The relationship between wellness and adjustment to the university environment among students

By

Tshiamo Daniel Tlatsana

Mini dissertation submitted in partial fulfillment of the degree

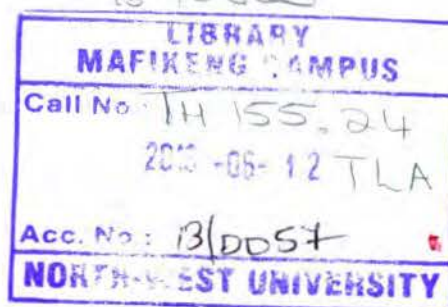Master of Social Science in Clinical Psychology 2012

In

The Faculty of Human & Social Sciences

At

The North West University (Mafikeng Campus)

Supervisor: Dr C. Oduaran

Co-supervisor: Prof. E.S. Idemudia

Declaration

I, Tshiamo Daniel Tlatsana, student number 16407040, hereby declare that this study is my original work and that I have acknowledged and referenced all the sources consulted in the process of compiling the study. I further declare that this study has never been submitted for purposes of obtaining a degree at any other institution before.

T.D. Tlatsana   Dr C. Oduaran

Acknowledgements

My sincere gratitude goes to my supervisor Dr C. Oduaran for her guidance and patience during trying times, to Prof Erhabor Idemudia (Director of Research), all participants who agreed to sacrifice their time to become part of the study, to all the statisticians that I consulted and to friends and colleagues who gave me support and encouragement during times when I felt like breaking down.

Abstract

Based on the principles of the salutogenic perspective to health this study explored the relationship between wellness as envisaged in the sense of coherence concept and psychological well-being and adjustment to university among students at a South African university using gender, age and study level as variables. The study was conducted by way of a survey design. A sample of students (N=216, females 130 and males 86) from five levels of study ranging in age from 16 to over 30 was obtained. Data was collected using Antonovsky's 29 item sense of coherences scale (SOC-29), the 54 item Ryff scales of Psychological Well-Being (RSPWB-54) and a biographical questionnaire. SPSS-16 was used to compute means, standard deviations, Pearson correlations and Analysis of variance. The results found no significant relation between SOC and psychological well-being but show variances in the effects of SOC on wellness among students by age and study levels but not by gender. From the findings, the need for deliberate strategies to facilitate SOC development among students seems apparent. Arguments are therefore made with regard to intervention strategies and health promotion among students as a means to facilitate their wellness and adjustment.

Table of contents

Chapter 1: Introduction and background

1. Introduction

This study sought to explore the relationship between sense of coherence (SOC) and student psychological well being and adjustment to university from the perspective of the salutogenesis theory of health and well being. SOC is described as a key element of the salutogenic theory which conceptualizes health (Antonovsky, 1987) as being measured on a continuum between states of ease or well being and disease or pathology. Contrary to the traditional pathogenic model which focuses mainly on factors that cause disease, the salutogenic perspective focuses on the potentials and strengths people use to help maintain positive health (Becker, Moore, Whetstone, Glascoff, Chaney, Felts & Anderson, 2009). According to Griffiths, Ryan and Foster (2011), SOC denotes human adaptive capacities in the form of internal and external resources, mechanisms and interactional patterns which determine the degree to which people are likely to succeed or fail to deal with the tensions that arise from daily life challenges. SOC is however not necessarily a coping strategy but is rather conceptualised as a set of traits and resources that individuals can employ to appraise challenges and to find appropriate ways to overcome those challenges. SOC has been validated not only as a critical personal disposition for dealing with and adapting to life challenges but also as a predictor of health (Eriksson & Lindstrom, 2006).

It is apparent from the description above that SOC has an important influence on the capacity of people to deal with challenges and to adapt to new situations such as commencing and persisting with tertiary studies, a situation that is acknowledged to demand higher levels of responsibility from students and which also has the potential to impact on their health and well-being (Cooke, Bewick, Backham, Bradley & Audin, 2006). Theories that seek to explain the process of student

adjustment consider adjustment to be a multidimensional process that embraces many aspects which include an individual's acquired interactional patterns (Kuh, Kinzie, Buckley, Bridges & Hayek, 2006), ability to negotiate specific developmental objectives (Simmons, 2008; Thieke, 1994), the drive to crystalise future aspirations (Wintre, Knoll, Pancer, Pratt, Polivy, Biernie-Lefcovitch & Adams, 2008) as well as perception of own intelligence (Dweck, 2000).

The role, relevance and importance of SOC in the psychological well being and adjustment of students has been explored and confirmed in several studies as will be highlighted in the following section which outlines the background to the study.

1.1.Background to the study

The following discussion outlines the background on findings about SOC and student adjustment, highlights challenges facing students at tertiary education level, discusses theories on student adjustment and attempts to relate student adjustment to student psychological well being within the salutogenic perspective with a focus on sense of coherence (SOC) as its central theme.

Studies have investigated many factors that may account for student adjustment to university including; attachment and individuation (Mattanah, Hancock & Brand, 2004; Simmons, 2008), spiritual well being and social support (Schafner, 2005), environmental and situational factors (Wintre, et al., 2008) coping styles as well as dispositional factors (Gan, Hu & Zhang, 2010). The subject of interest in this study relates to students' dispositional factors as envisaged by the sense of coherence (SOC) or orientation to life construct which is discussed below. As mentioned in the introduction SOC forms the central theme in salutogenesis. It is conceptualized as a developmental construct and an acquired personal disposition that develops from childhood

to early adulthood and is said to reflect an individual's enduring view, appraisal and approach to life experiences and challenges.

Research shows that students have been found to adopt different strategies, some negative and some positive, to adjust to the demands and challenges they come across within the university environment and to this end SOC strength has been identified as one of the key determinants of student coping styles, behaviour as well as physical and psychic well-being. According to a study by Togari, Yamazaki, Takayama, Yamaki and Nakayama (2008) a strong SOC serves to empower students not only to approach challenges positively but helps to cultivate and nurture positive health behaviours and attitudes that will benefit them in other areas of life.

It can therefore be argued that deliberate strategies and interventions need to be put in place to help students adjust in positive ways by providing environments and resources that promote the strengthening of student SOC.

Based on the above findings and considering the diverse social, educational and economic backgrounds that students come from and their unique developmental trajectories as well as the diverse challenges students face at different levels within the university environment, the study argues that an investigation of the manifestation of SOC across gender, age and levels of study may be useful in facilitating development of relevant policies and strategies to assist students to strengthen their SOC so as to enhance their chances of optimal functioning, better adjustment and positive health.

The number of studies (Becker et al., 2009; Binkowska-Bury & Janusziwcz, 2010; Edwards, Ngcobo & Pillai, 2004; Orguz-Duran & Tezer, 2009; Liu, Shono & Kitamura, 2009; Makola & Van den Berg, 2008; Petersen, Louw & Dumont, 2009; van der Merwe, 2005) conducted on

student wellbeing and adjustment throughout the world attests to the importance of student health and wellbeing and the influence these factors have on student adjustment.

According to Cooke et al., (2006) some of the major challenges students encounter as they start tertiary studies include finances, academic achievement and social relations. In addition, Kennet and Keefer (2006) note that at this level of education students are challenged to learn and think critically, and according to Wintre, et al., (2008), for most students tertiary education is the beginning of a process of finding and building the foundation for a life long career or vocational path. Further challenges that students have to deal with relate to their levels of preparedness and capacity to interact and integrate within an environment that is diverse in race, ethnicity and culture (Tuna, 2003). It is thus acknowledged that for most students embarking on tertiary studies marks a major life transition which calls for increased levels of independence, responsibility, initiative and self regulation (Grayson, 2007), tasks for which most of the students are ill prepared hence it has been found that this transition has the potential to impact negatively on student health (Cooke et al., 2006; Downey, 2005).

From the above highlight of challenges and from research findings (Kuh, et al., 2006; Simmons, 2008) it seems that adjustment to the university environment is a complex and multidimensional process that encompasses many aspects relating to characteristics of both the institution and the student. According to Kuh et al. (2006) theoretical approaches that have been formulated to explain the subject of student adjustment have explored the adjustment process from sociological, psychological, cultural and economic perspectives. The sociological perspective proposed by Tinto (1987), known as the Interactionist approach, focuses on aspects that contribute to student attrition or persistence, the model suggests that students' background characteristics and acquired patterns of interaction with family and significant others have an

influence on their capacity to adjust successfully to the demands of the university environment (Hurtado & Carter, 1997; Tuna, 2003). A cognitive psychological perspective by Dweck (2000) offers an explanation based on implicit self theory of intelligence which considers the student's perception of their own intelligence as either a fixed, predetermined entity that cannot be changed, or a malleable entity that can be expanded through experience and learning. According to this theory perceptions of own intelligence often determines the student's self belief in their capacity to succeed in their academic endeavour. Such perceptions reflect the student's self esteem, self efficacy and motivation; concepts which are associated with an individual's sense of coherence, capacity to tackle challenges and ability to deal with anxiety and stress. As emerging adults, students are also dealing with challenges of negotiating human developmental stages hence, from another perspective, Chickering (1969 as cited in Simmons, 2008) proposes that the adjustment process also involves success in developmental aspects such as achieving sense of competence, managing emotions, developing autonomy, establishing own identity, developing tolerance in interacting with others, developing sense of purpose and clarifying personal and consistent set of goals. A recent formulation which seems to blend ideas from Tinto's interactionist theory and Chickering's vectors of development perspective has been suggested by Wintre et al. (2008) in a model known as the Student University Match (SUM). The SUM proposes that as emerging adults, students seek environments that enhance their chances of realizing their aspirations and developmental objectives; this model regards students as active participants who seek to match their choice of institution with the institution's ability to optimize their chances of realizing their future goals and aspirations. The core argument within the SUM model is that if students perceive their institutional environment to be lacking in facilitating achievement of psychological and developmental needs they are likely to experience a decline in

interest, motivation and performance, resulting in poor adjustment and possible dropout or a search for better alternatives where their needs are likely to be met.

The background provided above sought to highlight critical factors that influence student psychological adjustment and success with a view to demonstrating the importance of helping students to build their potential for healthy living, optimal functioning and achieving the ultimate objective of academic success. It would seem however that there are few or no studies that have focused directly on the manifestation of SOC across gender, age and study levels which the current study sought to do. Such a focus may be useful in order to provide more evidence on the assertion that SOC develops from childhood, stabilises around early adulthood and tends to remain stable throughout but may be temporarily affected by major life challenges and experiences.

1.2. Problem statement

Studies have revealed that for many students a move to the tertiary level of education marks a major transition in their lives (Grayson, 2007) which often involves separation from family and familiar environments (Gan et al., 2010) and that the challenges associated with such a shift can be overwhelming, stressful and induce anxiety and depression (Downey, 2005) thereby impacting negatively on the student's overall health (Cooke et al., 2006; Elias, Mahyuddin & Noordin, 2008). Even though researchers have demonstrated the critical role of SOC on the wellbeing and adjustment of students there seems to be few studies that have examined the effects of SOC on the psychological well being and adjustment of students by gender, age and level of study. Such a study seems important considering that students are at different developmental periods, come from different environments with varying cultural and role

expectations and varying SOC levels and have been found to face different challenges in the different fields of study. Using the salutogenic framework the study will examine the relationship between sense of coherence and psychological well being and adjustment to the university environment among students at the Mafikeng campus of the North West University (NWU). Findings from such a perspective may illuminate areas in which students need to be assisted to strengthen their sense of coherence and to cultivate health promoting habits that are useful for better adjustment and successful outcomes.

1.3. Objectives of the study

Study objectives are described as goals that a researcher hopes to achieve in conducting the study; they are categorized into the main and sub objectives (Fox & Bhayat, 2007; Kumar, 2005). The main objective is meant to be a clear and coherent statement that captures the main thrust of the study while sub-objectives focus on describing and clarifying specific aspects of the study (Maree, 2007).

Main Objective

The main objective of the study was to explore the link between students' sense of coherence and their psychological wellbeing as a measure of adjustment to university life and to determine if such a link varies based on gender, age and academic levels.

Specific objectives

1. To determine whether there is a relationship between sense of coherence and adjustment to university based on student levels of psychological wellbeing

2. To determine whether gender has main and interactive effects on student psychological wellbeing and adjustment

3. To determine whether age has a significant effect on student psychological wellbeing and adjustment

4. To determine whether study level has a significant effect on student psychological wellbeing and adjustment

Research Questions

The study sought to answer the following research questions;

1. Does sense of coherence have a significant positive relationship with student psychological wellbeing and adjustment to university?

2. Is there a significant main and interactive effect of gender on student psychological welleing and adjustment to university?

3. Is there a significant effect of age on student psychological wellbeing and adjustment to university?

4. Is there a significant main effect of study level on student psychological wellbeing and adjustment to university?

1.4. Scope of study

The study was conducted on male and female students of different age groups and study levels at the Mafikeng campus of the North West University. The inclusion criterion according to gender, age and level of study was meant to facilitate comparisons on how sense of coherence manifests across these variables relative to adjustment to university.

1.5. Significance of the study

Studies by Petersen, Louw and Dumont (2009 as well as Sommer & Dumont (2011) show that adjustment to university environment is an important factor in predicting outcomes and that studying requires effort and a functionally integrated body and mind, which is implied in the sense of coherence construct. Studies suggest that students commence tertiary studies at different levels of preparedness (Shankland, Genolini, Franca, Guelfi & Ionescu, 2010) and that as a result of challenges such as finances, capacity to interact and academic expectations, student well being is adversely affected once they start tertiary studies (Cooke et al., 2006). The latter arguments underscore the importance for educational institutions to provide environments that facilitate adjustment and promotion of wellness among students so as to counter some of the negative effects associated with student adjustment to the university. In addition, studies suggest that cultivating a health and wellness culture among students may serve as a strategic tool to improve student productivity levels, entrench loyalty to the institution, facilitate recruitment of the best available talents and enhance retention (Botha, 2007; van der Merwe, 2005). As noted by Eriksson and Lindstrom (2006) Sense of Coherence is a resource that enables individuals to manage tension, to reflect on their internal and external resources and to mobilise these resources in order to promote effective coping and thereby reduce tension in a health promoting manner.

