

Culture shock occurs due to the loss of one's culture due to a change in cultural environment and re-socialisation into a new culture (Furnham, 2019; Meisel, 2012). It involves a drastic change in thoughts, behaviours, values, climate, and verbal and non-verbal communication cues that could be challenging for foreigners in a new environment (Furnham, 2019; Meisel, 2012; Sandhu & Asrabadi, 1994). It could be a shocking, intense and dramatic experience for foreigners as they encounter cultural incompatibility or cultural distance (Furnham, 2019). Furnham (2019) qualified the experience of culture shock as a sense of loss, deprivation, strain, surprise, anxiety, disgust, anger, and confusion in an unfamiliar environment.

Perceived Hate/Rejection

Perceived hate refers to experiences of verbal and non-verbal rejection from members of the host community (Sandhu & Asrabadi, 1994). It involves a heightened sensitivity to negative attitudes and a lack of sensitivity of the host culture to cultural differences of the international student (Sandhu & Asrabadi, 1994; Vergaraa et al., 2010).

Fear

Fear is defined as a sense of insecurity experienced by foreigners in a new environment (Vergaraa et al., 2010). When international students find themselves in an unfamiliar culture, physical fear, fear of the unknown, and insecurities can be a large part of their early experience (Gebregergis, 2018; Sandhu & Asrabadi, 1994). The prejudice, negative stereotypes, and other realistic threats that international students would likely experience are sources of threat that could make their experience of the host culture distressing (Sandhu & Asrabadi, 1994). Fear may also arise from prevailing social conditions of the new environment, such as crime, violence, and racial discrimination (Sandhu & Asrabadi, 1994).

Guilt

Feelings of guilt among international students have to do with experiencing feelings of having betrayed one's native culture and identity, due to adapting to the host community's culture (Gebregergis, 2018; Vergaraa et al., 2010).

Miscellaneous Stress

Miscellaneous stress can occur for international students due to other difficulties they may experience in the host environment. Such stressors may arise from a lack of fluency in the language of instruction, difficulty learning the local language, funding, and indecision about the future (Gebregergis, 2018).

Posttraumatic growth is an area of psychological research that emerged from the work of Tedeschi and Calhoun in the mid-1990s. It delves into the positive transformation that can occur following traumatic events. While the struggle and psychological turmoil following adversity is widely recognised, PTG highlights a less discussed aspect: the potential for significant personal growth in its aftermath. However, Cadell, et al (2003), in their study on factors contributing to posttraumatic growth stipulated that, sometimes there can be continuing personal distress and growth or there could be no growth at all.

Central to understanding PTG is the Post Traumatic Growth Inventory (PTGI), a tool developed to measure this phenomenon. The PTGI breaks down growth into five distinct dimensions. The first, “Relating to others,” focuses on enhanced personal relationships and increased empathy. It suggests that experiencing trauma can lead to deeper connections with others and a heightened appreciation for social bonds.

The second factor, “New Possibilities,” reflects the opening of new paths and opportunities that were not previously considered. This can be re-evaluating life choices or discovering new directions and purposes spurred by the changed perspectives often following traumatic experiences.

Personal Strength, the third factor, embodies the increased resilience and confidence individuals often find in themselves after overcoming adversity. This newfound strength underscores a greater belief in one’s ability to face and surmount future challenges.

Spiritual Change, the fourth dimension, involves profoundly altering or deepening one’s spiritual beliefs. For many, trauma can lead to a re-evaluation of spiritual and existential beliefs, often resulting in a more substantial or altered sense of spirituality.

Lastly, “Appreciation of Life,” the fifth factor, encompasses a renewed sense of gratitude and a reshaped understanding of what is truly important in life. It is common for individuals who have faced trauma to emerge with a changed set of priorities and a greater appreciation for the everyday aspects of life.

Student stress refers to students’ stressful experiences, which could be associated with pressure from academic demands measured by the Student Stress Inventory (SSI) by Gadzella (1994). Lee and Larson (2000) defined student stress as an interaction between environmental stressors, students; appraisal and their reactions, which may affect their mental health.

Mental health, a critical aspect of overall well-being, encompasses our emotional, psychological, and social well-being (Chitadze, 2023). It influences how we think, feel, and act, and it helps determine how we handle stress, relate to others, and make choices (Cuijpers, 2019). In mental health assessment, one of the prominent tools is the General Health Questionnaire (GHQ), which Goldberg initially developed in the 1970s.

The GHQ is designed explicitly as a self-administered screening tool to identify potential psychiatric disorders in general settings. It assesses a person’s mental health by focusing on their inability to carry out normal functions and the appearance of new and distressing phenomena. Its original iteration, the GHQ-60, comprised 60 items. Recognising the need for shorter and more practical forms, Goldberg and his colleagues subsequently developed reduced versions, including the GHQ-30, GHQ-28, and the widely used GHQ-12.

The GHQ-12, revised by Goldberg and Williams in 1988, is particularly notable for its brevity and effectiveness. It is a condensed version of the original, retaining the essence of the assessment while being more accessible and quicker to administer. The GHQ-12 measures critical aspects of mental health through its subscales, which include:

Somatic Symptoms – Assessing physical symptoms that may be linked to psychological distress.

Anxiety and Insomnia – Focusing on levels of anxiety and sleep-related issues.

Social Dysfunction – Evaluating difficulties in functioning effectively in social settings.

Severe Depression – Gauging the presence and severity of depressive symptoms.

Each subscale contributes to a comprehensive overview of an individual's mental health. The GHQ-12 is valued for its utility in screening for common mental disorders, providing a general measure of psychiatric well-being that is both efficient and widely applicable. Its use in various settings underscores its versatility as a tool for initial mental health assessment.

1.2 Statement of the Problem

The influx of international students into South Africa, growing from 2 million in 2010 to over 4 million in 2019 (IOM, 2019), presents unique challenges, particularly in understanding how their acculturative stress and student stress interact with their mental health. Notably, the concept of posttraumatic growth (PTG) – positive psychological change experienced because of struggling with challenging life circumstances – remains underexplored in this context. This study seeks to bridge this gap by focusing on the interplay between acculturative stress, student stress, and PTG among international students.

Despite their significant contributions to the socio-economic fabric of the host nation, international students face unique challenges not shared by their local counterparts, potentially exacerbating their mental health issues. Acculturative stress, arising from adapting to a new culture, and student stress, stemming from academic pressures, are prevalent among these students. However, the role of PTG in this scenario is not well understood – does it act as a coping mechanism, or is it a resultant positive outcome in the face of these stressors?

Furthermore, faculty perspectives and the internationalisation of curricula (British Council, 2014; Irish Council for International Students, 2017; McAuliffe & Ruhs, 2018) significantly influence the integration of international students. Studies from Ireland and the UK suggest that lecturers play a crucial role in facilitating integration. However, many faculty members are unfamiliar with the concept of internationalising the curriculum and its

impact on student acculturation and stress levels (Clarke et al., 2018; Fritz et al., 2008; Poyrazli & Grahame, 2007; O'Reilly et al., 2010). This lack of support and understanding could further compound the stress experienced by international students.

The necessity of this study is underlined by the potential benefits it can offer in shaping policies and support systems for international students and enhancing the overall educational environment to be more accommodating and supportive of their unique needs (Sequeira et al., 2022). By identifying the factors contributing to acculturative and student stress and understanding the role of PTG, this research aims to contribute significantly to the body of knowledge in this area, ultimately aiding the betterment of international students' mental health and educational experiences in South Africa.

International students globally, and specifically in South Africa, face distinct mental health challenges. Research indicates that these students often experience higher levels of stress and mental health issues compared to their local counterparts due to factors such as cultural adaptation, language barriers, and academic pressures (Ng, 2006; Crose, 2011; Harrison & Peacock, 2009). This phenomenon is particularly evident in South Africa, a nation with a complex cultural landscape and a history of xenophobia (Angen, 2016; Crush & Ramachandran, 2017; Tafira, 2011).

Acculturative stress (AS) and student stress (SS) significantly influence international students' mental health. AS stems from the challenges of adapting to new cultural and social environments, while SS is associated with academic pressures and performance anxieties (Baker & Siryk, 1999; Rienties et al., 2012; Borowa et al., 2016). The interplay of these stressors can exacerbate mental health issues, leading to outcomes such as depression, anxiety, and social isolation (Li et al., 2005; Deb et al., 2015).

However, there is a notable gap in the literature regarding the role of posttraumatic growth (PTG) in this context. PTG refers to positive psychological change experienced due to the struggle with highly challenging life circumstances (Tedeschi & Calhoun, 2004). It remains unclear how PTG might act as a moderating or mediating factor in the relationship between AS, SS, and mental health among international students in South Africa. Exploring whether PTG can mitigate the adverse effects of AS and SS on mental health is essential for better psychological outcomes (Çeçen, 2007; Bensimon, 2012).

The proposed study aims to fill this gap by examining how PTG might influence the relationship between AS, SS, and mental health in international students. Understanding this dynamic is crucial for developing effective support systems and interventions to enhance the mental well-being of this vulnerable population (Glozah, 2013; Soman et al., 2016). The study's findings could have significant implications for educational policies, mental health services, and the overall integration process of international students in South African academic institutions (Neff et al., 2007; Adediran & Coetzee, 2019; Ratshilaya, 2017).

This study examines the mental health of international students in South Africa. The effect that acculturative stress and student stress will have on international students' mental health will be examined. In addition, the role of posttraumatic growth in helping to moderate the effect of acculturative stress and student stress on international students' mental health will also be examined.

1.3 Aims of the study

This study examines the predictive roles of acculturative stress and student stress concerning the posttraumatic growth and mental health of international students in South Africa from a comparative, moderation, and mixed-method approach. In addition, the study investigates the moderating role of posttraumatic growth on the association of acculturative stress and students stress on international students' mental health. Hence, the study has the following specific aims,

1. The primary aim of the study is to examine whether acculturative stress will significantly predict the mental health of international students in South Africa.
2. The study's second aim is to examine if students' stress will significantly predict the mental health of international students in South Africa.
3. The third aim of the study is to investigate whether posttraumatic growth will significantly predict the mental health of international students in South Africa.
4. The fourth aim of the study is to investigate if the association between acculturative stress and the mental health of international students in South Africa will be moderated by posttraumatic growth.

5. The fifth aim of this study is to investigate if the association of students' stress with international students' mental health in South Africa will be moderated by posttraumatic growth.

1.4 Objectives of the study

The study's objectives are as follows;

i. To investigate the predictive ability of acculturative stress on the mental health of international students in South Africa.

ii. To investigate whether students' stress will predict international students' mental health while studying in South Africa.

iii. To investigate the predictive role of posttraumatic growth on the mental health of international students in South Africa.

iv. To investigate the moderating role of posttraumatic growth on the association of acculturative stress with international students' mental health in South Africa.

v. To investigate the moderating role of posttraumatic growth on the association of students' stress with international students' mental health in South Africa.

1.5 Scope of the study

The study investigated the relationship between the acculturative stress, student stress and psychological functioning (mental health) of international students and the moderating role of posttraumatic growth in this relationship. This study was carried out in four South African universities: North-West University, University of Johannesburg, Stellenbosch University, and the University of the Free State. This is a mixed-method study that employed a total number of 811 participants. Data was collected via an online survey using standardised questionnaires and focus group discussions.

1.6 Relevance of the study

This study has practical, theoretical and methodological significance, as discussed below:

1.6.1 Practical relevance

This study's findings will benefit scholars studying international students and migration studies in South Africa. The results will also assist the government in implementing

policies and formulating intervention plans that will help ease the acculturation challenges by developing policy developments and intervention plans through creating awareness of the trials and tribulations of international students. Upon completion of the study, recommendations and an intervention plan will be submitted to stakeholder departments to influence making policies to ease international students' acculturation and promote their mental health. More so, psychologists and mental health practitioners will gain a better understanding of international students' psychological needs so they can develop and acquire skills to meet the needs of these students when they come seeking help. These psychologists will better understand international students' needs and challenges by obtaining a report of this study's findings, which will be available on the government website.

1.6.2 Theoretical relevance

There is consensus among behavioural scientists that in order to change health behaviours, it is not enough to provide advice and information. Many studies have been conducted on the acculturative stress and student stress of international students and the moderation role of posttraumatic growth in promoting their mental health. However, few such studies have been conducted in Africa or have made use of posttraumatic growth as a moderator factor in the relationship between acculturation, student stress and international students' mental health while using theories such as those of acculturation, stress and coping, posttraumatic growth and the mental health of international students, particularly in South Africa. The study will contribute to knowledge by using these theories to provide a theoretical understanding of international students' acculturative stress and student stress while studying in South Africa, and the moderating role of posttraumatic growth on mental health.

Berry et al, (1987) proposed a model for the acculturation process that is extensively used in cross-cultural research. This model views acculturation as a process that focuses on environmental and individual factors affecting change over time, and its outcomes on the individual's mental health (Zheng, 2016). This model looks at psychological and behavioural changes affected by clashes between cultures (Berry, 2005). The psychological element relates to values, ideologies, beliefs, attitudes and perceptions. By contrast, the behavioural element examines external aspects of adaptation, such as

language skills and social interactions, during the acculturation process (Ward & Kennedy, 1994). Graves and Graves (1974) made a distinction between acculturation as a collective or group-level phenomenon, that involves changes in migrant groups due to multiple sets of cultural influences, and psychological acculturation, as an individual-level phenomenon which looks at the changes to individuals, such as psychological and behavioural changes, due to contact with a host country. This study applied the theoretical framework from the individual perspective.

The stress model by Lazarus and Folkman (1984) identifies a situation as threatening or beyond one's coping resources, which causes stress that negatively affects one's emotional state and can lead to psychological problems (Cohen & Wills, 1985; Lazarus & Folkman, 1984). Nonetheless, it is imperative to note that some stress can be beneficial and healthy, as it is a form of motivation, which results in better adaptation. However, extreme stress is harmful when it is beyond one's coping ability. The negative effect of stress will cause psychological problems such as depression or anxiety (Lazarus & Folkman, 1984). Theories explain an outcome by highlighting targets for change; hence, they are necessary for the design of interventions (Hankonen, 2011).

1.6.3 Methodological relevance

This comparative-moderation study will use the mixed method to collect data. The present study aims to suggest recommendations and intervention plans due to the dearth of research on international students' acculturation and mental health. This study will offer methodological benefits since it investigates the moderating roles of posttraumatic growth in the relationship of acculturative stress, student stress variables and posttraumatic growth using a vigorous numerical scrutiny identified as the structural equation modelling (SEM). This analysis method gives researchers the power to identify and approximate the aptness of the model while utilising the moderator variables to forecast the relationship between the independent variables and the dependent variable (Hox, 1995). Analysis of Moment Structure (AMOS) will be used to analyse data in this study. This software helps to scrutinise hybrid contributing relationships, and vice-versa, of multifaceted variables, thereby making the findings of this study accurate, reliable, and generalizable.

The qualitative aspect of this study will employ the thematic data analysis approach to analyse the data collected through focus group discussions; the findings will be classified into various themes. All the data collected in this study will be analysed individually according to the various institutions where the data were collected, after which they will be compared to draw conclusions. Data comparison will be carried out based on the controlled variables and the method of data collection and analysis (qualitative and quantitative approach), which will help determine the effect of the controlled variables on the dependent, moderating, and independent variables.

1.7 Conclusion and summary of chapter

The chapter contextualised the experiences of international students in South Africa and their effect on students' mental health. It also detailed the problem statement while highlighting and identifying gaps in past studies. This was important for introducing the significance of the present study, where study relevance was accessed from three broad domains, namely theoretical, practical and methodological areas. Chapter Two below will discuss the theoretical formulations and detail relevant theoretical perspectives applicable for the explanation of each variable employed in the study.

CHAPTER TWO

DEFINITION OF TERMS, THEORETICAL FRAMEWORKS AND PERSPECTIVES

2.1 INTRODUCTION

The advent of globalization and internationalization necessitates the need for studies on the integration and adjustment of international students around the globe. The rapid internationalization of education systems globally gives more students the opportunity to study abroad, with the chance to see the world differently and learn new cultures and languages. However, this does not happen without challenges on the way. Over decades, scholars have conducted studies to find out what challenges faced by international students and what factors can help them cope with such challenges. For me it is also very interesting to understand how international students adjust to the new surroundings and what obstacles they experience. In order to explore it I would like to define the key terms in this study, look at the theoretical frameworks of the study as well as the theoretical perspectives that I found helpful for my research. International students cannot escape the cultural shock and changes that are associated with studying in a foreign country. Therefore, such changes are associated to acculturation processes that happens in the physical, biological, cultural, social relationship and psychological (behavior and mental health status) domains (Berry et al, 1987). Berry, Wong and Wong, (2006) suggested a transactional model of stress and coping, concluding that psychological health and adjustment are affected by the individual's acculturation experience, stressor appraisal and coping skills. The acculturation phase can either be constructive, enhancing the quality of life and mental health in the prevailing culture, or it can be destructive. The destructive aspect of this phenomenon can be as a result of the puzzling nature of change and adaptation to new cultural and social expectations, which can be psychological or sociocultural adjustment. Psychological adjustments are related to the mental health and the general well-being of migrants, while the sociocultural domain looks at behavioural and cognitive factors allied with effective performance during cross-cultural transition. This study pays attention to the psychological adjustment. This chapter is focused on the definition of the key terms

used in this study and on examining the various theoretical frameworks used to better understand the interrelationship between acculturation and psychological functioning.

2.2 DEFINITION OF CONCEPTUAL TERMS

International students. These students choose to undertake all or part of their tertiary education in a country other than their home country, and move to that country to study**.** This study will refer to students from other countries studying in South Africa.

Acculturative stress: Refers to the composite score of the Acculturation Scale (Sandhu & Asrabadi, 1994) made up of seven subscales – perceived discriminations, perceived hate, homesickness, fear, culture shock, guilt, and miscellaneous stress. The higher the score of an international student, the higher their levels of acculturative stress, and vice versa.

Posttraumatic growth is the transformation that occurs after trauma, when people who endure a psychological struggle following adversity experience growth afterwards (Tedeschi & Calhoun, 1995, 1996, 2004).
The scale has five factors.
Factor I: Relating to others;
Factor II: New Possibilities
Factor III: Personal Strength;
Factor IV: Spiritual Change and
Factor V: Appreciation of Life.
The Post Traumatic Growth Inventory (PTGI) is scored by adding all the responses. Individual factors are scored by adding responses to items on each factor.
Factors are indicated by the Roman numerals after each item above.

Student stress refers to students' stressful experiences, which could be associated with pressure from academic demands, measured by the Student Stress Inventory (SSI) by Gadzella (1994). The term 'student stress' in this study refers to a student's score on the SSI. A student's score indicates the extent to which the individual is high or low on stress.

Lee and Larson (2000) defined student stress as an interaction between environmental stressors, student's appraisal, and their reactions, which may affect their mental health.

Mental health is measured with the revised General Health Questionnaire (GHQ-12), the 12 version by Goldberg and Williams (1988). The original scale was developed by Goldberg (1970s) and measures four subscales: Somatic symptoms, anxiety and insomnia, social dysfunction and severe depression. The General Health Questionnaire (GHQ) is a self-administered screening questionnaire, designed for use in general settings to detect individuals with a diagnosable psychiatric disorder (Goldberg & Hillier, 1979). In its original version, it had 60 items (GHQ-60), which were reduced to 30 (GHQ-30), 28 (GHQ-28), and 12 items (GHQ-12) (Goldberg & Williams, 1988). The 12-Item General Health Questionnaire (GHQ-12) is the most extensively used screening instrument for common mental disorders and is a more general measure of psychiatric well-being.

An academic discipline or field of study is a branch of knowledge taught and researched in higher education. A scholar's discipline is commonly defined by the university faculties and learned societies to which they belong, and the academic journals in which they publish research.

Gender refers to social or cultural distinctions associated with being male or female. Gender identity is the extent to which one identifies as masculine or feminine (Diamond, 2002). However, a person's sex, as determined by his or her biology, does not always correspond with his or her gender.

Age: This refers to the length of time that a person or a thing has lived or existed.

2.3 THEORETICAL FRAMEWORKS

This section addresses the theoretical framework for this study. All theories discussed in this chapter help to conceptualise and explain the relationship between the study's variables. In contextualising the relationship between study variables, this section explains individual attitudes from the viewpoint of the acculturation model, stress and

coping theory, attachment theory, control-mastery theory, gender and age, posttraumatic growth and a cross-cultural adaptation theory.

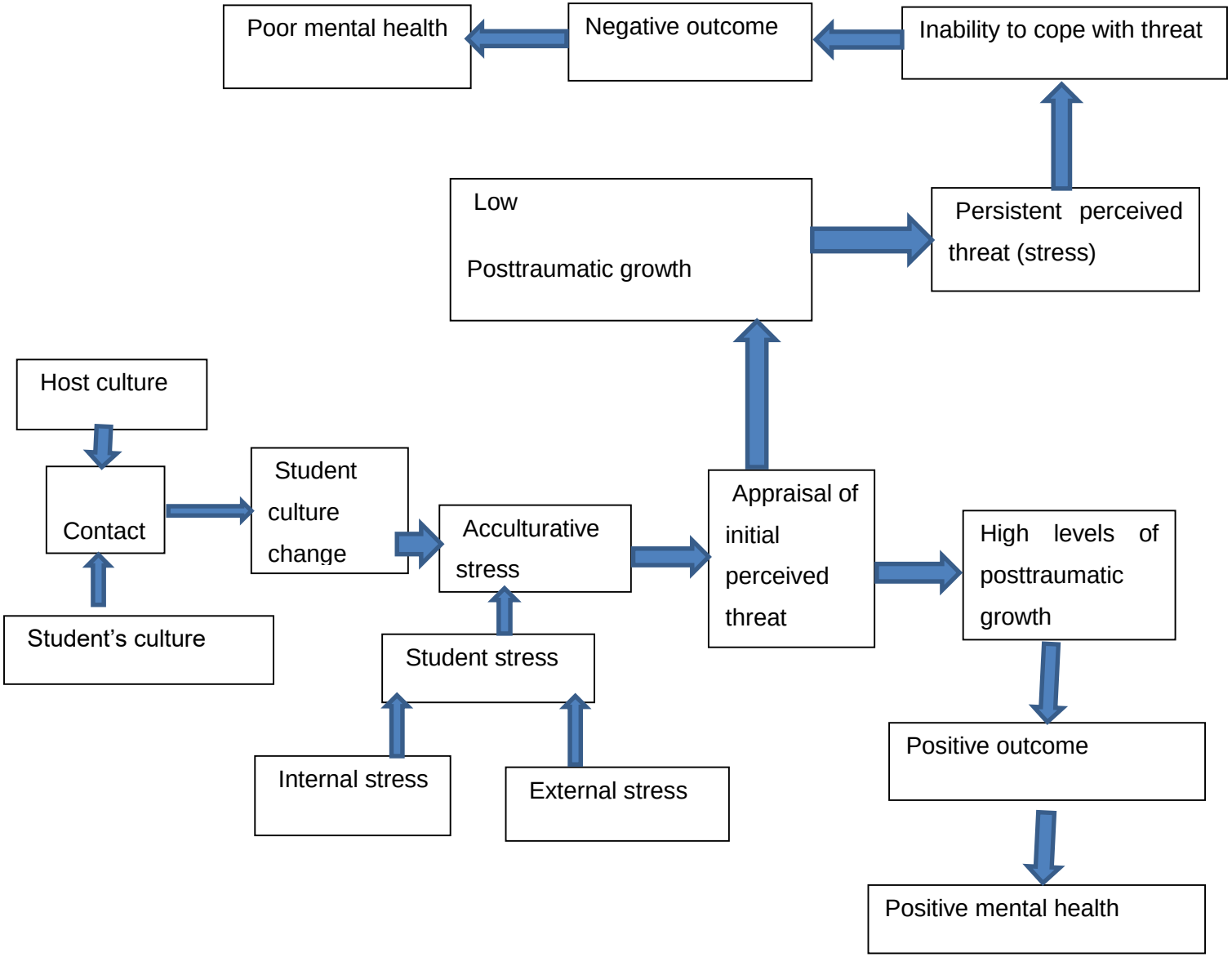
2.3.1 Acculturation model

Berry and colleagues (1987) proposed a model for the acculturation process that is extensively used in cross-cultural research. This model views acculturation as a process that focuses on environmental and individual factors affecting change over time, and its outcomes on the individual's psychological functioning (Zheng, 2016).

This model looks at psychological and behavioural changes affected by clashes between cultures (Berry, 2005). The psychological element relates to values, ideologies, beliefs, attitudes, and perceptions. By contrast, the behavioural element examines external aspects of adaptation, such as language skills and social interactions during the acculturation process (Ward & Kennedy, 1994). Graves and Graves (1974) made a distinction between acculturation as a collective or group-level phenomenon that involves changes in migrant groups due to multiple sets of cultural influences, and psychological acculturation as an individual-level phenomenon which looks at the changes in an individual, such as psychological and behavioural changes, due to contact with a host country. This study applied the theoretical framework from the individual perspective.

The study by Berry et al. (1987) hypothesised that acculturation could be a set of significant life events that are challenging for individuals. These challenges could result from the changes individuals need to make to accommodate new societies (Berry, 2005). As shown in Figure 2.1, the model begins with the student's culture of origin and the host country's culture, followed by the student's cultural change leading to 'acculturation experience,' since individuals experience acculturation changes differently. The acculturation process may exist in three degrees of change: 'behavioural shifts' (the individual has no problems and change is easy), 'acculturative stress' (the individual appraises the acculturation experience as complex and the challenges problematic, yet controllable) and 'psychopathology' (acculturative stress accumulates and experiences overwhelm the individual so that psychological functioning is compromised) (Berry, 1997). This conception of acculturation and acculturative stress is illustrated in Figure 2.1.

Figure 2.1: Berry's theoretical conception of Acculturative stress.



Furthermore, Berry (1997) postulated that some demographic features might arise as predictors of acculturative stress. These features include the individual's age, gender, language, marital status, prior inter-cultural experiences, and the length of stay in the host country.

This model is relevant in the current study because international students face 'acculturation experiences' that could result in different levels of acculturative stress. Such acculturative stress will likely negatively affect mental health. In line with Berry's (1997) model, the researcher hypothesises that acculturative stress is strongly associated with an individual's state of psychological functioning. High levels of acculturative stress will likely result in low psychological functioning. However, when there is posttraumatic growth in international students, the negative impact of acculturative stress on psychological functioning would be significantly reduced.

2.3.2 Stress and Coping Theory

According to the stress model by Lazarus and Folkman (1984), identifying a situation as threatening or beyond one's coping resources causes stress that negatively influences one's emotional state and can lead to psychological problems (Cohen & Wills, 1985; Lazarus & Folkman, 1984). Stress can be seen as an overwhelming strain and pressure, or anxiety. Nonetheless, it is imperative to note that some stress can be beneficial and healthy, as it is a form of motivation resulting in better adaptation. However, extreme stress is harmful when it is beyond one's ability to cope; this negative effect will cause psychological problems such as depression or anxiety (Lazarus & Folkman, 1984).

Providing psychological and material resources safeguards mental health by solving stressful problems (Cohen & Wills, 1985). This awareness of available support reflects the individual's ability to control a stressful situation and the potential coping resources to deal with stressful events (Lazarus & Folkman, 1984). Hence, more posttraumatic growth suggests more coping resources and the ability to control stressful events. Individuals with this positive expectancy toward stressful situations would feel less constrained, thereby contributing to the reduction of the negative effect of stress on psychological functioning. Posttraumatic growth protects an individual psychologically in times of stress by reducing the impact of stressful events on their mental health (Cohen & Wills, 1985; Thoits, 1995).

This theory is of great importance in the present study because it is essential in understanding how the various types of acculturative stress, posttraumatic growth, and ways of copying affect an individual's mental health. Therefore, this study uses the stress and coping theory (Cohen & Wills, 1985) to assess the role of posttraumatic growth in moderating the impact of acculturative stress on the psychological functioning of international students.

2.3.3 Posttraumatic Growth Theory (PTG)

The theory was developed by psychologists Richard Tedeschi and Lawrence Calhoun in the mid-1990s and stipulated that if an individual endures psychological struggle after hardship, he/she can often see positive outcome afterwards. Hence, people develop new understandings of themselves, the world they live in, how to relate to other people, the kind of future they might have, and a better understanding of how to live life, according to Tedeschi and Calhoun (1990).

According to this theory's developers, two personas make one individual more likely to experience PTG than another, and these characteristics are openness to experience and extraversion. This is because people who are more open are more likely to reconsider their belief systems, while extroverts are more likely to be more active in response to trauma and seek out connections with others. Moreover, this theory stipulates that women more often report growth than men do. Age also can be a factor, where children are less likely to have the cognitive capacity to experience PTG, while those in late adolescence and early adulthood, and trying to define their world, are more open to the type of change that such growth reflects than people of older ages, who have already established their views on the world.

This theory is of great relevance in the present study as it aids in better understanding how their experiences of posttraumatic growth determine the state of an international student's mental health upon relocating to South Africa. This theory also helps explain how an international student's appraisal of a stressful event or other challenges will determine their mental health.

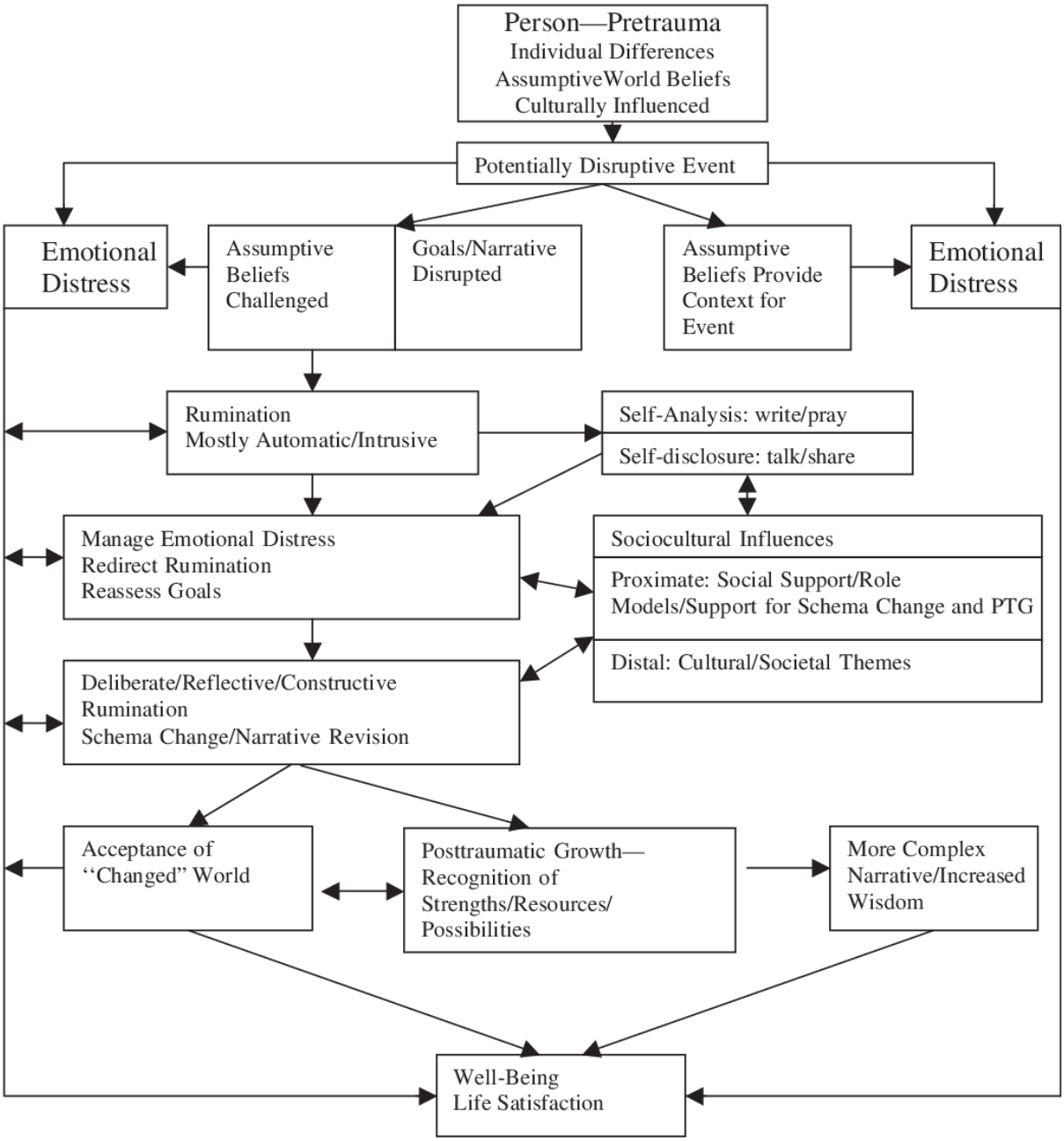


Figure 2.2 Richard Tedeschi and Lawrence Calhoun; 1990s Posttraumatic growth model.