Given the above it is envisaged that the current study may yield information of theoretical and practical significance as outlined below;

- The findings of the study may be of practical use to university management and particularly counselling centres as custodians of student welfare.

- Knowledge of the SOC and PWB levels of students may assist to inform policy formulation regarding strategies and activities to promote student well-being and adjustment.

- A better understanding of the association between student's sense of coherence and level of psychological well-being may be instrumental in the formulation of useful and proactive intervention strategies to facilitate proactive adjustment to the varied demands of university life and to help students find ways to optimize their general health and well-being (Uskul & Greenglass, 2005).

- Theoretically the results of the study may illuminate areas that need focus in helping students develop a stronger sense of coherence and thus contribute to the body of knowledge around this area.

1.6. Definition of concepts

Key concepts in this study namely; sense of coherence, adjustment and psychological well-being will be operationalised and defined as follows;

Sense of Coherence will be defined in relation to students' global view of their university experiences as comprehensible, manageable and meaningful (Antonovsky, 1987). Most studies (Billings & Hashem, 2010; Ying, Binkowska-Bury & Januszewicz, 2010; Lee & Tsai, 2007) confirm that sense of coherence is positively related to perceived health and that as a health promoting resource it can help strengthen resilience, self efficacy and a positive subjective state of health and well-being.

Adjustment will be defined in terms of an individual's ability to find functionally adaptive means to cope with the new environment which embrace making optimum use of the time and

resources available, managing new life experiences positively and minimizing feelings of being overwhelmed by the situation. This definition captures the essence of the Ryff psychological well-being model which will be used as the equivalent of adjustment. The definition also encapsulates the dimensions of student adjustment contained within the Student Adjustment to College Questionnaire (Baker & Syrik 1984) which suggests that adjustment manifests in at least four areas namely;

- **academic adjustment;** measuring student motivation, effort, performance and satisfaction with the academic environment
- **social adjustment;** relating to the student's level of involvement in campus social activities, interaction with fellow students and individuation
- **personal-emotional adjustment;** involving the student's psychological and physical well-being
- **commitment to goals and attachment to the institution;** assessing the student's satisfaction with the university environment

Psychological well-being as explained within the Ryff's six factor formulation posits that optimal functioning can be explained in terms of how well an individual functions in six areas namely; autonomy, relation with others, self acceptance, environmental mastery, purpose in life as well as personal growth (Ryff, 1989; Ryff & Singer, 2006). These factors relate to the multifaceted nature of the adjustment process as highlighted within theories on student adjustment and success as discussed earlier.

Chapter 2: Review of literature

2. Introduction

The ensuing review of literature will examine the process of student adjustment and highlight some of the theories on this subject. The multidimensionality of health and wellness as envisaged in the salutogenesis theory and the concept of sense of coherence as well as the Ryff six factor model of psychological well-being will also be discussed.

2.1. Theoretical perspectives on adjustment to university

Studies by Mehdinezhat (2011), Smith (2007) and Ying, et al. (2010) suggest that there is great interest in understanding factors that influence students' adjustment or adaptation to university life and that this understanding could enable tertiary institutions to institute policies and practices geared towards assisting students in making the transition less stressful and more manageable. A number of theoretical perspectives that seek to explain student adjustment processes and to illuminate critical areas that contribute to or inhibit adjustment to university life have been formulated. Some of the theories on student adjustment are highlighted below.

2.1.1. The Student attrition theory

The interactionist or student attrition theory, Tinto (1987) explains that student background characteristics and interactional tendencies within the institution's academic and social system are critical in determining whether students will persist with or abandon their studies (Kuh et al, 2006; Simmons, 2008; Tuna, 2003). According to this theory, the process of adapting to the new academic and social environments of the institution is conceptualized into three stages namely separation, transition and integration. In the separation stage students need to reevaluate and

possibly abandon some of their values and patterns of interactions from previous environments in favour of new adaptive measures that enable them to transit and successfully integrate into the new environment (Tuna, 2003). The transition stage is the period when students explore their new environment and begin to internalize some of the values of the new culture that will enable them to function successfully and achieve their set goals. Success in negotiating the separation and transition stages then leads to the third stage of incorporation and full integration. It is therefore the extent to which a student is able to deal with transitional demands that determines their persistence with or abandonment of studies. Examining transition engagement of first year students with their academic work, staff and peers and extra-curricula engagement, Mehdinezhad (2011) found support for the interactionist theory, noting a high positive correlation between these variables and student adjustment.

2.1.2. Chickering's psychosocial theory of student development

This perspective takes a developmental approach to the subject of adjustment and student success and identifies factors related to both the institution and the student which are considered critical to student development during the years spent at university (Kuh et al., 2006; Thieke, 1994). Factors relating to institutional characteristics are identified as; clear institutional objectives, the size of the institution, student-faculty relations, curriculum and teaching, student accommodation, friendship and student communities, student development programmes and services and the existence of an educationally powerful environment. On the other hand the model lays out what is referred to as seven vectors of student development which are milestones that students need to negotiate during their study period and these are; developing competence, managing emotions, developing autonomy, establishing identity, having mature interpersonal relations, clarifying purpose and developing integrity. The factors just outlined also capture

elements of the two instruments used in this study. For instance developing competence and clarifying purpose are issues that call for a strong SOC and the rest of the other vectors are in line with the six factor model of psychological well being which is used in this study, as the equivalent of adjustment.

2.1.3. The Student University Match model (SUM)

The Student University Match (SUM), also called the Person-Environment-Fit (PEF) model uses a developmental framework approach that considers the student as an emerging adult who seeks to link their choice of university with the extent to which that university will help them meet their developmental needs and future aspirations (Wintre et al., 2008). This model argues that as emerging adults, students' choice of university is influenced by a variety of factors such as personal goals and aspirations as well as life planning and commitments hence students are seen not as passive victims of environmental influences but as active participants in selecting their developmental environments and future directions in life. It could be argued however that the deliberate choice of an institution is not a luxury for all students as there are other considerations that influence a student's choice such as affordability and proximity as well as factors such as the national educational system, levels of subsidy and student funding opportunities or options. Students from low socioeconomic groups will often base their choice of institution more on affordability than SUM variables. It is this group in particular that may be vulnerable to anxiety and depression hence one can argue that they need adequate support to strengthen their SOC and psychological well-being so as to minimize risk factors and to enhance their chances of adjustment and academic success given that their choice to look for an appropriate match is limited by economic and other circumstances over which they have limited control.

2.1.4. The Implicit theory of intelligence

Student's perception of their intelligence has also been investigated as another factor in adjustment and academic success. A discussion of motivational and personality factors influencing student success by Dweck (2000) argues that academic success and adjustment may be accounted for in terms of two self perception theories that students hold about their intelligence and ability to adjust and succeed in their study endeavours. The fixed entity theory posits that a student may hold a view about their intellectual ability as a fixed or innate trait that cannot be changed and because such students believe that their intelligence is predetermined and limited in some way their approach to challenges is often influenced by how much they believe they have the intellectual capacity to successfully overcome such challenges. In contrast, students who subscribe to the incremental approach to self intellect often approach challenges with the mentality of intelligence as an attribute that can be developed through effort, experience and learning. Dweck's self intelligence theory bears close resemblance to another formulation called the early maladaptive schemas (EMS) which has been described as pervasive themes, developed from childhood, which are dysfunctional and are associated with development of psychiatric disorders (Cecero, Beitel & Prout, 2008). Both the interactionist theory offered by Tinto and Dweck's self theory of intelligence have relevance to Antonovsky's sense of coherence and its utility in the face of challenges of adjusting to university and the chances of academic success. The self intelligence theory provides typical examples of cognitive and biological GRRs that influence student adjustment. For instance a student who holds a fixed view about their intelligence may give up easily on challenging subjects due to their limiting and dysfunctional beliefs. However, with appropriate interventions that target their cognitive and behavioural schemas, such a student can be assisted to overcome dysfunctional beliefs that limit

their capacity to overcome challenges. This view is supported by findings from a Turkish study showing that psychological orientations that students carry into their transition to university are critical to their success in the new setting (Oruku & Demir, 2011). Interventions can also target character traits that predispose students to specific dysfunctional interactional patterns that impede their ability to adapt positively to challenges in the university environment.

2.1.5. Other approaches to adjustment

Shankland et al. (2010) approached the adjustment process from the dimension of the quality and kind of secondary education that students are a product of, arguing that there are differences between the adjustment levels of students from mainstream and alternative school systems. They argue that students from alternative school systems often emerge superior in adjusting to university environment and demands mainly due to the quality of support they received from school, their academic self efficacy and their task oriented coping styles. Considering that SOC has been shown to be a product of environmental and cultural influences this finding lends support to the need to provide adequate resources for students to be helped to optimize their SOC given that they come from different educational and social environments and that their SOC strength will obviously be at varying levels.

In order to measure the impact that the onset of tertiary education has on student health and psychological well-being Cooke et al. (2006) suggested the idea of taking baseline measures of student well being prior to entering university and continuing to measure these levels at specified intervals within a given year. The approach makes it possible to measure variations and to determine possible causes for the variations, it further allows for examination of a number of other issues such as identifying vulnerable groups, determining and monitoring variations

occurring throughout the year and determining students' use of counselling services to evaluate their impact on students' quality of life at university. The Cooke et al. study argues that although a tertiary qualification yields benefits that provide a buffer against economic hardship, this often comes at a huge monetary and health cost because if not properly handled the process of studying to obtain such qualification may precipitate psychological disorders such as high levels of anxiety, depression, substance abuse and suicide, which are treated at enormous costs. Taking baseline measures of student health and psychological well-being helps identify those at risk of poor adjustment so that appropriate interventions can be introduced early enough to maximize chances of positive adjustment. As the authors argue the economic and health costs involved in managing morbidities such as depression makes the need for proactive interventions much more warranted, compelling and justified.

Based on some of the principles underlying the above theoretical approaches a number of instruments have been developed to measure student adjustment.

- The Student Adjustment to College Questionnaire (SACQ) by Baker and Siryk (Cecero, Beitel & Prout, 2008) conceptualizes adjustment in four dimesions namely academic, social, personal-emotional and commitment to goals linked to attachment to the university. Each of the four domains constitute a subscale that measures how well a student is doing in the particular domain or sphere, culminating into a full scale that yields a global index of a student's level of adaptation to university.

- The College Adjustment Self-Efficacy Scale (CASES) by Hirose, Wada and Watanabe (1999) is composed of three factors; self controlled persistence, judgemental ability and self adjustment in human relations (Oruku & Demir, 2011). It evaluates the level to which a student has confidence that they possess the necessary skills required to adjust

and succeed in university, in other words the student's belief in their own self efficacy to make a success of their academic endeavour.

- The College Adjustment Scales (CAS) are used in assessment settings like counselling centres to screen for a wide range of issues from psychopathologies to relational, academic, family and career problems which are known to be common problems among university students (Nafziger, Couillad & Smith, 1999).

2.2. Multidimensional conceptualization of health and wellness

Taking a cue from the World Health Organisation's broad definition of health, literature (Becker et al., 2009; Oguz-Duran & Tezer, 2009) acknowledges that health should be measured multidimensionally by taking into account all aspects that are relevant to an individual's health such as physiological, spiritual, social, occupational, intellectual, emotional and environmental factors. Various theories and constructs have been developed to conceptualise health and wellness. This study covers two such theories namely Antonovsky's salutogenesis theory which has the sense of coherence as its central theme as well as the six-factor psychological well-being model developed by Carol Ryff (1989). The definition and psychometric properties of the two models are described under measuring instruments (chapter 3, methodology), this chapter will highlight relevant studies on the application of these models.

2.2.1. Salutogenesis and Sense of Coherence

Sense of coherence is conceptualized as a central element of the salutogenic theory of health advocated by medical sociologist Aaron Antonovsky (Becker, Glascoff & Felts, 2010; Klepp, Mastekaasa, Sorensen, Sandanger & Kleiner, 2007). The salutogenic approach to health resonates with the World Health Organisation's (WHO) definition of health as not only the

absence of disease or infirmity but a state of complete physical, mental and social well-being (https://apps.who.int/aboutwho/en/definition.html). The approach recognizes the importance of taking a prospective look at the concept of health by examining factors that lead to better health and how people create, enhance and improve their physical, mental and social well-being as opposed to the traditional pathogenic approach which tends to focus on the origin and treatment of disease. According to the salutogenic perspective health is regarded as a state of vacillation between two poles, the one pole representing a state of disease and the other representing the state of ease, hence it is useful not only to understand the origins of disease but also the origins of the state of ease; in this way a more holistic understanding of health can be found and people can be helped to identify and maximize their potential and optimize their overall functioning (Becker et al., 2010; Joshanloo & Ghaedi, 2009). Lindstrom and Eriksson (2006) note that the salutogenic theory of health is anchored around two major concepts namely Sense of Coherence (SOC) and Generalized Resistance Resources (GRRs).

The **Sense of Coherence** (SOC) concept seeks to explain the extent to which an individual possesses a pervasive, enduring but dynamic feeling of confidence that the challenges or adversities encountered in life are normal features of the individual's developmental trajectory and that these challenges are not insurmountable but are life enriching experiences that need to be engaged in order to achieve optimal and healthy functioning (Antonosky, 1987). SOC is conceptualized as having three components namely, comprehensibility, manageability and meaningfulness (Antonovsky, 1987; Lindstrom & Eriksson, 2006; Olsson, Hansson, Lundblad & Cederblad, 2006). Comprehensibility is assumed to represent the cognitive functional dimension through which individuals make sense and derive order and predictability in the varied and complex challenges encountered in their life experiences. The second component, manageability,

represents the instrumental and behavioural dimension of SOC; it deals with the extent to which an individual has a feeling that resources are available within themselves and in their environment which can be harnessed to tackle and successfully overcome the life challenges encountered. Meaningfulness, the third component is taken as the most important of the three SOC components; it is regarded as the motivational element that deals with an individual's ability to perceive adverse experiences as challenges that need to be tackled rather than as unnecessary burdens that should be avoided.

Studies show that SOC gets developed through life experiences based on what is known as generalized resistance resources (the second element of the salutogenic health perspective) present around the environment that the individual is exposed to such as family and culture (Bowman, 1997; Braun-Lewenshon & Sagy, 2011; Wickens & Greeff, 2005) as well as an individual's inner attributes like optimism, self esteem and resilience (Oguz-Duran & Tezer, 2009). Riedel, Weissmann and Hannich (2011) and Richardson, Ratner and Zumbo (2007) state that sense of coherence is a construct that can be moulded and is often shaped by the end of young adulthood, that is, around 30 years of age and unless radical and enduring changes occur in an individual's life their sense of coherence or life orientation is likely to remain stable throughout. Longitudinal studies on the development and stability of SOC (Hakanen, Feldt & Leskinen, 2007; Togari et al., 2008; Vastamaki, Moser & Paul, 2009) seem to confirm this assertion though with varying degrees.

According to Riedel, et al. (2011) GRRs are personal and environmental factors of biological, material and psychosocial nature that an individual uses to combat stressors encountered in life. The use of GRRs however depends on the individual's resolve to mobilize these resources in order to cope with and overcome challenges (Pham, Vinck, Kinkodi & Weinstein, 2010).

Griffiths et al., (2011) give the following forms and examples of GRRs; biological aspects such as a strong physique and immune system and genetic endowment as well as material artifacts such as money, cognitive endowments like intelligence and adaptive strategies for coping, personal attributes such as emotional intelligence, social support from significant others like family and macrosocial factors such as culture. These resources are taken as building blocks for SOC and their availability or lack thereof determines the strength and stability of an individual's SOC, in other words the more GRRs the individual has at their disposal the more they can develop a stronger SOC and the less GRRs the weaker the SOC (Hakanen et al., 2007), thus it is believed that availability of GRRs give people reason to adopt a positive appraisal of their life experiences thus contributing to a gradual build up in their SOC profile.

The SOC construct can therefore be regarded as an individual's capacity or incapacity to handle stressful situations such as adjusting to the demands of university life, as would be reflected in their resolve or lack thereof, to persist in finding internal and external resources to overcome challenges in pursuit of the ultimate goal of obtaining a qualification. The next section examines sense of coherence in terms of its development and stability and the implications it has on human functioning and maintenance of health. Associations and distinctions between SOC and related constructs such as self efficacy, optimism, resilience, hardiness, locus of control and personality traits as well as evidence of the link between SOC and health will also be examined.

2.2.2. Development and stability of Sense of Coherence

Mention has already been made that SOC is built and strengthened by the availability of physical, social and emotional resources called generalized resistance resources (GRRs) which are represented by individual endowments in the form of physical make up and internal

constitutive personality characteristics such as intellect, dispositional optimism and resilience as well as external material resources, social support from family and other environments that individuals get exposed to during their developmental trajectory. It was further noted that the quantity and quality of GRRs available and accessed from early childhood up to early adulthood (around 30 years) play a critical role in determining the strength and stability of SOC and peoples' inclination to appraise life experiences in negative or positive terms. Another implication regarding SOC stability and strength is that people with a strong SOC have been found to cope better with challenges as opposed to those with a weak SOC even though it is acknowledged that stability might decline temporarily as a result of major negative life encounters (Hakanen, Feldt & Leskinen, 2007; Togari et al., 2008; Vastamaki, Moser & Paul, 2009).

Within the educational context, Krause (2011) examined ways to facilitate SOC development among preschool and primary school children looking at self worth and sense of belonging as GRRs and found that children who started school with low self worth and sense of belonging were able to improve on these areas through an intervention programme that involved the support of teachers and parents. Adding to the importance of support in SOC development Antonovsky and Sagi (2001) made three observations in their study on the development of SOC during adolescence. Their first observation was that people emerge from childhood with a tentative SOC which begins to stabilise during adolescence noting however that it is during adolescence that SOC tends to be more labile due to the many challenges and uncertainties experienced during this developmental period which is marked by confusion and a search for identity. Secondly they noted that the nature of the relationship between adolescents and their parents influences the development of SOC in that secure attachment and close emotional ties

with parents provide a platform for adolescents to engage their parents about issues of concern and this engagement process helps adolescents to instill order and predictability in their life experiences during this turbulent human developmental period. The third observation was that the immediate community that adolescents live and grow in also plays an important role in the development of SOC. Other longitudinal studies (Hakanen et al., 2007; Read, Aunola, Feldt, Leinonen & Ruoppila, 2005; Togari et al., 2008) also confirm that different types of GRRs play an important role in SOC development and stability. Drawing from these observations; lability of SOC during adolescence, social support and the nature of the macro environment, and noting that the majority of students are at some stage of the adolescent developmental period it can be argued that the necessity of strategic interventions to promote SOC development within the university environment is warranted and justified hence the need to examine its manifestation at different age and study levels. Considering that adjustment involves tackling multiple functional tasks and developmental challenges as outlined within prevailing theoretical frameworks it seems apparent that negotiating such a process can easily precipitate tension and distress leading to personal disintegration, hence the need for measures and interventions to promote SOC development cannot be overlooked.

SOC has also been investigated with regard to ethnicity and culture. Using the life story approach Chhoun, Kyratzis and Hudley (2010) sought to explain the influence of culture on peoples' worldviews and how such views influence their approach to challenges of daily living. The study which sampled Cambodian women immigrants to the USA revealed that understanding the intricacies of culture is important in identifying values that influence peoples' approach to tackling challenges encountered within the university environment. Considering the diverse backgrounds of students, this finding provides a compelling argument for use of strategic

interventions that recognize that students are not a homogenous group, rather students need to be understood within their individual contexts so that appropriate efforts can be devised to help them build and strengthen their SOC. A comparative analysis of local and international students at four Canadian tertiary institutions by Grayson (2007) confirmed the utility of SOC among different ethnic groups but found differences in its manifestation giving credence to the assertion that factors such as the environment and culture are important elements in the development of SOC. To explore the necessity for providing an environment conducive to the development of SOC and health promotion Natvig, Hanestad and Samdal (2006) investigated the link between SOC and school related resources such as a supportive and adequate learning environment and they found a strong relationship between SOC and resources such as parental and peer support as well as a conducive school environment. Having considered the importance of SOC and how it develops the discussion will now turn to examining its relation to other similar constructs.

2.2.3. Sense of Coherence and other associated concepts

Studies have examined concepts closely related to SOC which are also known to facilitate protection against stress such as personality traits, optimism, hardiness, self efficacy, self determination theory, locus of control, coping (Gan et al., 2010) learned resourcefulness (Kennet & Keefer, 2006) and have found that in spite of a strong association between these constructs and SOC, the latter is an overarching concept and a distinct explanatory perspective that describes peoples' world view and orientation to life which has been empirically validated as a health promoting resource. What could be discerned from these findings however is that these associated concepts could be classified within the context of general resistance resources which are identified as building blocks of a strong SOC. Some studies for instance, Posadzky et al. (2010) have even suggested that due to conceptual similarities and high correlations among

SOC, health behaviour and traits such as locus of control and self efficacy, these constructs could be construed into a broader scientific construct under the umbrella of positive health attitudes (PHA). We briefly highlight some of the associated constructs to demonstrate their link with the concept of SOC and their influence on adjustment and general well being.

Personality traits – comparisons of SOC to personality traits suggest that SOC is conceptually related to Neuroticism in that low levels of SOC correlate positively with high levels of trait anxiety and neurotic characteristics whereas high SOC is associated with emotional stability (Feldt et al., 2007).

Optimism is described as a dispositional trait that enables people to maintain a generalized positive expectancy in the face of adversity as reflected in their general inclination to adopt and use approach rather than avoidance coping strategies to deal with challenges (Chemers, Hu & Garcia, 2001).

Self efficacy – Bandura (1997) as cited in Chemers et al., (2001) describes self efficacy as the extent to which an individual believes in their capacity to organize and execute courses of action towards attaining specific outcomes. Hence similar to SOC, self efficacy is a key element that influences an individual's determination and perseverance to commit to their goals and to overcome challenges.

Coping – according to Cohen, Ben-Zur and Rosenfeld (2008) cognitive models of stress and coping suggest that the way people appraise adverse challenges is a critical element that determines their thoughts, feelings and the kind of approach they will adopt to tackle the challenges. In other words the coping strategy individuals adopt is a reflection of their behavioural and cognitive efforts to overcome the challenge. The model identifies two

contrasting approaches to coping namely; emotion focused and problem focused. Emotion focused coping is less effective and often induces psychological distress whereas problem focused coping represents an instrumental and carefully thought-out way of approaching challenges which is mostly associated with positive affect and better states of general health and well being.

Learned resourcefulness – according to Kennet and Keefer (2006) this perspective regards human behaviour as goal directed and so when obstacles emerge, people often draw from their repertoire of learned or previously acquired skills to find positive self instruction that enables them to apply problem solving methods and self control strategies to tackle such obstacles. As with SOC, learned resourcefulness is also conceptualised in terms of high and low states and it is noted that in the face of adversities people who are highly resourceful have been found not only to try harder, to persist and to have high levels of goal attainment compared to their less resourceful counterparts but also to employ self control measures to handle negative emotions resulting in less experience of the negative effects of stress. The concept can be related to manageability, the instrumental component of SOC which deals with employment of resources to overcome difficulties. Kennet and Keefer (2006) have tested the model within a university environment and found that students who reported high academic resourcefulness also reported effective time management skills, less anxiety about taking exams, regular class attendance and returned good grades at the end of the year.

Hope seems to be closely related to the meaningfulness component of SOC in that hope is conceptualized as a person's will to commit to specific goals and to persistently explore various ways in which those goals could be reached (Mascaro & Rosen, 2005). A study of students by these authors revealed that there is evidence of a relationship between levels of hope,

development of depressive symptoms and existential meaning, showing that individuals who are high in the meaning component presented with fewer depressive symptoms and displayed a hopeful character compared to those whose level of meaning was low.

Self determination theory (SDT) – According to Ryan & Deci (2000), human psychological growth and wellbeing is fueled by the fulfillment of psychological needs such as being autonomous, achieving competence and being able to initiate and maintain meaningful relationships. The perspective uses the concept of motivation to explain human behaviour and functioning under different conditions, it identifies three types of motivation; intrinsic motivation, extrinsic motivation and amotivation (Baker, 2004). Intrinsically motivated behaviours or actions are internally driven and are performed to fulfill self determined goals or desires. Extrinsically motivated behaviours or actions are engaged in for the sake of satisfying some external need or expectation and are not necessarily driven from inside and amotivation denotes the absence of motivation to engage in a behaviour or action. The self determination theory argues that human behaviour is driven by the desire to fulfill the need to be autonomous, to be competent and to relate or belong (Chen & Jang, 2010) and these are the three concepts around which the theory is anchored. Similar to SOC, SDT rates peoples' functioning along a continuum of self determined action based on their levels of motivation and also argues that a person's level of functioning can be correlated with aspects of self esteem and general well being. Closely related to SDT is the concept of self regulation which also includes the role of motivation in human functioning (Kitsantas, Winsler & Huie, 2008). According to Baker (2004) studies have shown that intrinsically motivated individuals often adopt positive and effective strategies to deal with academic challenges are cognitively flexible and possess a superior self esteem and general well being. Further support for the SDT theory also comes from a study by

Chen and Jang (2010) who tested the model on a group of online learners, confirming the effects of the different motivational levels on students' academic competence.

Hardiness – According to Klag and Bradley (2004) hardiness is a personality disposition defined by three concepts namely commitment, control and challenge. People who are high on commitment are said to be characterized by curiosity, sense of purpose, a belief in own values, are generally optimistic and enjoy active involvement in life. High sense of control is a mark of people who have confidence in their ability to influence events through their imagination and actions whereas the concept of challenge denotes the extent to which an individual is capable of appraising adversities and changes as normal life-enriching experiences that provide an opportunity for growth and development. As with SOC, hardiness is also being advocated as having direct and indirect stress buffering effects and thus can help promote general health and well being (Klag and Bradley, 2004).

Because SOC is not advocated as a personality trait nor a specific coping strategy but rather as a constellation of factors that provide the basis for successful coping with stressors (Feldt et al., 2007) it seems justifiable to assume that the above factors can be construed to be part of an individual's internal GRRs for which people will be differentially endowed, which justifies the need for universities to measure, monitor, develop and reinforce student SOC through carefully structured interventions.

From the above discussion it can therefore be argued that the varying demands and challenges facing students during their years of study call for an understanding of how students employ these different resources to overcome challenges and justifies the need to provide university

environments that can help students build their SOC profile and to maintain good health which is the subject of our next discussion.

2.2.4. Sense of Coherence in relation to health

According to Binkowska-Bury and Januszewicz (2010), SOC has been validated in many studies as a health indicator with evidence linking high SOC to many aspects of health such as psychological well being, self esteem, satisfaction with life and quality of life. Their study found that people high on SOC are likely to choose and follow healthier lifestyles. Studies (Binkowska-Bury & Januszewicz, 2010; Poppius, 2007; Tuna, 2003; Ventegodt, Omar & Merrick, 2011) further show that high SOC is not only a predictor of general health but that low SOC correlates with poor psychological and physical health in both the general and clinical population with psychopathologies such as anxiety and depression being high on the list. Within the student population Cooke et al. (2006) have noted that student concerns about finance, academic performance and relationships induce high levels of anxiety and put their well-being under a huge strain once they begin their tertiary studies compared to the period before. They found that even though levels of anxiety and well-being seem to fluctuate throughout the period of study they never return to baseline levels, thus justifying the need for appropriate and effective intervention to prevent student anxiety developing into depression which is treated at enormous costs. On the basis of their findings they acknowledge the economic benefits of acquiring a tertiary qualification but caution that the latter may come at a huge health cost if students are not assisted to manage their health and well being in positive ways. Bothmer and Fridlund (2003) investigated student self-rating of health behaviours by gender using SOC and traits such as optimism, hardiness and personality. Their study revealed a higher positive association between SOC and self rated health among females than males; however both genders registered a

negative correlation for SOC and Type A personalities. A general population study conducted by Nilsson, Holmgren, Stegmayr and Westman (2003) in Sweden examined SOC in relation to health and psychosocial factors and found that high SOC stability offers protection against destabilsing social experiences and disease. Similarly an investigation of student health behaviours by Posadzky et al. (2010) affirms the utility of SOC in promoting higher levels of health and wellbeing and in preventing mental disorders. Their findings further suggest that boosting student SOC levels can enhance health through effective stress-coping strategies that enable students to appraise their study experiences as less stressful, to improve their quality of life and to adopt healthier lifestyles. In the medical field, treatment and intervention models that incorporate salutogenic principles referred to as quality of life medicine, have been found to produce positive symptom improvement and recovery in patients suffering from different types of physical and mental illnesses (Ventegodt et al., 2011). Staying with the quality of life argument, Griffiths et al. (2011) conducted a thematic analysis of the construct using mental health service users as subjects. Their study confirmed SOC utility however they also found that there may be some distinctions on the operation of SOC when it comes to concrete and relationship oriented problem solving, suggesting that the adaptive capacity of SOC calls for different approaches depending on the situation at hand. This finding has relevance to the university environment where students are not only dealing with academic challenges (concrete problems) but also relationship oriented problems with faculty and peers. The above literature shows that SOC is linked to all the dimensions embodied in the WHO holistic definition of health which incorporates physical, emotional, spiritual, social and mental aspects of human functioning. Our discussion will now shift towards the application of salutogenic principles in therapeutic intervention settings.