As seen in the diagram above, if an international student experiences posttraumatic growth, he/she will report positive mental health, and vice versa.

2.3.4 Attachment theory

Developed by John Bowlby (1973, 1980, 1982), it proposes many organising principles that had better understand relationships. This theory is extensive and comprehensive; hence, it is considered a guiding outline for researchers across diverse areas of

psychology. This theory deals with severe threats, stressors and how to improve survival. Threats trigger attachment (Chen, Mallinckrodt & Mobley, 2002), and behavioural results such as proximity seeking increase the likelihood of protection, support and survival (Mikulincer et al., 2003).

From this viewpoint, attachment differences are mainly related to how humans react when faced with a threat. In the face of danger, humans seek support from others, improving their ability to deal with threats through practical cooperation using the strength of numbers (Blanchard, 2009). This ability to seek support from others and effectively rely on their help when facing danger is at the heart of the attachment system. We explicitly dispute that, in effect, a human's response is a balance between individual-level fight-or-flight responses, as governed by the anxiety and fear systems (Blanchard et al., 2011; Perkins & Corr, 2006; Tovote et al., 2015), and social reliance on the assistance of others, governed by the attachment system (Ein-Dor, 2014; Ein-Dor & Perry-Paldi, 2014). Earlier research suggests that the transitional period from adolescence to young adulthood is characterised by changes in people's psychological attachment styles (Cook et al., 2016).

The theory is relevant to the present study because international students' mental health may depend on how they develop attachment relationships with each other and seek to maintain proximity to the personnel supporting them when stressed, ill or, afraid, hence the relationship between stress, posttraumatic growth and psychological functioning.

2.3.5 Control-mastery theory

Developed by Joseph Weiss (1952, 1967, 1971, 1986), and further scrutinised by Weiss, Harold Sampson, and the San Francisco Psychotherapy Research Group (Weiss et al., 1986; for an overview of the research, see Silberschatz, 2010). It is a theory of the mind that looks at the development of psychopathologies and how psychotherapy works. The primary foundational principles of the theory state that an individual's control of their mental health is controlled by perceptions of safety and danger, with a desire to master problems and unconsciously organise behaviour in an endeavour to do so.

According to this theory, 'Control' means humans' ability to instinctively evaluate the degree of interpersonal safety and danger while adjusting to the strength of their

defences in line with these assessments. This requires an individual to be more open, that is, more expressive, more physically relaxed, more insightful and able to associate with others. By contrast, 'Mastery' stipulates that human beings are driven to overcome problems. They are uncomfortable when they constrict their behaviour and experience negative beliefs, and people become defensive when they are in pain. Weiss suggested that individuals have plans for their psychotherapy, which is an unconsciously organised way to deal with problems.

According to this theory, humans are exceptionally inspired by the conscious and unconscious to resolve problems and pursue essential life goals, such as a sense of mental health, fulfilling relationships, and meaningful careers. Humans are constantly conflicting with the need for achievement as they suffer from unconscious pathogenic beliefs. Hence, they work daily to change these beliefs and to reach their forbidden goals.

The importance of this theory to the present study is that it offers a better understanding of the mechanical model of the mind. The benefit of this approach to this study is that it identifies the inputs to psychological suffering and the outputs that sustain it. The inputs can be thought of as an individual's need for posttraumatic growth, the society's inability to provide such support, and the individual's requirement to adapt. The outputs become the attitudes, behaviours, and choices that comply with the pathogenic belief (poor mental health).

2.3.6 Gender Schema Theory

This study used the gender schema theory by Bem (1981), which stipulates that males and females learn to process new information based on masculinity or femininity, which expects them to behave according to traditional gender roles. Hence, people believe that what males can do, females cannot do, and vice versa. It is also assumed that masculinity is more valued than femininity (Joubert-Wallis & Fourie, 2008). Therefore, the theory indicates that the impact of posttraumatic growth may differ by gender due to a child's socialisation. Thus, we hypothesise that females are more vulnerable to poor mental health than males.

Gender is an essential social determinant of health, and gender-based analysis is essential to improve women's and men's health and healthcare. According to the gender theory, women have higher rates of physical and mental diseases than men

do, at all ages globally (Seedat et al., 2009). They have more days of health-related reduced activity, work cessation, hospital stays, and health care costs (Case & Paxson, 2005). McIntyre, Thiede, Dahlgren and Whitehead (2006) argue that women's higher healthcare use decreases their economic assets. Hence, it is crucial to better comprehend gender differences in health.

Globally, female life expectancy is higher than male's. Similarly, mental health shows unswerving differences between females and males' life expectancy (Seedat et al., 2009). Internalised disorders, like depression and psychological distress, are more frequent in women than men, who externalised such disorders, with higher antisocial and substance use disorders (Case & Paxson, 2005).

Gender differences in health can be explained from a socio-cognitive approach. Of the 30 most-commonly diagnosed groups in primary care, 90% are more likely to be women than men (Wändell et al., 2013). According to Kudielka, et al, (2007) and Idemudia et al. (2013), women and men differ in their exposure and reactions to stressors, as women are more prone to chronic stressors than men are. Individuals with higher levels of stress are at higher risk of developing depression, psychosis and somatic complaints due to stress; these can range from minor or mild symptoms and illnesses like a sore throat, headaches, and influenza, to life-threatening conditions such as heart attacks, cancer, and organ failure (Cohen et al., 2007).

Furthermore, chronic illnesses may be elicited by high levels of stress, which also explains the gender differences in health (Kendall-Tackett, 2010). Differences between women and men's health can be explained by socioeconomic status, where social roles have gained so much empirical support in the (psycho) sociological literature. The term 'sex' looks at genetic and physiological differences between women and men, but by contrast, 'gender' looks at experiences of being male or female, and the conventionally distinguished social roles they are assigned.

Son, Erno, Shea, Femia, Zarit and Stephens (2007) argued that women who work face fewer physical and mental health problems than those who do not. Caring for relatives, (the 'caregiver health effect') has negative impacts on physical and mental health. These results from a higher number of stressors influencing caregivers compared to non-caregivers. Since most caregivers are women, they are at a higher risk of exposure to strains that affect their health. Without a doubt, women and men are different in their experiences and responses to stressors (Kudielka et al., 2007).

Women experience more chronic stressors than men (McDonough & Walters, 2001; Matud, 2004), and consider stressors more threatening.

The relevance of this theory to this study is that the quality of mental health of international students when pursuing studies in a foreign country may be affected if they perceive that they are faced with too many challenges and stressors; meanwhile putting a lot of physical, psychological, and mental efforts into their daily activities based on the gender norms, roles, and responsibilities put in place by society. When this happens, their level of quality mental health may be compromised.

2.3.7 Age

The pre-eminent theory led to the socio-emotional selectivity theory (Carstensen et al., 2003), according to which people accumulate emotional wisdom, resulting in the selection of more emotionally satisfying events, friendships, and experiences, as they age. Thus, despite factors like the death of loved ones, loss of status, deteriorating health, and reduced income, older people maintain and even increase their self-reported mental health by focusing on a more limited set of social contacts and experiences.

Mental health is closely related to age. Psychological well-being reports are becoming a focal point in public policy and economics, since improved public mental health has become a key societal aspiration (Dolan & White, 2007). This is more important at older ages due to chronic diseases in older adults. Quality of life is highly affected by personal health and other factors such as material status, social and family relationships, and social roles, which all differ with age, according to Wikman, Wardle and Steptoe (2011). According to Erikson's Psychosocial Theory (Erikson & Erikson 1998), individuals of different ages encounter different life events, and proceed through a series of life stages of psychosocial development by successfully solving major socio-emotional conflicts at each stage. Folkman and Lazarus (1980) and Folkman et al. (1987) hold a contextual theory of ageing, and propose that different types of stressors are encountered as individuals' age, and these differences in stressors impact coping strategies and health outcomes. Some studies found that negative emotions became less frequent as individuals age (Carstensen et al., 2011). It was also found that stress and anger declined from the early 20s to the middle 80s (Stone et al., 2010). In contrast, Yiwei et al. (2018) reported a non-linear relationship

between age and negative affect: depression and anxiety symptoms increase in young adulthood, then show a slight decline, and rise again in late adulthood.

Data on mental health and age is from large-scale international surveys that examined life evaluation. Blanchflower and Oswald (2008) researched the assessments of life evaluation (broadly defined 'happiness' with life or life satisfaction) in many European, American, Asian and Latin American cross-sectional surveys over a given period. They reported a U-shaped association between age and well-being, with the nadir at middle age, and higher well-being in younger and older adults. One particularly intensive study by Carstensen, Pasupathi, Mayr, and Nesselroade (2000) was in line with improved hedonic well-being at an older age. Studies of different samples (using the format 'How are you feeling right now?') each day for seven days reported that negative emotions decreased in middle age, but their intensity did not.

The relevance of this viewpoint for this study is that it gives a clearer picture as to why international students may be exposed to the same conditions, such as coming from the same home country, studying toward the same degree and at the same level of study, been in the host country for the same duration and are experiencing the same miscellaneous challenges yet report different levels of acculturative stress due to age differences.

2.3.8 Cross-cultural adaptation theory (Young et al.)

According to this theory (Kim, 2001), adapting to a new environment and the host's communication competence can be challenging. Kim (2001) emphasised that many people constantly move across cultural boundaries, giving rise to millions of immigrants and refugees who change their homes yearly and build new lives in different places. "By refusing to change, we can minimise the change. By accelerating our adaptive efforts, we can maximise it" (Kim, 2001). By this, she meant that it is the individual's choice to either reject or accept the changes that come with moving to a new country. According to this standpoint, if international students reject the changes of the new environment, they will not be involved in changes. However, changes will happen if they accept the new changes and go toward them. Kim (2001) points out that the choice is always on us.

Further, Kim argues that both co-national and host-national contacts and talks have both beneficial and adverse effects. The benefit of co-national contact is that it has the

potential to make newcomers feel as if they have a sense of cultural identity and emotional support (Kim, 2001:282). Indeed, in this regard, international students can often meet in groups with co-national friends, who are all studying together and facing new challenges, to talk and share ideas on how to deal with their situations. Nonetheless, there is a negative effect; as such, support networks are short-term support with the potential to hinder the long-term adaptation process.

This theory posits that contact with host nationals is beneficial and can smooth the intercultural transformation of international students. Relations between host culture nationals and international students play an integral role in the cross-cultural adaptation process and contribute to an individual's host communication competence (Kim, 2001). Thanks to such interactions, international students will be able to gain insight into the minds and behaviours of local people. One prominent concept in the social networks of international students is the strength of the ties factor, wherein ties are described as strong or weak (Kim, 2001). Kim (2001) postulates that if international students develop stronger ties with host nationals, they will be more advanced in the cross-cultural adaptation process necessary for healthy social integration and psychological functioning.

Consequently, if an international student has more local friends, he/she will experience a higher level of satisfaction, and less homesickness and discontent. Kim (2001) also argues that international students can make local friends when differences are more accepted, and there is less pressure to fit into a host culture. Therefore, friendships with host students will make newcomers feel accepted and approved by at least some segments of the host culture, potentially making them satisfied and to feel social connectedness and comfort.

This theory is crucial in understanding how an individual's attitude during the acculturation process will either facilitate their acculturation process or make it more challenging. As explained by this theory, if the individual is open to associating with host country nationals, his/her acculturation process will be smoother, with a better psychological state than those individuals who do not socialise with host country nationals.

2.4 THEORETICAL PERSPECTIVE OF THE STUDY

This segment reviews migration and integration theories to elucidate and better understand the investigated phenomenon. The following theories were reviewed: push-pull theory, structural theory, functional theory, and neo-classical theory, integration theory, and Cohen and Wills' (1985) buffer theory. The challenges mentioned above that international students encounter during integration can affect their psychological functioning. Research has reported some affirmative relationships between acculturative stress and psychological distress among international students (Ward & Kennedy, 1993a, 1993b). Acculturation models (Arends-Toth & van de Vijver, 2006; Berry, 1997, 2006; Safdar et al., 2003; Ward et al., 2001) stipulated that more factors need to be considered in the acculturation process, such as cognitive interpretation changes and coping strategies, which can subsequently influence the degree of acculturative stress experienced and therefore psychological and sociocultural adaptation.

2.4.1 Push-pull Theory

According to this theory, people travel from one place to another due to demographic, environmental and economic reasons Todaro (1969, cited in Mangalu 2012). This results from the disappointing circumstances in the country of origin and the anticipated more suitable situation in the country of destination. Thus, the unfavourable conditions in the country of origin push people to travel to places they assume offer better conditions. Kraler and Bilger (2005) theoretically explained Kunz's push-pull theoretical framework as "migrants being drawn and attracted to the new country by better prospects which could be education, social, and economic circumstances." However, refugees are pushed and then pulled from their country of origin. Therefore, some immigrants plan their migration (voluntary migration) while others come as refugees due to circumstances forcing them to leave their home countries (involuntary migration). The push factors could include, among other things, a volatile economy, violence, and a lack of employment and economic opportunities, which influence the individual's socioeconomic advancement (Parkins, 2010, cited in Mpehle, 2014). For example, the worsening economy of Zimbabwe is characterised by the decline of the Zimbabwean dollar and a high unemployment rate from about 2006 to date.

2.4.2 Structural theory

Studies on immigration originated from the structural description of internal migration (Yeboah, 2008). Structural alterations result from the change in the way of production; for instance, when a resource was depleted, people who depended on that resource were forced to move out of the region in search of better opportunities, thereby leading to macro-scale migration (Yeboah, 2008). A shortcoming of this theory is that, even though it is suitable for explaining the macro-scale movement of people, more is needed to justify the micro-scale decisions as to why some people move while others do not. Hence, the theory explains people's movement on a substantial scale rather than on a limited range. Morawska (2009) postulates that "the structural model is predominantly useful when interpreting the quests of migrants who move into or between different environments and face new situations". This theory is appropriate when investigating the movement of individuals from a well-known environment to a new one where they will encounter some adjustment difficulties, such as the study of international students in South African universities, whereby these students leave their home countries with which they are familiar and accustomed to everything, to study in a new country where they will have to learn everything afresh. The 1994 birth of South African democracy saw an associated extension in the educational sector, leading to a high demand for educators, which became a pull-factor for migrants (educators and students) into South Africa.

2.4.3 Functional Theory

According to Solomon (2003), this theory clarifies how economic differences within and between countries contribute to population movement. Although sociologists introduced the discussions on population movement, economic analyses led the discussions on migration in the classical tradition (Hujo & Piper, 2010). This infers that if a country's economic situation is stable, there will be an influx of people from other countries. For example, the strong South African currency attracts migrants to South Africa to pursue better opportunities.

Hugo and Piper (2010) further explain, "Marxist models focus entirely on economic factors." "Migration can be understood sufficiently as the outcome of diversity factors interaction, including sociocultural and economic forces" (Yeboah, 2008). Economies reflecting differences are why many people leave Africa for the United States, and

move from other African countries to South Africa. This theory is also relevant in the current study, as it can be used to better understand why international students leave their home countries to pursue tertiary education in South Africa, as they presume that the education standards are better than those of their home countries.

2.4.4 Neo-classical Theory

Migration can be due to differences in salary levels from one country to another (Todaro, 1969, in Mangalu, 2012). In other words, people evaluate the costs and benefits of migration before migrating, which is also the case with international students coming to South Africa. It can be disputed that some immigrants are driven by ambition to search for higher levels of accomplishment, and not due to challenges in their home country. Affluent families in some African countries send their children abroad to study in the interests of higher levels of achievement than may otherwise have been the case, making this theory relevant to this study. Besides, some international students migrate to South Africa to further their studies for reasons associated with family members. For example, when spouses and parents find employment and relocate to South Africa, their spouses and children are sometimes bound to relocate and, as a result, have to continue their education in South Africa.

2.4.5 Integration theory

Acculturation falls within the integration theory. Gordon (1964) inferred that ‘acculturation’ conventionally refers to assimilation when immigrants integrate into the practices of the new culture, and concurrently abandon their cultural heritage. Nonetheless, De Jong (2011) proposes that modern technological advancements (internet and television) assist migrants in staying in touch with relatives and societies across linguistic and cultural borders. Hence, migrants can stay connected to their cultural values of origin, even if they become citizens of the host country.

This integration theory is of the utmost importance when exploring the acculturative stress of international students in a South African university, and the moderation role of posttraumatic growth. This is attributed to the fact that this theory looks at how international students assimilate into the host country’s culture while trying to maintain the cultural values of their country of origin.

2.4.6 Cohen and Wills' (1985), Buffer Theory

Two applicable theories used to better understand posttraumatic growth's moderating effect on psychological distress are the stress-buffering theory and the leading effect theory (Cohen & Wills, 1985).

Stress-buffering theory. This proposes that posttraumatic growth buffers against the adverse effects of stress (Cohen & Wills, 1985). According to this theory, individuals with more posttraumatic growth will cope better when faced with stressful situations, by improving their mental health, and vice versa (Cohen & Wills, 1985). This is an extension of Lazarus and Folkman's (1984) stress and coping theory, according to which stressful situations can be interpreted as threats that can be dealt with through resources such as posttraumatic growth. More support permits individuals to cope with stress much better, decreasing its negative effects. Some researchers proposed that posttraumatic growth serves this stress-buffering role by protecting the individual from psychological distress (e.g. Davidson & Demaray, 2007; Holt & Espelage, 2007; Tanigawa et al., 2011).

On the contrary, the leading effect theory states that high levels of posttraumatic growth result in better mental health, and vice versa (Cohen & Wills, 1985). However, posttraumatic growth is not a coping style, but the nature of such support boosts mental health (Brewin et al., 2000; Lakey & Cronin, 2008). Studies on bullying reported the main effect, but not moderating effect, for general posttraumatic growth (e.g. Rigby, 2000; Tanigawa et al., 2011), perceived parental support (e.g. Cheng et al., 2008), and perceived maternal support (e.g. Holt & Espelage, 2007) on psychological distress.

2.5 Summary of theoretical frameworks

The acculturation model and stress-coping theories were used to explore the relationship between acculturative stress and the psychological functioning of international students. Posttraumatic growth's role in alleviating international students' stress levels was also embedded in these theories. As presented in Figure 2.1, these students' acculturation processes vary, depending on how they interpret their experiences. Self-reports of acculturative stress by students mirror their interpretation of the acculturation experience. Demographic features were perceived as controlling factors that affect the interpretation of situations, thus leading to varying levels of

acculturative stress. Posttraumatic growth was the moderating resource in the relationship, while mental health was the dependent variable.

2.6 Summary of chapter

In this chapter, the key terms used in the study were defined, and theoretical frameworks for exploring the relationship between acculturative stress, psychological functioning and posttraumatic growth were discussed. Chapter 3 below will provide an overview of international students both in South Africa and globally as well as a detailed examination of the literature on acculturative stress, student stress, and posttraumatic growth and its impact on international students' mental health in past studies to identify literature gaps and highlight the significance of the present study.

CHAPTER THREE

REVIEW OF EMPIRICAL STUDIES, CONCEPTUAL FRAMEWORK AND HYPOTHESES

3.1 Introduction

A literature review was conducted in this study to gain deeper and broader knowledge to understand the relationship between the variables in this study. Based on the reviewed empirical studies, the gaps in the literature and the study's conceptual framework will be discussed. The study's hypotheses will be presented based on the identified gaps in the literature and the proposed conceptual framework.

3.2 Acculturative Stress and Mental Health.

Several studies have investigated the relationship between acculturative stress and mental health. Below is a review of some of those studies. In a study conducted by Berry (2005), low levels of acculturation success were associated with worse overall adjustment, specifically more mental health problems and less pro-social behaviour. On the other hand, high levels of acculturation success, such as integration and assimilation, predicted fewer mental health problems and more pro-social behaviours.

Buthelez (2009) conducted a study to investigate the experiences of xenophobia among international students in South Africa. Data were collected using narratives from ten participants about their lived experiences in the country. The study revealed that discrimination, maltreatment, abuse, the language barrier, and aggression were all factors implicated in the unfavourable experiences of international students in their educational pursuit in a foreign land. In a similar study to that of Buthelez (2009), Zar (2009) focused on examining acculturative stress among international students of African descent studying in South Africa. The study utilised a qualitative approach via semi-structured interviews to understand the experiences of these students. Analysis revealed that feelings of loneliness, alienation, and fear were primarily associated with the stress experienced by international students. Hence, the results from the studies mentioned above agree with the hypothesis, that acculturative stress has a direct relationship with international students' mental health.

Ratshilaya (2017) conducted a study to examine the academic and social experiences of international students in South Africa. Data was collected through face-to-face semi-

structured interviews with 50 international students. Findings revealed that acculturative challenges of international students were tied to problems such as unfamiliar teaching styles, funding, language barriers, discrimination, and lack of socialisation with domestic students, and crime. These challenges had a negative effect on their academic and social integration. Therefore, it is safe to believe that acculturative stress, if not well handled, and in the absence of posttraumatic growth, will inversely affect the psychological functioning of the students.

Using a mixed-method needs analysis, Caplan and Stevens (2017) gathered data through an online survey and open-ended interviews with five international students to understand the needs, challenges, and successes of international students at a university in the US. The study's findings demonstrated that persistence and engagement were prominent factors in the success of international students. In addition, linguistic, cultural and academic challenges were significant in the experiences of international students. Furthermore, the research identified tolerance from the faculty and domestic students, and more awareness of the use of student support services as a significant need of international students. Lastly, oral communication skills to interact with other students emerged as the most critical factor for academic success. Hence, posttraumatic growth moderates the effect of acculturative stress on the student's psychological functioning.

In a study conducted with international students, Zhang (2018) reported a linear relationship between English proficiency, acculturation, academic performance, and psychological functioning of international students. Through an online survey, Adediran and Coetzee (2019) examined factors associated with international students' dissatisfaction with their study experiences. The study focused on the experiences of international students at Tshwane University of Technology, Pretoria, South Africa. The students reported infrastructure for leisure activities, improved support for bursary funding, transport facilities, accommodation and quality of education as some of the factors associated with the pleasant learning experience in the university.

Han and Kanhng (2019) conducted research with Korean international students, concluding that students with high levels of acculturative stress displayed more mental distress symptoms such as depression and anxiety. In another study, Berger et al. (2019) surveyed the psychophysical and sociocultural adjustments of international students in Spain and Germany. The study results showed that students with high

linguistic and cultural skills, a strong sense of identity, and high resilience, were much more successful at adapting to the host country. Furthermore, students with such protective skills had more significant intercultural contact and fewer psychological problems, affirming the hypothesis that posttraumatic growth moderated the outcome of acculturative stress, thereby improving the individual's psychological functioning.

Elsawy et al. (2020), through a cross-sectional study with 4th, 5th and 6th-year medical students at Alexandria University, Egypt, found that recent experiences of stressful life events, dissatisfaction with their socio-economic status, unsuitable studying environment, and not having someone to speak to during stressful conditions were associated with moderate and severe depression among students. More so, Finch and Vega (2003) conducted a study in California to examine the relationship between acculturative stress, posttraumatic growth, and self-reported health status among Latinos. They found that participants who reported having adequate posttraumatic growth at their disposal in times of need, and other forms of challenges, had a better state of both physical and mental health status than their counterparts who reported inadequate or no posttraumatic growth at their disposal. Hence, this study's findings tally with the present study's hypothesis, which presumes that posttraumatic growth, will moderate the effect of acculturative stress on immigrants while improving their health.

In a study of international students, Gore (2020) concluded that if an international student's country of origin were similar to the host country, be it in terms of culture, language or other aspects, he/she would experience less alienation than those who come from countries with more significant dissimilarities. Fang et al. (2020) reported that Chinese male students reported higher levels of acculturative stress experiences associated with depressive symptoms because of their uncertainty of future professional success and immigration challenges. Tineo et al. (2020) examined the relationship between acculturative stress due to discrimination, and its relationship with depressive symptoms and alcohol use among young Latina adults who recently immigrated to the US. The findings of this study showed that discrimination-based acculturative stress was positively associated with depressive symptoms and alcohol use. In addition, having problems with immigration proceedings was associated with more depressive symptoms. These studies' findings align with the hypothesis in this

study, that acculturative stress has a direct relationship with mental health. At the same time, posttraumatic growth acts as a moderator in such a relationship.

In a similar study, Lommel et al. (2020), using a survey research method, explored the relationship between depressive symptoms and acculturation stress among female migrant workers in China. Findings revealed that institutional and interpersonal discrimination were directly related to acculturative stress, depressive symptoms, and poor health. This study is relevant to the present study because it shows how the mentioned variables affect foreigners upon migrating to the new country. Interpersonal discrimination emerged as the strongest predictor of depressive symptoms among migrant workers. Ponciano et al. (2020), using data obtained from Latina College students across 30 universities in the U.S., found that difficulty with language and the pressure to acculturate linked perceived discrimination to depressive symptoms among the participants. A study carried out by Crockett, Iturbide, Torres Stone, McGinley, Raffaelli, and Carlo (2007) examined the relations between acculturative stress and psychological functioning, as well as the protective role of posttraumatic growth and coping style, among Mexican American college students attending college in the United States of America, and reported that acculturative stress was associated with higher levels of anxiety and depressive symptoms. At the same time, active coping was associated with better adjustment (lower depression), whereas avoidant coping predicted poorer adjustment (higher levels of depression and anxiety). In this same study, it was reported that parental support and active coping buffered the effects of high acculturative stress on anxiety symptoms and depressive symptoms. In addition, peer support moderated the relation between acculturative stress and anxiety symptoms. Hence, this study's findings support the hypothesis that posttraumatic growth will reduce the effects of acculturative stress among international students attending tertiary education in a foreign country. In a study conducted by Chew et al. (2020), they concluded that fears, anxieties and depression were common psychological symptoms among university students.

Mahsa (2020) conducted a study with international students at the Near East University, Cyprus, to compare depressed and non-depressed students on acculturative stress and posttraumatic growth. Findings showed that perceived discrimination, culture shock, homesickness, and guilt were positively associated with depression among international students.

In South Africa, various researchers have carried out similar studies. Adediran and Coetzee (2019) conducted a study exploring the expectations and realities of international students in a South African capital city, while Dominguez-Whitehead and Sing (2015) and Buthelez (2009) carried out similar studies among international students in South African universities in order to record how their experiences affect their mental health and academic performance. These studies all came to similar conclusions, that acculturative stress and any other form of stress negatively affected the mental health of these international students. On the same note, Lawa, Idemudia, and Senyatsi (2018), Olasupo et al. (2018) and Ratshilaya (2017), in their various studies with international students in South African tertiary institutions, reported that the state of these students' mental health was highly dependent on the level of acculturative stress experienced by the individual.

3.3 Student stress and mental health.

Extensive studies indicate that university students in several high-income countries (HICs) exhibit higher psychopathology than the broader population. It is common for roughly one-third of these students to report having had a prevalent mental disorder in the last year (Auerbach et al., 2016). The shift to university life can be challenging, often leading to heightened psychological turmoil and signs of psychopathology (McLafferty et al., 2017). This shift typically involves leaving one's family, adjusting to a different social milieu, facing increased academic demands, navigating temptations such as substance abuse, and managing financial strains. Such changes often align with the rise of psychopathological symptoms (Arnett, 2009; Kessler et al., 2007). This is evident when either dormant mental health issues intensify, or new ones develop due to these fresh challenges (Mortier et al., 2015; Zivin et al., 2009; Eisenberg et al., 2007). Aligning with these findings, data from the World Health Organisation (WHO) World Mental Health Surveys from 21 countries revealed that, on average, 20.3% of college attendees across these nations had mental disorders in the past year, with a staggering 83.1% having their onset before joining the university (Auerbach et al., 2016). The predominant mental health issues students report are mood swings and anxiety symptoms. In the US, studies found a 12-month prevalence rate of 11.9% for major depressive disorder (MDD) and 8.4% for generalised anxiety disorder (GAD) among students (Wristen, 2013). Similar numbers were reported in France, with 8.9%

for MDD and 15.7% for GAD (Kessler et al., 2015). A study encompassing 30 primarily LMICs showed a 13.0% one-week prevalence of depressive symptoms in students (Peltzer, 2017). However, notably higher rates were observed in Nigeria (32.2%) and Kenya (41.3%) for the one-week prevalence of significant depressive symptoms (Othieno et al., 2015; Peltzer et al., 2013). Meanwhile, a study of South African university students indicated that 11.2% experienced moderate to severe depressive symptoms, and 15.8% reported a similar intensity of anxiety symptoms. However, there is a comparative lack of sound psychiatric epidemiological studies among university students in many low- and middle-income countries (LMICs), including South Africa.

3.4 The Moderating Effect of posttraumatic growth on Acculturative Stress, Student stress and Mental Health.

Zor (2009) found posttraumatic growth as a protective factor in the negative experiences of international students in South Africa. The study revealed that feelings of loneliness, fear, and alienation were associated with acculturative stress among international students. Posttraumatic growth from family members and other international students was identified as successful adaptive strategies.

Dzansi and Mogashoa (2013) examined the effect of lecturers and domestic students' willingness to accommodate the peculiar needs of international students in the classroom. The study was conducted in South Africa. Specifically, the focus was on how adjusting classroom behaviours and practices such as communication, assessment, teaching, and classroom organisation could help address the needs of international students, and how such adjustments improved classroom effectiveness. Findings revealed that lecturers and domestic students found adjustment in classroom behaviours and practices instrumental in improved classroom effectiveness for all students. This result suggests that providing posttraumatic growth for international students via concern, mindfulness, and empathy from lecturers and domestic students may help alleviate learning challenges in a new cultural environment.

Idemudia, Williams and Wyatt (2013) conducted a study with Zimbabwean migrants in South Africa. The authors reported that immigrants face a greater risk of emotional and physical trauma during migration. However, the impact of this trauma was dampened by posttraumatic growth. In a similar outcome, Cho (2014) found that,

among international teenage students studying in the United States, those using posttraumatic growth coping strategies had a more positive school adjustment. Likewise, Rueger et al. (2016) highlighted the positive correlations between posttraumatic growth and mental health. According to the findings of this study, posttraumatic growth had strong positive effects on mental health.

In their study with international students, Caplan and Stevens (2017) found posttraumatic growth to be an essential factor in helping them cope with challenges. The findings of this study suggest that challenges experienced by international students in their goal to achieve academic success can be alleviated by tolerance and support from faculty members and domestic students, and better integration with the system.

Alharbi and Smith (2018) found that among international students studying in the United States, English fluency, social connectedness, and perceived posttraumatic growth significantly mediated acculturative stress and provided a buffering effect.

Cao et al. (2018) studied Chinese international students. They reported that those with less posttraumatic growth experienced higher levels of acculturative stress, while those with more posttraumatic growth reported less acculturative stress. As concluded by Cao et al. (2018), when exposed to stressful conditions during acculturation, posttraumatic growth, such as supportive communication, reduces the perception of uncertainty and promotes a sense of control over stressful situations, thereby improving one's psychological, physical and emotional health.

Brailovskaia et al. (2018), in a cross-cultural study which drew participants from Germany, Russia, and China, examined the role that resilience and posttraumatic growth play in depression, anxiety, and stress symptoms in students. Across all samples, resilience and posttraumatic growth were inversely related to depression, anxiety, and stress symptoms among students. The authors concluded that across cultures, resilience and posttraumatic growth are protective factors for mental health, regardless of historical, social, cultural, and geographical variations.

Pössel et al. (2018) found that greater familial and graduate posttraumatic growth bridged international students' psychological functioning when integrating and studying in a foreign country. In addition, Han and Kahng (2019) found that more significant perceived posttraumatic growth is associated with more positive feelings and life satisfaction, as well as less depression, anxiety, and stress.

Berger et al. (2019), in their study of international students in Spain and Germany, found posttraumatic growth to be the most important protective factor against acculturation challenges. Based on the study's findings, the authors concluded that, in the absence of posttraumatic growth from the university and mentoring of students to acquire required skills, students' resilience is likely to only help a little in helping international students adjust to the host country.

Tonsing and Vungkhanching (2020) conducted a study among Burmese refugees in the United States of America even though the study population was not international students, it shines a light on how posttraumatic growth plays a role on the mental health of migrants in a new country. They concluded that posttraumatic growth played a vital role in determining the status of their psychological functioning. In a similar outcome, Ringdal et al. (2020) found that among adolescents of school age, posttraumatic growth had a noteworthy contribution to the prediction of depression and other psychological malfunctioning. This study is relevant to the present study as, it paints a picture of how variables such as, Social support, bullying, school-related stress interact with each other to influence students' mental health.

Pang (2020) examined the buffering effect of posttraumatic growth on the adjustment of international students, and concluded that posttraumatic growth alleviated stress-related depression. He also suggested that posttraumatic growth from parents moderates the relationship between acculturative stress and psychological functioning. Similarly, Pössel et al. (2018) found that more significant familial and graduate posttraumatic growth improved international students' psychological functioning when integrating and studying in a foreign country.

Bae (2020) conducted a study with 1635 participants of multicultural backgrounds and reported that participants who felt socially connected and satisfied with their posttraumatic growth experienced less acculturative stress and better mental health than their counterparts who reported having less posttraumatic growth. In a similar study, Shu et al. (2020) also reported the role of posttraumatic growth in managing the effect of acculturative stress on international students' mental health.

3.5 Acculturative Stress, Mental Health, student stress, posttraumatic growth and demographic characteristics.

Gender

Various socio-demographic factors, such as lower socio-economic status (SES), gender, and ethnic minority membership, have been associated to mental health challenges among students. However, specific research suggests that there might not always be a clear statistical connection between these socio-demographic elements and psychopathological issues in student groups (Peltzer et al., 2013; Zaki & Ibrahim, 2010). It was observed that female students tend to exhibit a higher susceptibility to internalising disorders, encompassing conditions such as mood, anxiety, and eating disorders (McLafferty et al., 2017; Lipson & Sonneville, 2017; Tseng et al., 2014; Mokrue & Acri, 2015). On the other hand, male students demonstrated a heightened predisposition towards externalising disorders, including substance abuse and impulse control (Leppink et al., 2014; Kessler et al., 2005). Additionally, students from a lower SES background were more prone to experience symptoms of depression (Othieno et al., 2015), anxiety disorders (Kessler et al., 2015; Yi et al., 2017), and illegal drug consumption (Yi et al., 2018).

Moreover, experiencing discrimination for reasons beyond race, such as age, gender, disability, class, and sexual orientation, can significantly deteriorate mental health. Such forms of discrimination are closely related to increased psychological distress (Carter et al., 2017). This perspective is further validated by research indicating that students identifying with non-traditional sexual orientations, or those who do not conform to typical gender norms, exhibit a heightened risk for psychiatric complications (Peltzer & Pengpid, 2016).

Numerous studies have established a link between gender and the experiences of acculturative stress and psychological malfunctioning. Women have been shown to report more acculturative stress and psychological malfunctioning (Iorga et al., 2020; Olff, 2017; Tineo et al., 2020; Van Droogenbroeck et al., 2018; WHO, 2001). For instance, WHO (2001) found that depression, anxiety, and psychological distress affect girls more than boys across different countries and contexts. Likewise, Tineo et al. (2020) reported that women with more significant acculturative stress due to discrimination exhibited more depressive symptoms and alcohol use. Olff (2017) attributed greater maladjustment among females to being more prone to experience higher anxiety levels than their male counterparts did, and being more likely to surrender passively to anxiety than their male counterparts did. Van Droogenbroeck et al. (2018) also proposed that the gender difference between boys and girls in stress

reactions might be related to gender conceptions and the socially defined roles of women and men, which in many societies expose them to gender-specific stressors. Contrary to the preceding findings, Fang et al. (2020) reported that Chinese male students reported higher levels of acculturative stress experiences associated with depressive symptoms due to their uncertainty about future professional success, and immigration challenges. In a different direction, some studies have reported no gender difference in the experience of acculturative stress and psychological malfunctioning (Cano et al., 2020; Gebregergis, 2018; Mahsa, 2020; Mehta & Beri, 2017). Cano et al. (2020) found no significant gender variance in the level of acculturative stress experienced by both male and female immigrants during the overall acculturation process.

Age

The age of international students has been found to be associated with acculturative stress and psychological malfunctioning. Being older has been associated with better adjustment and mental health (Ma, 2017; Treas & Gubernskaya, 2016). Treas and Gubernskaya (2016) proposed that such association might be linked to peer influence, family and life pressures, immaturity, and inadequate coping strategies in dealing with stress among younger people. By contrast, other studies have reported more significant adjustment and psychological functioning among younger participants (Ferraro et al., 2017; Gebregergis, 2018; Akhtar & Kröner-Herwig, 2015). Ferraro, Kemp and Williams (2017) linked this pattern of relationship to younger students spending more time trying to adapt to the culture and socialising. This could create new posttraumatic growth networks, while their older counterparts focused more on academic achievement and less on socialisation.

Length of Stay in Host Country

Length of stay within the host community has been linked to acculturative stress and psychological malfunctioning. A more extended stay has been linked to poor mental health and acculturative stress (Idemudia, 2014; Iorga et al., 2020; Tineo et al., 2020). For instance, Tineo et al. (2020) found that women who had stayed longer in the USA experienced higher levels of discrimination-based acculturative stress.

3.6 Conceptual framework.

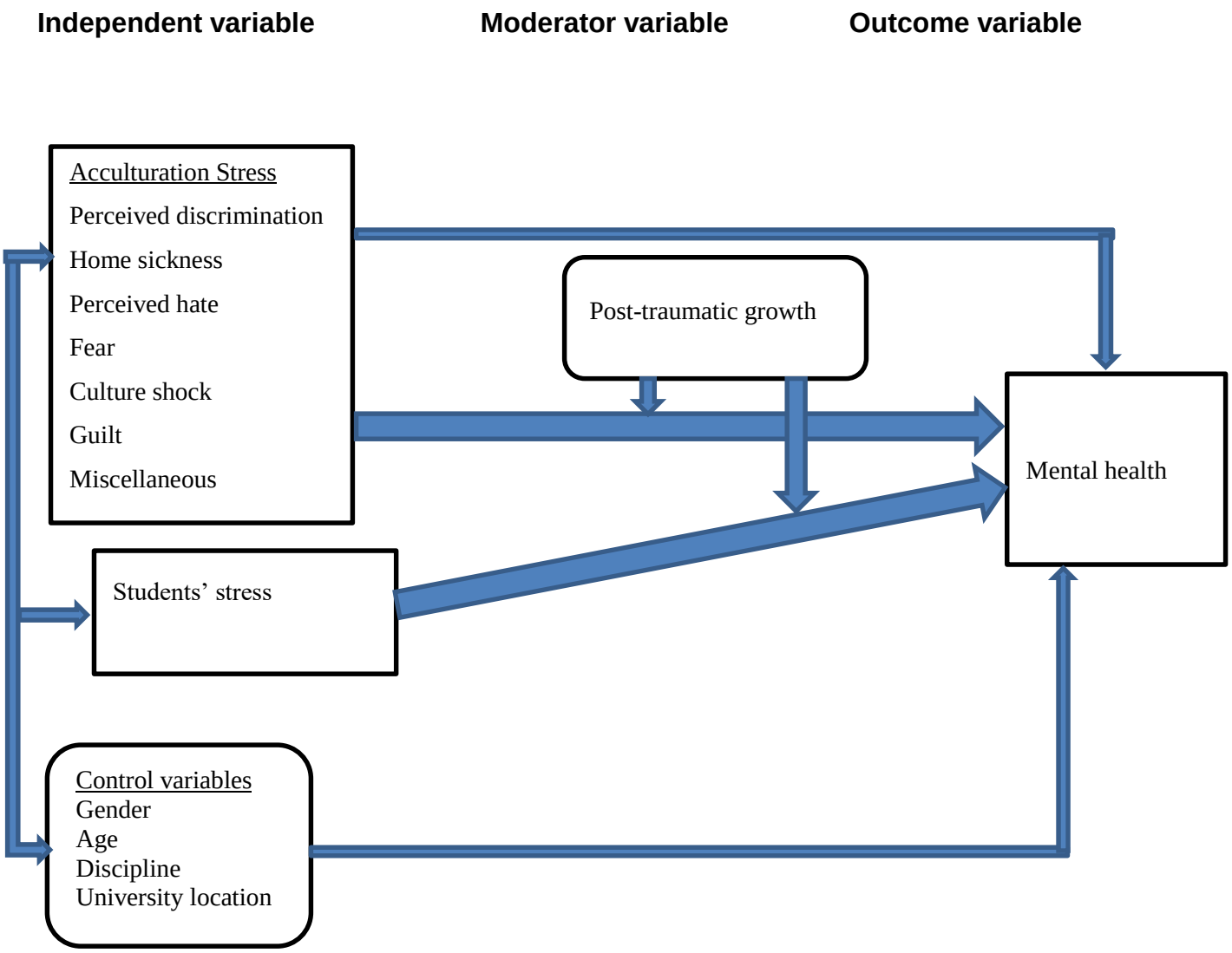


Figure 3.1: Conceptual framework.

Moderation pathways between acculturative stress and psychological functioning via the possible moderation roles of posttraumatic growth. This framework was based on Baron and Kenny's (1986) moderation theory.

Note: The model is based on Baron and Kenny's (1986) moderator variable distinction theory. The arrows indicated a direct relationship between the variables.

The conceptual framework proposes a relationship exists between acculturative stress and the psychological functioning of international students. Posttraumatic growth is also expected to predict international students' mental health directly. Likewise, the relationship between acculturative stress and the psychological functioning of international students is expected to be moderated by posttraumatic growth.

3.7 Research hypotheses

Based on the conceptual framework and gaps identified in the literature, the following hypotheses were tested;

1. Acculturative stress will significantly predict international students' mental health in South Africa.
2. Students' stress will significantly predict international students' mental health in South Africa.
3. Posttraumatic growth will significantly predict the mental health of international students in South Africa.
4. The association of acculturative stress with the mental health of international students in South Africa will be moderated by posttraumatic growth.
5. The association of students' stress with the mental health of international students in South Africa will be moderated by posttraumatic growth.

3.8 Summary and the identified gaps in the literature.

In summary, previous studies, as indicated in the above literature, investigated three groups of associations: the association between acculturative stress and psychological functioning, the association between acculturative stress and posttraumatic growth, and the association between posttraumatic growth and psychological functioning.

From the above literature, studies have shown that the posttraumatic growth at the disposal of international students does play a significant role in facilitating the acculturation process, making it less challenging for the individual. It can also be concluded from the works of earlier scholars that posttraumatic growth has the potential to determine an individual's state of psychological functioning. That is to say, the more posttraumatic growth an individual has at their disposal, the more positive their psychological functioning will be.

In response to the dearth of work using one model to integrate acculturative stress, posttraumatic growth and psychological functioning, the present study attempted to examine how acculturative stress contributed to predicting the psychological functioning of international students, while investigating posttraumatic growth for its moderating impact on acculturative stress. Such a model must be used in this study, which examines the acculturative experiences of international students in South African tertiary institutions, its impact on their psychological functioning, and the moderation role of posttraumatic growth. This can be attributed to the fact that South Africa is becoming the destination country for many international students within the continent and beyond; over decades, South Africa has been known for a history of hostility towards foreigners, especially those from within the continent, as discussed in the previous chapters in the form of xenophobic attacks. With all these happening, it is essential to study how international students' psychological functioning is impacted when they relocate to South Africa to further their education, and how posttraumatic growth can help moderate the effect of acculturative stress on psychological functioning.

In terms of the effect of demographic characteristics on international students' acculturative stress, previous researchers (Ma, 2017; Idemudia, 2014; Iorga et al., 2020; Olff, 2017; Tineo et al., 2020; Treas & Gubernskaya, 2016) indicated a mixed result. Thus, this study included demographic characteristics as international students' background characteristics and which were only used as control variables. In chapter 4 below, the methodology used in this study will be discussed.

CHAPTER FOUR
RESEARCH METHODOLOGY

4.1 Introduction

This chapter offers detailed information on how data for the reported study were obtained and the sample's characteristics, to ease understanding for the general readership. Furthermore, the chapter discusses details of quantitative and qualitative design, sampling methods, procedures for data collection, and statistical analyses.

This study was conducted using a mixed-method approach, comprising a mixed-method approach, comparative approach, and moderation. The embedded design was a mixed methods design in which one data set (qualitative) provides a supportive, secondary role in a study based primarily on the other data type (quantitative) (see Figure 4.1) (Creswell et al., 2003). The premises of this design are that a single data set is not sufficient, that different questions need to be answered, and that each type of question requires different types of data. This design included qualitative data to answer the research questions within this primarily quantitative study. This design was advantageous because it embeds a qualitative component within a quantitative design, as in the case of an experimental or correlational design. An embedded design can use either a one-phase or a two-phase approach for the embedded data, and the quantitative and qualitative data are used to answer different research questions within the study (Hanson et al., 2005).

In this study, the quantitative approach was the primary source of data collection, while the qualitative approach was used as a supportive approach to data collection. Quantitative and qualitative data collection were carried out simultaneously, whereby, at each university, both quantitative and qualitative data were collected during the same period. The quantitative approach to this study used mathematical and computerised systems to analyse numbers and draw conclusions. This design was used because it helps compute a scenario by producing numerical information, or figures, that can be converted into operational indicators.

Qualitative research design, on the other hand, involves collecting and analysing non-numeric data such as audio, texts, and videos to understand concepts, opinions, and experiences better. The qualitative data analysis was done using the thematic analysis technique using ATLAS.ti software. A comparative analysis was further used, and data

collected from various universities was compared using the controlled variables and manner of data collection (quantitative and qualitative). The qualitative aspect of this study helped provide a better understanding of international students' attitudes toward the subject matter. It assisted the researcher in generating more content while providing a better insight into the research topic by allowing the participants to give their opinions and experiences, hence improving the quality of the study's data. This research approach can be used to gather in-depth information about a problem and generate new ideas for research.

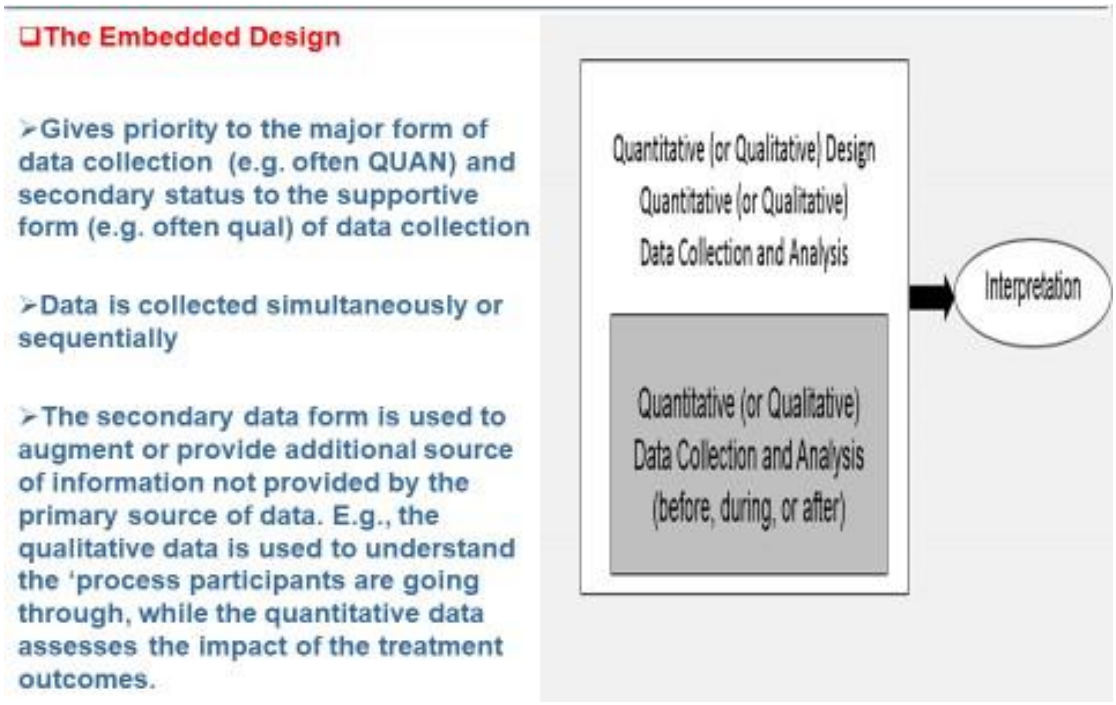


Figure 4.1a: Embedded Design in Mixed-Methods Research: Integrating Quantitative and Qualitative Approaches for Comprehensive Analysis.

This study was conducted using the concurrent triangulation design of mixed method research design. With this design, a one-phase project was conducted, whereby both the qualitative and quantitative data were collected at the same time, the analysis for quantitative and qualitative data was completed separately, and the results from the qualitative data were compared to results from the quantitative data.

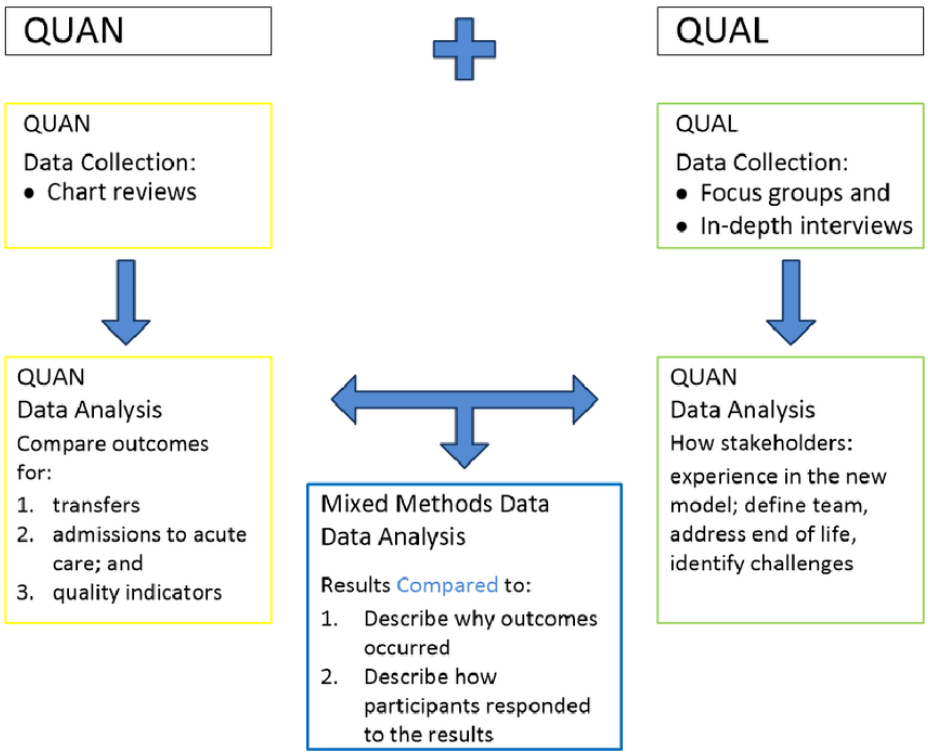


Figure 4.1b: The Concurrent Triangulation Design

4.2 Research design

A cross-sectional research design was used in the quantitative aspect of the study to investigate the acculturative stress, student stress, the posttraumatic growth, and the mental health of international students in South Africa. This research design embodies observations and scrutinizing data from a population at a given time; it is cost and time effective and the results can ascertain or invalidate an assumption. This information has the potential to be utilized in different types of studies where various results can be examined to construct new theories (see Figure 4.1a & b).

As this study's purpose was to find the occurrence of a consequence of interest, for a population or subgroups within the population, a cross-sectional study was appropriate in investigating the connection between independent variables and the outcome of importance, amongst international students in South Africa. This method was significant as it made use of a representative sample (cross-section) from the population to generalize the study's results. Furthermore, this method was suitable because it is comparatively low-cost and time efficient, it has the potential to approximate the

occurrence of a result of interest since the participants are from a whole population, and several results and risk factors are evaluated in one study (Bickman & Rog, 2009).

More so, since this was a mixed-method study design, the qualitative aspect of the study used a phenomenological design to collect the views of students, to describe what they all have in common with regards to their experiences of acculturative stress, student stress, posttraumatic growth, and mental health. To this end, qualitative researchers identify a phenomenon as an 'object' of human experience (van Manen, 1990, p. 163). The word 'phenomenology' denotes the study of phenomena and a phenomenon is whatever happens to an individual in their conscious experience (Neubauer, Witkop & Varpio, 2019). In this research design, examining other individuals' experiences of an occurrence, or the significance they associate with situations, gives a better comprehension of the situation. This research design involved the researcher interacting with people who shared experiences of a phenomenon, in order to gain a better understanding of the phenomenon.

4.3 POPULATION

The target population for this study were international students registered in universities within these four provinces in South Africa, which were Gauteng, North West, Western Cape and Free State Provinces of South Africa. These provinces were purposively selected as research locations due to the diversity and differences in these provinces. Gauteng is located in the Northeast of the country and it is one of the country's most populated and diverse city, Free State is in the southeast and it is houses one of the country's capital city, and North West is located to the West and is highly known for mining activities such as the mining of fluorspar, vanadium, rhodium, uranium, copper, limestone, slate, phosphate, manganese, coal and nickel, while the Western Cape is in the South of the country and it is found at the coast with lots of touristic sites and activities. The four provinces selected have 11 universities in total. Four universities were randomly selected in these provinces using the stratified random selection method and the four universities selected were; University of Johannesburg, University of the Free State, North-West University and the University of Stellenbosch respectively. In terms of university ranking in South Africa, whereby the four selected universities are given positions 1-4, the appear as follows:

Stellenbosch university, the University of Johannesburg, North-West University and the University of the Free State according to, Top Universities in South Africa | 2023 University Ranking | uniRank (4icu.org). International students find these provinces appealing due to their cosmopolitan nature and low cost of living. These universities were selected using the stratified random selection approach by grouping all universities in the country according to their geographical location (North, South, West and East). Within each cluster, the university names were written on pieces of papers and then randomly selected.

These universities do not have an equal number of registered international students. The University of the Free State had 2112 international students from 64 countries in 2018, the University of Johannesburg had 3487 international students from 82 countries in 2020, the University of Stellenbosch had 4878 international students from 100 countries in 2020 and the North-West University had 3328 international students in 2023 from over 50 countries.

Eight hundred and eleven (N= 811) female and male international students, with an age range from 18 to 49 years old, were randomly chosen using the simple random selection method from the participating universities. Across all these universities, the student body is quite diverse, originating from a total of 36 different countries. The dataset indicates that Nigerian students are the most prevalent group, followed by those from Uganda, Zambia, Ghana, and Kenya. There's also a representation, albeit smaller, from countries like Cape Verde, Central African Republic, Cuba, Italy, Korea, Liberia, and the USA, each contributing a small fraction to the overall demographic makeup (See appendix 7).

The decision to select 200 students from each of the four universities in the study was guided by established research methodologies. This approach ensured standardisation and comparability across different institutional contexts, a principle supported by Creswell and Creswell (2017) in their discussions on research design. The uniform sample size also addressed practical considerations in conducting multi-site research, as highlighted by Babbie (2016), who emphasises the importance of balancing ideal statistical representation with logistical feasibility. This method aligns with a non-proportional quota sampling strategy, where sample sizes are determined

based on specific research needs rather than population proportions, a concept discussed by Trochim and Donnelly (2006). Additionally, the mixed-methods approach of the study, incorporating both quantitative and qualitative data, as advocated by Creswell (2014), compensates for any limitations arising from this sampling strategy. Finally, this approach was also ethically informed, ensuring fair and equal representation from each site, as suggested by Israel and Hay (2006) in their exploration of research ethics.

4.4 Sample and Sampling technique

The democratic republic of South Africa has nine provinces, which are Northern Cape, Western Cape, Eastern Cape, Free State, KwaZulu-Natal, Gauteng, North West, Mpumalanga and Limpopo, with 26 public universities and 42 private universities.

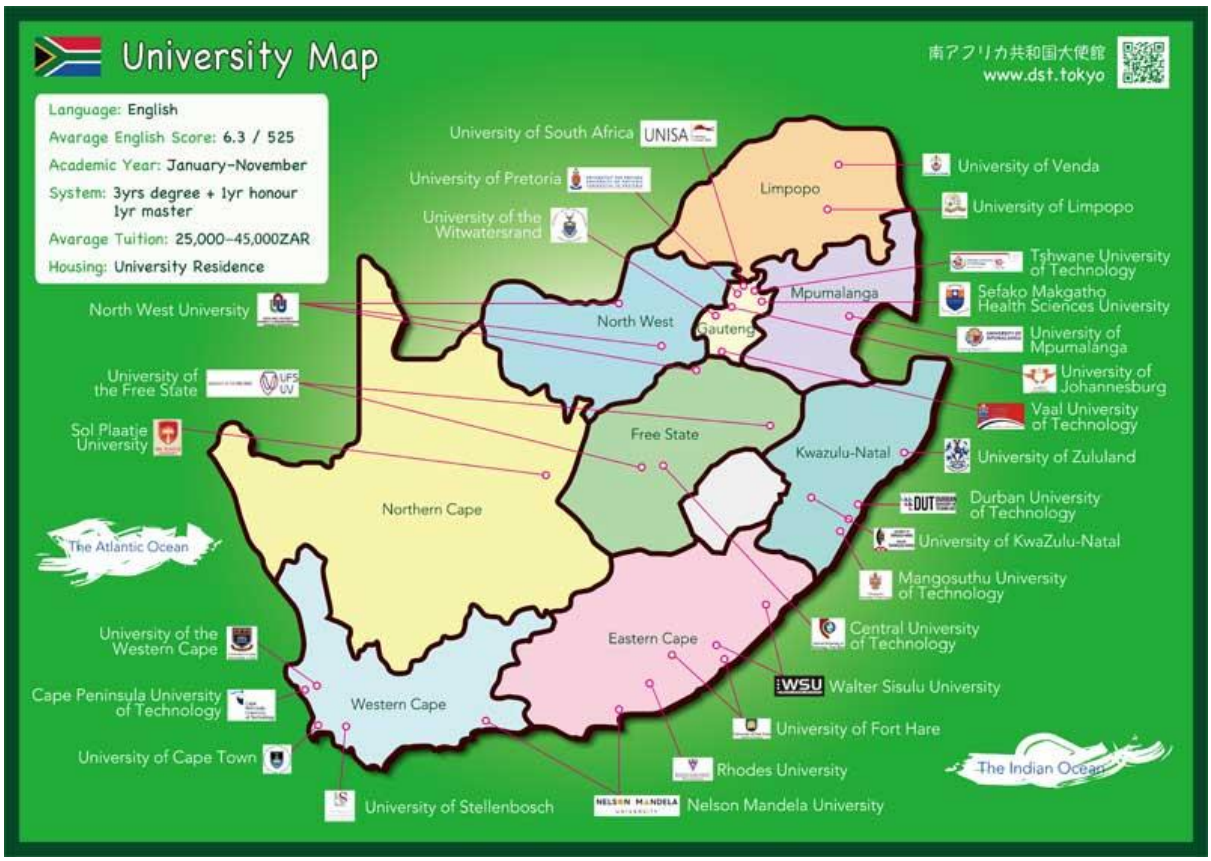


Figure 4. 2: Map of the Republic of South Africa showing the distribution of public universities. From [South African map showing public universities - Google Search]

As shown on the map, each province has at least one university. A multi-stage sampling method was used in selecting the study's participants. Multi-stage sampling uses two or more stages of random sampling, based on the hierarchical structure of natural clusters within the study population (Alvi, 2016). Since each region has both private and public universities, all the public universities in the country were clustered according to their geographical location, whether they are in the North, East, South, or West. Once these universities had been clustered, one university was randomly selected from each cluster, giving four participating universities. After these four universities had been randomly selected, 200 participants from each university were further randomly selected to complete online questionnaires (quantitative data). After this sampling method, six participants were selected from each university to participate in focus group discussions (qualitative data).

Once these four universities were selected, the researcher contacted the relevant authorities to seek their approval for the study to be conducted within their institution. Once they approved the study to be carried out in the institution, the researcher developed posters to advertise the study. These posters were pasted around the campuses; the researcher also approached the university's international office for assistance in recruiting international students for the study. The international office assisted the researcher in sending emails to international students to invite them to participate in the study. This email contained the details of the study and a link to the informed consent form, which, upon the participant granting their consent to the study, automatically redirected them to the site where they completed the questionnaires. The researcher also approached the university's IT office with the poster, asking for it to be put up on the university's website and Facebook page as an advertisement, to inform students of the study and recruit study participants. This poster had a link to the website where the students had access to the informed consent form; once they granted their consent to participate in the study, they were redirected to the page with the questionnaire. Participants recruited to participate in focus group discussions were provided with a Zoom link to have a session with an independent person, who explained the study in detail and answered any questions they had. Once the participants fully understood and still showed interest in participating in the study, they had to sign an informed consent form, with a witness, and drop it in a box at the international office on their campus. Once all the informed consent forms from focus

group participants on campus had been signed and dropped, the independent person made necessary arrangements with the international office on how to courier the consent forms for the study participants to pick up and sign. After the participant, witness, and independent person signed the informed consent form, the participants were sent the Zoom link and other instructions for the focus group discussions.

However, if a selected university's authority refused to grant the researcher permission to conduct the study in their institution, the researcher randomly selected another university from the same cluster, and this method was used until four participating universities across the country was obtained.

For the researcher to cover for students who had dropped out of the study during data collection, and for the questionnaires that were answered incorrectly, thereby making them invalid, the online platform where participants were to complete the questionnaires was set up to allow 220 participants to complete the questionnaire. These participants were able to complete the questionnaire in many sittings. Once 220 participants from a particular university had completed the questionnaire, the system automatically closed for students from that university.

4.5 Data Collection Procedure

Prior to conducting the study, authorisation to carry out the study was requested from the Health Research Ethics Committee (HREC) of the Faculty of Health Sciences of the North-West University (NWU) and it was granted with ethics number **NWU-00357-20-A1**. Permission was also requested from all the selected university authorities and other stakeholders to carry out the study. While seeking permission to carry out this study, the researcher provided the relevant authority with a copy of the informed consent form, and a copy of the research questionnaire and research questions. The researcher further requested permission for a psychologist from the university's psychology department to be on standby in case participants needed their services during the study. The protocols mentioned above were conducted virtually, during which time the researcher-oriented students on the study, and clarified any concerns they had regarding the study.

After this presentation, the researcher communicated to members of the psychology department, seeking recommendations about students who could be research assistants. These research assistants are masters' students from the psychology

department who have experience in conducting research. Once the research assistants were recruited, the researcher to educate the research assistants on the aims and objectives of the study, consent forms, confidentiality, anonymity, privacy, and the data collection tools and process carried out virtual training. This was to equip them and answer all the questions they needed to ask for clarity about the study. The research assistant was responsible for providing the study participants with more details and explanations about the study, should participants need more details or any form of clarification. If a study participants complained of experiencing any negative effects as a result of their participation in the study, the research assistant was also responsible for referring/ putting the participant of the study participants in contact with a psychologists, social workers, or other professionals should the need arise during the study, due to their direct participation in the study. The study participants were informed that before and during the data collection phase, there was a chat room available for them to ask questions of both the researcher and research assistant should they need more information or clarification.

All participants were required to fill out an online informed consent form at a convenient time. This form contained detailed information about the aims of the study, what was required of the study participants during their participation in the study, and their rights. This form also had a link to a chat room where participants could interact and ask questions anonymously to the research and research assistant. For participants to take part in the completion of online questionnaires or focus group discussions, they had to read the informed consent form, on which they were requested to declare their nationality. Those who were South African nationals were not granted access to take part in either the online questionnaire or focus group discussions. As for the international students who are eligible for the study, they were requested to grant their consent to the study by clicking on the “I agree” button at the bottom of the form. Once this consent was given, students completing the online questionnaires were automatically redirected to the page where the questionnaire was found.

In contrast, those participating in the focus group discussions were redirected to a Zoom link. The focus group participants were provided with a session date and time. They were required to log in to the sessions using their nicknames and not put on their cameras, as all sessions were recorded.