2.2.5. Sense of Coherence and psychological intervention

A study by Cooke et al., (2006) suggests that students who struggle to adjust are at a greater risk of developing psychopathologies such as anxiety and depression hence it is important to determine adjustment levels and to identify factors that predict adjustment so that high risk groups can be identified early and targeted for intervention. On the other hand however the use of psychological services and psychological intervention in a general context, and within university environments in particular, is often perceived with some level of apprehension and labelled as a service for people who are experiencing mental health problems. In a study investigating student attitudes towards help seeking among Nigerian students, Oluyinka (2011) found that, generally, students seem to prefer consulting informal sources (spiritual healers, etc) for their emotional and social problems even though most of these sources are often not trained to handle such and that this situation often delays early professional intervention, resulting in escalation of the severity of problems. The study noted that delayed professional intervention leads to a huge public health problem and that it is therefore important to understand factors that predict help seeking attitudes so that students can be made to realize the benefits of professional help and therefore to adopt favourable attitudes towards utilizing professional services. A significant finding of this study which has relevance to the current study was that SOC was among the key predictors of student attitude towards professional help seeking. This finding suggests that health professionals have a huge responsibility to turn around the mindsets of students so that they begin to perceive psychological intervention as an empowerment process rather than a service reserved for people who are unwell.

According to Koelen and Lindstrom (2005), viewed within the health promotion context, psychological intervention should serve as a means to empower people to make healthy choices

that will enhance their quality of life. They propose that the empowerment process should be a collaborative exercise in which health professionals are expected to take the lead in order to facilitate the spread of knowledge so as to make it easy for people to choose healthy life styles. In support of the latter argument Cooke et al., (2006) have emphasized that early detection and intervention can be instrumental in reducing the enormous treatment costs associated with psychopathologies such as anxiety and depression which are common among university students.

At another level Natvig, Hanestad and Samdal (2006) explored the necessity to provide an environment conducive to the development of SOC and health promotion by investigating the link between SOC and school related resources such as a supportive and adequate learning environment and they found a strong relationship between SOC and resources such as parental and peer support and, most importantly, a conducive and supportive school environment of which professional intervention is a part. According to Eriksson and Lindstrom (2008) environmental, social, cultural, economic and political processes are key elements in the promotion of health and in salutogenic terms these processes need to be activated to help strengthen peoples' health potential so as to facilitate productive and enjoyable living. The authors argue that empowerment and educational intervention models that involve people in making decisions about their health with the support of professionals do not only engender positive help seeking attitudes but also build personal resources and physical capacities as part of the GRRs that people need to build their SOC strength. This approach is very much in line with one of the defining features of SOC development which emphasizes the importance of being involved in deciding outcomes. Along the same lines, Davidson, Feldman and Margalit (2012) argue that individual and contextual resources are crucial in enhancing student success and adjustment, given that the university environment has been found to induce stress and anxiety

which affect student well being. The study has demonstrated that planned interventions can be formulated to increase SOC and associated constructs such as hope and self efficacy among students in order to boost levels of academic success and well being.

Within the university environment, units providing professional psychological help can be taken as part of the health promotion processes that are not only there to intervene when problems surface but also to fulfill an empowerment and educational role to inculcate positive health attitudes that will serve students beyond their current study period. Implied in this argument is that it is important for institutions to identify individual student assets and weaknesses so that a context can be provided that offers students the opportunity to build on and strengthen their assets and also to counter weaknesses that may impact on their success.

The salutogenic health perspective, through its defining principle of SOC, focuses on a life orientation through which people manage tension and maintain health; applied to the varied dimensions of student adjustment this perspective implies that individuals need to be empowered to be in a position to find positive ways to approach the challenges within the university environment, a role which among others is fulfilled by counselling units. Koelen and Lindstrom (2005) define empowerment as a process by which people gain mastery over their lives, learn to recognize the association between their goals and how to achieve those goals and learn to note the link between their efforts and the outcomes thereof. Psychological intervention therefore can be taken as one such empowerment tool that universities can use to build the SOC levels of their students and thereby enhance their chances of adjustment and academic success.

2.2.6. Sense of Coherence relative to gender

Developmental and socialization processes differ in many respects for males and females mainly due to factors such as culture and role expectations (Chouhon et al. 2010). Based on the latter observation it would be expected that such differences would influence and manifest in the SOC development for males and females in different ways (Evans, Marsh & Weigel, 2009). Literature in general however suggests that differences in SOC levels by gender are not obvious (Eriksson & Lindstrom, 2005; Grayson, 2007; Klepp et al., 2007; Meiring, 2010) but a few studies have reported some differences. For instance a study of psychosocial aspects of health among male and female adolescents suggested that compared to males, females seemed to experience higher levels of psychosocial health as indicated by somatic, depressive and internalizing complaints (Raty, Larsson, Soderfeldt & Larsson, 2005). Togari et al. (2008) also reported slight differences in a 2-year longitudinal study that sought to test the effects of SOC on wellbeing among Japanese students. The study compared SOC levels of students taken at baseline in their first year to levels taken in their second year and found that even though differences were not found on the baseline measures for both genders there were differences with regard to variables measuring academic performance and career decision where females scored higher than males whereas males emerged superior to females on measures of psychosomatic symptoms and general health. This implies that gender differences may be a function of the effects of how males and females deal with specific life experiences. An investigation of the role of risk and protective factors on the promotion of SOC among female and male adolescents found that exposure to both experiences yielded the same SOC effect for both genders (Evans et al., 2009). Bothmer and Fridlund (2003) however found that personality seems to play a role in SOC manifestation, their study revealed a high positive association between SOC and self rated health among females than males and a

negative correlation in Type A personalities of both genders. Considering that there seems to be some majority consensus regarding SOC invariance by gender and some minority findings regarding this aspect it can be argued that there is a need for more longitudinal studies examining this aspect among students to determine the need and usefulness of intervention measures that take into account gender differences.

2.2.7. Sense of Coherence relative to age

Noting that SOC is said to be a malleable construct that gets developed from childhood and stabilizing in early adulthood, and that it is a product of a balance between risk and protective factors (Feldt et al., 2007), researchers have been curious to understand its development and manifestation and effects across age groups. Regarding age, studies have found that across all developmental periods, SOC influences and predicts specific factors such as behaviour in general and health behaviour in particular (Binkowska-Bury & Januszewicz, 2010), capacity to negotiate developmental milestones (Antonovsky & Sagi, 2001) as well as development and recovery from psychopathologies and illnesses (Poppius, 2007). Among adolescents, who are arguably the majority in student populations, studies suggest that a strong sense of coherence predicts a range of positive health behaviours. In a study of adolescents' health behaviours and social competence Mattila et al. (2011) found that those with a strong SOC perceived themselves as having better control over their lives, kept company with peers who engage in constructive leisure activities, sought strong social support, tended to adopt a positive outlook on life, reported higher self esteem and displayed positive and optimistic appraisal of challenges; the results also revealed that those with a strong SOC were less likely to engage in unhealthy behaviours such as excessive smoking and drinking and took better care of themselves with regard to hygiene factors such as oral care. Among the adult group, studies generally report similar findings with

egard to SOC effects, development and manifestation. However, some studies like Feldt, eskinen, Kinnunen and Ruoppila (2003) have cast doubts on SOC development and stability mong adults, this study (done in Finland) compared baseline SOC levels of two age groups (25-19) and (35-40) at two different time points over a five year period and found that the stability oefficients of both groups remained the same over the study period and also found no lifferences in their SOC stability concluding that age did not influence SOC mean changes, evels or stability. In another study investigating prevalence of psychopathologies and the use of nental health services among 18 year old males who enlisted for military service in Finland, istkari et al., (2005) confirmed SOC effects on the development or amelioration of lysfunctional behaviours such as illicit drug use, suicidality and several other psychopathologies nd affirmed SOC as a useful moderator of behaviour and as a useful tool that can be used in linical practice and as an epidemiological research tool.

.2.8. Sense of Coherence among students in different study fields

itudies (; Binkowska-Bury & Januszewicz, 2010; Tartas, Walkievicz, Majkovikz & Budzinski, 011, Wilks & Spivey, 2010) suggest that in general all students experience academic stress, owever the stress levels may be more for certain fields than others largely due to the uniqueness f challenges and differences in the training processes pertinent to specific study fields. Given hese observations researchers have investigated the manifestation of SOC within different cademic fields to establish the existence and extent of differences in the SOC experiences of tudents in different study fields. Examining stress and resilience among social work students Vilks and Spivey (2010) found that, in addition to stressors such as time management, finances, xam participation and role juggling that seem common to all students, social work students xperience anxiety about placement for practicals and have concerns over expectations about

social work as a helping profession. They suggest that the enormity of the stress experienced during social work training seems to exceed that experienced by professionals already practising in the field. They conclude by emphasizing the importance of support systems for students in this field not only to help them navigate the challenges of social work education but to prepare them for the demands of the profession. While SOC was found to be one of the key determinants of health in a survey of factors influencing health among students at a Hungarian university, medical students were found to experience the highest levels of stress and depression compared to other students, implying that the SOC levels of medical students required the most attention, more so because they are training to become custodians of health for the general population (Biro, Baljti, Adani & Kosa, 2010). According to Rabin, Matalon, Maoz and Shiber (2005) medical professionals work in demanding and sometimes chaotic environments where they are often required to make decisions in a short period of time and these factors induce stress and burnout, hence it is justly warranted that their SOC strength be developed to prepare them to deal better with future occupational challenges. Lending support to the importance of boosting the SOC levels of students, Tartas et al., (2011) in a study tracking the SOC manifestation of medical students over a ten year period from admission to professional practice found that SOC not only predicts academic achievement during the period of study but also predicts professional competency during the period of practice.

2.2.9. Sense of Coherence in students at different levels of study

Drawing from findings regarding differences in SOC experiences of students in different academic fields it seems conceivable that such differences may also exist at different levels of study because of factors such as course content complexity and familiarity with the university environment; for instance levels of experience in first and subsequent years of study are expected

to differ. Most studies examining SOC and adjustment to university have focused on one or two levels of study with the majority being on first year students' experiences. Studies have examined a wide range of issues such as how SOC facilitates well being and academic success (Togari et al. 2008), the role of social support from significant others in strengthening student SOC (Sommer & Dumont, 2011), the quality of student engagement with faculty, peers and other institutional systems (Mehdinezhad, 2011), student attitudes towards help-seeking and the utilization of support services like counselling (Oluyinka, 2011). There is evidence of SOC and well being variance across study levels. In a study by Cooke et al., (2006) baseline measures of first year students were taken on commencement of tertiary studies and measured again at different time points during the same year and it was found that there were fluctuations in SOC levels but that at the end of the given year none of the students had maintained their baseline SOC measures. This implies that students move into subsequent study levels with reduced levels of wellbeing. This finding lead to the conclusion that the start of tertiary studies impacts student well being negatively and this was attributed to student concerns over matters such as academic performance, interpersonal relations and finance. This finding also underscores the need for intervention strategies and other measures to enhance student well being. While one could be tempted to assume that due to familiarity with the university environment students would be wiser and adopt better coping strategies as they move into higher levels this finding suggests that this may not necessarily be the case especially taking into account the findings in studies discussed earlier showing that students face challenges of different complexities in their different fields of study. To further illustrate differences in student SOC and well being levels, a South African study on the well being of postgraduate students by Smith (2007) found that most students in that study returned above average mean scores on SOC; however the study also

identified a considerable number that were presenting with symptoms of psychopathology. Comparisons of SOC levels among study levels was also done in a Japanese study comparing baseline measures of first and second students year students with changes noted in third and fourth years of study (Togari et al., 2008). This study revealed that SOC variability predicted levels of well being after the two year period. Given the above findings it would seem that SOC varies across study levels hence the need for an understanding of specific issues that influence variances is justified in order to inform the formulation of differentiated and targeted intervention measures to help students at different levels to cope better with challenges and to enhance their chances of successful adjustment.

2.3. The Ryff six factor model of psychological well-being (RSPWB)

According to Ryff (1989) the development of this model was conceived out of the need for theoretically grounded measures to delineate factors that are critical to optimal human functioning and the promotion of positive human health. In this model Ryff conceptualizes psychological wellbeing as being founded upon six theoretically driven dimensions of human functioning namely; autonomy, self acceptance, positive relations, purpose in life, personal growth and environmental mastery. Several theoretical and philosophical underpinnings such as self actualization by Maslow, Carl Rogers' fully functioning person, Jung's concept of individuation, Allport's idea of a mature person and Eriksson's formulation of developmental stages informed the framework upon which the model was developed (Ryff & Keyes, 1995). Arguments advanced by Ryff in formulating the model show that she sought to address the concerns about factors that are critical in promoting human positive health and optimal functioning and as Keyes, Shmotkin and Ryff (2002) noted, the concept of psychological well being addresses issues of human development and the resolution of existential challenges.