The researcher conducted the focus group sessions during the morning hours, when participants had not yet gone out to perform their daily duties and were not tired. It was anticipated that each session would take 45 minutes to an hour. During the focus group discussion sessions, the researcher asked the participants open-ended questions. Participants were allowed to carry on in discussions, whereby they answered questions by narrating their encounters and experiences, hence giving the researcher a better understanding of the phenomenon, and how the various variables interact in determining the state of their mental health. Participants participating in quantitative data collection had to complete the questionnaires online. Once the maximum number was attained, the platform closed, allowing no more participants; this applied to all participating institutions. During data collection, if participants needed psychosocial intervention, an independent clinical psychologist volunteering in the study at each participating university, and a provincial hospital, were on standby to intervene in all the universities. As a token of appreciation for participating in this study, participants were given an airtime voucher to the value of R25 for participating in the study.

Data will be kept in the data safe at the Department of Psychology. In line with research ethics, data will be kept in the Department of Psychology for seven years. The Research Committee of the Department of Psychology, and the research team (promoter of the study, researcher and statistician) monitored the data all had access to the electronic data version. A password was created for the safety of the data, and all hard copies of data about this study were stored in a locker with the keys kept in the Psychology Department.

4.6 Data collection instruments

Questionnaires were used for data collection. The questionnaires comprised different sections as follows.

4.6.1 Demographic Section

This section was used to assess the demographic characteristics of the participants, such as their age, gender, marital status, how long they have lived in South Africa, their level of study, faculty, and significant difficulties they have encountered since they arrived in South Africa. In this section, participants had to respond by ticking the appropriate answer. However, the questions on age, duration of stay, and the

significant difficulties encountered since arriving in South Africa were open-ended, so responses had to be typed in.

4.6.2 Goldberg General Health Questionnaire - 12 (GHQ-12)

This scale was developed by Goldberg and Hillier (1979). This scale has been validated and used in the African context to measure the mental health of South Africans in different situations (Sharratt & Van der Heuvel, 1995). This self-administered screening test is designed to detect non-psychotic psychiatric disorders (Goldberg, 1972, 1978). It concerns two significant phenomena: the inability to carry out one's normal healthy functions, and the appearance of new phenomena of a distressing nature. The 12 statements are rated on a four-point scale, with a scoring weight of 0 to 3. Thus, the total score may range from 0 to 36. A higher score indicates increased levels of psychological distress and poor general health. The 12-item version of the scale's reliability and validity was evaluated using construct validity and structural equation modelling among South African healthcare workers (Kufe et al., 2023).

4.6.3 Acculturative Stress Scale for International Students (Sandhu & Asrabadi, 1994)

The Acculturative stress scale for international students was developed by (Sandhu & Asrabadi, 1994). This is a 36-item scale in Likert format that was revised from the initial 125-item Acculturation Scale for International Students. This questionnaire was obtained from the internet and is within the public domain, to be used by researchers and other people interested in measuring general well-being. This questionnaire has yet to be validated in South Africa. However, it has been used among African students attending universities in the United States of America and other European countries (Sandhu & Asrabadi, 1994). This scale was designed to assess the acculturation of international students, and the domains tested include perceived discrimination, homesickness, fear, guilt, hatred, and stress due to change (cultural shock). The response format ranges from 1 as strongly disagree, to 5 as strongly agree, with three as not sure. Higher scores on each item mean higher acculturation stress. The total scores range from 36 to 180 on this scale. Higher scores are indicative of greater

acculturation stress perceived by the subjects. The scores on six subscales can be computed by adding the individual scores on the relative items. Items 5, 8, 12, 16, 19, 25, 28, 30, 32, and 36 in this scale address some miscellaneous concerns of international students. Although these items have not been empirically identified under any of the six factors mentioned above, we consider them significant enough to be included in this scale to assess international students' acculturation comprehensively. This scale has been used extensively among international students with various cultural and racial backgrounds in the American setting. It proved valid as it measured international students' acculturative stress in South African universities.

Pan, Yue, and Chan (2010) reported satisfactory internal consistency reliability of the scale, with a Cronbach's alpha of .88 and Guttman split-half reliability of 0.86 for the overall scale. The Cronbach alpha coefficients ranged from .90 to .97, indicating strong internal consistencies of the scale (Stephenson, 2000).

4.6.4 Student Stress Inventory

The Student Stress Inventory (SSI) was developed by Arip et al. (2015) to measure the stress level among university students. SSI contains 40 negative items to measure four subscales (10 items for each subscale), which are sub-scale 1: Physical (10 items), sub-scale 2: Interpersonal relationship (10 items), sub-scale 3: Academic (10 items) and subscale 4: Environmental factor (10 items). As for scoring, the SSI uses the 'Never (1)', 'somewhat frequent (2)', 'Frequent (3)' and 'Always (4)' format. Regarding score analysis and interpretation, the authors suggested that those who obtained a score of 122-160 reflect severe stress, 81-121 reflect moderate stress, and those who obtained a score of 40-80 reflect mild stress. This scale has not been used in South Africa, but it has been used widely by other researchers among college students.

Nor Azimah and Saharudin's (2011) SSI questionnaire had good content validity, with an overall score of 0.805 (80.5%). The original SSI had a strong internal consistency with Cronbach's $\alpha = 85.0$ and an acceptable concurrent validity (Crack & Doyle-Baker, 2022); in the current study, Cronbach's $\alpha = 89.0$.

4.6.5 Posttraumatic Growth Inventory (PTGI)

This scale was developed by Cann et al. (2010) to assess the positive changes experienced by individuals as a result of the psychological and cognitive efforts made to deal with challenging circumstances. This inventory has 21 items measuring five domains: greater Appreciation of Life and Changed Sense of Priorities; more Intimate Relationships with Others; greater Sense of Personal Strength; Spiritual Development, and New Possibilities.

According to Silva et al. (2018), all 21 items correlated with each other significantly, ranging from r = 0.11, p = 0.017 to r = 0.72, p = 0.0001. All items also correlated significantly with the total score, ranging from r = 0.51, p = 0.0001 to r = 0.75, p = 0.0001. Construct validity of the PTGI has been verified in many studies investigating whether the scale measures benefits unique to surviving a trauma rather than learning from ordinary life experiences. The total PTGI scores showed significant differences between the groups with high and low posttraumatic symptoms (t [298] = −23.4, p = 0.001). Highly symptomatic individuals, according to Cann et al. (2010), also presented more differences in new possibilities (t [298] = −3.18, p = 0.002) and spiritual change (t [298] = −2.13, p = 0.03). Time since the event did not influence PTGI scores (r = −0.55 p = 3.5) but was positively correlated with more significant posttraumatic symptoms (r = −0.15, p = 0.008). Partial correlations controlling for the time elapsed since the event showed that PTGI total scores were also correlated with re-experiencing (r = 0.18, p = 0.002) and avoidance symptoms (r = 0.12, p = 0.040). In addition to the symptoms, PTGI scores were associated with event severity, since it correlated with perceived suffering when the event occurred (r = 0.19, p = 0.001), but not with event-related current suffering (r = −0.053, p = 0.36). There were no significant differences between men (M = 1.05, SD = 0.70) and women (M = 2.66, SD = 2.43) for PTGI total scores (t [298] = −1.83, p = 0.068).

In the original validation study, the authors proposed that the PTGI score was expected to be greater in people with higher personality traits of socialisation, extroversion and openness to experience (Osei-Bonsu et al., 2017). For concurrent validity, non-significant correlations with measures of depression have been used in the literature to prove that these are separate constructs, and that PTGI does not merely measure the absence of depression in the face of life adversity, according to Mack, et al, (2015). This scale has not been used in a South African setting but has been used among the

black population and other immigrant groups in the United States of America and Europe.

4.7 Ethical considerations

The following ethical considerations were applied during this study. After the initial oral presentations and approval of the study at the departmental level, permission to conduct the study was sought and obtained from the Community Psychosocial Committee of the North-West University, Potchefstroom Campus, South Africa. Once this committee had given permission for the researcher to proceed with the study, the researcher applied for ethical approval from the North-West University Ethics Committee in Potchefstroom, and permission was granted. The ethics certificate number is NWU-00357-20-A1. The researcher further obtained permission to conduct the study from the Research Data Gatekeeper's Committee.

Furthermore, participation in the study was voluntary. Therefore, those participants who indicated willingness to participate in the study read and signed the Informed Consent Form. The form specified the purpose of the study and described the core fundamental principles of ethics. In this regard, the principle of respect of autonomy was adhered to, as participation was voluntary, and participants had the right to withdraw their participation from the research whenever they felt uncomfortable with any aspect of it. The principle of beneficence, which pertains to the significant benefits of the study to both participants and the society at large, was noted. Likewise, the principle of non-maleficence, which allows for no harm to come to participants, was considered. Lastly, the principle of justice, respecting all participants equally, was adhered to. In light of this, study participants were assured of the confidentiality of their responses. Names and identification numbers were not required.

4.8 Data analysis

This study's data were analysed using the Statistical Package for the Social Sciences (SPSS 28) SmartPLS Version 4.0 and Atlas-ti. This study used controlled variables (age, gender, discipline and university location), predictor variables (acculturative stress and student stress), the moderator variable (posttraumatic growth), and the outcome variable (mental health).

The study used the structural Equation Model (SEM) to analyse the collected quantitative data. SEM is a group of numerical procedures used to assess multivariate models and assumed relationships between variables (Kahn, 2006; Wei et al., 2004). Pearson Product Moment Correlation was used to determine the degree and direction of associations between the study variables. The benefit of SEM over other statistics, such as multiple regressions, is that it shrinks the error variance found in multiple regressions. Also, it permits researchers to stipulate and approximate the model's suitability using mediator (intervening) variables to forecast the associations among the input and output variables (Hoyle, 2011). Model estimation was done using the maximum likelihood method (Bollen, 1989).

In the SEM model, the chi-square statistics is the test, which requires a non-significant p-value (> .05). Since the chi-square test is sensitive to sample size, the Standardised Root Mean Square Residual (SRMR), the Comparative Fit Index (CFI), and the Root Mean Square Error of Approximation (RMSEA), which are measures of relative fit, are also used to evaluate model fitness. For model fitness, Kline (2010) recommended a cut-off of .90 or greater for the CFI, and .06 or less for the RMSEA and SRMR.

This enabled the researcher to examine how posttraumatic growth moderated the relationship between acculturative stress and psychological functioning while controlling for age. Moderation was performed by centring the means of the independent and moderating variables, and then calculating their interaction term. The dependent variable was regressed on the independent variable and the moderating variable. Direction of moderation was plotted on a two-way interaction.

On the other hand, the qualitative data collected through the focus group discussions was analysed using the thematic data analysis technique using ATLAS.ti. In this regard, the data was transcribed, after which the researcher familiarised herself with the data, followed by coding the data, generating themes, reviewing the themes, defining and naming the themes, and then writing up a conclusion of the findings. This was done by following various steps:

1. Becoming familiar with the data; the researcher read and re-read the data, wrote down detailed notes and impressions, and decided which pieces of data possess value.
2. Data was coded into themes, which involved creating categories and sub-categories, whereby each category was an example of some thematic idea.

The objective here was to group data associated with some thematic idea, which allowed them to be analysed together.

3. The researcher searched for patterns and connections in the data by observing the comparative importance of data and recognising associations between data sets or themes.
4. Once the data had been grouped into themes, it was interpreted, and conclusions were drawn.

In this mixed-methods study, qualitative and quantitative data were analysed separately to ensure a thorough understanding of each dataset. The qualitative data analysis involved thematic coding to identify key patterns and themes. Simultaneously, the quantitative data were analysed to discern trends and relationships among variables. After the independent analyses, the next step was to integrate these findings. This integration involved a comparative analysis where insights from the qualitative data were used to enrich and provide context to the quantitative results. Rather than converting qualitative data into quantitative form, the study focused on how the qualitative findings could corroborate, complement, or provide depth to the quantitative outcomes. This approach allowed for a holistic understanding of the research questions, considering both statistical trends and the nuanced perspectives captured through qualitative methods. The findings were also compared across the different universities to identify any variations or commonalities that could be linked to institutional differences. This comparative aspect was crucial in understanding the study's broader implications within the diverse South African educational context. This process is known as quantitating (Tashakkori & Teddlie, 1998).

4.9 Conclusion

Chapter 4 discussed the research design and research methodology used in the study. The research design (quantitative research approach) was discussed in detail to shed light on the methodological process the researcher adopted. The chapter also discussed questionnaires as the data collection tool selected and which were aligned with the study's design and method. Population, sampling, data analysis, and ethical issues were also discussed. The next chapter will present the main results of this research, detailing all statistical tests used in analysing the stated hypotheses as well as the process used in analysing the qualitative data.

CHAPTER FIVE

RESULTS

5.1 Introduction

This chapter reports the results of this study. It gives a detailed analysis of the statistical tools (bivariate correlation and structural equation modelling, SEM) used in analysing the study hypotheses. Pearson Product Moment Correlation statistics were used in order to know the extent of the relationship between the study variables, while hypotheses one to five were tested with SEM. Moreover, this chapter reports on a detailed analysis of the qualitative data using the thematic approach with the aid of the ATLAS.ti version 9.

5.2 Quantitative data results.

This results section is a detailed analysis of the five hypotheses formulated based on the conceptual framework and identified gaps in the literature. The study focuses on the mental health of international students in South Africa, spotlighting the significant predictors of mental health: acculturative stress, students' general stress, and posttraumatic growth. The result will present the preliminary statistics to measure the descriptive, correlational, and measurement model, and then the tested hypotheses.

6 Table 5.2.1: Descriptive statistics of the demographics

Variables	Categories	N	%
Gender	Male	432	53.3
	Female	379	46.7
Field of study	Economics and management sciences	208	25.7
	Natural and agricultural sciences	114	14.1
	Education	23	2.8
	Engineering	89	11.0
	Humanities	216	26.6
	Health Sciences	83	10.2
	Law	59	7.3
	Theology	20	2.5
University	North West University	158	19.5
	Stellenbosch	229	28.2
	University of Johannesburg	176	21.7
	University of Free-states	248	30.6

Table 5.2.1 provides a comprehensive overview of the distribution of students by gender, fields of study and across four universities.

At North-West University, there are 158 students, making up 19.5% of the total population in the study. This university sees a significant number of students from Nigeria (14.6%) and Kenya (7.0%), among others. The next institution, Stellenbosch

University, has the highest student count at 229, representing 28.2% of the total. Here, Nigeria (11.8%) and Kenya (6.1%) also stand out as the primary countries of origin. Similarly, students from Uganda, Zambia, and Lesotho form a notable part of the demographic.

The University of Johannesburg accounts for 21.7% of the total student body with 176 students. Like the other universities, Nigerian students (8.5%) form a significant portion, along with those from Kenya (6.3%). The university also has diverse student representation from the Democratic Republic of the Congo, Lesotho, and Zambia. Finally, the University of Free State enrols the second-highest number of students, 248, who comprise 30.6% of the total. This university has a prominent Nigerian (12.5%) and Zambian (8.1%) student population, along with notable numbers from Ghana, Lesotho, and Uganda.

Across all these universities, the student body is quite diverse, originating from a total of 36 different countries. The dataset indicates that Nigerian students are the most prevalent group, followed by those from Uganda, Zambia, Ghana, and Kenya. There's also a representation, albeit smaller, from countries like Cape Verde, Central African Republic, Cuba, Italy, Korea, Liberia, and the USA, each contributing a small fraction to the overall demographic makeup.

In summary, the data reflects a rich mosaic of international student presence in these universities, with each institution having its unique blend of nationalities, although certain countries like Nigeria and Kenya are consistently prominent across all universities (see Appendix 7).

Table 5.2.2: Correlation Matrix of variables

S/N	Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	Age	--																	
2	Gender	-.12**	--																
3	PD(Acculturative stress)	.06*	-.14**	--															
4	Homesickness (Acculturative stress)	-.09**	-.02	.55**	--														
5	Fear(Acculturative stress)	.04	-.20**	.84**	.49**	--													
6	Stress (Acculturative stress)	-.10**	-.07**	.56**	.71**	.49**	--												
7	Guilt (Acculturative stress)	-.13**	-.04	.55**	.74**	.54**	.60**	--											
8	Miscellaneous (Acculturative stress)	-.02	-.15**	.83**	.63**	.82**	.60**	.66**	--										
9	Physical (Student stress)	.03	-.09**	.41**	.47**	.52**	.42**	.46**	.52**	--									
10	Interpersonal (Student stress)	-.08**	-.03	.40**	.48**	.48**	.45**	.51**	.47**	.69**	--								
11	AS (Student stress)	.04	-.07**	.44**	.37**	.50**	.31**	.38**	.48**	.61**	.70**	--							
12	Environmental (Student stress)	-.04	-.10**	.44**	.33**	.49**	.27**	.38**	.45**	.54**	.63**	.82**	--						
13	PS (PTG)	-.17**	.06*	-.03	.13**	-.13**	.11**	.05	-.09**	-.05*	.02	-.10**	-.10**	--					
14	NP(PTG)	-.18**	.06*	-.04	.12**	-.10**	.11**	.03	-.09**	-.05	.03	-.06**	-.07**	.92**	--				
15	IR(PTG)	-.20**	.04	-.04	.15**	-.11**	.13**	.07**	-.08**	-.03	.06*	-.08**	-.08**	.91**	.91**	--			
16	SG(PTG)	-.02	.07**	-.01	.13**	-.10**	.12**	.03	-.06*	-.06*	.02	-.05*	-.09**	.81**	.83**	.82**	--		
17	AL(PTG)	-.12**	.01	-.03	.11**	-.09**	.08**	.00	-.08**	-.06*	-.02	-.09**	-.10**	.82**	.86**	.82**	.75**	--	
18	Mental Health	.05	-.01	-.01	-.02	.05*	-.04	-.00	.09**	.15**	.08**	.12**	.06*	-.07**	-.07**	-.08**	-.08**	-.07*	--

NOTE: * P <.05, **P <.01, PTG= posttraumatic growth, PD= Perceived Discrimination, AS=Academic Stress, PS= Personal Strength (posttraumatic growth), NP= New Possibilities (posttraumatic growth), IR= Improved Relationships (posttraumatic growth), SG=Spiritual Growth (posttraumatic growth), AL= Appreciation Life (posttraumatic growth)

Table 5.2.2 above shows the correlation between control variables (age and gender), independent, and dependent variables. The result showed that Mental Health has a weak positive correlation with Age, which is statistically significant *(r* = 0.05, *p* < 0.046). There is no statistically significant correlation between Mental Health and Gender (*r* = -0.01, *p* > 0.05) and between Mental Health and Perceived Discrimination (*r* = -0.01, p > 0.05). Mental Health has a weak, non-significant negative correlation with Home (*r* = -0.02, *p* > 0.05). However, Mental Health shows a weak, positive, statistically significant correlation with Fear (*r* = 0.05, *p* < 0.04). The correlation between Mental Health and Stress is weak and non-significant (*r* = -0.04, p > 0.05). There is no correlation between Mental Health and Guilt (*r* = 0.00, *p* > 0.05). Mental Health exhibits a weak positive correlation with the Miscellaneous variable, which is statistically significant (*r* = 0.09, *p* < 0.004). The same applies to Physical (*r* = 0.15, *p* < 0.001), and Interpersonal (*r* = 0.08, *p* < 0.005). There are weak, positive, and statistically significant correlations between Mental Health and Academic Stress (AS) (*r* = 0.12, *p* < 0.001) and Mental Health and Environmental Conditions (*r* = 0.06, *p* < 0.049). Mental Health has weak negative correlations, which are statistically significant, with Personal Strength (*r* = -0.07, *p* < 0.005), New Possibilities (*r* = -0.07, *p* < 0.008), Improved Relationships (*r* = -0.08, *p* < 0.001), and Spiritual Growth (*r* = -0.08, *p* < 0.002). Also, a weak negative correlation between Mental Health and Appreciation Life is statistically significant (*r* = -0.07, *p* < 0.007).

Table 5.2.3: Measurement Model

Indices	Estimated model
Chi-square	20977.36
Number of model parameters	31
Number of observations	811
Degrees of freedom	105
P value	0
ChiSqr/df	199.78
RMSEA	0.041
GFI	0.91
AGFI	0.93
PGFI	0.90
SRMR	0.08
NFI	0.94
TLI	0.95
CFI	0.95

Note: CFI - Comparative Fit Index; TLI-Tucker-Lewis Index; NFI - Normed Fit Index; Root; RMSEA - Mean Square Error of Approximation; SRMR - Standardized Root Mean Square Residual

The fit of the structural equation model was evaluated using several indices (Zhang, Dawson & Kline, 2021). The chi-square test, which tests the null hypothesis that the model fits the data perfectly, was significant (χ^2 = 20977.362, $p < .001$), with 105 degrees of freedom. This suggests that the model does not fit the data perfectly. However, the chi-square test is sensitive to sample size, and with a large sample of 811 observations, even minor discrepancies between the model and the data can lead to a significant result (Jackson, 2003).

The Root Mean Square Error of Approximation (RMSEA) was 0.0412, less than the commonly accepted cut-off of 0.05, indicating a good fit. The Standardized Root Mean

Square Residual (SRMR) was 0.076, also less than the conventional cut-off of 0.08, suggesting a good fit of the model to the data. The Goodness of Fit Index (GFI) was 0.912, which exceeds the conventional cut-off of 0.90, indicating a good fit.

The Adjusted Goodness of Fit Index (AGFI) was 0.931, which exceeds the conventional cut-off of 0.90, indicating a good fit. The ratio of the chi-square to the degrees of freedom was high (199.784), which exceeds the conventional cut-off of 3, suggesting a poor fit.

The Normed Fit Index (NFI) was 0.941, which exceeds the conventional cut-off of 0.90, indicating a good fit. The Tucker-Lewis Index (TLI) was 0.951, which exceeds the conventional cut-off of 0.95, indicating a good fit. However, the Comparative Fit Index (CFI) was slightly above the commonly accepted threshold of 0.95, with a value of 0.952, suggesting a reasonable fit. The Parsimonious Goodness-of-Fit Index (PGFI) was 0.901, suggesting that the model is reasonably parsimonious given the data. In conclusion, most fit indices suggest a good fit of the model to the data. The ratio of the chi-square to the degrees of freedom suggests a poor fit, but the other fit indices suggest a good fit which is suitable for further analyses (see Figure 5.1).

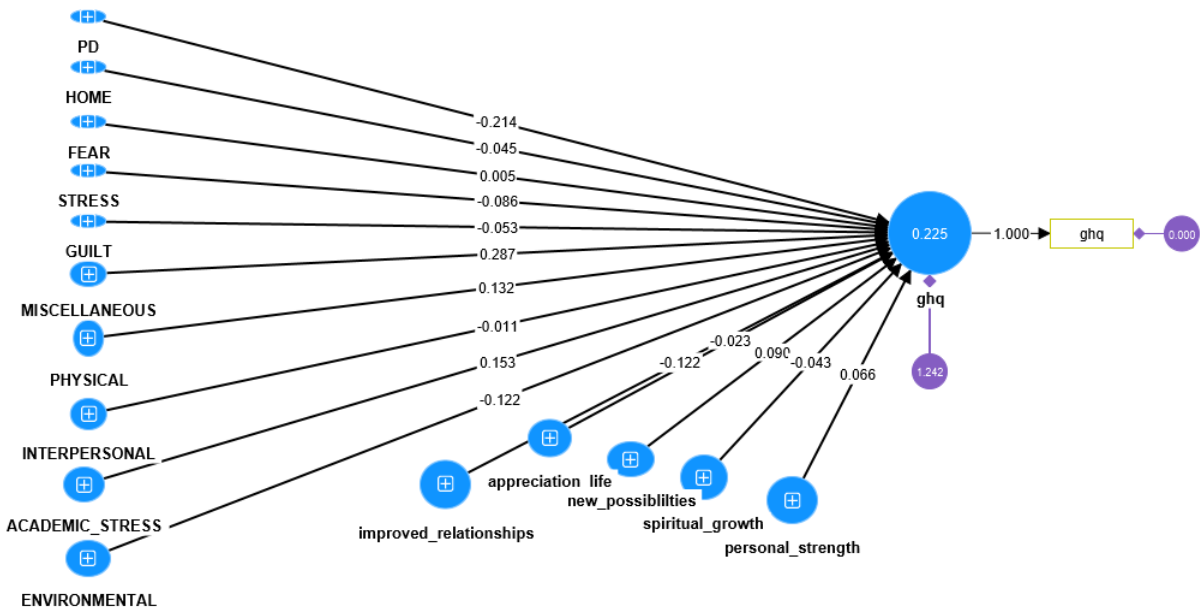


Figure 5.1: Measurement Model

Table 5.2.4: Regression analysis result of the Student Stress, Acculturative Stress and General Health Quality

	Coeff	T statistics	P values	f-square
Academic Stress (student stress) -> Mental Health	0.15	2.73	0.006	0.007
Environmental (student stress) -> Mental Health	-0.10	-2.29	0.022	0.004
Interpersonal (student stress) -> Mental Health	-0.01	-0.30	0.765	0.001
Physical (student stress) -> Mental Health	0.13	3.54	0.001	0.009
Stress (Acculturative stress)-> Mental Health	-0.09	-2.25	0.025	0.004
Fear (Acculturative stress) -> Mental Health	0.01	0.12	0.903	0.001
Guilt (Acculturative stress)-> Mental Health	-0.05	-1.16	0.247	0.001
Miscellaneous (Acculturative stress) -> Mental Health	0.29	5.03	0.001	0.022
Homesickness (Acculturative stress) -> Mental Health	-0.05	1.03	0.305	0.001
Perceived Discrimination (Acculturative stress) -> Mental Health	-0.21	-4.20	0.001	0.012
Appreciation life (PTG) -> Mental Health	-0.02	4.98	0.001	0.011
Improved relationships (PTG) -> Mental Health	-0.12	-0.26	0.796	0.000
New possibilities (PTG) -> Mental Health	-0.09	-2.06	0.040	0.000
Personal strength (PTG) -> Mental Health	0.07	0.39	0.694	0.000
Spiritual growth (PTG) -> Mental Health	-0.04	-1.55	0.122	0.008

NOTE: * P <.05, **P <.01, PTG= posttraumatic Growth

The following hypotheses were tested;

i. Acculturative stress will significantly predict mental health of international students in South Africa.
ii. Students' stress will significantly predict mental health of international students in South Africa.
iii. Students' stress will significantly predict mental health of international students in South Africa.

iv. Posttraumatic growth will significantly predict the mental health of international students in South Africa.

In Table 5.2.4, the regression analysis showed the relationship between acculturative stress (AS) and student stress (SS) on mental health. The acculturative stress (AS), and fear (AS), do not significantly influence Mental Health (t = 0.122, p = 0.903), suggesting that changes in fear (AS) levels are not associated with significant changes in Mental Health (hypothesis 1 partly not supported). Neither Guilt (AS) (t = 1.159, p = 0.247) nor Homesickness (AS) (t = 1.026, p = 0.305) show a significant relationship with Mental Health, implying that changes in these factors do not significantly affect Mental Health (hypothesis 1 partly not supported). For each unit increase in the Miscellaneous (AS) variable, Mental Health is expected to increase by 0.29 units, all else being equal (t = 5.03, p = 0.001) (hypothesis 1 supported). Perceived Discrimination (AS) significantly negatively affects Mental Health. Mental Health is expected to decrease by 0.21 units for each unit increase in Perceived Discrimination (AS) when all other variables are held constant (t = 4.20, p = 0.001) (hypothesis 1 supported).

Lastly, Stress (AS) significantly but negatively impacts Mental Health. A one-unit increase in stress (AS) is associated with a decrease in Mental Health by 0.09 units, with all other variables held constant (t = 2.246, p = 0.025), (hypothesis 1 partly not supported).

The analysis shows that Academic Stress (SS) significantly impacts Mental Health. With every unit increase in Academic Stress (SS), Mental Health is expected to increase by 0.15 units, holding all other variables constant (t = 2.73, p = 0.006) (hypothesis 2 supported). Environmental (SS) also significantly impacts Mental Health but in a negative direction. For every unit increase in Environmental (SS), Mental Health is expected to decrease by 0.10 units, with all other variables held constant (t = -2.29, p = 0.022) (hypothesis 2 supported). Interpersonal (SS) also does not significantly affect Mental Health (t = 0.3, p = 0.765), indicating that changes in Interpersonal (SS) do not significantly influence Mental Health (hypothesis 2 partly not supported). Conversely, the Miscellaneous (SS) variable has a significant positive

impact on Mental Health (hypothesis 2 supported). Physical (SS) significantly influences Mental Health as well. An increase in Physical (SS) by one unit is associated with an increase in Mental Health by 0.13 units, with all other variables held constant (t = 3.54, p = 0.001) (hypothesis 2 partly not supported).

For Posttraumatic growth (PTG), appreciation of life (PTG) was a significant positive predictor of Mental Health (b = 0.02, t = 4.98, p < 0.001) (hypothesis 3 supported). New possibilities (PTG) was a significant negative predictor of Mental Health (b = -0.09, t = 2.06, p = 0.040) (hypothesis 3 supported). In contrast, improved relationships (PTG), Personal strength (PTG), and Spiritual growth (PTG) were not significant predictors of Mental Health (hypothesis 3 partly not supported).

Table 5.2.5: Moderation analysis result of the Student Stress, Acculturative Stress with Posttraumatic Growth on Mental Health

	Coeff	T statistics	P values
Improved relationships-PTG x Environmental-SS -> MH	0.03	3.48	0.001
Improved relationships-PTG x Academic Stress-SS -> MH	-0.01	1.33	0.182
Improved relationships-PTG x Interpersonal-SS -> MH	0.02	1.70	0.089
Improved relationships-PTG x Physical-SS -> MH	-0.01	1.59	0.112
Improved relationships-PTG x Miscellaneous -> MH	0.02	2.20	0.028
Improved relationships-PTG x Guilt -> MH	0.04	1.58	0.114
Improved relationships-PTG x Stress -> MH	-0.01	0.53	0.597
Improved relationships-PTG x Fear -> MH	-0.02	0.80	0.422
Improved relationships-PTG x Homesickness -> MH	-0.03	1.59	0.113
Improved relationships-PTG x Perceived Discrimination -> MH	-0.02	1.82	0.069
New possibilities-PTG x Environmental-SS -> MH	-0.02	1.51	0.132
New possibilities-PTG x Academic Stress-SS -> MH	0.01	0.58	0.561
New possibilities-PTG x Interpersonal-SS -> MH	-0.03	2.26	0.024
New possibilities-PTG x Physical-SS -> MH	0.02	2.29	0.022
New possibilities-PTG x Miscellaneous -> MH	-0.04	2.77	0.006
New possibilities-PTG x Miscellaneous -> MH	-0.04	2.77	0.006
New possibilities-PTG x Guilt -> MH	0.20	3.91	0
New possibilities-PTG x Stress -> MH	-0.03	1.08	0.279
New possibilities-PTG x Fear -> MH	0.07	2.70	0.007
New possibilities-PTGI x Homesickness -> MH	-0.01	0.14	0.888
New possibilities-PTG x Perceived Discrimination -> MH	0.01	0.83	0.406

Personal strength-PTG x Environmental-SS -> MH	-0.02	1.26	0.207
Personal strength-PTG x Academic Stress-SS -> MH	-0.01	0.35	0.724
Personal strength-PTG x Interpersonal-SS -> MH	0.02	1.18	0.237
Personal strength-PTG x Physical-SS -> MH	-0.02	1.14	0.254
Personal strength-PTG x Miscellaneous -> MH	-0.01	0.66	0.51
Personal strength-PTG x Guilt -> MH	-0.07	0.75	0.455
Personal strength-PTG x Stress -> MH	0.06	1.73	0.084
Personal strength-PTG x Fear -> MH	0.07	1.77	0.076
Personal strength-PTG x Homesickness -> MH	-0.01	0.23	0.821
Personal strength-PTG x Perceived Discrimination -> MH	-0.01	0.68	0.499
Spiritual growth-PTG x Environmental-SS -> MH	-0.06	2.83	0.005
Spiritual growth-PTG x Academic Stress-SS -> MH	0.04	2.02	0.044
Spiritual growth-PTG x Interpersonal-SS -> MH	-0.01	0.41	0.68
Spiritual growth-PTG x Physical-SS -> MH	0.06	3.20	0.001
Spiritual growth-PTG x Miscellaneous -> MH	0.01	0.50	0.614
Spiritual growth-PTG x Guilt -> MH	-0.17	1.41	0.16
Spiritual growth-PTG x Stress -> MH	0.04	0.82	0.413
Spiritual growth-PTG x Fear -> MH	-0.23	4.30	0
Spiritual growth-PTG x Homesickness -> MH	0.12	2.09	0.036
Spiritual growth-PTG x Perceived Discrimination -> MH	0.06	2.32	0.02
Appreciation life-PTG x Environmental-SS -> MH	0.01	1.08	0.281
Appreciation life-PTG x Academic Stress-SS -> MH	0.01	0.79	0.428
Appreciation life-PTG x Interpersonal-SS -> MH	-0.02	0.78	0.436
Appreciation life-PTG x Physical-SS -> MH	-0.02	1.20	0.23
Appreciation life-PTG x Miscellaneous -> MH	0.01	0.62	0.533
Appreciation life-PTG x Guilt -> MH	-0.11	1.82	0.068
Appreciation life-PTG x Stress -> MH	0.02	0.25	0.806
Appreciation life-PTG x Fear -> MH	-0.06	1.78	0.075
Appreciation life-PTG x Homesickness -> MH	-0.05	1.36	0.175
Appreciation life-PTG x Perceived Discrimination -> MH	0.01	0.86	0.392

NOTE: PTGI= Posttraumatic Growth, MH= Mental Health, SS= Student Stress

The moderation analysis summary is presented in Table 5.2.5. The result revealed a positive and significant moderating impact of new possibilities (PTG) on the relationship between guilt (AS) and Mental Health (b= .197, t = 3.911, p < .001), supporting Hypothesis 4. This shows that with increased new possibilities (PTG), the relationship between guilt (AS) and Mental Health is strengthened.

Further, slope analysis is presented to understand better the nature of the moderating effects (figure 5.2). As shown in Figure 5.2, the line is much steeper for high/low new possibilities (PTG); this shows that at high/low levels of new possibilities (PTG), (b = 0.164, p <.05; b = -0.253, p <.05) respectively, the impact of Guilt (AS) on Mental Health is much stronger in comparison with average/mean new possibilities (PTG) (b = -0.025, p > .05). This means that at average or mean new possibilities (PTG), the line tends to straighten, showing a weak effect of new possibilities (PTG) in the relationship between guilt (AS) and Mental Health. In contrast, at low new possibilities (PTG), this shows that at lower new possibilities (PTG), the increase in guilt (AS) does lead to a low Mental Health; the reverse is when the new possibilities (PTG) are high.

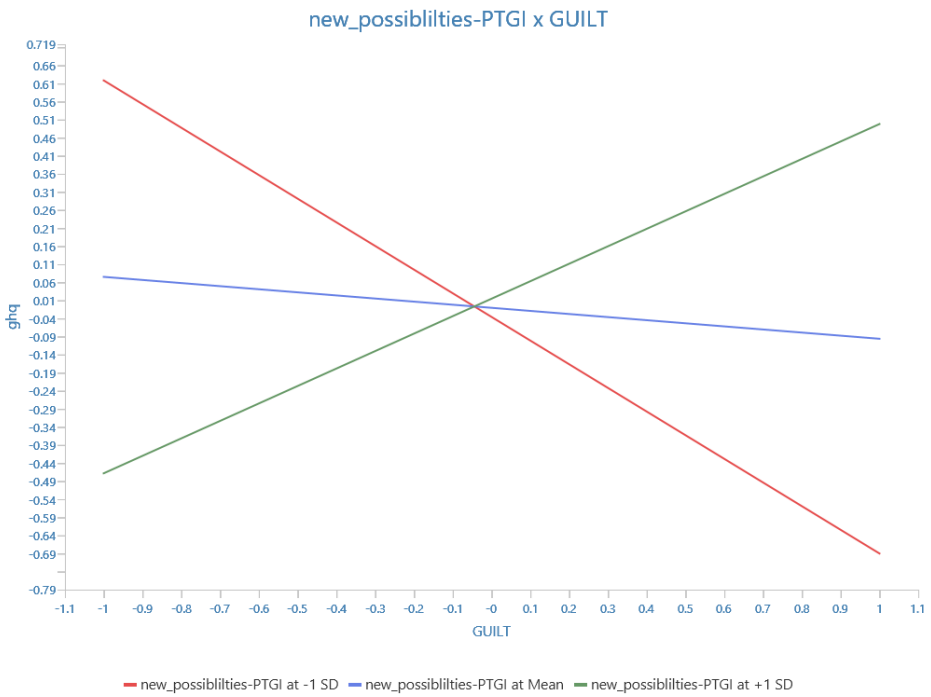


Figure 5.2: Moderating graph of new possibilities and guilt on Mental Health

The result revealed a negative and significant moderating impact of spiritual growth (PTG) on the relationship between fear (AS) and Mental Health(*b*= -.226, *t* = 4.304, *p* < .001), supporting Hypothesis 4. This shows that with increased Spiritual growth (PTG), the relationship between fear (AS) and Mental Health is weakened.

Slope analysis is presented to understand better the moderating effects of Spiritual growth (PTG) in the relationship between Fear (AS) and Mental Health (figure 5.3). As shown in Figure 5.3, the line is much steeper for both the high and low spiritual growth (PTG); this shows that at high and low levels of spiritual growth (PTG), the impact of fear (AS) on Mental Health is much stronger in comparison with average/mean spiritual growth (PTG). This means that at average or mean spiritual growth (PTG), the line tends to straighten, showing a weak effect of spiritual growth (PTG) in the relationship between fear (AS) and Mental Health. The graph shows that at high spiritual growth (PTG) and high fear (AS), the Mental Health is low; the reverse occurs when the spiritual growth (PTG) is low and fear (AS) is low. A higher Mental Health is seen when spiritual growth (PTG) is low, and fear is high, and when the spiritual growth (PTG) is high, and fear (AS) is low.

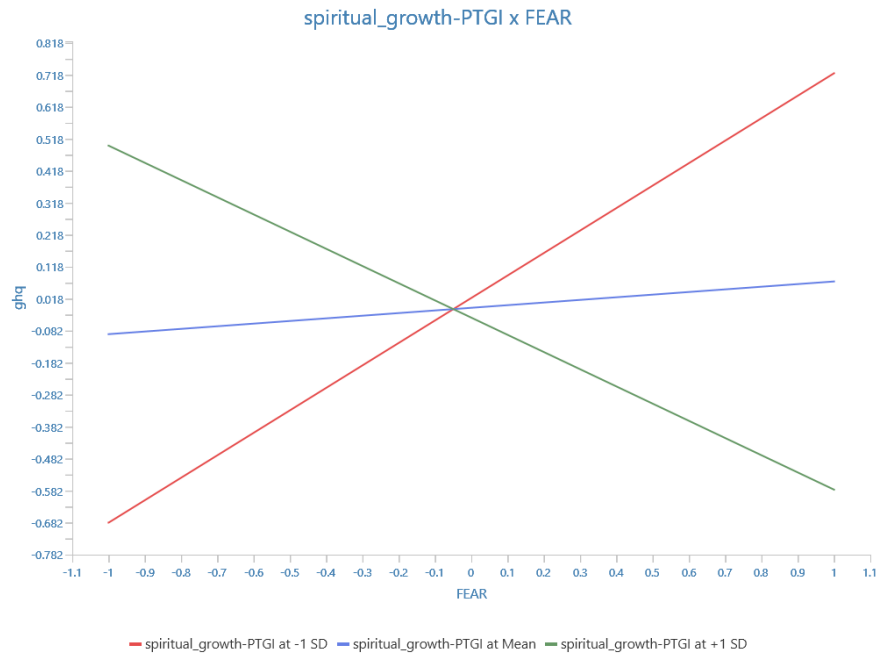


Figure 5.3: Interaction graph of spiritual growth and Fear (AS) on Mental Health

The result revealed a positive and significant moderating impact of spiritual growth (PTG) on the relationship between homesickness (AS) and Mental Health (b = .123, t = 2.092, p = .036), supporting Hypothesis 4. This shows that with increased spiritual

growth (PTG), the relationship between homesickness (AS) and Mental Health is strengthened.

Slope analysis is presented to understand better the moderating effects of spiritual growth (PTG) in the relationship between homesickness (AS) and Mental Health (figure 5.4). As shown in Figure 5.4, the line is much steeper for both the high and low spiritual growth (PTG); this shows that at high and low levels of spiritual growth (PTG), the impact of homesickness (AS) on Mental Health is much stronger in comparison with average/mean spiritual growth (PTG). This means that at average or mean spiritual growth (PTG), the line tends to straighten, showing a weak effect of spiritual growth (PTG) in the relationship between homesickness (AS) and Mental Health. The graph shows that at high spiritual growth (PTG) and high homesickness (AS), the Mental Health is high; similarly, when the spiritual growth (PTG) is low, and homesickness (AS) is high. A higher Mental Health is seen when spiritual growth (PTG) and homesickness (AS) are low.

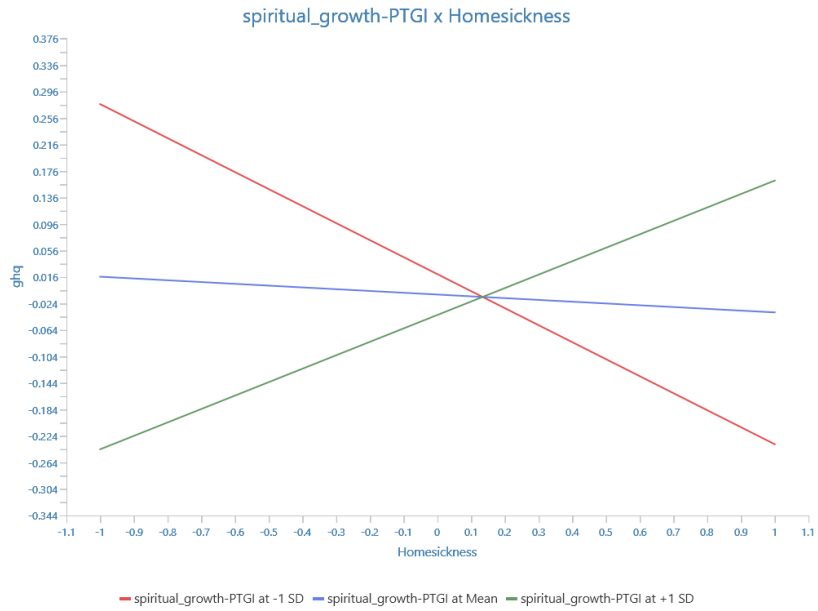


Figure 5.4: Interaction graph of spiritual growth and homesickness (AS) on Mental Health

The result revealed a positive and significant moderating impact of spiritual growth (PTG) on the relationship between perceived discrimination (AS) and Mental Health (b = .060, t = 2.323, p = .020), supporting Hypothesis 4. This shows that with increased

spiritual growth (PTG), the relationship between perceived discrimination (AS) and Mental Health is strengthened.

Slope analysis is presented to understand better the moderating effects of spiritual growth (PTG) in the relationship between perceived discrimination (AS) and Mental Health (figure 5.5). As shown in Figure 5.5, the line is much steeper when spiritual growth (PTG) is low; this shows that at low levels of spiritual growth (PTG), the impact of perceived discrimination (AS) on Mental Health is much stronger in comparison with mean or high spiritual growth (PTG). The graph shows that the Mental Health is high at low spiritual growth (PTG) and low perceived discrimination (AS), as compared to when spiritual growth (PTG) is high, and perceived discrimination (AS) is high.

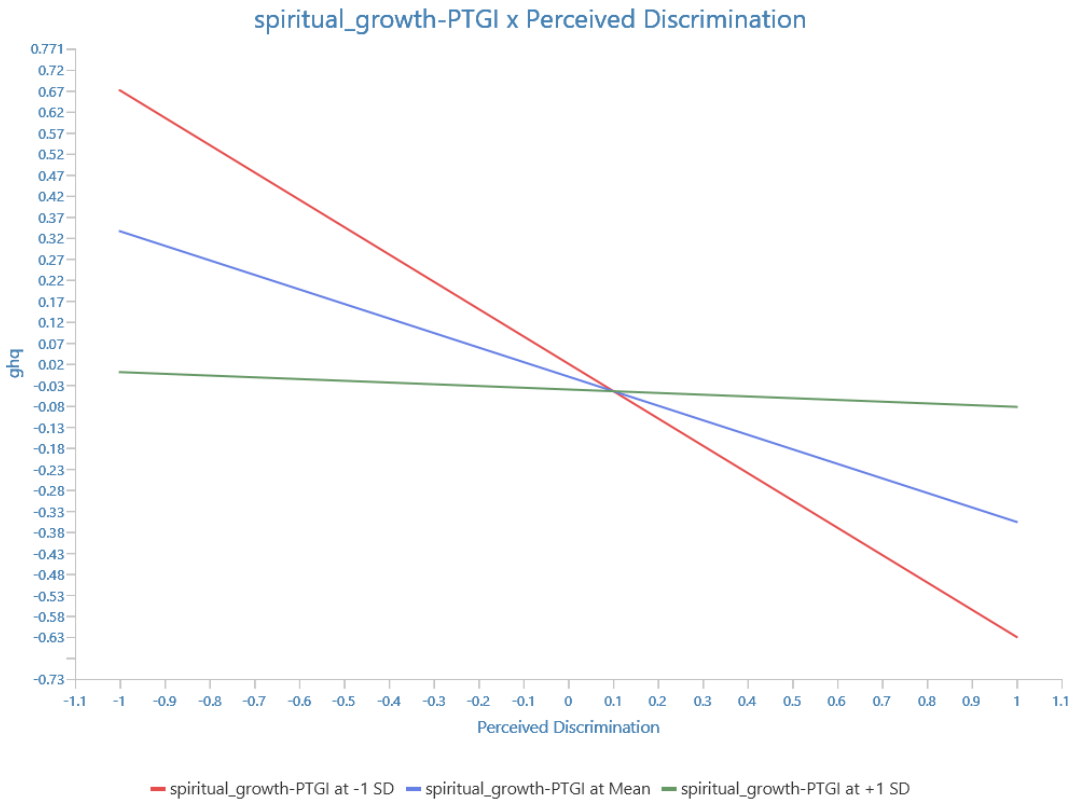


Figure 5.5: Interaction graph of spiritual growth and perceived discrimination (AS) on Mental Health

The result revealed a positive and significant moderating impact of improved relationship (PTG) on the relationship between miscellaneous (SS) and Mental Health (*b*= .022, *t* = 2.200, *p* =.028), supporting Hypothesis 5. This shows that with increased

improved relationship (PTG), the relationship between miscellaneous (SS) and Mental Health is strengthened.

Slope analysis is presented to understand better the moderating effects of improved relationship (PTG) in the relationship between miscellaneous (AS) and Mental Health(figure 5.6). As shown in Figure 5.6, the line is much steeper when the improved relationship (PTG) is high, this shows that at high levels of improved relationship (PTG), the impact of miscellaneous (AS) on Mental Health is much stronger in comparison with a mean or low improved relationship (PTG). The graph shows that the Mental Health is higher at high improved relationship (PTG) and high miscellaneous (AS), as compared to when the improved relationship (PTG) is low, and miscellaneous (AS) is high.

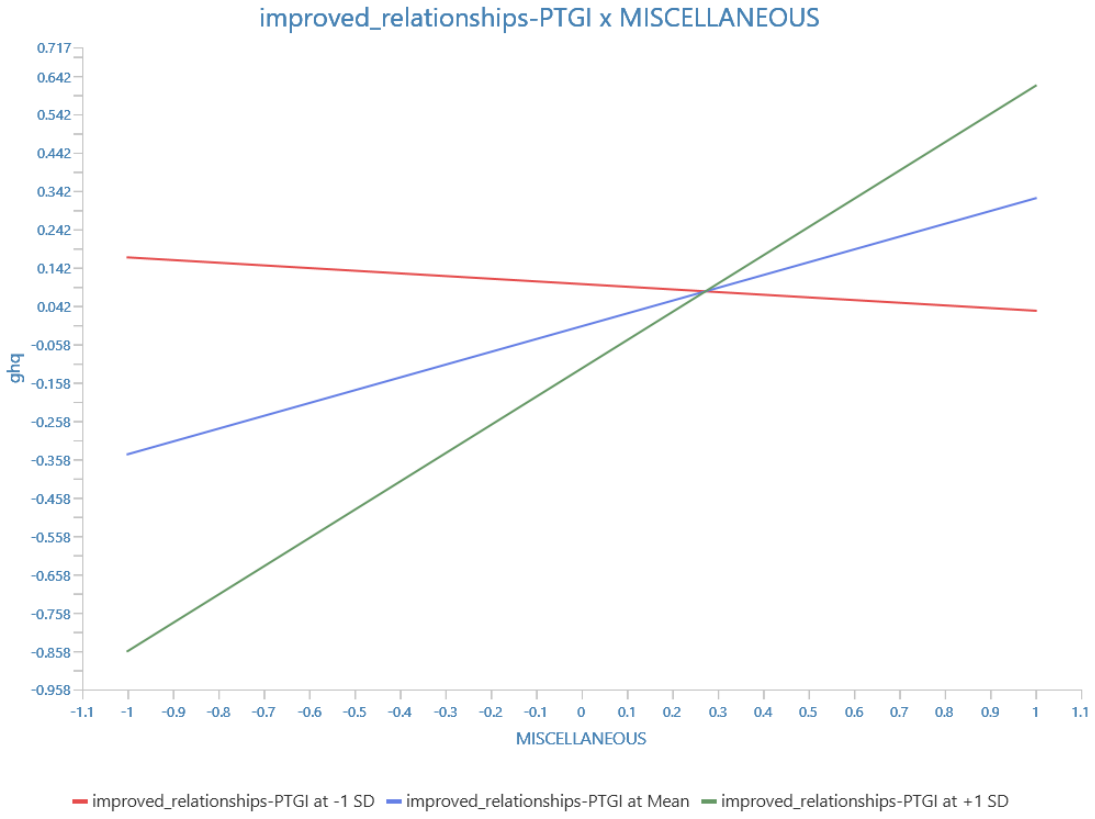


Figure 5.6: Interaction graph of improved relationship (PTG) and miscellaneous (AS) on Mental Health

The result revealed a negative and significant moderating impact of new possibilities (PTG) on the relationship between interpersonal (SS) and Mental Health (*b*= -.033, *t*

= 2.264, *p* =.024), supporting H5. This shows that with an increase in new possibilities (PTG), the relationship between interpersonal (SS) and Mental Health is weakened.

Slope analysis is presented to understand better the moderating effects of new possibilities (PTG) in the relationship between interpersonal (SS) and Mental Health (figure 5.7). As shown in Figure 5.7, the line is much steeper when the new possibilities (PTG) is high; this shows that at high levels of new possibilities (PTG) and low interpersonal (SS), the impact on Mental Health is much stronger in comparison with mean or low new possibilities (PTG). The graph shows the Mental Health is higher at high new possibilities (PTG) and low interpersonal (SS).

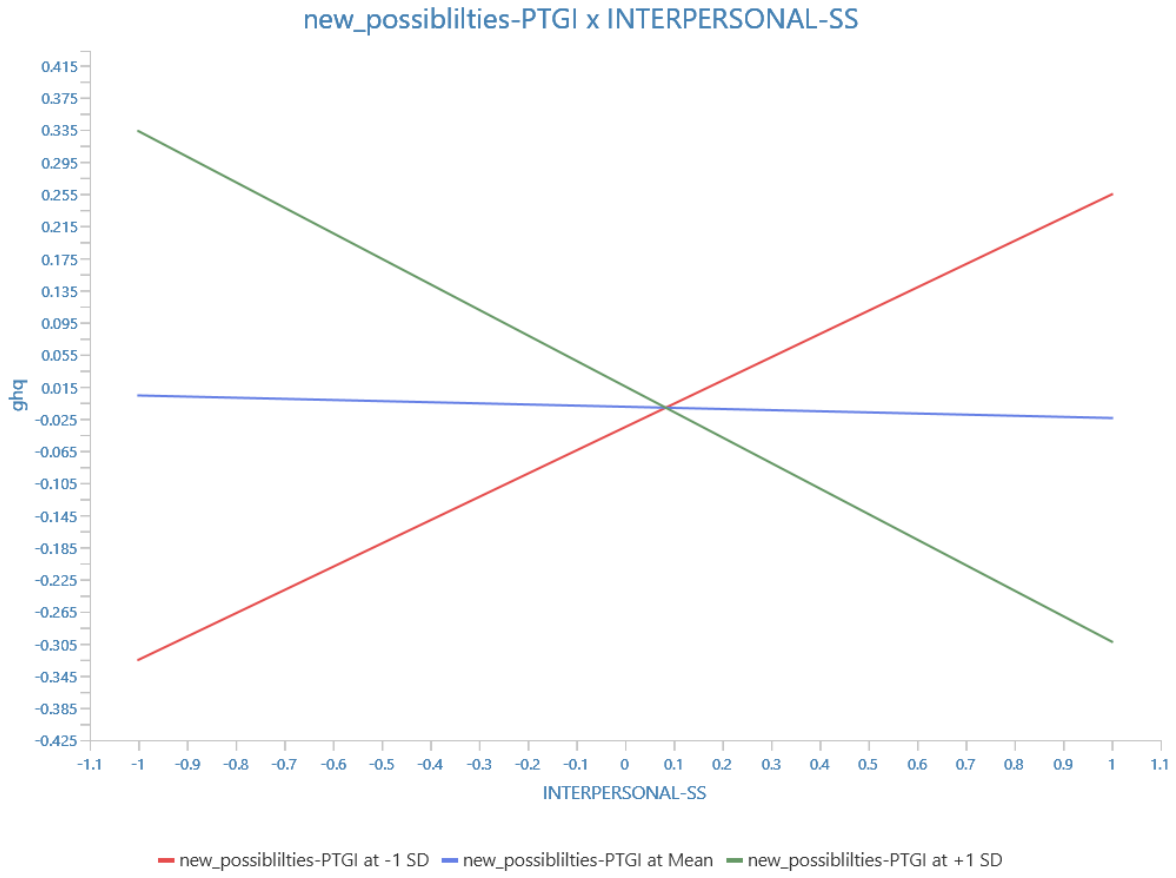


Figure 5.7: Interaction graph of new possibilities (PTG) and interpersonal (SS) on Mental Health

The result revealed a positive and significant moderating impact of new possibilities (PTG) on the relationship between physical (SS) and Mental Health (*b*= .022, *t* = 2.285,

p =.022), supporting Hypothesis 5. This shows that with an increase in new possibilities (PTG), the relationship between physical (SS) and Mental Health is strengthened.

Slope analysis is presented to understand better the moderating effects of new possibilities (PTG) in the relationship between physical (SS) and Mental Health (figure 5.8). As shown in Figure 5.8, the line is much steeper when the new possibilities (PTG) is high, this shows that at high levels of new possibilities (PTG) and high levels of physical (SS), the impact on Mental Health is much stronger in comparison with mean or low new possibilities (PTG). The graph shows the Mental Health is higher at high new possibilities (PTG) and high physical (SS).

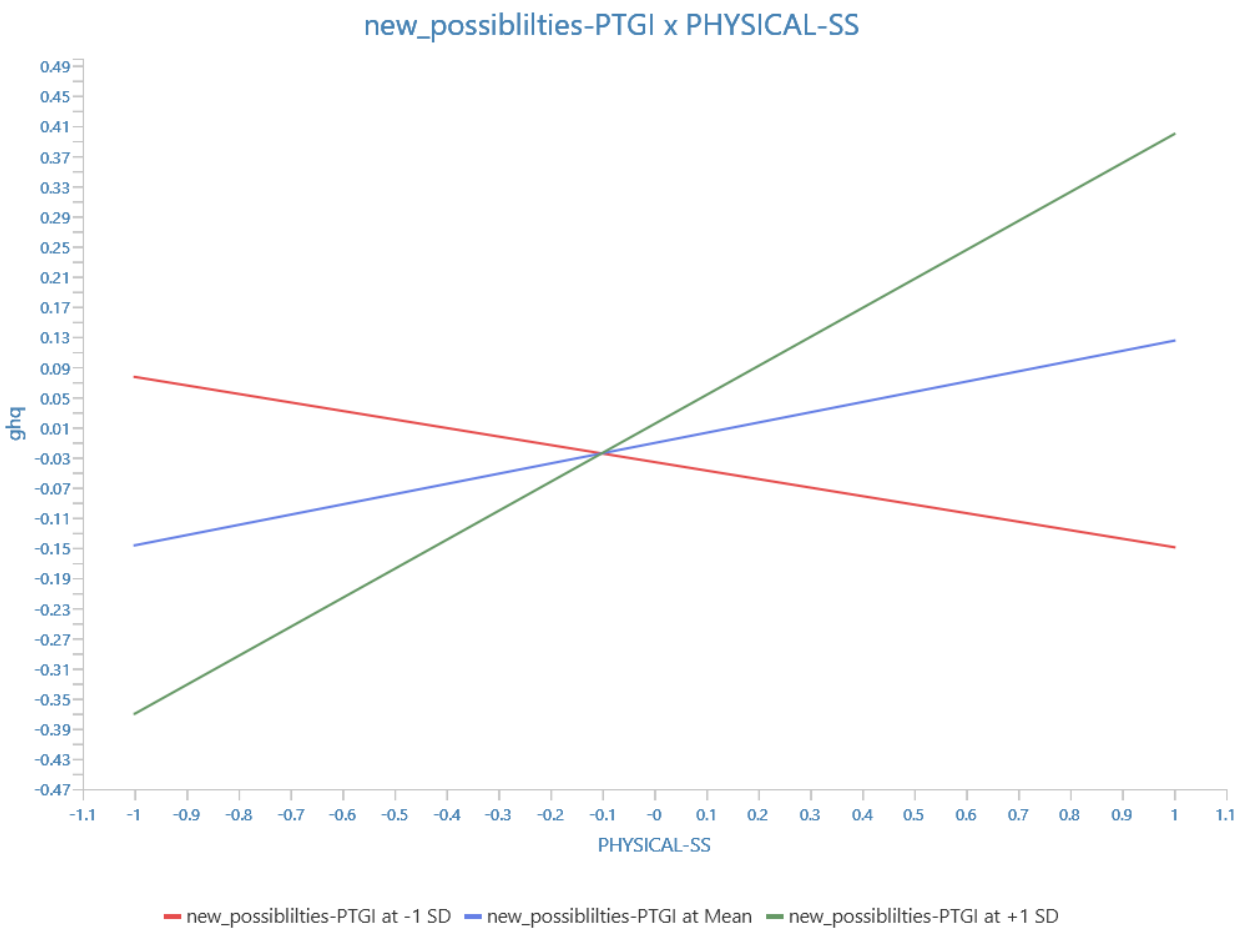


Figure 5.8: Interaction graph of new possibilities (PTG) and physical (SS) on Mental Health

The result revealed a negative and significant moderating impact of new possibilities (PTG) on the relationship between miscellaneous (AS) and Mental Health (*b*= -.037, *t* = 2.768, *p* =.006), supporting Hypothesis 5 This shows that with an increase in new possibilities (PTG) the relationship between miscellaneous (SS) and Mental Health is weakened.

Slope analysis is presented to understand better the moderating effects of new possibilities (PTG) in the relationship between miscellaneous (AS) and Mental Health (figure 5.9). As shown in Figure 5.9, the line is much steeper when the new possibilities (PTG) is low; this shows that at low levels of new possibilities (PTG) and low levels of miscellaneous (AS), the impact on Mental Health is much stronger in comparison with mean or high new possibilities (PTG). The graph shows the Mental Health is higher at a low level of new possibilities (PTG) and low miscellaneous (AS).

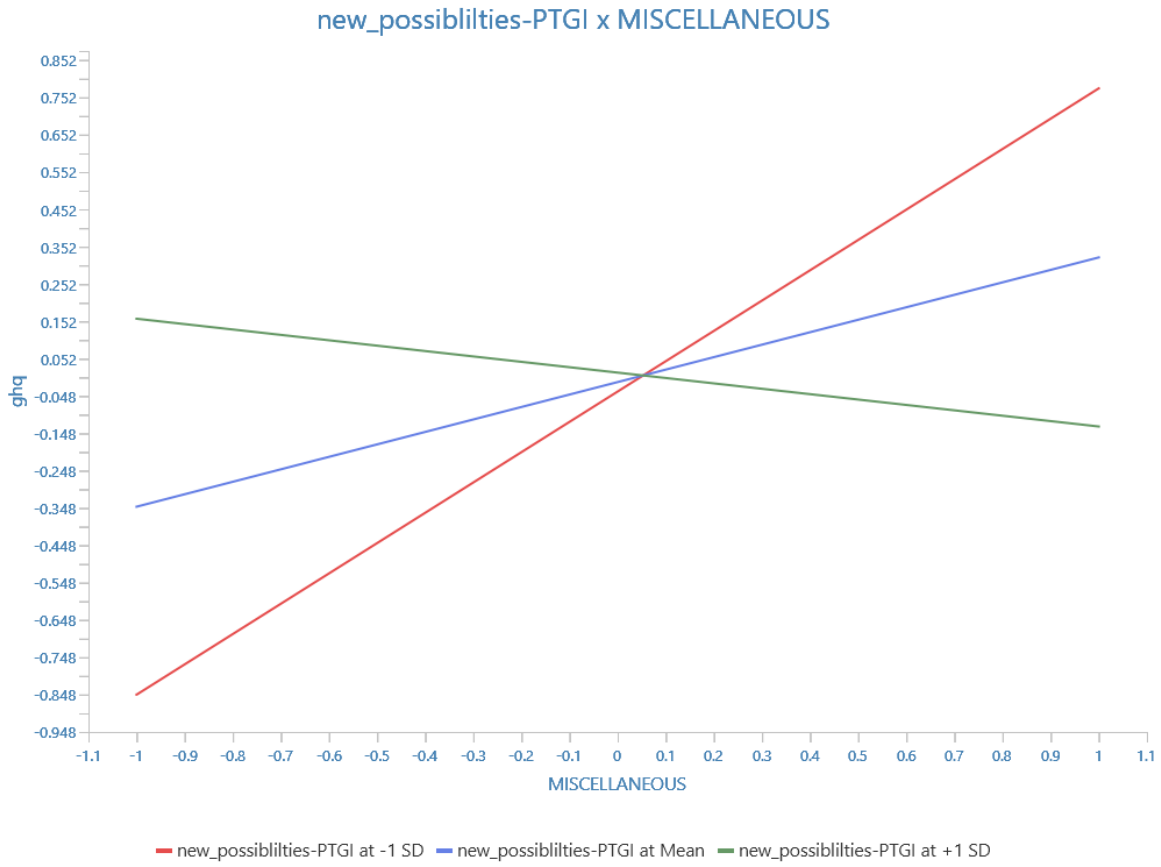


Figure 5.9: Interaction graph of new possibilities (PTG) and miscellaneous (AS) on Mental Health

The result revealed a positive and significant moderating impact of new possibilities (PTG) on the relationship between fear (AS) and Mental Health (*b*= .073, *t* = 2.699, *p* = .007), supporting H5. This shows that with increased new possibilities (PTG), the relationship between fear (AS) and Mental Health is strengthened.

Slope analysis is presented to understand better the moderating effects of new possibilities (PTG) in the relationship between fear (AS) and Mental Health (figure 5.10). As shown in Figure 5.10, the line is much steeper when the new possibilities (PTG) is high; this shows that at high levels of new possibilities (PTG) and high levels of fear (AS), the impact on Mental Health is much stronger in comparison with mean or low level of new possibilities (PTG). The graph shows the Mental Health is higher at a high level of new possibilities (PTG) and a high level of fear (AS).