Studies (Burns & Machin, 2009, Ryff & Springer, 2006, van Dierendonck et al., 2008) show that there is widespread confirmation that the construct of psychological well being as envisaged by the Ryff scale is related to a range of outcomes including biological indicators, successful transition in later life as well as counseling and interventions. The model's applicability to issues of transition or adjusment, better counseling interventions and its utility in health promotion are of relevance to the current study and lend justification for the use of the scale as an indicator of adjustment to university. The model also covers the concepts reflected in the theoretical frameworks of student adjustment theories discussed in the literature review.

Chapter 3: Methodology

3.1.Study design

The study was conducted by means of a cross sectional survey, a one-shot or status study that samples various segments of a population at a particular time in order to determine the prevalence of a phenomenon or situation (Kumar, 2005). The choice was informed by the fact that surveys have been found to be cost effective methods of research with regard to time and data collection (Fox & Bhayat, 2007).

3.2. Participants

Participants in the study were male and female students in the fields of Psychology and Social Work (Faculty of Human and Social Sciences) at the Mafikeng campus of the North West University (NWU) which is the second largest of three campuses that make up the NWU. Due to time and resource constraints it would not have been efficient to draw participants from the other Faculties (Law, Commerce & Administration, Science & Technology, Education and Theology), the inclusion and exclusion criteria was therefore dictated by time and resource constraints.

A total of 216 (male 86 and female 130) students representing five study levels ranging from age 16 to over 30 years participated in the study. The majority of participants (60.2%) were in the age group 21 to 24 followed by age group 25-30+ (20.8%) and the least represented category with 19% was the 16-20 age group (see figures 1, 2 and 3 below). The grouping was done to facilitate comparison of SOC effects.

Figure 1 – Bar Chart of frequencies according to gender
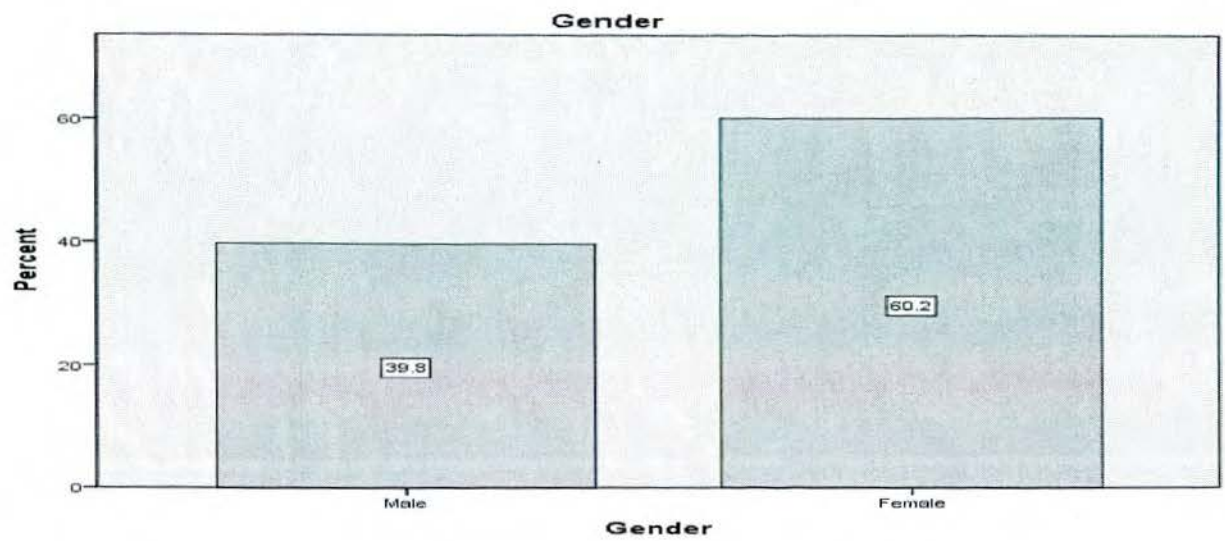
Figure 2 – Bar Chart of frequencies of participants according to age groups
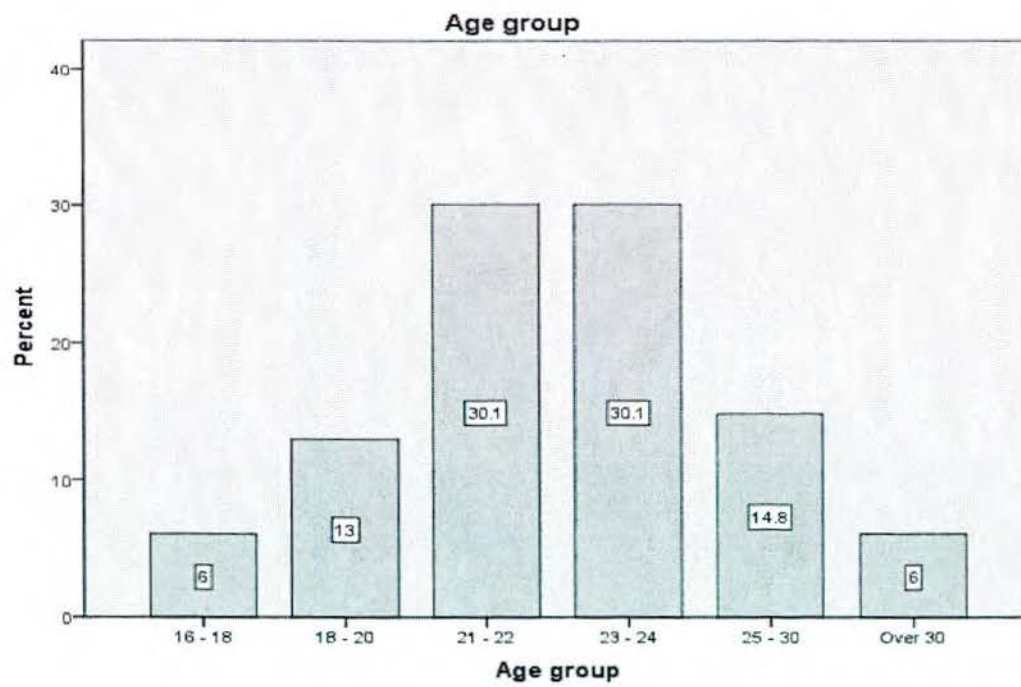
Figure 3 – Bar Chart of frequencies of participants according to levels of study
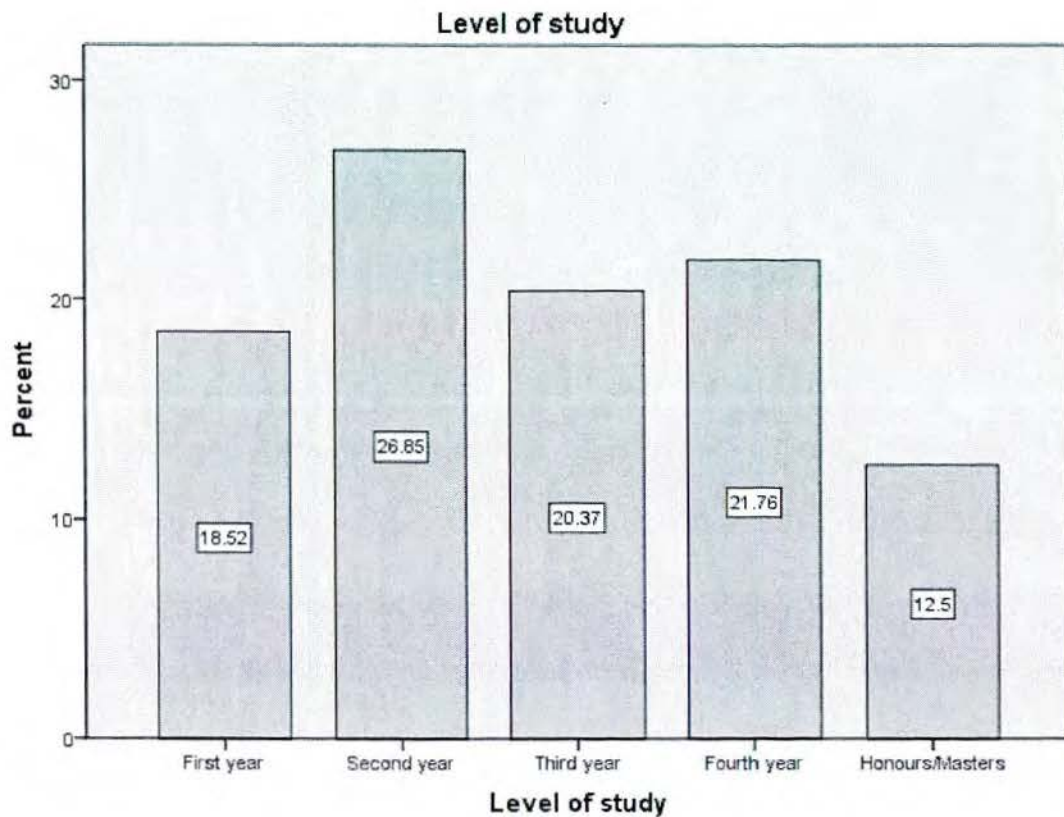
3.3.Sampling

Random sampling, a probability sampling strategy where subjects are systematically chosen from different facets of the broader population in a manner that accords each subject an equal chance of being selected for participation in the study (Maree, 2007; Weathington et al., 2010) was used. Arrangements were made with lecturers of selected classes to address students and to request their participation in the study. A list of willing participants in each class was compiled with each participant represented by a number so as to ensure anonymity and facilitate random selection of participants to constitute the required sample.

3.4. Instruments

Data was collected using the 29 item Sense of Coherence Scale (SOC-29)/Orientation to Life Questionnaire by Antonovsky (see Appendix B) as well the 54 item version of the Ryff's six factor model of psychological well being (RSPWB-54) (see Appendix C). The demographic questionnaire (Appendix D) sourced information about participants' gender, age group and study level.

3.4.1. Sense of Coherence/Orientation to life

The 29 item version of Antonovsky's sense of coherence scale (SOC-29) was used to measure students' orientation to life, which reflects the extent to which they find their experiences comprehensible, manageable and meaningful such that they find it worthy to invest their energies towards pursuing and overcoming the associated challenges. The psychometric properties of the scale are outlined below.

The SOC-29 has three subscales; the Comprehensibility subscale composed of 11 items, the Manageability subscale comprising 10 items and the Meaninfulness scale with 8 items. Participant responses are rated on a 7 point Likert scale with two anchoring phrases. Full scale scores range from 29 to 203 and 13 of the items are reverse scored to counter the effects of response sets (Breedt, Cilliers & Visser, 2006). Low scores denote a weak sense of coherence and high scores denote a strong sense of coherence. In a South African study comprising a sample of 550 participants of different racial and age groups drawn among university students, some organizations and residences of the aged, Wissing and van Eeden (2002) found that the full scale yields alpha coefficients in the range of .78 to .93. An American study of undergraduate

students by Hittner (2000) yielded alphas in the following ranges for the three subscales; Comprehensibility, .83, Manageability .83 and Meaningfulness, .87.

The SOC scales assess an individual's global world view or orientation to life which is reflected by the extent to which the individual is able to make sense of a mixture of experiences in their lives, to use available resources to structure their environment in a manner that is predictable and explicable and to find meaning and purpose in their lives. According to Klepp et al. (2007) individuals with high sense of coherence scores have been found to have resilience and a positive subjective state of health and to view their world experiences as challenges that should be dealt with in order to achieve optimal functioning. On the other hand those with low scores are likely to have a negative outlook on life and to experience negative emotionality and vulnerability to psychopathology such as anxiety, depression, burnout and hopelessness (Binkowska-Bury & Januszewicz, 2010).

Most studies have used the instrument to investigate the determinants of health in general and psychological well being in particular (Suresky, Zauwszniewsky & Bekhet, 2008; Pallant & Lae, 2002; Eriksson & Lindstrom, 2005/6; Klepp et al., 2007).

Reviews done by Eriksson and Lindstrom (2005 & 2006) have shown that the scales are valid and reliable across cultures, having been translated into 33 languages across 32 countries including South Africa where Wissing, et al. (2010) adapted and validated the Setswana version of the scales.

3.4.2. The Ryff scales of psychological well-being (RSPWB)

The 54-item version of the six factor model of psychological well being by Ryff was used as a measure of student level of psychological well being, taken as the equivalent of adjustment. The items are spread equally, 9 items for each of the six subscales with a total of 54.

Participant responses are rated on a 6 point Likert scale and 28 of the items are reverse scored to counter the effects of participant response set. The instrument is a self report measure of psychological well being that explores an individual's level of functioning in areas of autonomy, self acceptance, positive relations with others, environmental mastery, purpose in life as well as personal growth (Abbott, Poubidis, Huppert, Kuh & Croudace, 2010; Strausser, Lustig & Ciftci, 2008). Ryff (1989), provide the following description of each of the six subscales;

Autonomy; individuals are said to be strong on this construct if they show a high degree of self determination and independence, are able to resist social pressures to think and act in certain ways, display a high internal locus of control and evaluate themselves by their own personal standards. By contrast individuals weak on autonomy are concerned about expectations and evaluations of others, rely on the judgement of others to make important decisions and always feel pressured to think and act in line with wider social norms and values.

Self acceptance; individuals with high scores on this construct are said to display a positive attitude toward self, to acknowledge and accept multiple aspects (good and bad) of self and to feel positive about their past. A negative appraisal on this construct is given when individuals manifest dissatisfaction with self, are disappointed with their past, are troubled about some personal qualities and generally wish they were different from what they are.

Positive Relations with others, a positive appraisal on this construct denotes people who are capable of maintaining warm, satisfying and trusting relationships with others and have a good understanding of the give and take of human relations. A negative appraisal describes a person who has few warm, positive and trusting relations with others, is isolated and frustrated in personal relations and finds it difficult to open up and make compromises to maintain important ties with others.

Environmental Mastery describes an individual's ability to manage their environment, control a complex array of activities, make effective use of available opportunities as well as to choose and create contexts that suit personal needs and values. A negative appraisal denotes people who have difficulty managing their affairs, feel unable to change their surrounding context and lack control over the external world.