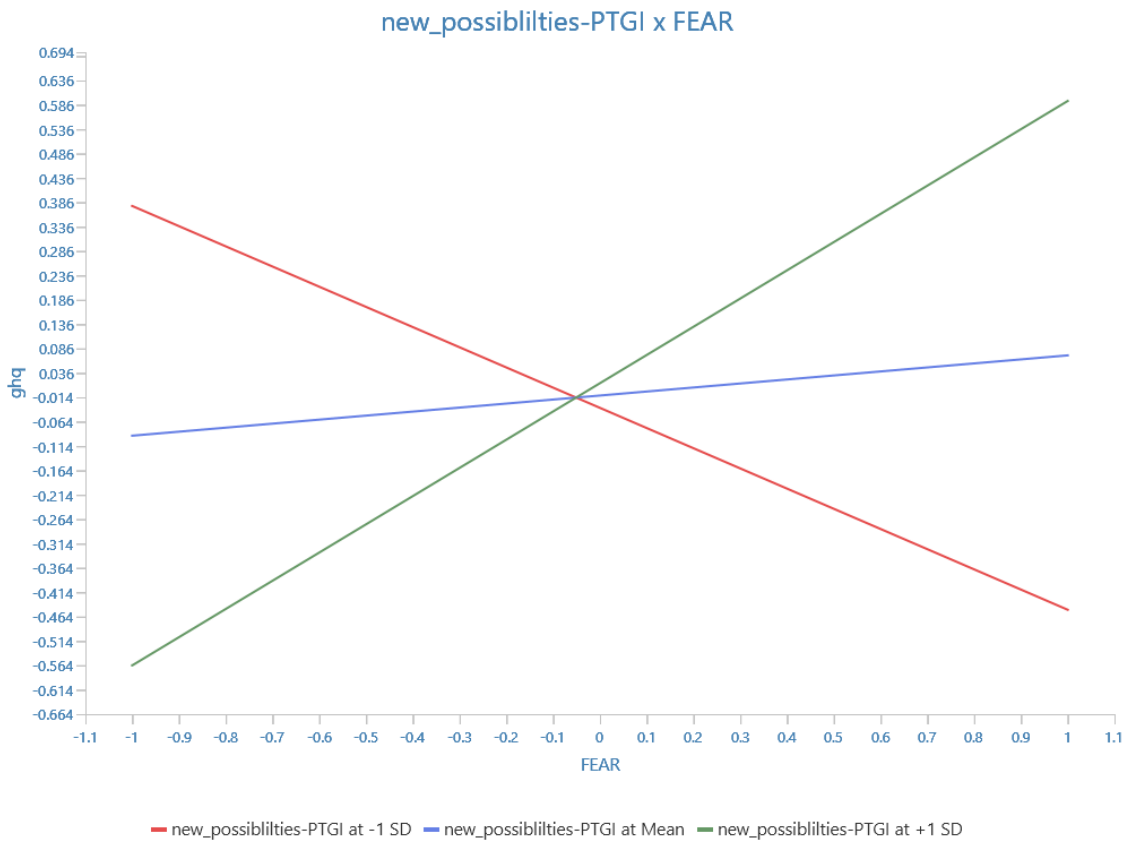


Figure 5.10: Interaction graph of new possibilities (PTG) and fear (AS) on Mental Health

The result revealed a negative and significant moderating impact of spiritual growth (PTG) on the relationship between environmental (AS) and Mental Health (b = -.060, t = 2.826, p = .005), supporting H5. This shows that with increased spiritual growth (PTG), the relationship between environmental (AS) and mental health is weakened.

Slope analysis is presented to understand better the moderating effects of spiritual growth (PTG) in the relationship between environmental (AS) and Mental Health (figure 5.11). As shown in Figure 5.11, the line is much steeper when the spiritual growth (PTG) is high; this shows that at high levels of spiritual growth (PTG) and low levels of environmental (AS), its impact on Mental health is much stronger in comparison with mean or low level of spiritual growth (PTG). The graph shows the Mental Health is higher at a high level of spiritual growth (PTG) and a low level of environmental (AS).

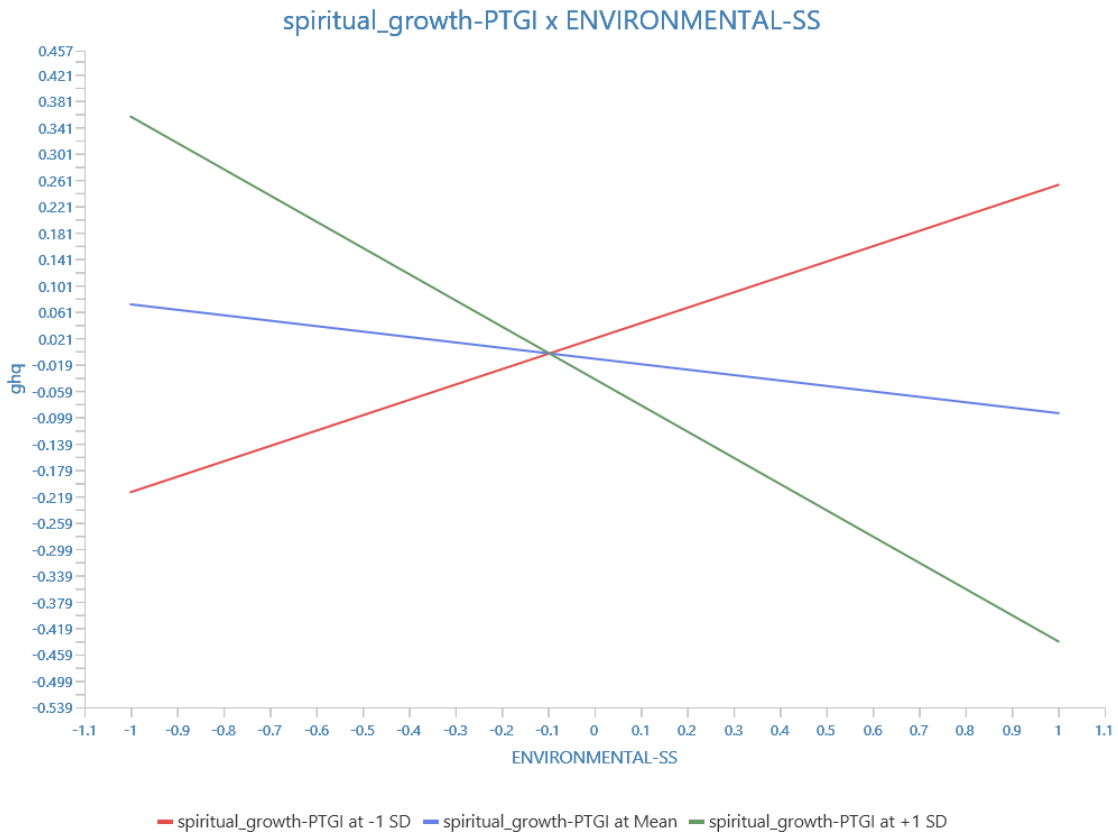


Figure 5.11: Interaction graph of spiritual growth (PTG) and environmental (AS) on Mental Health

The result revealed a positive and significant moderating impact of spiritual growth (PTG) on the relationship between academic stress (SS) and Mental Health (*b*= .043, *t* = 2.018, *p* = .044), supporting H5. This shows that increased spiritual growth (PTG) strengthens the relationship between academic stress (SS) and Mental Health.

Slope analysis is presented to understand better the moderating effects of spiritual growth (PTG) in the relationship between stress (SS) and Mental Health (figure 5.12). As shown in Figure 5.12, the line is much steeper when the spiritual growth (PTG) is high, this shows that at high levels of spiritual growth (PTG) and high levels of stress (SS), the impact on Mental Health is much stronger in comparison with a mean or low level of spiritual growth (PTG). The graph shows the Mental Health is higher at a high level of spiritual growth (PTG) and a high level of stress (SS).

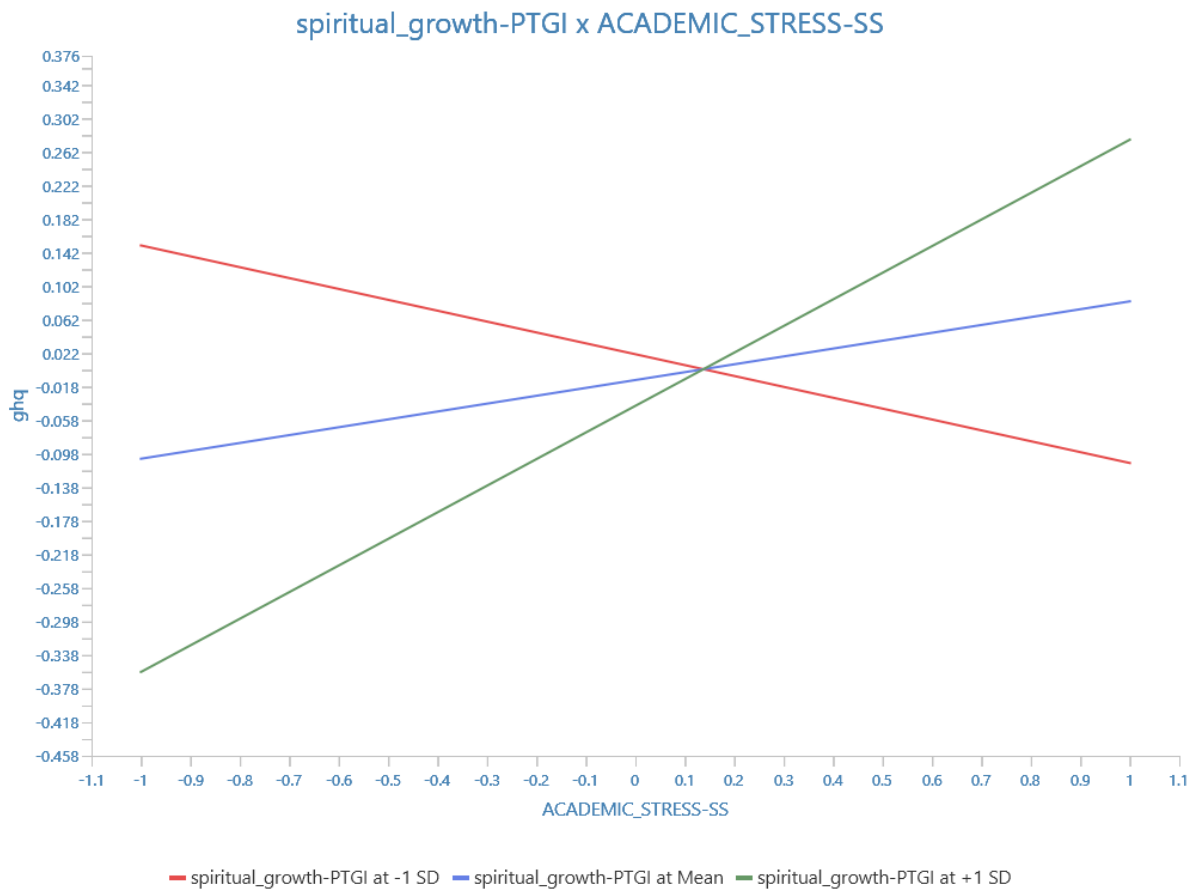


Figure 5.12: Interaction graph of spiritual growth (PTG) and stress (SS) on Mental Health

The result revealed a positive and significant moderating impact of spiritual growth (PTG) on the relationship between physical (SS) and Mental Health (*b*= .062, *t* = 3.202, *p* = .001), supporting H5. This shows that with increased spiritual growth (PTG), the relationship between physical (SS) and Mental Health is strengthened.

Slope analysis is presented to understand better the moderating effects of spiritual growth (PTG) in the relationship between physical (SS) and Mental Health (figure 5.13). As shown in Figure 5.13, the line is much steeper when the spiritual growth (PTG) is high; this shows that at high levels of spiritual growth (PTG) and high levels of physical (SS), its impact on Mental Health is much stronger in comparison with mean or low level of spiritual growth (PTG). The graph shows the Mental Health is higher at a high level of spiritual growth (PTG) and a high level of physical (SS).

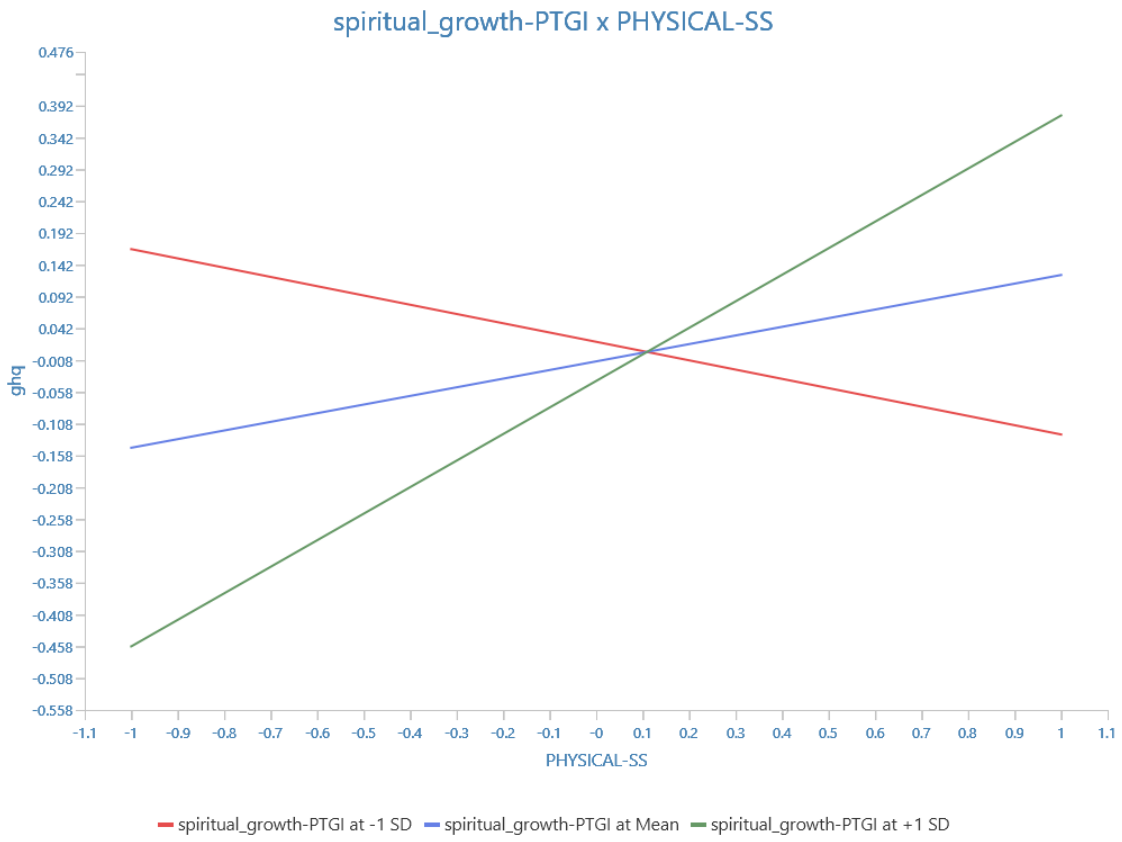


Figure 5.13: Interaction graph of spiritual growth (PTG) and physical (SS) on Mental Health

F-Square effect sizes of all but new possibilities (PTG) x Guilt (AS) - Mental Health = 0.015 (*p* = 0.033) and Spiritual growth (PTG) x fear (AS) – Mental Health = 0.018 (p = 0.022) were significant. According to Cohen's (1988) propositions, 0.02, 0.15 and 0.35 constitute small, medium, and large effect sizes of moderation respectively. This shows that only the moderating effect of new possibilities and spiritual growth (PTG) contribute significantly to explaining the endogenous construct, Mental Health.

5.2.1 Summary of quantitative Findings:

1. Acculturative Stress (stress, Miscellaneous, and Perceived discrimination) significantly influence Mental Health. (except for fear, guilt and homesickness), Mental Health (Hypothesis one partly supported).
2. Academic stress (student, Environmental and physical), except for interpersonal academic stress, significantly predicted mental health (hypothesis two partly supported).
3. PTG (Appreciation of Life and New Possibilities) negatively predicted mental health while improved relationships, personal strength, and spiritual growth did not (hypothesis three partly supported).
4. For the fourth hypothesis: PTG (new possibilities) significantly moderated the relationship between Acculturative stress (guilt) and mental health.
    a. PTG (new possibilities and spiritual growth) significantly moderated the relationship between acculturative stress (fear) and mental health.
    b. PTG (spiritual growth) significantly moderated the relationship between Acculturative stress (homesickness) and mental health.
    c. PTG (spiritual growth) significantly moderated the relationship between Acculturative stress (Perceived discrimination) and mental health (the study partly supported the fourth hypothesis).
5. For the fifth hypothesis: The study also found significant moderating effects of PTG (improved relationship and spiritual growth) and student stress (environmental stress) on mental health.

a. PTG (improved relationships and new possibilities) significantly moderated the relationship between students stress (miscellaneous) and mental health.
b. PTG (new possibilities and spiritual growth) moderated the relationship between students stress (physical stress) and mental health. These results showed that the findings partly supported the fifth hypothesis.

5.3 **Qualitative data analysis**

This section presents the qualitative findings obtained during focus group discussions (FGD) and in-depth interviews carried out in the four universities. The general thrust of this chapter is to let international students speak. In order to do so, we work with verbatim quotations from FGDs and in-depth interviews supplemented by graphs obtained via a tool provided by the ATLAS.ti software (subsequently enhanced in pixel quality). Original FGDs were taped and then transcribed. Readers should be aware that utterances from study participants were – when necessary – transposed during transcription to Standard English from slang, to make them comprehensible for the average reader. We refrain from offering in-depth interpretations when providing quotations and graphical displays, but let the qualitative evidence speak for itself.
There were four FGDs in this study from four different universities across South Africa. In this regards there was a total of 24 participants between the ages of 18 and 31 years old, both females and males, and the level of studies ranged from a bachelor's degree to a Doctor of Philosophy, as shown in the chart below.

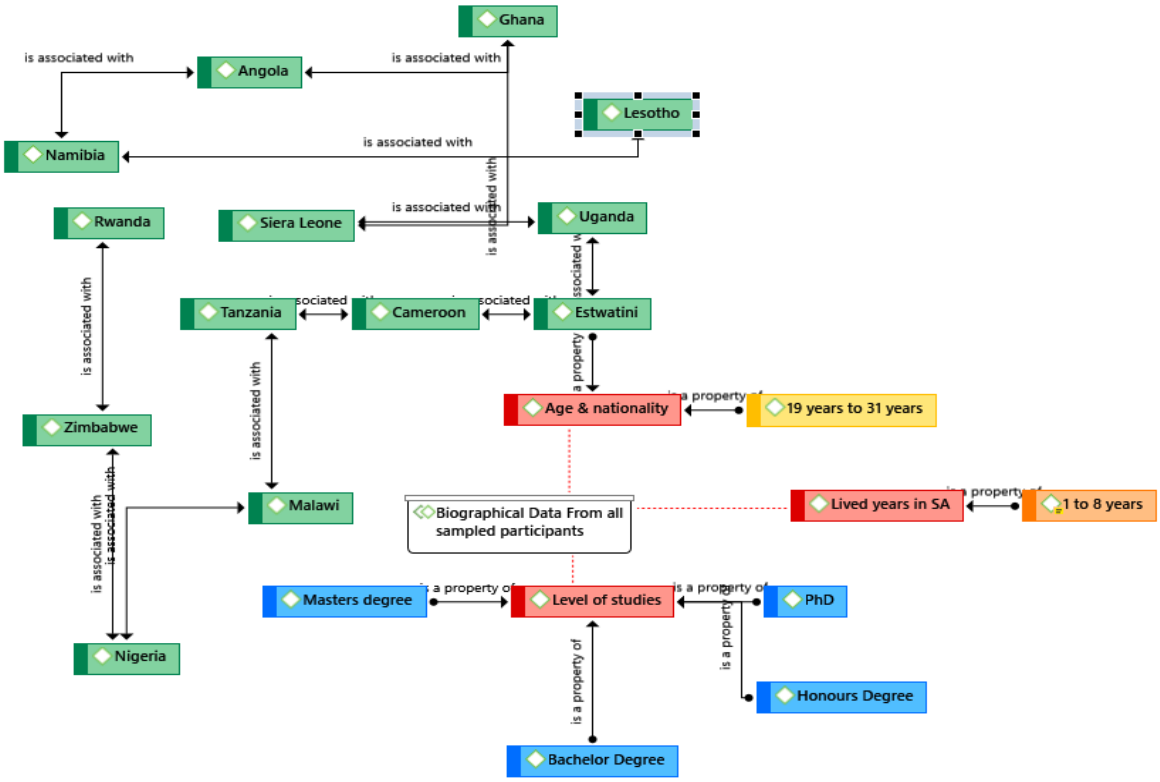


Figure 5.14 Demographic data

5.3.1 Data analysis process

This section presenting the data analysis process involving ATLAS.ti version 9 is elaborated in detail, followed by an interpretation and presentation of the empirical findings from the various focus group respondents.

The diagram is a visual representation of the demographic and educational characteristics of participants in a study. It shows that the participants are international students from various African countries, aged between 19 and 31 years, who have lived in South Africa for 1 to 8 years. The educational levels of participants range from a Bachelor's degree to a PhD (see Figure 5.14).

In the data analysis phase, both deductive and inductive cognitive levels were applied in the study using ATLAS.ti version 9 and thematic analyses approach. Deductive reasoning was applied using selected or most relevant quotations, as guided by the objectives and the existing literature, while the inductive reasoning allowed new concepts, themes, and categories to emerge. The data analysis process further implemented an idiographic procedure that started with a detailed examination from one transcript to another. The researcher carefully read all the transcripts to become familiar with the contents. In doing so, transcripts from all four focus group interviews were cleaned to exclude irrelevant comments and exclamations that did not add any value to the data. The data set was then loaded into the ATLAS.ti version 9.1 software for the analysis procedure to commence.

All focus group interviews were coded accordingly by reading and identifying relevant quotations, and placing a code that best described a particular quotation. In some instances, a code in Vivo was allocated in cases where the quotation was brief and straight to the point. Upon the completion of this phase, over 34 codes were generated, hence the need for a reduction of the number of codes through the process of merging of codes with similar content and meaning. The number of codes were then reduced to 25. It is important to note that for every code created, multiple quotations were identified. However, only the most relevant quotation(s) will be used in the presentation of findings and discursion of results. Moreover, the researcher was able to identify multiple realities potentially present in the data, realities that cannot be understood in isolation from their context, hence the need to establish an interrelationships between the codes.

The final stage of the analysis was the opening of networks that were presented using diverse shapes such as the orthogonal and Polyline routine, indicating the constituents contained in every theme. These networks and shapes containing different categories and codes were presented using different colours to differentiate between the various themes, as well as to identify those categories that appeared in more than one theme. The entire process was then cross-checked for possible omissions or mistakes. The analysis process was then rounded-off by classifying the identified codes and quotations under the various objectives, to bring out meaningful interpretations.

Finally, a report was generated, and a model created that would answer possible research hypotheses in the interpretation and discussion phases. The findings respond to every research question, as indicated in the most relevant quotation from various category. Though some verbatim statements were maintained in the presentation process, phrases with repeated words were excluded to avoid awkwardness.

5.3.2 Presentation of the empirical findings

The presentation phase started with a tabulation of the results based on the research objectives, themes, and codes representing the thematic analysis process.

Table 5.3.1: Themes and code from the interviews

Hypothesis	Themes	Codes
Hypothesis 1: Acculturative stress on mental health	Cultural Adaptation Challenges & Associated Mental Strains	Forced isolation. Homesickness & anxiety Improved resilience Language barrier Learn other languages Mitigation Strategy Social integration challenges Socialised within the church
Hypothesis 2: Students' stress will significantly predict mental health of	Academic Pressures & Mental Health Impacts	Balancing life expectations

international students in South Africa.		Emotionally Exhausted & overwhelmed Financial Stress Health complications Late response from Universities Low self esteem Mitigation Strategy Poor academic performance Social integration challenges Time management
Hypothesis 3: Posttraumatic growth will significantly predict the mental health of international students in South Africa.	Resilience & Positive Transformation Following Adversities.	Forced isolation Guilt & Loneliness Improved resilience Insecurity amongst locals Mitigation Strategy Transformation through adversity Use of experience

Hypothesis 4: The association of acculturative stress with mental health of international students in South Africa will be moderated by posttraumatic growth.	Cultural Adaptation & Posttraumatic Growth on Mental Health	Challenges of cultural adaptation and the growth stemming from these experiences
Hypothesis 5: The association of students' stress with mental health of international students in South Africa will be moderated by posttraumatic growth.	Academic Strains & Resilience on Student Well-being	Balance between academic pressures and the resilience developed from confronting adversities

Table 5.3.1: A tabulated representation of findings from the qualitative study.

Theme One: Cultural Adaptation Challenges and Associated Mental Strains

Immersing oneself in a new cultural setting is akin to stepping into a world with new rules, customs, and expectations. For international students, this immersion is amplified by the academic pressures and the absence of familiar support systems. They often grapple with a dual sense of belonging: reminiscing about their homeland while trying to integrate into their new environment. This intense cultural shock can lead to feelings of homesickness, alienation, and a profound sense of being 'othered'. The emotional toll of these challenges can sometimes escalate into severe mental strain, such as depression, especially when faced with barriers such as language differences or perceived stereotypes.

Examples:

"After relocating to South Africa, I did experience a lot of homesickness..."

"I became very depressed and anxious as I constantly felt like I did not belong..."

This captures the tangible challenges of cultural adjustment and relocation, and underscores the emotional and mental challenges stemming from these experiences (see Figure 5.14.

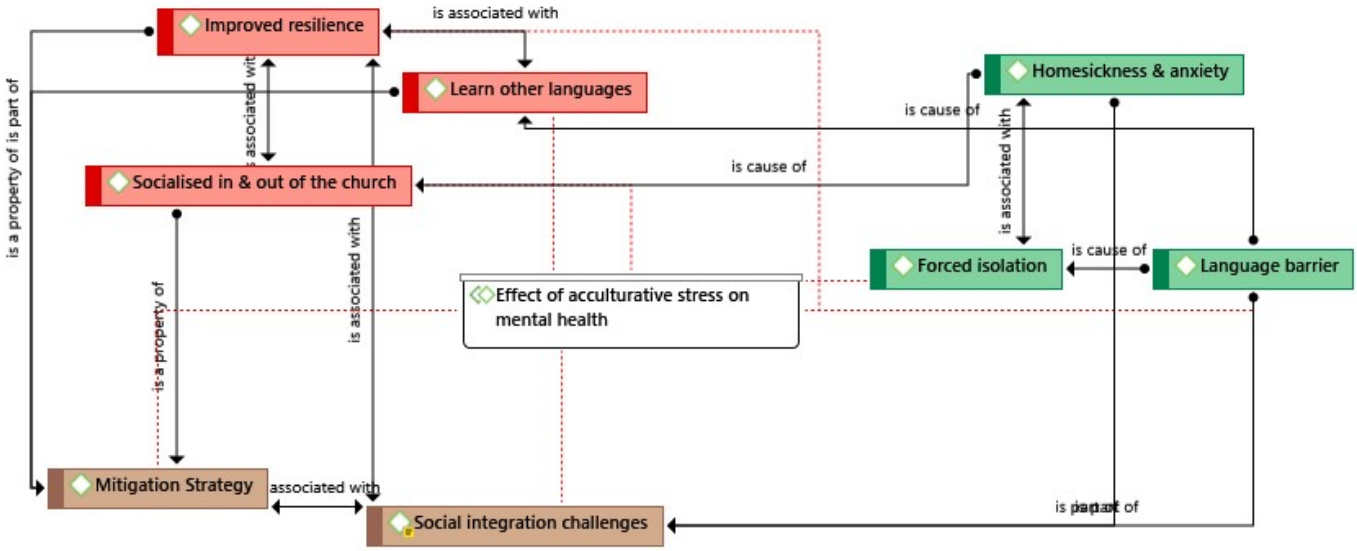


Figure 5.14: Effect of Acculturative Stress on Mental Health.

Theme Two: Academic Pressures and Mental Health Impacts

The academic journey is riddled with its own set of challenges: the quest for excellence, the race against time, and the weight of expectations. In a foreign setting, these pressures are magnified. International students not only navigate the rigours of their courses but also adjust to a different educational system, teaching methodologies, and sometimes, language barriers. The cumulative effect of these challenges can significantly impact their mental health, leading to heightened stress levels, anxiety, and even burnout.

Examples:

"Yes, I do experience student stress, such as, adjusting to life in the university..."

"Yes, when I returned to school, I faced a lot of challenges as my academic performance dropped..."

This is pivotal to this theme, focusing on the academic challenges and the associated mental strains (see Figure 5.15).

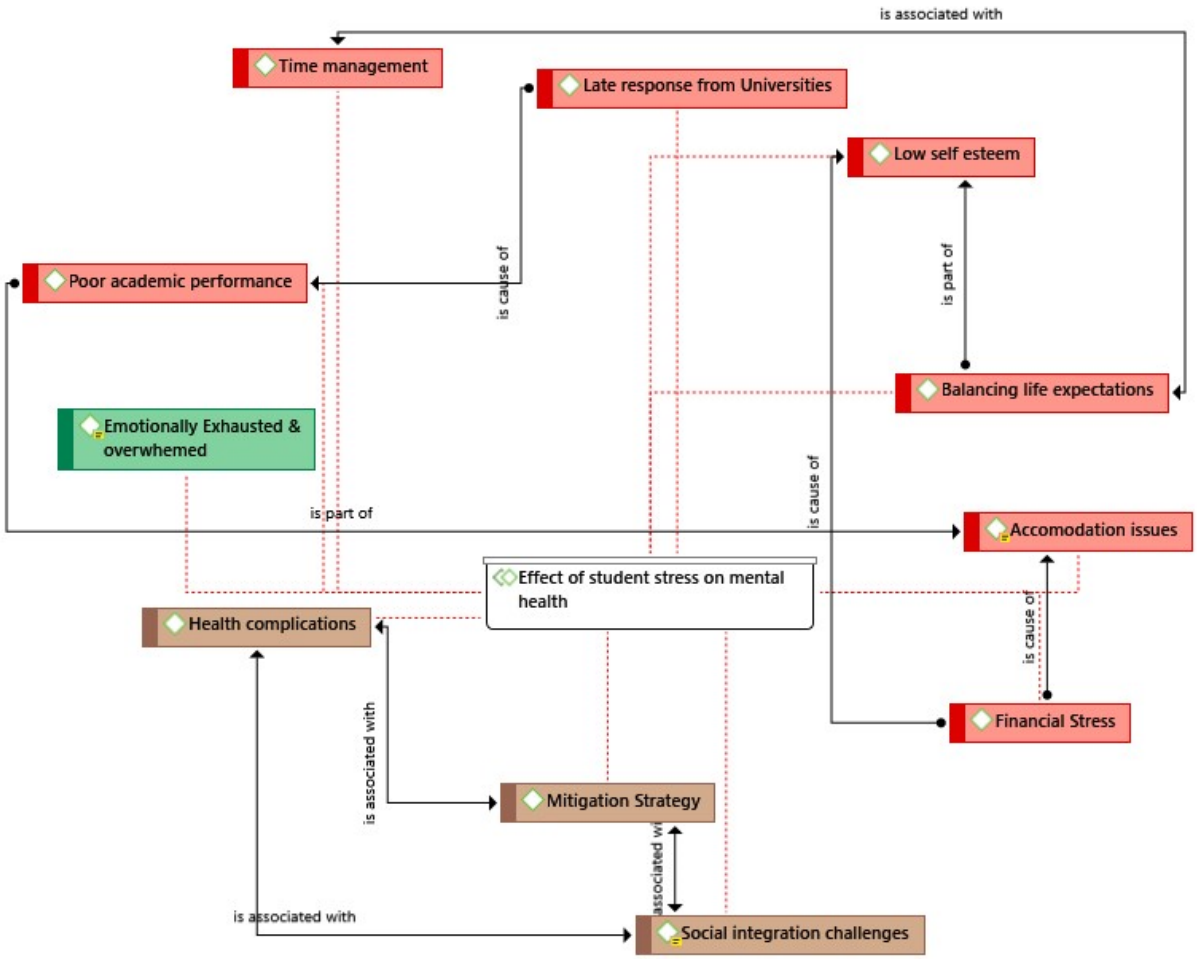


Figure 5. 15: Effect of Student stress on Mental Health

Theme Three: Resilience and Positive Transformation Following Adversities

Adversity, while challenging, can often be a catalyst for growth. This theme delves deep into the transformative journey of students who, after facing adversities, have

harnessed these experiences to foster resilience. It's about the metamorphosis from feeling overwhelmed to developing coping mechanisms, finding new meanings in life, and emerging with a renewed sense of purpose and a more positive perspective.

Examples:

> "Due to my development of posttraumatic growth I became somewhat resilient and have a positive outlook on life."

> "Yes I did develop personal strength and resilience as I adapted to the new environment, and found more meaning in each aspect of my life and better ways to deal with difficult situations."

This encapsulates the essence of posttraumatic growth, highlighting the resilience and positive transformations students undergo after facing adversities (see Figure 5.16).

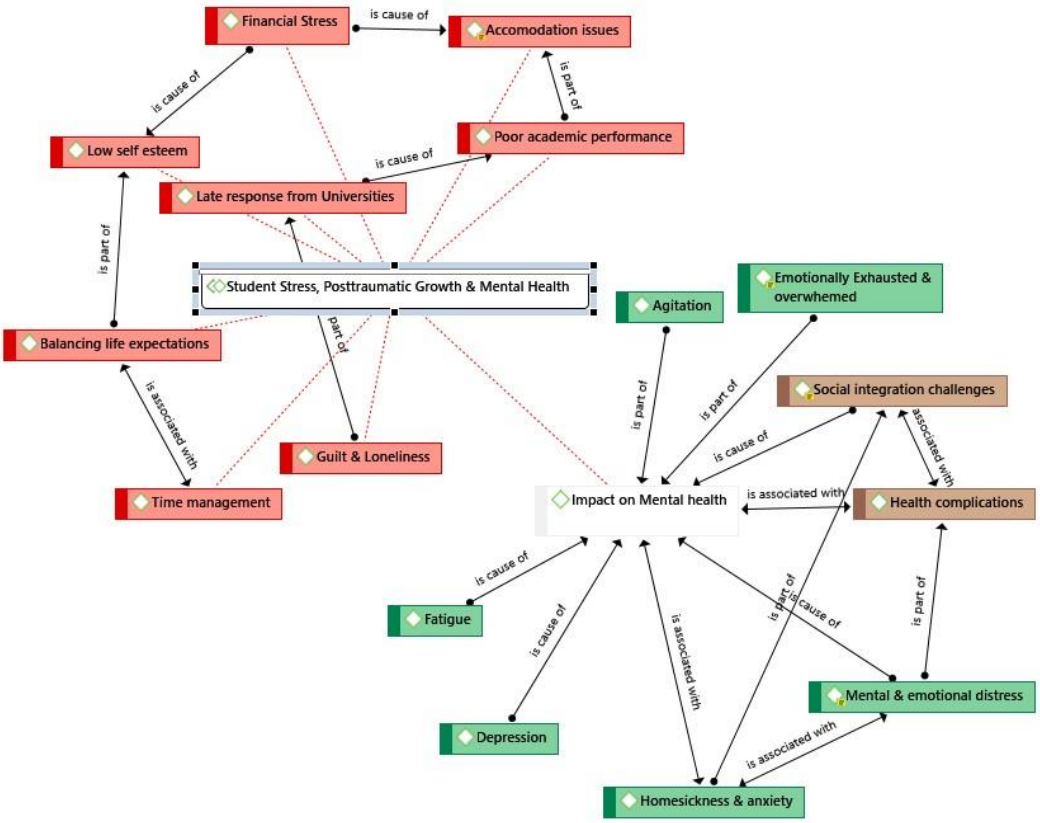


Figure 5.16: Student Stress, Posttraumatic Growth & Mental Health.

Theme Four: Cultural Adaptation and Posttraumatic Growth on Mental Health

The experiences of international students are a tapestry of challenges and growth. This theme seeks to unravel the threads of this tapestry by examining the interplay between cultural adaptation struggles and posttraumatic growth. It explores how the trials of adapting to a new culture can act as stressors, and yet, when surmounted, can pave the way for personal growth, resilience, and a renewed perspective on life. This theme delves into the holistic impact of these intertwined experiences on a student's mental well-being.

Examples:

> "After relocating to South Africa, I did experience a lot of homesickness..."
>
> "It was so difficult to make friendships with local students as they often formed their cliques."

Justification: It provides a comprehensive view of the challenges of cultural adaptation and the growth stemming from these experiences (see Figure 5.17).

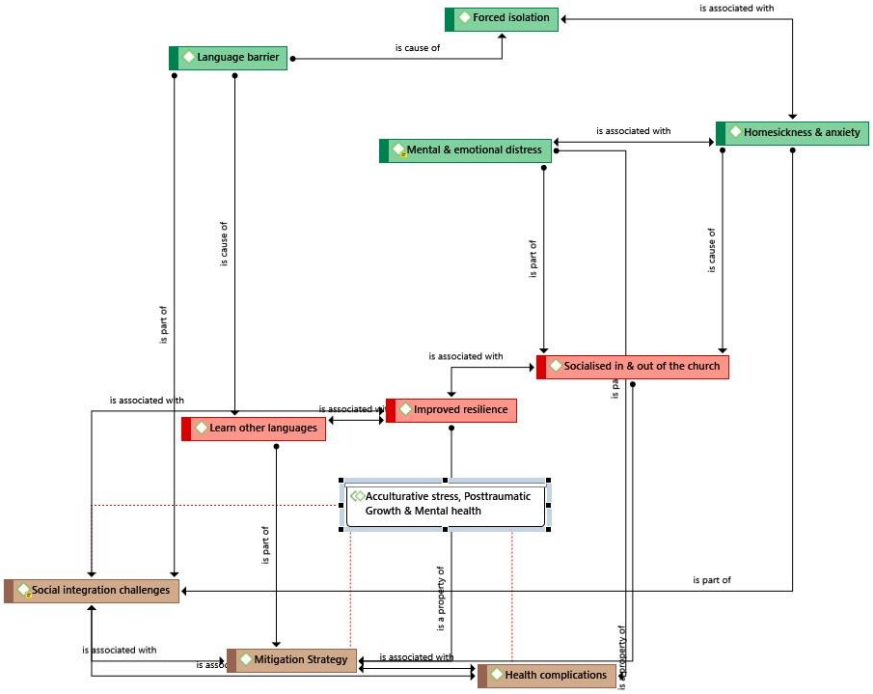


Figure 5.17: Acculturative stress, Posttraumatic growth & Mental Health.

Theme Five: Academic Strains and Resilience on Student Well-being

The academic journey, with its ebb and flow, shapes a student's well-being. This theme delves into the dynamic balance between the strains of academic life: the deadlines, the pressures, the expectations, and the resilience and positive transformations that emerge from confronting and overcoming these challenges. It is an exploration of the juxtaposition of academic-induced stressors and the strength drawn from personal growth, and how they collectively shape a student's overall well-being.

Examples:

> "I felt very stressed as I constantly had the fear of not being able to graduate..."
>
> "I was now able to focus and concentrate more on not just my schoolwork but also on improving my overall well-being."

This paints a vivid picture of this theme, highlighting the balance between academic pressures and the resilience developed from confronting adversities (see Figure 5.18).

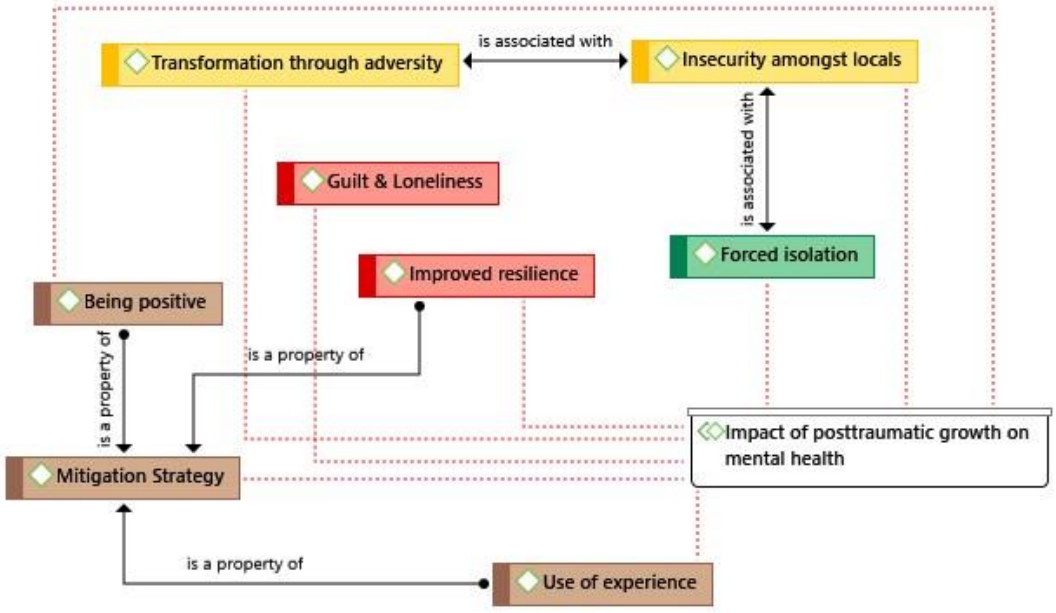


Figure 5.18: Impact of Posttraumatic growth on Mental Health.

5.3.3 Summary of the qualitative Findings:

1. Intense Homesickness and Cultural Shock: International students frequently experience intense feelings of homesickness after relocating to South Africa. This homesickness is often compounded by the cultural shock of navigating a new environment, grappling with different customs, and sometimes facing language barriers.

2. Emotional and Mental Strains: The challenges of cultural adaptation often lead to significant emotional and mental strains. Feelings of isolation, alienation, and not belonging are common, leading some students to experience depression and anxiety.

3. Amplified Academic Pressures: Beyond the typical pressures of academic life, international students face added stressors, including adjusting to a new educational system and, at times, overcoming language barriers. These amplified pressures can lead to heightened stress levels, anxiety, and concerns about academic performance.

4. Emergence of Resilience: Despite the challenges, many students exhibit posttraumatic growth, using their adversities as catalysts for personal development. These students often develop increased resilience, a more positive outlook on life, and enhanced coping mechanisms.

5. Interplay of Adaptation and Growth: There is a noticeable interplay between the challenges of cultural adaptation and posttraumatic growth. For some, the very struggles of adapting to a new culture become sources of growth and personal development, leading to improved mental well-being.

6. Balance of Strains and Strength: The dynamic between academic pressures and the resilience developed from confronting challenges profoundly shapes student well-being. While academic life presents its own set of stressors, the resilience and positive transformations that emerge from overcoming adversities provide a counterbalance, influencing overall well-being.

5.4. Summary of the chapter

The chapter presented results for all stated hypotheses and aims as well as their various interpretations. This was directed by the goal of seeking to address the study

research objectives. The interpretation of findings included a summation of the overarching findings of this study. Chapter six will provide a detailed discussion of the findings of the study presented above. The discussion will not be in isolation but will align findings with literature, while also making reference to theoretical implications. Moreover, the chapter will provide possible explanations for findings reported. Thereafter, the conclusion of the study will be clearly stated in addition to making recommendations for future studies.

CHAPTER SIX

Discussion

6.1 Introduction

The first hypothesis posits a substantial negative impact of acculturative stress on the mental health of international students in South Africa. This hypothesis, grounded in empirical evidence, draws upon the quantitative data showing a strong correlation between high levels of acculturative stress and indicators of poor mental health, such as increased anxiety and depression. These findings align with Berry's (2005) seminal work on acculturative stress, highlighting the psychological impact of adapting to a new cultural environment.

Qualitative accounts in this study reveal experiences of discrimination, language barriers, and feelings of alienation, further substantiating the quantitative findings. This narrative resonates with Buthelezi's (2009) study, which also reported similar stressors among international students. Moreover, the stress and coping theory (Lazarus & Folkman, 1984) provides a theoretical underpinning for understanding how students appraise and cope with these stressors, influencing their mental health outcomes.

However, the hypothesis could benefit from a broader theoretical lens. Incorporating acculturation theory (Berry, 1997) would offer a more nuanced understanding of international students' specific challenges in adjusting to a new cultural context.

Methodologically, this study's approach in examining this hypothesis involved a mixed-methods design, aligning with Zar's (2009) recommendation for comprehensive approaches in studying acculturative stress. While this study's findings are consistent with those of these previous studies, they also highlight the unique context of South Africa, a region less explored in the existing literature.

In terms of practical implications, this hypothesis underscores the need for targeted interventions to support international students, as Smith and Khawaja (2011), who advocate for culturally sensitive counselling services in educational institutions, suggested.

For future research, longitudinal studies are recommended to track the evolution of acculturative stress over time, as suggested by Titzmann and Jugert (2015). Such research could provide deeper insights into the changing dynamics of acculturation and its impact on mental health.

The first hypothesis of this study highlights the significant role of acculturative stress in shaping the mental health of international students in South Africa, calling for more culturally attuned support systems within academic settings.

The second hypothesis of this study contends that various forms of student stress—academic, social, and personal—directly and negatively impact the mental health of international students in South Africa. This hypothesis is underpinned by quantitative data showing a significant correlation between increased levels of these stressors and indicators of poor mental health, such as anxiety and depression.

Qualitative accounts from participants further illustrate the pervasive nature of these stressors, aligning with McLafferty et al. (2017), who underscore the vulnerability of university students to mental health issues stemming from diverse stress sources. Additionally, the ecological systems theory (Bronfenbrenner, 1979) could enrich the understanding of how various environmental factors compound the stress experienced by international students.

Methodologically, this study employed validated tools to measure both stress and mental health outcomes, offering a robust basis for this study findings. However, future research could benefit from longitudinal designs to capture the evolving nature of stress and its impacts over time.

In terms of practical implications, this hypothesis points to the need for multifaceted support systems within educational institutions, addressing international students' varied stressors. This aligns with Smith and Khawaja (2011), who advocate for culturally sensitive counselling and support services.

Future research directions might include comparative studies across different cultural contexts or educational settings to understand the universality or specificity of these stressors' impacts on mental health.

In summary, the second hypothesis sheds light on the multifaceted nature of stress among international students and its direct impact on mental health, emphasising the importance of comprehensive support mechanisms in academic environments to address these challenges.

The third hypothesis of this study contends that posttraumatic growth (PTG) positively influences the mental health of international students. This hypothesis is substantiated by a positive correlation observed in this study data between various dimensions of PTG—like personal strength, new possibilities, and spiritual changes—and indicators of mental well-being. Qualitative narratives from participants further illustrate how transformative experiences following adverse events have led to resilience and a positive shift in their mental health.

This hypothesis aligns with empirical studies, such as by Taku et al. (2008), which explore PTG in multicultural settings and highlight its multifaceted nature. Additionally, integrating psychological theories like resilience theory (Masten, 2001) can offer a broader understanding of how PTG contributes to mental health.

In this study, PTG and mental health were measured using validated tools, ensuring the reliability of this study's findings. However, future research might explore how cultural differences impact the expression and experience of PTG.

The practical implications of this hypothesis are significant. Educational institutions and mental health services should consider strategies to support PTG among international students, such as culturally sensitive counselling and resilience-building programs.

Future research should consider longitudinal studies to track the development of PTG over time and its long-term impact on mental health. Additionally, cross-cultural comparisons could provide insights into how cultural backgrounds influence PTG experiences.

The third hypothesis underscores the positive role of PTG in enhancing international students' mental health, highlighting the need for supportive and culturally attuned environments that facilitate growth following adversity.

The fourth hypothesis of this study posits that posttraumatic growth (PTG) moderates the negative impact of acculturative stress on the mental health of international students. This study's findings indicate that students with higher levels of PTG exhibit a weaker correlation between acculturative stress and mental health issues. This suggests that PTG potentially buffers the adverse effects of cultural adjustment challenges.

This hypothesis is supported by studies like those of Linley and Joseph (2004), who found that PTG can alter individuals' responses to stress. Additionally, integrating resilience theory (Masten, 2001) offers a broader perspective on how PTG contributes to adaptive coping strategies in the face of acculturative stress.

In assessing PTG's moderating role, this study employed advanced statistical techniques to analyse the interaction effects, ensuring a robust examination of this relationship. However, further research could explore the mechanisms through which PTG exerts its moderating influence.

Understanding the cultural nuances of PTG is also crucial. Culture influences how individuals experience and express growth following adversity, so its role in moderating acculturative stress might vary across different cultural backgrounds.

Practically, this hypothesis underlines the importance of fostering PTG in educational settings to help international students better cope with the challenges of cultural adaptation. Programs that enhance resilience and growth following challenging experiences could be highly beneficial.

Future research should explore the moderating role of PTG in various cultural contexts and among different international student populations. Longitudinal studies could also show how PTG develops over time and continues to influence the stress-mental health relationship.

In summary, the fourth hypothesis highlights PTG's crucial role in mitigating the negative impact of acculturative stress on mental health, advocating for targeted support strategies to foster growth and resilience among international students.

The fifth hypothesis of this study contends that posttraumatic growth (PTG) plays a moderating role in the relationship between diverse student stressors—such as academic, social, and personal challenges—and mental health among international students in South Africa. The quantitative analysis suggests that students exhibiting higher levels of PTG experience a less detrimental impact of these stressors on their mental health.

This hypothesis aligns with the findings of studies like Taku et al. (2008), who explore the buffering effects of PTG in multicultural environments. Integrating resilience theory (Masten, 2001) and stress-buffering models can offer a broader view of how PTG contributes to better-coping mechanisms in the face of diverse stressors.

This study used validated scales to measure PTG and mental health outcomes, using advanced statistical methods to analyse the moderation effects. However, exploring the specific pathways through which PTG exerts its moderating influence remains an area for future research.

Cultural considerations are also essential in understanding PTG. The cultural context can influence how individuals experience and utilise PTG, which might affect its effectiveness as a stress moderator.

Practically, this hypothesis highlights the importance of fostering PTG among international students. Educational institutions should consider programs to enhance resilience and growth, particularly in response to stressors typical in the academic environment.

Future research should explore PTG's moderating role across different cultural backgrounds and under various stressors. Longitudinal studies could provide insights into how PTG develops over time and its sustained impact on coping with stress.

In conclusion, the fifth hypothesis underscores the significant role of PTG in mitigating the adverse effects of student stress on mental health, emphasising the need for

supportive strategies that encourage growth and resilience among international students.

6.2 Practical implications of the study

The findings of this research bring to the forefront several crucial practical implications for higher educational institutions, particularly those in South Africa, which host many international students. Firstly, the significant relationship between acculturative stress and mental health underscores institutions' need to prioritize establishing comprehensive support services. Such services can be multifaceted and meticulously tailored to cater to the distinct challenges of international students. They could encompass orientation programs elucidating the nuances of local culture, dedicated language courses, specialized counselling services, and the inception of mentorship initiatives, where seasoned international students shepherd the novices.

A salient revelation from the study is the moderating role of posttraumatic growth on the association between stressors and mental health. Consequently, mental health interventions for this demographic should consciously incorporate elements that foster posttraumatic growth. Potential strategies might include resilience-building workshops, sessions dedicated to sharing narratives of personal growth journeys, and an emphasis on trauma-informed counselling methodologies.

Furthermore, recognising and addressing the distinct adversities international students face mandates the specialized training of faculty and staff. Such training initiatives should sensitively illuminate the intricate tapestry of acculturative stresses, their potential ramifications on mental health, and the transformative potential of posttraumatic growth.

An organic, student-driven initiative institutions could catalyse is the formation of peer support assemblies. Such collectives can give international students a sanctuary to candidly discuss their tribulations, triumphs, and coping mechanisms, invariably fostering an environment conducive to posttraumatic growth.

Given the prevalent student stressors identified, it is paramount for institutions to orchestrate periodic mental health awareness campaigns. These campaigns can cultivate a more mentally attuned student body by demystifying mental health,

delineating the potential risks of unchecked student stress, and underscoring the virtues of proactive intervention.

A holistic approach to addressing mental health would be its integration into the broader academic curriculum. Irrespective of a student's academic inclination, a foundational understanding of mental health, its intrinsic value, and preservation strategies is invaluable.

Institutions should champion diverse extracurricular engagements in a bid to mitigate student stress. Whether it is the rigour of sports or the therapeutic solace of the arts, such endeavours can be pivotal stress alleviators.

Institutions should institutionalize mechanisms that solicit feedback from international students for a genuinely inclusive support system. This feedback can be the linchpin for the iterative refinement of support services, ensuring they remain relevant and practical.

Collaborations with external stakeholders, such as NGOs or community entities, can further bolster the support framework for international students. Such alliances can offer additional support, be it housing, financial counsel, or legal guidance.

Lastly, with its nuanced findings, this research beckons further scholarly exploration. Future endeavours could focus on conceptualizing and empirically testing interventions that harness posttraumatic growth as a shield against the mental health detriments of acculturative and student-centric stressors.

In sum, the implications unearthed by this study underscore a clarion call for institutions to reevaluate and reinforce their support structures, ensuring the holistic well-being of their international student populace.

6.3 **Theoretical implications and contribution of the study**

The present study casts a spotlight on the intricate dynamics of acculturative stress, student stress, posttraumatic growth (PTG), and their collective impact on the mental well-being of international students in South Africa. Delving deep into the realm of acculturative stress, this research not only echoes the foundational theories posited by scholars such as Berry (2005) but also refines them by accentuating the specific challenges faced by international students in a unique socio-cultural context. The nuanced understanding from this research underscores the manifestation of stressors

such as discrimination, xenophobia, and maltreatment, which are particularly poignant within the South African setting.

Another pivotal theoretical contribution emanates from the repositioning of PTG. While traditionally, PTG has been conceptualized within the recovery domain from traumatic events, this study broadens its scope. It posits PTG as not just a resultant factor but also an influential variable that can shape the experience of acculturative stress. This expanded view challenges and enriches the conventional boundaries of PTG, signalling its relevance in diverse scenarios, including cultural transitions and adaptations.

Moreover, this study distinguishes itself by synergizing multiple theoretical constructs. It transcends the isolated examinations of either student or acculturative stress, offering a holistic framework where these constructs interact, intersect, and influence one another. The revelation of PTG as a moderating force in this dynamic further solidifies the study's theoretical robustness, suggesting that growth can be both a consequence and a catalyst in the stress-response continuum.

With its unique historical, cultural, and socio-political backdrop, the South African context offers a fertile ground for such an exploration. This study contributes a region-specific lens to the broader academic discourse on international students' well-being by situating its inquiry here. Integrating both quantitative and qualitative methodologies amplifies the empirical grounding of the theoretical constructs, ensuring that the findings resonate with the participants' lived experiences.

Furthermore, the emphasis on socio-demographic factors like gender, age, and length of stay adds depth to the analysis. This focus underscores the multifaceted nature of acculturative experiences, suggesting that they are not just a product of external conditions but also deeply intertwined with individual attributes.

In conclusion, the theoretical implications and contributions of this research stand as a testament to its depth and rigour. By offering fresh insights, bridging existing theoretical gaps, and providing a comprehensive framework, this study significantly advances the understanding of acculturative stress, student stress, and posttraumatic growth, especially in the distinctive context of South Africa.

6.4 Limitations of the study

Regardless of its rigour and depth, every scholarly endeavour has inherent limitations, and this study is no exception. One of the primary constraints pertains to its generalizability. While the research offers valuable insights into the experiences of international students in South Africa, extrapolating these findings to other geographic or cultural contexts may be challenging. South Africa's unique historical, socio-political, and cultural landscape might influence acculturative stress, student stress, and posttraumatic growth in ways that are distinct from other regions. Thus, caution must be exercised when applying these findings to international students in other countries or continents.

Furthermore, the study employed a mixed-method approach, integrating quantitative and qualitative methodologies. While this design is comprehensive, it can also introduce complexities. For instance, qualitative data, being interpretative, might be influenced by the researcher's biases or preconceptions. Although efforts were undoubtedly made to maintain objectivity, the inherent subjectivity of qualitative analysis is a limitation that warrants acknowledgement.

The sample size and composition present another potential constraint. While the study may have achieved a diverse representation of participants regarding nationality, gender, or age, other pivotal demographic factors, such as socio-economic status or specific regions within South Africa, might not have been adequately represented. This could affect the comprehensiveness and depth of the insights derived.

The study's cross-sectional nature also captures a snapshot in time, offering insights into the students' experiences during a specific period. Acculturative stress and its relationship with mental health might evolve, influenced by various temporal factors such as global events, changes in immigration policies, or shifts in socio-political dynamics. A longitudinal approach, tracking the same participants over an extended period, offered a more dynamic understanding of the phenomena.

Lastly, the reliance on self-reported measures, while common in social science research, introduces the possibility of response biases. Participants might have been influenced by social desirability biases, potentially under-reporting negative experiences or overemphasizing positive ones. Future studies might benefit from incorporating more objective measures or triangulating data sources to mitigate this limitation.

In conclusion, while the study contributes to the understanding of international students' experiences in South Africa, these limitations underscore the need for ongoing research. Building upon this foundation, future studies can delve deeper, adopt varied methodologies, and expand the scope to provide even more nuanced insights into the intricate dynamics of acculturative stress, posttraumatic growth, and mental health.

6.5 Recommendations for future studies

The present research has provided valuable insights into the experiences of international students in South Africa, specifically regarding acculturative stress, posttraumatic growth, and mental health. However, there is an evident need for an expansive exploration across diverse geographic and cultural landscapes to ensure the broader applicability of these findings. Such a geographical expansion can yield comparative data, potentially unveiling unique cultural nuances and overarching patterns in student experiences.

Moreover, given the temporal limitations of this study's cross-sectional design, future endeavours would benefit significantly from a longitudinal approach. Tracking the same set of students across their academic journey might reveal the evolving dynamics of acculturative stress, offering a more nuanced understanding of its long-term implications on mental well-being.

While the mixed-method design of this research has its merits, future studies should consider diversifying their methodological toolkit. Incorporating experimental or quasi-experimental designs could pave the way for causal inferences, clarifying the direct effects of particular interventions or support structures on acculturative stress levels. Additionally, there is a compelling case for deeper qualitative explorations through ethnographic studies or narrative analyses to capture the intricate, personal stories that might be obscured in quantitative data.

The potential biases of self-reported measures also require a more diversified data-gathering approach. Triangulating data by incorporating perspectives from faculty,

local students, or counselling services can paint a more holistic picture of international students' challenges and growth trajectories.

Furthermore, it is remiss not to probe into additional variables that influence the well-being of international students. Delving into factors such as socio-economic backgrounds, specific cultural nuances, or the roles of institutional support could unearth more complex interrelationships.

The emphasis should also be placed on the practical applicability of these findings. Future research endeavours could lead to designing and evaluating specific interventions to reduce acculturative stress. Such targeted studies could contribute to the academic discourse and offer tangible solutions for educational institutions and policymakers.

Finally, in this digital age, harnessing the power of technology can be pivotal. Employing digital tools like sentiment analysis or online ethnography can capture real-time insights, offering an innovative lens through which to view and address international students' challenges.

While this research has made noteworthy contributions to the understanding of international students' experiences, a vast expanse of uncharted territory is awaiting scholarly exploration. The path forward, rich with potential, beckons researchers to delve deeper, aiming to refine theoretical frameworks and inform practical interventions.

6.6 Conclusion

The exploration of acculturative stress, posttraumatic growth, and the mental health of international students in South Africa has provided valuable insights into the intricate challenges and coping mechanisms these students encounter. The global landscape of higher education is rapidly evolving, making investigating these dynamics both pertinent and pressing.

A primary inference drawn from this research is the significant influence of acculturative stress on international students' psychological well-being. The complexities arising from adapting to a new cultural milieu and the academic pressures inherent to the tertiary educational environment are substantial. However, an encouraging revelation from this study is the protective role of posttraumatic growth.

The ability to harness resilience and personal growth from potentially distressing experiences offers a promising avenue to mitigate the ramifications of acculturative stress.

Combining quantitative analyses supplemented by qualitative narratives, the methodological approach has facilitated a robust and in-depth understanding of the phenomena. Beyond mere statistical interpretations, the research has illuminated these students' lived experiences, aspirations, and challenges, providing a holistic perspective.

Empirical findings underscore the vital role of support systems, whether familial, among peers, or institutional. Such networks can be transformative, converting potentially adverse experiences into personal and academic growth catalysts. This underscores the imperative for academic institutions and policy frameworks to cultivate environments conducive to international students' holistic development.

Theoretically, this research has enriched the existing literature on acculturation and student well-being. While aligning with established theories, the study offers novel viewpoints and underscores areas that necessitate further exploration.

However, it is essential to acknowledge the inherent limitations of this research. Though the study offers insights into the experiences of international students in the South African context, extrapolating these findings to other cultural or geographical backdrops requires circumspection. The multifaceted nature of acculturation and its subsequent impact on mental health necessitates ongoing investigation, inclusive of more longitudinal and culturally diverse studies.

In summation, the experiences of international students, characterized by their rich diversity and unique challenges, are integral to the global academic discourse. Their narratives of adversity and triumph underscore the need for a comprehensive, empathetic, and strategic approach in higher education settings. As we navigate the evolving terrains of global academia, the well-being and success of these students should remain at the forefront of institutional and policy-driven endeavours.

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APPENDICES

APPENDIX 1: Demographic questionnaire

Instructions: Please answer the following. The information will be kept confidential and will only be used to prepare a general profile of study participants.

1. Age as of last birthday……..

2. Gender: Female ( ) Male ( ) other ( )

3. Marital status: Single ( ) Married ( ) Divorced ( ) Widowed ( ) Separated ( )

4. How long have you been in South Africa?.....

5. What field of study are you enrolled in?.....

6. How long have you been studying at your current university?.....

7. Level of studies: Bachelor's degree ( ) Honours degree ( ) Master's degree ( )

Doctorate degree ( ) Associate degree ( ) Other: ……..

8. Which faculty are you registered with?

APPENDIX 2: Research questions

1. What are some of the challenges you have experienced since relocating to South Africa? How did you overcome these challenges?

2. Do you experience any form of stress that could be associated with being a student? If yes, how has it affected you?

3. How has relocating to South Africa affected you psychologically?

4. Have you experienced any positive effects since coming to South Africa? If yes, what happened and how did you handle the situation?

5. If yes/no to the above question how did it help you overcome the challenges you faced while trying to familiarize yourself with the South African culture and ways, stress, and improving your psychological health?

APPENDIX 3: The GHQ scale-12

The 12 items of the scaled version of the GENERAL HEALTH QUESTIONNAIRE

You must try to answer ALL the questions. Thank you very much for your cooperation.

Item	YES	NO
• Able to concentrate		
• Lost much sleep		
• Playing useful part		
• Capable of making decisions		
• Under stress		
• Could not overcome difficulties		
• Enjoy normal activities		
• Face up to problems		
• Feeling unhappy and depressed		
• Losing confidence		
• Thinking of self as worthless		
• Feeling reasonably happy		

APPENDIX 4: Acculturation Scale for International Students (Sandhu, D.S, & Asrabadi, B, R. 1994)

Instructions: There are no right or wrong answers however, for the data to be meaningful, you must answer each statement given below as honestly as possible. For each of the following statements, please circle the number that BEST describes your response. 1= Strongly Disagree, 2= Disagree, 3= Not Sure, 4= Agree, 5= Strongly Agree.

Because of my different cultural background as a foreign student, I feel that:

Item	1	2	3	4	5
1) Homesickness for my country bothers me.					
2) I feel uncomfortable adjusting to new foods and/or to new eating habits.					
3) I am treated differently in social situations.					
4) I feel rejected when people are sarcastic toward my cultural values.					
5) I feel nervous to communicate in English.					
6) I feel sad living in unfamiliar surroundings here.					
7) I fear for my safety because of my different cultural background.					
8) I feel intimidated to participate in social activities.					
9) Others are biased toward me.					
10) I feel guilty to leave my family and friends behind.					
11) Many opportunities are denied to me.					
12) I feel angry that my people are considered inferior here.					
13) I feel overwhelmed that multiple pressures are upon me after I migrated to this society.					
14) I feel that I receive unequal treatment.					
15) People from some ethnic groups show hatred toward me non-verbally.					
16) It hurts when people don't understand my cultural values.					

17) I am denied what I deserve.					
18) I have to frequently relocate for fear of others.					
19) I feel low because of my cultural background.					
20) I feel rejected when others don't appreciate my cultural values.					
21) I miss the country and people of my national origin.					
22) I feel uncomfortable adjusting to new cultural values.					
23) I feel that my people are discriminated against.					
24) People from some other ethnic groups show hatred toward me through their actions.					
25) I feel that my status in this society is low due to my cultural background.					
26) I am treated differently because of my race.					
27) I feel insecure here.					
28) I don't feel a sense of belonging (community) here.					
29) I am treated differently because of my colour.					
30) I feel sad to consider my people's problems.					
31) I generally keep a low profile due to fear of other ethnic groups.					
32) I feel some people don't associate with me because of my ethnicity.					
33) People from some other ethnic groups show hatred toward me verbally.					
34) I feel guilty that I am living a different lifestyle here.					
35) I feel sad leaving my relatives behind.					
36) I worry about my future for not being able to decide whether to stay here or to go back.					