Purpose in Life deals with the ability to set personal goals, aims and objectives and to have direction in life, ability to find meaning in past and present life as well as to hold beliefs that give purpose to one's life.

Personal growth; a positive appraisal on this construct identifies an individual with feelings of continued development, who constantly seeks expansion and growth, is open to new experiences and shows signs of changes reflecting self knowledge and effectiveness. A sense of personal stagnation, lack of improvement and expansion, boredom and lack of interest with life and feelings of inability to develop new attitudes and behaviours characterize individuals who are weak on this construct.

Validity of the Ryff scales has been tested and confirmed in numerous studies such as factor analysis, well being correlates across time change, sociodemographic correlates of well being,

biological correlates of well being and intervention studies relating well being to psychological disorders (Ryff & Singer, 2006).

In their study involving disabled students' adjustment to college, Lustig et al., (2000) found the instrument to be a valid and reliable measure of wellbeing and adaptation to a life transition while Liu et al., (2009) also confirmed the validity of the measure in their study of depression and anxiety in Japanese university students. Studies (Akin, 2008; Seifert, 2005; Strausser, Lustig & Ciftci, 2008) give the following indications of the Cronbach alpha co-efficients for the six subscales, each made up of nine items;

Subscale	Alpha coefficient
Autonomy	.86
Environmental mastery	.90
Personal growth	.87
Positive relations with others	.91
Purpose in life	.90
Self acceptance	.93

Seifert (2005) acknowledges that the Ryff scale is a valid and reliable measure of psychological wellbeing which can be help universities understand the degree to which their students are self accepting, are pursuing meaningful goals with a sense of purpose, are able to establish quality ties with others, are autonomous in thought and action, possess the ability to manage complex environments for their benefit and continue to grow and develop.

3.5.Procedure

The scales and demographic details questionnaire accompanied by the introductory letter explaining the purpose of the study were distributed to students across study levels. Arrangements were made with lecturers of the selected classes for the researcher to address students in order to explain the purpose of the study, request student participation and distribute material to consenting students. With the help of research assistants the questionnaires were then administered to the selected and consenting participants. As not all students could stay to complete the questionnaires arrangements were made with those participants who could not complete the questionnaires immediately to hand in the completed questionnaire in their next lecture period where the researcher or assistants would be present to collect them. It took most participants approximately 15 minutes to complete the questionnaires. A total of 300 questionnaires were distributed however only 216 were returned fully completed.

3.6.Analysis of data

The aim of this study examine the relationship between SOC and psychological well being and to determine whether there are differences in this relationship based on gender, age and study level. The Statistical Programme for Social Sciences (SPSS-16) was used to compute descriptive statistics of the sample (frequencies, means and standard deviations) and to perform the following statistical procedures in an attempt to answer the research questions.

In relation to the first question seeking to establish whether there is a significant relationship between SOC and psychological well being, Zero order intercorrelations and Pearson correlations were perfomed. To answer the second question (Is there a significant main and interactive effect of gender and SOC on psychological well being) a 2-way ANOVA was

performed to test between subject effects. The third question relating to the effect of age on psychological well being was addressed by performing a One-way ANOVA. One-way ANOVA was again employed to answer the third question (Is there a significant main effect of study level on psychological well being).

3.7.Ethical considerations

Pertinent ethical issues in conducting research include the following (Fox & Bhayat, 2007); openness and honesty about sources of information used and gathered while conducting the research, permission to conduct research, obtaining consent from the participants, ensuring privacy and confidentiality, handling of data, the use and publication of research findings. These issues were dealt with as follows;

Authorisation and permission to conduct research – the proposal was presented to the research committee for sanctioning and ethical approval (see appendix F). Following approval by the committee data was collected using the demographic details questionnaire and the two instruments namely SOC-29 and RSPWB-54 accompanied by the introductory letter which solicited the co-operation of students and also dealt with informed consent.

Confidentiality and privacy – participants were only required to indicate their gender, age and level of study thus ensuring that their identity is protected.

Informed consent – the introductory letter (see Appendix E) accompanying the scales clearly stated the purpose of the study and emphasised that participation is voluntary and that participants could withdraw at any point if they felt uncomfortable.

Chapter 4: Results

4.1. Introduction

The results presented in this chapter are structured according to the objectives of the study which sought to; determine whether a relationship exists between students' sense of coherence (SOC) and their adjustment to the university environment using psychological well-being as a measure of adjustment; establish whether there is a main and interactive effect of gender and SOC on psychological well-being and adjustment; determine whether there is a significant effect of age and SOC on psychological well-being and adjustment and finally to determine whether there is a significant effect of study level on psychological well-being and adjustment. The study uses psychological well-being as a measure of adjustment and SOC as a measure of students' life orientation which is a reflection of the level to which they find their university experience to be comprehensible, manageable and meaningful. The Ryff scales measure the individual's ability to think and act autonomously, to relate positively with others, to make optimal use of the resources at their disposal, to accept themselves, to find purpose in their lives and to use their life experiences as opportunities for self development and growth (Strausser, Lustig & Ciftci, 2008). Ryff (1989) notes that positive human health derives from philosophical underpinnings that recognize the primacy of having purpose in life, quality connections with others as well as having self regard and mastery. It was hypothesized that a relationship would exist between the two measures and that there would be variances on the effects of SOC on psychological well-being based on gender, age and study level.

Correlations as well as One-way and Two-way ANOVA were carried out in order to answer the research questions referred to above and the results are presented below.

Zero order correlations were done to respond to the first question (Does SOC have a significant relationship with psychological well-being), the results as presented in Tables 1 and 2 below show that the relationship between the two measures is not significant.

Table 1 – Zero order inter-correlations among variables

	N	Mean	SD	1	2	3	4	5	6	7	8	9	10
1.EM.	216	26.0	5.5										
2.PG	216	21.8	5.4	.49*									
3. PR	216	21.5	4.7	.72*	.72*								
4.PL	216	25.1	3.4	.42*	.66*	.57*							
5.SA	216	21.3	4.4	.76*	.69*	.76*	.60*						
6.COM	216	9.5	2.7	.03	-.01	-.03	-.05	.06					
7.MAN	216	21.9	4.8	.06	.04	.04	-.02	.09	.44*				
8.ME	216	39.8	7.3	.01	-.05	-.05	.01	.05	.57*	.51*			
9.PWB	216	115.8	20.0	.82*	.85*	.90*	.74*	.91*	.01	.05	-.01		
10.SOC	216	71.3	12.5	.03	-.02	-.02	-.01	.08	.73*	.79*	.91*	.01	

* Correlation is significant at the 0.01 level (1-tailed). The results in table 1 above show no

relationship between SOC and PWB

Table 2 – Summary of Pearson-r correlations showing the relationship between SOC and

PWB/adjustment

Variables	N	Mean	SD	r	P
PWB	216	115.82	20.02	0.013	Not
SOC	216	71.33	12.53		significant

Table 2 above shows that there is no significant relationship between PWB and SOC (r (215) = .013: $p > .05$).

Figure 1

Normal P-P Plot of Regression Standardized Residual

Dependent Variable: PWB
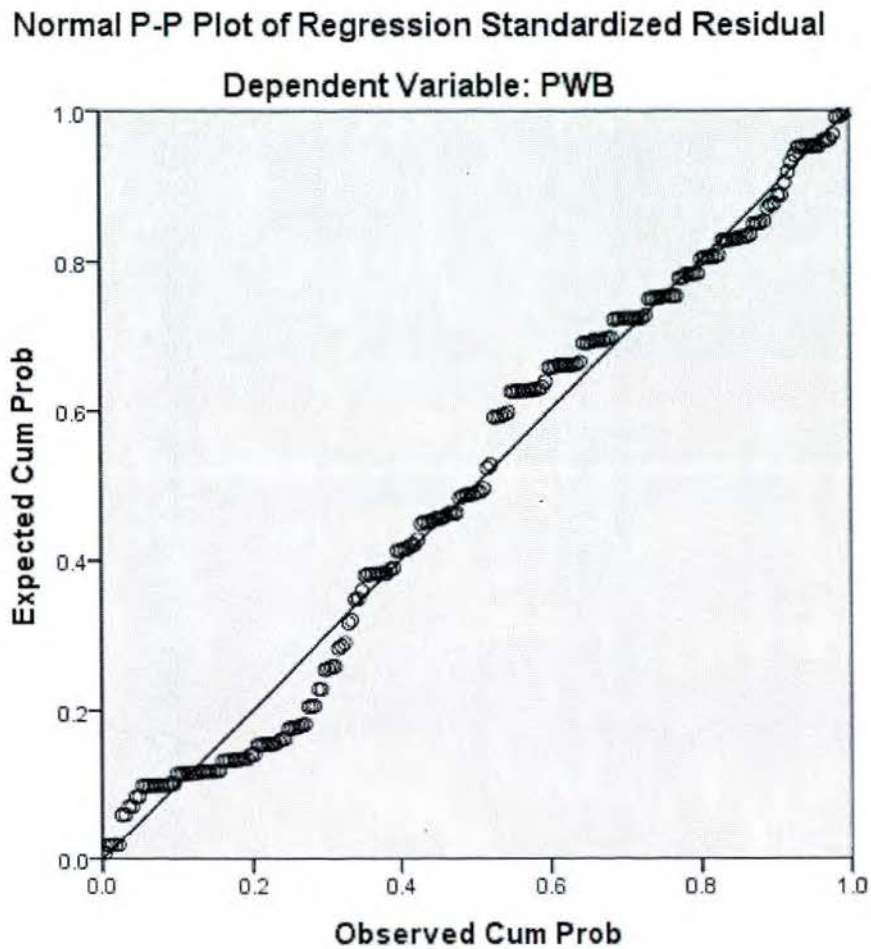
With regard to the second research question (Is there a significant main and interactive effect of gender and SOC on psychological well-being) a Two-way ANOVA was performed to test between-subjects effects and the results are presented in Table 3 below.

Table 3 – Summary of Two-way ANOVA showing main and interaction effects of gender and SOC on PWB/adjustment

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	402.671(a)	3	134.224	.332	.802
Intercept	2232126.159	1	2232126.159	5517.036	.000
Gender	240.477	1	240.477	.594	ns
SOC_CURR2	41.829	1	41.829	.103	ns
Gender * SOC_CURR2	11.847	1	11.847	.029	ns
Error	85772.644	212	404.588		
Total	2983862.000	216			
Corrected Total	86175.315	215			

The results in the table above show that there are no significant main and interaction effects of gender and SOC on PWB ($F_{(3.212)} = .029: p > .05$)

The study further sought to examine the effect of age on psychological well-being and adjustment for which a One-way ANOVA was performed, the results of which are presented in Tables 4 and 4a.

Table 4 – Summary of One-way ANOVA showing the effects of age on PWB

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	15339.927	5	3067.985	9.095	<.05
Within Groups	70835.387	210	337.311		
Total	86175.315	215			

The results in table 4 above show that age has a significant effect on PWB/adjustment ($F_{(5.210)}: F = 9.095: p < .05$).

Table 4b – Multiple comparisons of age groups on PWB

LSD

(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.
		Lower Bound	Upper Bound	Lower Bound
16-18yrs	19-20yrs	-18.45604(*)	6.16392	.003
	21-22yrs	-20.92308(*)	5.58000	.000
	23-24yrs	-27.44615(*)	5.58000	.000
	25-30yrs	-33.16587(*)	6.04053	.000
	over 30yrs	-39.00000(*)	7.20375	.000
19-20yrs	16-18yrs	18.45604(*)	6.16392	.003
	21-22yrs	-2.46703	4.15166	.553
	23-24yrs	-8.99011(*)	4.15166	.031
	25-30yrs	-14.70982(*)	4.75266	.002
	over 30yrs	-20.54396(*)	6.16392	.001
21-22yrs	16-18yrs	20.92308(*)	5.58000	.000
	19-20yrs	2.46703	4.15166	.553
	23-24yrs	-6.52308(*)	3.22162	.044
	25-30yrs	-12.24279(*)	3.96616	.002
	over 30yrs	-18.07692(*)	5.58000	.001
23-24yrs	16-18yrs	27.44615(*)	5.58000	.000
	19-20yrs	8.99011(*)	4.15166	.031
	21-22yrs	6.52308(*)	3.22162	.044
	25-30yrs	-5.71971	3.96616	.151
	over 30yrs	-11.55385(*)	5.58000	.040
25-30yrs	16-18yrs	33.16587(*)	6.04053	.000
	19-20yrs	14.70982(*)	4.75266	.002
	21-22yrs	12.24279(*)	3.96616	.002
	23-24yrs	5.71971	3.96616	.151
	over 30yrs	-5.83413	6.04053	.335
over 30yrs	16-18yrs	39.00000(*)	7.20375	.000
	19-20yrs	20.54396(*)	6.16392	.001
	21-22yrs	18.07692(*)	5.58000	.001
	23-24yrs	11.55385(*)	5.58000	.040
	25-30yrs	5.83413	6.04053	.335

* The mean difference is significant at the .05 level.

The results in table 4b above show that there are significant differences in PWB relative to age.

Results of a One-way ANOVA performed to test the significant main effect of study level on

psychological well-being and adjustment are presented in Tables 5 and 5b.

Table 5 – Summary of Oneway ANOVA showing the effects of study level on PWB

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	21524.004	4	5381.001	17.562	**<.05**
Within Groups	64651.310	211	306.404		
Total	86175.315	215			

The results in table 5 above show that level of study has significant effect on PWB/adjustment

$(F (4.211):17.56: p < .05)$.