APPENDIX 5: Student stress inventory

Directions: This inventory measures the stresses you have experienced in your study and everyday life on your campus. There are no right and wrong answers. Read each statement and circle the best describes your experiences. 1= Never (N) 2= somewhat frequent (S) 3=Frequent (F) 4=Always (A) Below is a list of the ways you may have felt or behaved over this semester. Please circle one answer in each box:

NO	Item	1	2	3	4
1	Headaches				
2	Back pain				
3	Sleep problems				
4	Difficulty breathing				
5	Excessive worry				
6	Stomach pain/nausea				
7	Constant tiredness/fatigue				
8	Sweating/sweaty hands				
9	Frequent cold/flu/fever				
10	Drastic weight loss				
11	I find it difficult to meet my parent's high expectation				
12	My parents treat me as a helpless person				
13	I feel guilty if I fail to fulfil my parent's hope				
14	My parents wish only for my success				
15	I find it difficult to get along with group mates in doing an academic task				
16	My friends did not care about me				
17	I feel disturbed when having a problem with my boyfriend/girlfriend				
18	My families are not supportive				

19	My lecturers/ teachers are not supportive				
20	I feel frustrated by the lack of faculty management				
21	I have a financial problem because of the expenses of the university				
22	I find it difficult to juggle time between study and social activity				
23	I feel nervous about delivering a class presentation				
24	I feel stressed as the submission deadline neared				
25	I feel stressed to sit for an examination				
26	I find it difficult to juggle time between study and societal involvement				
27	I lost interest in courses				
28	I feel the burden of the academic workload				
29	I feel stressed dealing with difficult subject				
30	I feel difficult in handling my academic problem				
31	I have a transportation problem				
32	I feel stressed by the bad living conditions of the hostel				
33	Surrounding noise distracted me				
34	Pollution makes me uneasy				
35	Hot weather makes me avoid going out				
36	Messy living conditions distracted me				
37	I feel frustrated with inadequate campus facilities				
38	Crowding makes me feel uneasy				
39	Waited in a long line make me feel uneasy				
40	I feel scared of being in an insecure place				

APPENDIX 6: Posttraumatic-growth inventory

Instructions: Indicate for each of the statements below the degree to which this change occurred in your life as a result of the crisis/disaster, using the following scale.

0 = I did not experience this change as a result of my crisis.

1 = I experienced this change to a very small degree as a result of my crisis.

2 = I experienced this change to a small degree as a result of my crisis.

3 = I experienced this change to a moderate degree as a result of my crisis.

4 = I experienced this change to a great degree as a result of my crisis.

5 = I experienced this change to a very great degree as a result of my crisis.

Possible Areas of Growth and Change	0	1	2	3	4	5
1. I changed my priorities about what is important in life.						
2. I have a greater appreciation for the value of my own life.						
3. I developed new interests.						
4. I have a greater feeling of self-reliance.						
5. I have a better understanding of spiritual matters.						
6. I more clearly see that I can count on people in times of trouble.						
7. I established a new path for my life.						
8. I have a greater sense of closeness with others.						
9. I am more willing to express my emotions.						
10. I know better than I can handle difficulties.						
11. I can do better things with my life.						
12. I am better able to accept the way things work out.						
13. I can better appreciate each day.						

14. New opportunities are available which wouldn't have been otherwise.						
15. I have more compassion for others.						
16. I put more effort into my relationships.						
17. I am more likely to try to change things that need changing.						
18. I have stronger religious faith.						
19. I discovered that I'm stronger than I thought I was.						
20. I learned a great deal about how wonderful people are.						
21. I better accept needing others.						

APPENDIX 7: University and country of origin distribution

University					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	North West University	158	19.5	19.5	19.5
	Stellenbosch	229	28.2	28.2	47.7
	University of Johannesburg	176	21.7	21.7	69.4
	University of Free State	248	30.6	30.6	100.0
	Total	811	100.0	100.0	

Countries of Students' Origin					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Angola	29	3.6	3.6	3.6
	Botswana	24	3.0	3.0	6.5
	Burundi	10	1.2	1.2	7.8
	Cameroon	46	5.7	5.7	13.4
	Cape Verde	2	.2	.2	13.7
	Central African Republic	1	.1	.1	13.8
	Chad	3	.4	.4	14.2
	China	8	1.0	1.0	15.2
	Congo	1	.1	.1	15.3
	Cuba	1	.1	.1	15.4
	DRC	42	5.2	5.2	20.6
	Eswatini	29	3.6	3.6	24.2
	Ethiopia	14	1.7	1.7	25.9
	Gabon	18	2.2	2.2	28.1
	Gambia	23	2.8	2.8	30.9
	Ghana	43	5.3	5.3	36.3
	India	18	2.2	2.2	38.5
	Italy	1	.1	.1	38.6
	Ivory Coast	10	1.2	1.2	39.8
	Kenya	43	5.3	5.3	45.1
	Korea	1	.1	.1	45.3
	Lesotho	37	4.6	4.6	49.8
	Liberia	22	2.7	2.7	52.5
	Malawi	21	2.6	2.6	55.1
	Mali	9	1.1	1.1	56.2
	Mozambique	12	1.5	1.5	57.7
	Namibia	40	4.9	4.9	62.6
	Nigeria	96	11.8	11.8	74.5
	Rwanda	29	3.6	3.6	78.1
	Senegal	8	1.0	1.0	79.0
	Sierra Leone	6	.7	.7	79.8
	Somalia	6	.7	.7	80.5
	South Sudan	6	.7	.7	81.3
	Sudan	11	1.4	1.4	82.6
	Tanzania	13	1.6	1.6	84.2
	Togo	2	.2	.2	84.5
	Uganda	51	6.3	6.3	90.8
	USA	1	.1	.1	90.9
	Zambia	44	5.4	5.4	96.3
	Zimbabwe	30	3.7	3.7	100.0
	Total	811	100.0	100.0	

Cross-tabulation of universities and students' country of origin

			Angola	Botswana	Burundi	Cameroon	Cape Verde	Central African Republic	China	Congo	Cuba	DR Congo	Eswatini	Ethiopia	Gambia	Ghana	Ghana	Ireland	Italy	Ivory Coast	Kenya	Korea	Lesotho	Liberia	Libya	Malawi	Mali	Mozambique	Namibia	Nigeria	Rwanda	Senegal	Sierra Leone	Somalia	South Sudan	Sudan	Tanzania	Togo	Uganda	USA	Zambia	Zimbabwe	
@6. Name of your university	North West University	Count	6	3	4	17	0	0	0	1	0	0	5	8	2	2	3	5	0	13	11	0	7	0	1	4	1	2	8	23	4	0	2	0	0	0	4	3	0	12	0	8	8	158
		% within @6. Name of your university	3.8%	1.9%	2.5%	10.8%	0.0%	0.0%	0.0%	0.6%	0.0%	0.0%	3.2%	5.1%	1.3%	1.3%	1.9%	3.2%	0.0%	8.9%	7.0%	0.0%	4.4%	0.0%	0.6%	2.5%	0.6%	1.3%	5.1%	14.6%	2.5%	0.0%	1.3%	0.0%	0.0%	0.0%	2.5%	1.9%	0.0%	7.6%	0.0%	5.1%	5.1%	100.0%
	Stellenbosch	Count	13	7	1	12	1	0	0	1	1	0	13	7	3	6	8	13	7	0	14	1	11	0	8	8	2	2	12	27	10	5	1	1	0	1	2	4	1	13	1	8	4	229
		% within @6. Name of your university	5.7%	3.1%	0.4%	5.2%	0.0%	0.0%	0.0%	0.4%	0.4%	0.0%	5.7%	3.1%	1.3%	2.6%	3.5%	5.7%	3.1%	0.0%	6.1%	0.4%	4.8%	0.0%	3.5%	3.5%	0.9%	0.9%	5.2%	11.8%	4.4%	2.2%	0.4%	0.4%	0.0%	0.4%	0.9%	1.7%	0.4%	5.7%	0.4%	3.5%	1.7%	100.0%
	Univ	Count	6	6	3	9	0	0	1	4	0	0	16	13	6	5	2	8	4	0	11	1	10	0	3	2	2	4	10	15	8	0	2	1	1	1	3	2	1	9	0	8	6	176

	ersity of Johannesburg	% within @6.Nameofyouruniversity	3.4%	3.4%	1.7%	5.1%	0.0%	0.0%	0.6%	2.3%	0.0%	0.0%	9.1%	1.7%	3.4%	2.8%	1.1%	4.5%	2.3%	0.0%	1.7%	6.3%	0.6%	5.7%	0.0%	1.7%	1.1%	1.1%	2.3%	5.7%	8.5%	4.5%	0.0%	1.1%	0.6%	0.6%	0.6%	1.7%	1.1%	0.6%	5.1%	0.0%	4.5%	3.4%	100.0%
	University of Free State	Count	4	8	2	8	1	1	2	2	0	1	8	11	3	5	10	17	7	0	3	7	0	9	1	9	7	4	4	10	31	7	3	1	4	0	3	2	4	0	17	0	20	12	248
		% within @6.Nameofyouruniversity	1.6%	3.2%	0.8%	3.2%	0.4%	0.4%	0.8%	0.8%	0.0%	0.4%	3.2%	4.4%	1.2%	2.0%	4.0%	6.9%	2.8%	0.0%	1.2%	2.8%	0.0%	3.6%	0.4%	3.6%	2.8%	1.6%	1.6%	4.0%	12.5%	2.8%	1.2%	0.4%	1.6%	0.0%	1.2%	0.8%	1.6%	0.0%	6.9%	0.0%	8.1%	4.8%	100.0%
Total		Count	29	24	10	46	2	1	3	8	1	1	42	29	14	18	23	43	18	1	10	43	1	37	1	21	21	9	12	40	96	29	8	6	6	1	5	11	13	2	51	1	44	30	811
		% within @6.Nameofyouruniversity	3.6%	3.0%	1.2%	5.7%	0.2%	0.1%	0.4%	1.0%	0.1%	0.1%	5.2%	3.6%	1.7%	2.2%	2.8%	5.3%	2.2%	0.1%	1.2%	5.3%	0.1%	4.6%	0.1%	2.6%	2.6%	1.1%	1.5%	4.9%	11.8%	3.6%	1.0%	0.7%	0.7%	0.1%	0.6%	1.4%	1.6%	0.2%	6.3%	0.1%	5.4%	3.7%	100.0%

APPENDIX 8: INFORMED CONSENT FORM

Private Bag X1290, Potchefstroom
South Africa 2520

Tel: +2718 299-1111/2222
Fax: +2718 299-4910
Web: http://www.nwu.ac.za

HREC Stamp

INFORMED CONSENT DOCUMENTATION FOR: NKARENBI JULIETTE BIH (28360087)

TITLE OF THE RESEARCH STUDY: The dynamics of acculturative stress,

Posttraumatic growth and mental health of international students in South Africa: A Multi-method study.

ETHICS REFERENCE NUMBERS: **NWU-00357-20-A1**

PRINCIPAL INVESTIGATOR: Prof. Erhabor S. Idemudia

POST GRADUATE STUDENT: Nkarenbi Juliette Bih

ADDRESS: North-West University, Mafikeng Campus, Cnr. Albert Luthuli and University Drive, Mmabatho. 2745

CONTACT NUMBER: 0726934078

You are being invited to take part in a research study that forms part of the fulfilment requirements for a Ph.D. degree in Health sciences in Psychology at the North-West

University. Please take some time to read the information presented here, which will explain the details of this study. Please ask the researcher or person explaining the research to you any questions about any part of this study that you do not fully understand. It is very important that you are fully satisfied and clearly understand what this research is about and how you might be involved. More so, your participation is entirely voluntary and you are free to say no to participation, or to withdraw at any point during the study. If you say no or withdraw, this will not affect you negatively in any way whatsoever.

This study has been approved by the Health Research Ethics Committee of the Faculty of Health Sciences of the North-West University and will be conducted according to the ethical guidelines and principles of Ethics in Health Research: Principles, Processes and Structures (DoH, 2015) and other international ethical guidelines applicable to this study. It might be necessary for the research ethics committee members or other relevant people to inspect the research records.

What is this research study all about?

• This study will be conducted at your institution and it will make use of questionnaires and focus group discussions with experienced researchers trained in the method.

• The aim of the study is to examine the acculturative stress, student stress, posttraumatic growth and mental health of international students in South Africa using a comparative, moderation, and mixed-method study.

Why have you been invited to participate?

• You have been invited to be part of this research because you meet the following inclusion criteria: You are an international student at a university in South Africa. Besides, you are efficiently fluent in and can read and write English which is required for you to be able to complete the programme and participate in the data collection.

What will be expected of you?

You will be requested to sign this consent form giving your consent for the study, after which you will be redirected on to another page where you will find the study questionnaire. On the questionnaire page, you will have to complete a biographical questionnaire once-off. This will then be followed by the scales which will be used in the study to assess for mental health, psychological well-being, posttraumatic growth, student stress and acculturative stress. These questionnaires will take approximately 45 minutes to complete, but you can save and complete at a later stage once you have started. No information that can disclose your identity will be required in either the informed consent form or any other questionnaire, and all form of communication with the research assistants or researcher will be done online via a chatroom that will be created, and these communications will be anonymous in order to adhere to confidentiality and privacy.

Focus group participants will be required to sign the informed consent forms and agree on a date and time for the sessions, since they will be hosted on an online platform. They will also be informed that the sessions will be recorded by the researcher. These focus group participants will be required to log in with their nicknames, and turn off their cameras during the sessions.

Will you gain anything from taking part in this research?

• The participants will benefit directly as they will be given an airtime voucher to the value of R25 for participating in the study.

• The results of the study will be made available to you once the study is complete in the form of a presentation by the researcher, upon completion of the study. However, the findings (presentation) of this study will not indicate individual scores but rather a broad outcome across all participants.

Are there risks involved in you taking part in this research and what will be done to prevent them?

•This is a low-risk study. You may experience forms of physical and psychological harm. Regarding possible physical harm, you may experience fatigue during the completion of the questionnaires and focus group discussions. If this occurs, you will be provided with an opportunity to save the questionnaire, rest, and complete the questionnaire during your spare time, while participants in the focus groups will be given refreshment breaks during the sessions.

• HREC will be notified immoderately by the researcher if an adverse event occurs.

• Psychological harm may be experienced during data collection as some items in the scale maybe emotional. Should this happen please inform the researcher so that recommendations can be made for support services (psychologist and social support groups) who will work with any participant who suffer adverse effects.

• There will be no financial costs involved in participating in this study.

• Confidentiality agreement forms will be signed by all parties involved in this study.

How will we protect your confidentiality and who will see your findings?

Only the research team, namely, the student researcher and study promoter will have access to the data. The statistician will sign a confidentiality agreement form but he will only be given coded questionnaires after all possible identifiers have been removed.

Anonymity will be protected:

1) None of the forms you sign or fill will have your name or any personal information that could be a possible identifier on it. (Please see section on “What will happen to the data” for more information on how all data will be handled).

2) No names will be mentioned in the dissertation or reporting or publishing of the findings from the study.

What will happen with the findings or samples?

•This is a once-off data collection (after completion of the questionnaires and focus group discussion sessions, you will not be required to participate in data collection again for this study) and data will be analysed in South Africa.

• Data will be stored for a period of seven years after the publication of the results as required by the North-West University (NWU).

• For the duration of data analysis, the hard drive with the backed up data will be kept in a locked cupboard at North-West University (Psychology Centre: Mafikeng campus). The data will be stored on the researcher's and study leader's personal computers, which are password protected but will be deleted from the researcher's computer once the study is completed. The researcher will send electronic copies of the data to the statistician for analyses. The statistician will be requested to delete this information as soon as the data analyses is complete and will sign a confidentiality agreement.

• After the data has been stored for a period of seven years, it will be destroyed by a member of the research team. All electronic data will be deleted from all the computers it was stored on.

How will you know about the results of this research?

• The findings of the research will be shared with you through a presentation by the researcher after the completion of the study. If you are no longer a student at the university, you will have the option to go on to the school's library website and you will find a copy of the study's findings there.

Will you be paid to take part in this study and are there any costs for you?

This study is partially funded by the North West University Postgraduate bursary. However, you will receive an airtime voucher to the value of R25 and you will not incur any cost other than your time for participating in this study.

Declaration by participant

By ticking in the box below, I give my consent and agree to take part in the research study titled: The dynamics of acculturative stress, posttraumatic growth and mental health of international students in South Africa: A multi-method study.

I declare that:

• I have read this information and I fully understand it.

• The research was clearly explained to me in this form and I was able to contact the researcher and research assistant for further explanations and my questions were fully answered to my satisfaction.

• I have had a chance to ask questions to both the person getting the consent from me, as well as the researcher and all my questions have been answered.

• I understand that taking part in this study is voluntary and I have not been pressurised to take part.

• I may choose to leave the study at any time and will not be handled in a negative way if I do so.

• I may be asked to leave the study before it is finished, if the researcher feels it is in the best interest in case I suffer from any unforeseen adverse effect as a result of taking part in this study.

What country are you from?.....

Signed at (place) .....…..…… on (date) ……..20....

Signature of participant…… Signature of witness……

Declaration by person obtaining consent

I (name) ……..…… declare that:

• I clearly and in detail explained the information in this document to ……

• I did/did not use an interpreter.

• I encouraged him/her to ask questions and took adequate time to answer them.

• I am satisfied that he/she fully understands all aspects of the research, as discussed above

• I gave him/her time to discuss it with others if he/she wished to do so.

Signed at (place) .....…….…… on (date) …….... 20....

Signature of person obtaining consent……

Declaration by researcher

I (name) ……..…… declare that:

• I explained the information in this document to ……. or I had it explained by …… who I trained for this purpose.

• I did/did not use an interpreter

• I encouraged him/her to ask questions and took adequate time to answer them or I was available should he/she want to ask any further questions.

• The informed consent was obtained by an independent person.

• I am satisfied that he/she fully understands all aspects of the research, as described above.

• I am satisfied that he/she had time to discuss it with others if he/she wished to do so.

Signed at (place) .....…….……. on (date) ……...……. 20....

Signature of researcher…….

APPENDIX 9: Confidentiality Agreement

NORTH-WEST UNIVERSITY
YUNIBESITI YA BOKONE-BOPHIRIMA
NOORDWES-UNIVERSITEIT

CONFIDENTIALITY UNDERTAKING

Entered into between: Nkarenbi Juliette Bih and *to be determined*

I, the undersigned

Prof / Dr / Mr / Ms _____

Identity Number: _____

Address:

_____

Hereby undertake in favour of the NORTH-WEST UNIVERSITY, a public higher education institution established in terms of the Higher Education Act No. 101 of 1997

Address: Office of the Institutional Registrar, Building C1, 53 Borcherd Street,

Potchefstroom, 2520

1 Interpretation and definitions

1.1 In this undertaking, unless inconsistent with, or otherwise indicated by the context:

1.1.1 “Confidential Information” shall include all information that is confidential in its nature or marked as confidential and shall include any existing and new information obtained by me after the Commencement Date, including but not be limited in its interpretation to, research data, information concerning research participants, all secret knowledge, technical information and specifications, manufacturing techniques, designs, diagrams, instruction manuals, blueprints, electronic artwork, samples,

devices, demonstrations, formulae, know-how, intellectual property, information concerning materials, marketing and business information generally, financial information that may include remuneration detail, pay slips, information relating to human capital and employment contract, employment conditions, ledgers, income and expenditures and other materials of whatever description in which the NWU has an interest in being kept confidential; and

1.1.2 “Commencement Date” means the date of signature of this undertaking by myself.

1.2 The headings of clauses are intended for convenience only and shall not affect the interpretation of this undertaking.

2 Preamble

2.1 In performing certain duties requested by the NWU, I will have access to certain Confidential Information provided by the NWU in order to perform the said duties and I agree that it must be kept confidential.

2.2 The NWU has agreed to disclose certain of this Confidential Information and other information to me subject to me agreeing to the terms of confidentiality set out herein.

3 Title to the Confidential Information

I hereby acknowledge that all right, title and interest in and to the Confidential Information vests in the NWU and that I will have no claim of any nature in and to the Confidential Information.

4 Period of confidentiality

The provisions of this undertaking shall begin on the Commencement Date and remain in force indefinitely.

5 Non-disclosure and undertakings

I undertake:

5.1 To maintain the confidentiality of any Confidential Information to which I shall be allowed access by the NWU, whether before or after the Commencement Date of this undertaking. I will not divulge or permit to be divulged to any person any aspect of such Confidential Information otherwise than may be allowed in terms of this undertaking;

5.2 To take all such steps as may be necessary to prevent the Confidential Information falling into the hands of an unauthorised third party;

5.3 Not to make use of any of the Confidential Information in the development, manufacture, marketing and/or sale of any goods;

5.4 Not to use any research data for publication purposes;

5.5 Not to use or disclose or attempt to use or disclose the Confidential Information for any purpose other than performing research purposes only and includes questionnaires, interviews with participants, data gathering, data analysis and personal information of participants/research subjects;

5.6 Not to use or attempt to use the Confidential Information in any manner which will cause or be likely to cause injury or loss to a research participant or the NWU; and

5.7 That all documentation furnished to me by the NWU pursuant to this undertaking will remain the property of the NWU and upon the request of the NWU will be returned to the NWU. I shall not make copies of any such documentation without the prior written consent of the NWU.

6 Exception

The above undertakings by myself shall not apply to Confidential Information which I am compelled to disclose in terms of a court order.

7 Jurisdiction

This undertaking shall be governed by South African law be subject to the jurisdiction of South African courts in respect of any dispute flowing from this undertaking.

8 Whole agreement

8.1 This document constitutes the whole of this undertaking to the exclusion of all else.

8.2 No amendment, alteration, addition, variation or consensual cancellation of this undertaking will be valid unless in writing and signed by me and the NWU.

Dated at Mafikeng Campus this _____ 20____

Witnesses:

1……

2……

(Signatures of witnesses) ……..... (Signature)……

APPENDIX 10: COMMUNITY PSYCHOSOCIAL (COMPRES) APPROVAL LETTER

Scientific Committee Approval for a Research Application

Research using human participants, health or health-related studies

Scientific Committee Information			
Name of the scientific committee	COMPRES	**Discipline(s)**	PhD Psychology
Research Entity	COMPRES	**Contact Person for the committee**	Chanté Klopper
Faculty	Health Sciences	**E-mail address for the committee contact person**	Chante.Klopper@nwu.ac.za

Study & Scientific Review Information				
Title of the study:	The dynamics of acculturative stress, posttraumatic growth and mental health of international students in South Africa: A multi-method study.			
Researcher/Study Supervisor Initials, Name and Surname:	Prof. Erhabor S. Idemudia		**NWU Number:**	22337660
Student Initials, Name & Surname:	Nkarenbi Juliette Bih		**NWU Number:**	28360087
Other Researchers involved in the study *(Initials, Names and Surnames)*:	None indicated.			
Potential risk level for human participants:	No risk	☐	**Motivate:** Click here to motivate the risk level	
	Minimal risk	☒		
	Medium risk	☐		
	High risk	☐		
Potential risk level for children and incapacitated adults:	No risk	☒	**Motivate:** Click here to motivate the risk level	
	No more than minimal risk of harm	☐		
	Greater than minimal risk with the prospect of direct benefit	☐		
	Greater than minimal risk with no direct benefit	☐		
Recommendation for the REC:	Review by the research ethics committee required	☒	**Motivate:** Proposed study would directly impact on human participants.	

Chairperson of the committee	Prof CHM Bloem
Committee members present during the review (NB, please ensure no conflict of interest)	**Prof Karel Botha** **Prof Herman Strydom** **Dr Erika Hitge**
Date of review	2021/10/19

Interim Scientific Committee COMPRES — Digitally signed by Interim Scientific Committee COMPRES Date: 2021.10.20 12:46:54 +02'00'

Signature of Chairperson

Date: 2021/10/20

Signature of Research Director

Date: 2021/10/20

Form developed by Prof Minrie Greeff, 1 March 2017
Form updated by Prof Minrie Greeff, 31 January 2019
Form updated by Prof Minrie Greeff, 8 May 2019
Form updated by Prof Minrie Greeff, 23 July 2019
Form updated by Prof Minrie Greeff, 10 August 2019

Original details: (23239522) G:\My Drive\9. Research and Postgraduate Education\9.1.5.6 Forms\9.1.5.6_SC Approval_Human Participants.docm
10 August 2019

File Reference: 9.1.5.6

APPENDIX 11: Human Research Ethics Committee (HREC) Approval

Private Bag X6001, Potchefstroom
South Africa 2520
Tel: 018 299-1111/2222
Web: http://www.nwu.ac.za

Health Sciences Ethics Office for Research, Training and Support

North-West University Health Research Ethics Committee (NWU-HREC)
Tel: 018 299-1206
Email: Ethics-HRECApply@nwu.ac.za

6 June 2022

To whom it may concern

APPROVAL OF THE RESEARCH STUDY FROM THE NORTH-WEST UNIVERSITY HEALTH RESEARCH ETHICS COMMITTEE (NWU-HREC) OF THE FACULTY OF HEALTH SCIENCES

Ethics number: NWU-00052-22-S1

Kindly use the ethics reference number provided above in all future correspondence or documents submitted to the administrative assistant of the North-West University Health Research Ethics Committee (NWU-HREC).

Study title: The dynamics of acculturative stress, posttraumatic growth, and mental health of international students in South Africa: A multi-method study

Study leader: Prof ES Idemudia

Student: JB Nkarenhi - 28360087

Application type: Single study

Risk level: Medium

You are kindly informed that this application was reviewed at the meeting of the North-West University Health Research Ethics Committee (NWU-HREC), Faculty of Health Sciences, North-West University, held on 22/04/2022. Following the review of the application, it has been decided that the study is approved. Approval in this letter means that **final ethics approval** was indeed granted for the **research methodology and the ethical aspects** of this study and that the NWU-HREC has **no further ethical concerns** relating to the research ethics process, except for the outstanding documentation indicated below, which must be provided to the NWU-HREC by the researcher. It is important to mention that this letter indicates that there are no further ethical concerns that exist, regarding the execution of the research. A final ethics letter will be issued upon the receipt of the following documentation:

a. A copy of the approval letter from you as one of the Research Data Gatekeeper Committees at the universities to be included in the study, granting access to the students (Please note all four universities' research data gatekeeper's committees need to provide approval for the study to be able to proceed).

The mentioned document, as indicated above, should be submitted to Ethics-HRECProcess@nwu.ac.za by the researcher, for review before the ethics approval certificate can be provided. This approval is provided for a year, after which continuation of the study is dependent on receipt of an annual (or as otherwise stipulated) monitoring report and the concomitant issuing of a letter of continuation for another year.

Please note: Due to the nature of the study i.e. (online collection of both quantitative and qualitative data via electronic questionnaires and online focus group discussions with international students from four South African universities), this study will be able to proceed during the current alert level, following receipt of the approval letter. No additional COVID-19 restrictions have been placed on the study except that the researcher must ensure that before proceeding with the study that all research team members have reviewed the North-West University COVID-19 Occupational Health and Safety Standard Operating Procedure, which is available at http://health-sciences.nwu.ac.za/covid-19-management.

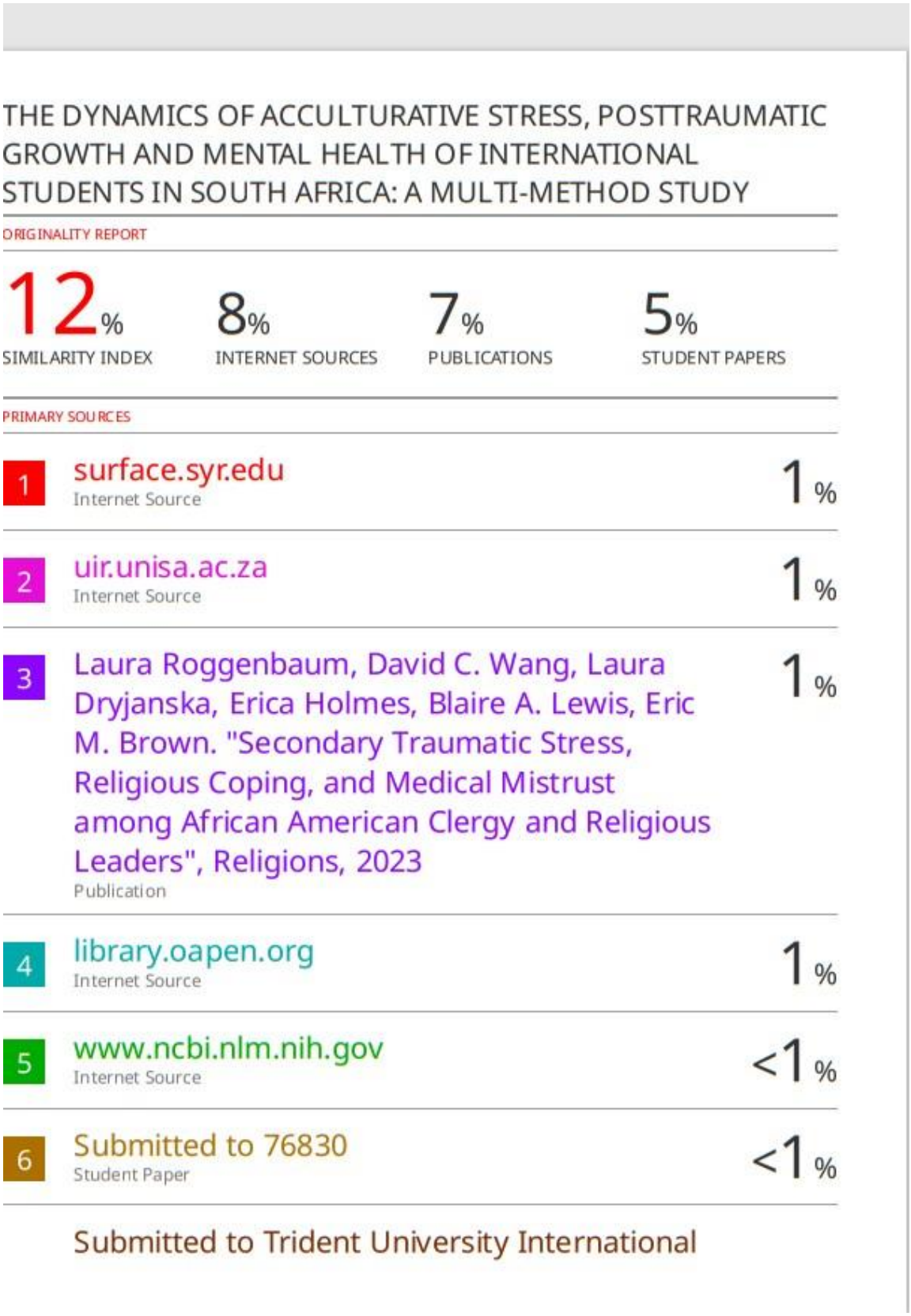
If you have any questions or need further assistance, please contact the Faculty of Health Sciences Ethics Office for Research, Training and Support at Ethics-HRECApply@nwu.ac.za.

Yours sincerely

Digitally signed by Prof Rekia Bouaz
Date: 2022.06.06 12:16:37 -02'00'

Chairperson: NWU-HREC

Appendix 12: TURNITIN REPORT



THE DYNAMICS OF ACCULTURATIVE STRESS, POSTTRAUMATIC GROWTH AND MENTAL HEALTH OF INTERNATIONAL STUDENTS IN SOUTH AFRICA: A MULTI-METHOD STUDY

ORIGINALITY REPORT

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Submitted to Trident University International

APPENDIX 13: LANGAUGE EDITOR'S CERTIFICATE

House 367

Hex River Lifestyle Estate

Waterkloof East Ext 12

Rustenburg 0299

17/11/2023

This is to certify that the thesis entitled

THE DYNAMICS OF ACCULTURATIVE STRESS, POSTTRAUMATIC GROWTH AND MENTAL HEALTH OF INTERNATIONAL STUDENTS IN SOUTH AFRICA: A MULTI-METHOD STUDY

Submitted by **JULIETTE BIH NKARENBI**

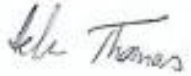
https://orcid.org/0000-0001-9066-4924

For the degree of **DOCTOR OF PHILOSOPHY (PSYCHOLOGY)**

At the **NORTH-WEST UNIVERSITY**

Has been edited for language by

Mary Helen Thomas (B.Sc. Hons. PGCE)



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