Table 5b – Multiple comparisons of differences in PWB regarding study levels

LSD

(I) Level of study	(J) Level of study	Mean Difference (I-J) Lower Bound	Std. Error Upper Bound	Sig. Lower Bound
First year	Second year	-10.34828(*)	3.59763	.004
	Third year	-9.17273(*)	3.82411	.017
	Fourth year	-17.07021(*)	3.76555	.000
	Postgraduate	-34.90000(*)	4.35986	.000
Second year	First year	10.34828(*)	3.59763	.004
	Third year	1.17555	3.49951	.737
	Fourth year	-6.72194	3.43541	.052
	Postgraduate	-24.55172(*)	4.07813	.000
Third year	First year	9.17273(*)	3.82411	.017
	Second year	-1.17555	3.49951	.737
	Fourth year	-7.89749(*)	3.67192	.033
	Postgraduate	-25.72727(*)	4.27926	.000
Fourth year	First year	17.07021(*)	3.76555	.000
	Second year	6.72194	3.43541	.052
	Third year	7.89749(*)	3.67192	.033
	Postgraduate	-17.82979(*)	4.22700	.000
Postgraduate	First year	34.90000(*)	4.35986	.000
	Second year	24.55172(*)	4.07813	.000
	Third year	25.72727(*)	4.27926	.000
	Fourth year	17.82979(*)	4.22700	.000

* The mean difference is significant at the .05 level. The results in table 5 above show that there

are significant differences in the PWB of students at different levels of study.

Table 6 Descriptive statistics of participants by age group

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Age group	216	1	6	3.53	1.239

Chapter 5: Discussion

5.1. Introduction

The discussion of results in this section is structured in line with the primary objective of the study which is to explore the relationship between sense of coherence and student psychological well-being and adjustment to university with a specific focus on gender, age and levels of study. The study considered the students' level of psychological well-being as a measure of their adjustment using the Ryff six factor psychological well-being scales (RSPWB). It was hypothesized that there would be a significant relationship between the two measures and that SOC and psychological wellbeing levels would vary based on gender, age and study level. The research questions that this study sought to answer related to; whether a relationship exists between sense of coherence and student psychological well-being and adjustment and whether differences exist relative to age, gender and level of study. Analysis of the collected data was done using descriptive statistics (frequencies, means and standard deviations) and inferential statistics (correlations and variance measures).

5.2.Sense of Coherence and student psychological well-being and adjustment

The results of zero order correlations carried out to determine the relationship between SOC and PWB suggest that the relationship between the two constructs is not significant. This finding is in contrast to the literature which confirms a significant relationship between SOC and well-being correlates such as satisfaction with life, quality of life as well as general health and well-being (Smith, 2007) including personal dispositions like resilience, optimism and locus of control, showing that SOC levels influence peoples' general functioning and life appraisal tendencies. Research also confirms that people high on SOC appraise life challenges positively and will

strive to find adaptive strategies to cope with and overcome difficulties in their environment whereas those low on SOC seem to adapt and deal poorly with challenges. Similarly, findings about the RSPWB confirm that people who score favourably on the scales have been found to be high functioning individuals who can handle challenges effectively whereas low scorers are inclined to adapt poorly and to be vulnerable to numerous psychopathologies (Auhagen, 2000; Mascaro & Rosen, 2005). For instance, using the two instruments to investigate the adjustment of students with disabilities, Lustig et al., (2000) found a positive correlation of ($r= .87$, $p<.01$) and confirmed that the scales accounted for a notable variance on adjustment. The contrasting result found in the current study may be attributed to the fact that most studies have not directly performed correlations using the SOC scale and the RSPWB scale but have instead examined associations between SOC and related health and well-being aspects such as satisfaction with life, quality of life, self efficacy and optimism which are known to influence health and well-being, using instruments other than the RSPWB..

5.3. Gender, Sense of Coherence and psychological well-being and adjustment

Results of the two-way ANOVA performed to measure SOC differences by gender show that there were no differences. Even though this finding seems to be in line with literature in general (Eriksson & Lindstrom, 2005; Klepp et al., 2007, Grayson, 2007 & Meiring, 2010) there are some studies that have recorded gender differences (Raty, et al., 2005; Togari et al., (2008). It would seem however that the differences reported are mainly the function of effects of specific behavioural and environmental aspects which males and females tend to experience differently. For instance in the Togari et al. study no differences were found in the general SOC levels of males and females, instead differences were noted regarding how SOC influences certain behaviours between males and females. Implied in this finding is that a better understanding of

the effects of SOC on the behaviours of male and female students is critical particularly when it comes to intervention and the provision of appropriate SOC enhancing support structures within the university.

5.4. Age relative to psychological well-being and adjustment

The study reveals significant effects of age on psychological well-being with a probability value of $p<.05$. Participants in the study were categorized into six age groups (16-18, 19-20, 21-22, 23-24, 25-30 and over 30). Descriptive statistics of the participants show a mean of 3.53 with a standard deviation of 1.239 which suggests that most participants were in the 21 to 24 age groups.

Differences were noted in the majority of age groups with evidence of variations in age groups between 16 and 25 and higher levels of psychological well-being in older students. When related to SOC development relative to age, this finding confirms at least two observations about SOC; that SOC is a developmental construct which stabilizes towards early adulthood stages and has been shown to correlate with general well-being in both negative and positive directions (Richardson et al., 2007) and that more variations in SOC stability seem to occur during the adolescence period (Antonovsky & Sagy, 2001) including age groups younger than 30 (Richardson et al., 2007).

5.5. Level of study and student psychological well-being and adjustment

Study level seems to have a significant effect on psychological well-being according to the results of this study. There is evidence of variance across levels with postgraduates accounting for the largest variance, having registered the highest mean levels of psychological well-being relative to other levels. This finding suggests that it may be important to understand how student

well-being is being affected as students move through different study levels. The importance of such a strategy was demonstrated by Cooke et al., (2006) in a study of baseline measures of first year students where it was found that the start of tertiary studies has a huge impact on student well-being as a result of student concerns over matters such as academic performance, interpersonal relations and finance. The latter study also took measures of student well-being at four different time points within a year and recorded fluctuations in well-being levels; most importantly the study found that well-being levels never returned to their baseline levels, which implies that student move into subsequent study levels with reduced levels of well-being. This underscores the need for intervention strategies and other measures to enhance student well-being. While one could be tempted to assume that due to familiarity with the university environment students would be wiser and adopt better coping strategies as they move into higher levels; this finding suggests that this may not necessarily be the case, especially taking into account the findings in studies discussed earlier showing that students face challenges of different complexities in their different fields of study. To further illustrate variance in well-being levels, a South African study on the well-being of postgraduate students (Smith, 2007) produced results similar to our current finding; most students in that study returned above average mean scores on SOC and average scores on other measures of subjective well-being however the study also identified a considerable number that were presenting with symptoms of psychopathology. Comparisons of SOC levels among study levels was also done in a Japanese study comparing baseline measures of first and second students year students with changes noted in third and fourth years of study (Togari et al., 2008). This study revealed that SOC variability predicted levels of well-being after the two year period. The current study was explorative in

nature however it confirms most of the findings in literature that there is variability in SOC levels at different levels of study.

Given the above findings it would seem that SOC certainly varies across study levels hence an understanding of specific issues that influence variances is justified in order to inform the formulation of differentiated and targeted intervention measures to help students at different levels to cope better with challenges and to enhance their chances of successful adjustment.

5.6. Implications of the study

This study has found that there is no significant relationship between SOC and psychological well-being and no gender differences in SOC manifestation but it has revealed variances regarding the psychological well-being of students by age and study level. There are several conclusions that can be drawn with regard to what these results imply. Firstly the study's failure to confirm what current literature suggests, that SOC and psychological well-being are significantly related may imply either that there was a methodological flaw or possibly a reflection of the effects of participant response sets. The second implication relates to variances in well-being experiences of students by age and study level. Regarding our context these findings have implications for support measures and intervention strategies to help students to strengthen their SOC levels and to enhance their well-being. Literature has revealed that students commence tertiary studies with varying degrees of psychological well-being (Cooke et al., 2006), arrive with different expectations of what the tertiary environment holds for them and carry different attitudes and approaches on how to deal with problems (Oluyinka, 2011) and further that there are different and unique challenges facing students in different fields of study (Wilks & Spivey, 2010; Biro et al., 2010), at different levels of study (Smith, 2007; Togari,

2008) as well as students with different kinds of disabilities (Lustig et al., 2000; Heiman, 2006). Studies by Chhoun, Kyratzis and Hudley (2010) and Grayson (2007) have also shown that students' ethnic and cultural diversity are also important elements that cannot be ignored when matters of intervention and support are considered. The current study simply took measures of student SOC and well-being but did not link these to any specific issues such as academic performance or student behaviour to measure effect outcomes and this has limited the power to draw conclusive arguments regarding the implications of its findings. Nevertheless taking into account the varied and unique circumstances and factors pertinent to student well-being and adjustment just highlighted above, literature has demonstrated that it is important for institutions to avail various kinds of support structures, strategies and resources in order to help students build their strengths and to deal with challenges within the university environment. In helping students enhance their SOC levels universities first need to know the SOC profile of students and Cooke et al., (2006) suggest taking baseline levels of students at the commencement of their study in order to identify those that are at risk and also to create a data base of the general well-being profiles of the wider student population. With this kind of knowledge it will be easier to decide on the kinds of intervention strategies that need to be put in place to deal with problems indicated by these profiles. It can also be added that having a data base reflecting an overview of students' general well-being levels would be an effective way to facilitate proactive and preventive intervention strategies by counselling units. From the health promotion and empowerment point of view and in line with the salutogenic framework which seeks to help people build their strengths and to move them towards the positive health and well-being pole of the health continuum, keeping such a data base would be a useful resource that could be relied on to inform strategic policy formulation regarding not only intervention but also attempts to

educate students about the usefulness of adopting positive health attitudes and seeking professional help not only for problems experienced but also to enhance their existing strengths. Given that SOC development is influenced by the availability of generalized resistance resources, the extent to which the individual's life experiences are characterized by consistency and a balance of diverse negative and positive experiences, as well as the opportunity to participate in deciding outcomes, educational and empowerment strategies and efforts to provide support resources will serve to empower students in building up their SOC profile.

5.7. Limitations of the study

Limitations of the current study relate to sampling, generalisation of the results to the wider student population, assertion of cause and effect and the exploratory nature of the study. Although students were randomly selected from different levels of study the selection of study levels was done on an availability basis; it may be that a more targeted selection would have produced a better sampling frame that is more representative of the wider population. This weakness in sampling therefore limits the power to generalize the results to the wider student population. The study was exploratory in the sense that it simply measured the SOC and psychological well-being of students but did not relate these to specific outcomes such as academic performance, specific psychopatholgies or specific student health behaviours. The study was further limited by the lack of participant demographics relating to ethnicity, marital status and socio-economic status. Future studies could therefore improve on the above weaknesses by linking SOC and psychological well-being levels to some of the above factors, sourcing salient demographic information which could impact on the findings and applying different statistical analysis methods.

References

Abbott, R.A., Ploubidis, G.B., Huppert, F.A., Kuh, D. & Croudace, T.M. (2010). An evaluation of the precision measurement of Ryff's Psychological Well-Being scale in a population sample. *Social Indices Research, 97*:357-373.

Akin, A. (2008). The scales of psychological wellbeing: A study of validity and reliability. *Educational Sciences: Theory & Practice, 8* (3): 741-750.

Antonovsky, A. (1987). Unravelling the mystery of health: How people manage stress and stay welll. San Francisco: Jossey-Bass.

Antonovsky, H. & Sagy, S. (2001). The development of a sense of coherence and its impact on responses to stress situations. *The Journal of Social Psychology, 126* (2): 213-225.

Auhagen, A.E. (2000). On the psychology of meaning of life. *Swiss Journal of Psychology, 59*(1): 34-48.

Baker, S.R., Siryk, B. (1984). Measuring adjustment to college. *Journal of Counselling Psychology, 31*(2): 179-189.

Baker, S.R. (2004). Intrinsic, Extrinsic and Amotivational orientations: their role in university adjustment, stress, well being, and subsequent academic performance. *Current Psychology, 23* (3): 189-202.

Becker, C.M., Moore, J.B., Whetstone, L., Glascoff, M., Chaney, E. Felts, M. & Anderson, L. (2009). Validity evidence for the salutogenic wellness scale. *American Journal of Health behavior, 33* (4): 455-465.

Becker, C.M., Glascoff, M.A. & Felts, W.M. (2010). Salutogenesis 30 years later: Where do we go from here? *International Electronic Journal of Health Education, 13*:25-32.

Bengtsson-Tops, A., Brundt, D. & Rask, M. (2005). The structure of Antonovsky's sense of coherence in patients with schizophrenia and its relationship to psychopathology. *Scandinavian Journal of Caring Sciences, 19*: 280-287.

Billings, J & Hashem, F. (2010). Salutogenesis and the promotion of positive mental health in older people. Paper presented at the EU Conference in Madrid, accessed from www.http://2010againstpoverty.eu.

Binkowska-Bury, M. & Janusziwcz, P. (2010). Sense of coherence and health related behavior among university students: A questionnaire survey. *Central European Journal of Public Health, 18* (3): 145-150.

Biro, E., Baljti, I., Adani, R. & Kosa, K. (2010). Determinants of mental well being in medical students. *Soc Psychiatry Epidemiologia, 45*: 253-258.

Botha, P.A. (2007). Development of a holistic wellness model for managers in tertiary institutions. Thesis for PhD (Organizational Behaviour) at the University of Pretoria.

Bothmer, M.I.K. & Fridlund, B. (2003). Self rated health among university students in relation to sense of coherence and other personality traits. *Scandinavian Journal of the Caring Sciences, 17*: 347-357.

Bowman, B.J. (1997). Cultural pathways towards Antonovsky's sense of coherence. *Journal of Clinical Psychology, 53*(2): 139-142.

Braun-Lewensohn, O. & Sagy, S. (2011). Salutogenesis and culture: Personal and community sense of coherence among adolescents belonging to three different cultural groups. *International Review of Psychiatry, 23* (6): 533-541.

Breedt, M.; Celliers, F & Visser, D. (2006). The factor structure of six salutogenic constructs. *SA Journal of Industrial Psychology, 32* (1): 74-87.

Burns, R.A. & Machin, M.A. (2009). Investigating the structural validity of Ryff's psychological well-being scales across two samples. *Social Indicators Research, 93*: 359-375.

Cecero, J.J., Beitel, M. & Prout, T. (2008). Exploring the relationship among early maladaptive schemas, psychological mindedness and self reported college adjustment. *Psychology and Psychotherapy: Theory, Research & Practice, 81*: 105-118.

Chemers, M.M., Hu, L. & Garcia, B.F. (2001). Academic self-efficacy and first-year college student performance and adjustment. *Journal of Educational Psychology, 83* (1): 55-64.

Chen, K-C. & Yang, S.J. (2010). Motivation in on-line learning: testing a model of self determination theory. *Computers in Human Behavior, 26*:741-752.

Chhoun, V., Kyratzis, A. & Hudley, C. (2010). Sources of coherence in the life stories of Cambodian women at university. *Journal of Language, Identity and Education, 9*:347-362.

Cohen, M., Ben-Zur, H. & Rosefeld, M.J. (2008). Sense of coherence, coping strategies and test anxiety as predictors of test performance among college students. *International Journal of Stress Management, 15* (3): 289-303.

Cooke, R., Berwick, B.M., Barkham, M. Bradley, M. & Audin, K. (2006). Measuring, monitoring and managing the psychological well being of first year university students. *British Journal of Guidance & Counselling, 34* (4): 505-517.

Davidson,O.B., Feldman, B.D. & Margalit, M. (2012). A focused intervention for first year students: promoting hope, sense of coherence and self efficacy. *The Journal of Psychology*, 2012, *146*(3): 333–352

Downey, V.P. (2005). An exploration of the adjustment processes of college freshmen student athletes and non athlete students. Thesis submitted for a D. Ed. (Physical Education) at the West Virginia University.

Dweck, C.S. (2000). Self-theories: Their role in motivation, personality and development. USA: Taylor & Francis

Edbom, T., Malmberg, K., Lichtenstein, P. Granlund, M. & Larsson, J-O. (2009). High sense of coherence in adolescence is a protective factor in the longitudinal development of· ADHD symptoms. *Scandinavian Journal of Caring Sciences, 24*: 541-547.

Edwards, S.D., Ngcobo, H.S.B. & Pillai, A.L. (2004). Psychological well being in South African university students. *Psychological Reports, 95*: 1279-1282.

Elias, H., Mahyuddin, R., & Noordin, N., (2008). Academic adjustment of university students in relation to achievement motivation and self-efficacy. Paper delivered at the International conference on Social Sciences and Humanities, 21-22 August 2008. Accessed from www.http://psasir.upm.edu.my/8882/.

Els, D.A. & De La Rey, R.P. (2006). Developing a holistic wellness model. *SA Journal of human Resource Management, 4* (2): 46-56.

Eriksson, M. & Lindstrom, B. (2005). Validity of Antonovsky's sense of coherence scale: a systematic review. *Journal of Epidemiological Community Health, 59*: 460-466.

Eriksson, M. & Lindstrom, B. (2006). Antonovsky's sense of coherence scale and the relation with health: a systematic review. *Journal of Epidemiological Community Health, 60* (5): 376-381.

Eriksson, M. & Lindstrom, B. (2008). A salutogeneic interpretation of the Ottawa Charter. *Health Promotion International, 23*(2): 190-199.

Evans, W.P., Marsh, S.C. & Weigen, D.J. (2009). Promoting adolescent sense of coherence: testing models of risk, protection and resiliency. *Journal of Community and Applied Social Psychology, 20*: 30-43.

Feldt, T., Leskinen, E., Koskenvuo, M., Suominen, S., Vahtera, J. & Kivimaki, M. (2010). Development of sense of coherence in adulthood: *The population based HiSSup cohort study. Quality of Life Research, 20*: 69-79.

Feldt, T., Leskinen, E., Kinnunen, U. & Ruoppila, I. (2003). The stability of sense of coherence: comparing to age groups in a 5-year follow-up study. *Personality & Individual Differences, 35*: 1151-1165.

Feldt, T., Metsapelto, R-L., Kinnunen, U. & Pulkkinen, L. (2007). Sense of coherence and Five-factor approach to personality: conceptual relationships. *European Psychologist, 12*(3): 165-172.

Fink, A. (2010). Conducting research literature reviews from the internet to paper 3rd ed. London: Sage Publications, Inc.

Fox, W. & Bhayat, M.S. (2007). A guide to managing research. Cape Town: Juta & Co.

Gan, Y., Hu, Y. & Zhang, Y. (2010). Proactive and preventive coping in adjustment to college. *The Psychological record, 60*: 643-658.

Grayson, J.P. (2007). Sense of coherence, problem freedom and academic outcomes of Canadian domestic and international students. *Quality in Higher Education, 13* (3):215-236.

Griffiths, C.A., Ryan, P. & Foster, J.H. (2011). Thematic analysis of Antonovsky's sense of coherence theory. *Scandinavian Journal of Psychology, 52*: 158-173.

Hakanen, J.J., Feldt, T. & Leskinen, E. (2007). Changes and stability of sense of coherence in adulthood: longitudinal evidence from the healthy child study. *Journal of Research in Personality, 41*: 602-617.

Heiman, T. (2006). Social support networks, stress, sense of coherence and academic success of university students with learning disabilities. *Social Psychology of Education, 9*:461-478.

Hirose, E.I., Wada, S. & Watanabe, H. (1999). Effects of self-efficacy on adjustment to college. *Japanese Psychological Research, 41* (3): 163-172.

Hittner, J.B. (2000). Novel ways for analyzing multifaceted personality scales: Sense of coherence and depression as an example. *The Journal of psychology, 134*(2): 199-209.

Hurtado, S. & Carter, D.F. (1997). Effects of college transition and perceptions of the campus racial climate on Latino college students' sense of belonging. *Sociology of Education, 70*: 324-345.

Joshanloo, M. & Ghaedi, G. (2009). Value priorities as predictors of hedonic and eudaemonic aspects of well being. *Personality and Individual Differences, 47*:294-298.

Kennett, D. J. & Keefer, K. (2006). Impact of learned resourcefulness and theories of intelligence on academic achievement of university students: An integrated approach. *Educational Psychology, 26*(3): 441-457.

Keyes, C.L.M., Shmotkin, D. & Ryff, C.D. (2002). Optimizing well-being: The empirical encounter of two traditions. *Journal of Personality & Social Psychology, 82* (6): 1007-1022.,

Kitsantas, A., Winsler, A. & Huie, F. (2008). Ability predictors of academic success during college: a predictive validity study. *Journal of Advanced Academics, 20*: 42-68.

Klag, S. & Bradley, G. (2004). The role of hardiness in stress and illness: an exploration of negative affectivity and gender. *British Journal of Health Psychology, 9*: 137-161.

Klepp, O.M., Mastekaara, A., Sorensen, T. Sandanger, I. & Kleiner, R. (2007). Structure analysis of Antonovsky's sense of coherence from an epidemiological mental health survey with a brief nine item sense of coherence scale. *International Journal of methods in Psychiatric Research, 16* (1): 11-22.

Koelen, M.A. & Lindstrom, B. (2005). Making healthy choices easy choices: the role of empowerment. *European Journal of Clinical Nutrition, 59* (1): S10-S16.

Krause, C. (2011). Developing sense of coherence in educational contexts: Making progress in promoting mental health in children. *International Review of Psychiatry, 23*(6): 525-532.

Kuh, G.D., Kinzie, J., Bridges, B.K. & Hayeck, J.C. (2006). What matters to student success: A review of literature. Commissioned report for the national symposium on postsecondary

student success: Spearheading a dialogue on student success. National Postsecondary Education Cooperative: USA

Kumar, R. (2005). Research methodology: a step by step guide for beginners, 2nd edition. London: Sage Publications.

Lackaye, T.D. & Margarit, M. (2006). Comparisons of achievement effort and self perceptions among students with learning disabilities and their peers from different achievement groups. *Journal of Learning Diabilities, 39* (5): 432-446.

Langeland, .., Riise, T., Hanestad, B.R., Nortvedt, M.W., Kristoffersen, K. & Wahl, A.K. (2005). The effects of salutogenic treatment principles on coping with mental health problems: a randomized controlled trial. *Patient Education & Counselling, 62*: 212-219.

Lindstrom, B. & Eriksson, M. (2006). Contextualising salutogenesis and Antonovsky in public health development. *Health Promotion International, 21* (3): 238 -234.

Liu, Q., Shono, M. & Kitamura, T. (2009). Psychological well-being, depression and anxiety in Japanese university students.

Lustig, D.C., Rosenthal, D.A., Strauser, D.R. & Haynes, K. (2000). The relationship between sense of coherence and adjustment in persons with disabilities. *Rehabilitaion Counselling Bulletin, 43* (3): 134-141.

Luyckx, K., Scwartz, S.J., Soenens, B., Vanstenkiste, M. & Goossens, L. (2010). The path from identity commitment to adjustment: motivational underpinnings and mediating mechanisms. *Journal of Counselling & Development, 88*: 52-60.

Makola, S. & Van den Berg, H. (2008). Value systems: What differentiates students with a "high" from those with a "low" sense of meaning? *International Journal of Existential Psychology & Psychotherapy, 2* (2)

Maree, K. (2007). First steps in research. Pretoria: Van Schaik.

Mascaro, N., Rosen, D.H. (2005). Existential meaning's role in the enhancement of hope and prevention of depressive symptoms. *Journal of Personality, 73* (4): 985-1014

Mattila, M-L. ; Rautava, P.; Honkinen, P-L.; Ojanlatvaa, A.; Jaakola, S.; Aromaa, M. et al. (2011). Sense of coherence and health behavior in adolescence. *Acta Paediatrica, 100*: 1590-1595.

Mattanah, J.F., Hancock, G.R., & Brand, B.L. (2004). Parental attachment, separation-individuation, and college student adjustment: A structural equation analysis of mediational effects. *Journal of Counseling Psychology, 51.* 213-225.

Mehdinezhad, V. (2011). First year student engagement at the university. *International Online Journal of Educational Sciences, 3*(1): 47-66.

Meiring, C.J., (2010). Just world beliefs, sense of coherence and proactive coping in parents with a child with autism. Thesis submitted in partial fulfillment of MA (Educational Psychology) at the University of Pretoria.

Nafziger, A., Couillad, G.C. & Smith, T.B. (1999). Evaluating therapy outcome at a university counseling centre with the college adjustment scales. *Journal of College Conselling, 2*: 3-13.

Natvig, G.K., Hanestad, B.R., & Samdal, O. (2006). The role of the student: Salutogenic or pathogenic? *International Journal of Nursing Practice, 12*: 280-287.

Nilsson, B., Holmgren, L., Stegmayr, B. & Westman, G. (2003). Sense of coherence – stability over time and relation to health, disease, and psychological changes in a general population: A longitudinal study. *Scandinavian Journal of Public Health, 31*: 297-304.

Oguz-Duran, N. & Tezer, E. (2009). Wellness and self esteem among Turkish university students. *International journal of Advanced Counselling, 31*: 32-44.

Olsson, M., Hansson, K., Lundblad, A-M. & Cederblad, M. (2006). Sense of Coherence: definition and explanation. *International Journal of Social Welfare, 15*: 219-229.

Oluyinka, O. (2011). Psychological predictors of attitudes towards seeking professional psychological help in a Nigerian university population. *South African Journal of Psychology, 41*(3): 310-327.

Oruku, M.C. & Demir, A. (2011). Psychometric evaluation of the college adjustment self-efficacy scales for Turkish University students. *European Journal of Psychological Assessment, 27* (3): 153-156.

Pallant, J.F. & Lae, L. (2002). Sense of coherence, well being, coping and personality factors: further evaluation of the sense of coherence scale. *Personality and Individual Differences, 33*: 39-48.

Petersen, I., Louw, J. & Dumont, K. (2009). Adjustment to university and academic performance among disadvantaged students in South Africa. *Educational Psychology, 29* (1): 99-115.

Pham, P.N., Vinck, P., Kinkodi, D.K. & Weinstein, H.M. (2010). Sense of coherence and its association with exposure to traumatic events, post traumatic stress disorder and depression in Eastern Democratic Republic of Congo. *Journal of Traumatic Stress, 23* (3): 313-321.

Poppius, E. (2007). The sense of coherence and health: The effects of sense of coherence on risk of coronary heart disease, cancer and all-cause mortality. Academic dissertation presented at the University of Tampere.

Posadzky, P., Stockl, A., Musonda, P. & Tsouroifli, M. (2010). A mixed method approach to sense of coherence, health behaviours, self efficacy and optimism: towards the operationalization of health attitudes. *Scandinavian Journal of Psychology, 51*: 246-252.

Rabin, S., Matalon, A., Maoz, B. & Shiber, A. (2005). Keeping doctors healthy: A salutogenic perspective. *Families, Systems & Health, 23*(1): 94-102

Raty, L.K.A.; Larsson, G.; Soderfeldt, B.A. & Larsson, B.M.W. (2005). Psychosocial aspects of health in adolescence: the influence of gender and general self concept. *Journal of Adolescent Health, 36*: 530.e21-530.e28.

Read, S., Aunola, K., Feldt, T., Leinonen, R. & Ruoppila, I. (2005). The relationship between general resistance resources, sense of coherence and health among Finnish people aged 65-69. *European Psychologist, 10*(3): 244-253.

Richardson, C.G., Ratner, P.A. & Zumbo, B.D. (2007). A test of the age based measurement invariance and temporal stability of Antonovsky's sense of coherence scale. *Educational and Psychological measurement, 67* (4): 679-696.

Riedel, J., Weismann, U. & Hannich, H.J. (2011). An integrated framework of acculturation and salutogenesis. *International Review of Psychiatry, 23* (6): 555-564.

Ristkari, T. Sourander, A., Helenius, H., Nikolakaros, G., Salantera S., Multimaki P. & Parkola, K. (2011). Sense of coherence among Finnish young men - A cross-sectional study at military call-up. *Nordic Journal of Psychiatry, 59*: 473-480.

Ryan, R.M. & Deci, E.L., (2000). Self-determination Theory and the facilitation of intrinsic motivation, social development and well being. *American Psychologist, 55*: 68-78.

Ryff, C.D. & Singer, B. (1998). The contours of positive human health. *Psychological Inquiry, 9*: 1-28.

Ryff, C.D. (1989). Happiness is everything or is it? Explorations on the meaning of psychological well being. *Journal of Personality and Social Psychology, 57* (6): 1069-1081.

Ryff, C.D. & Singer, B.H. (2006). Best news yet on the six factor model of well being. *Social Science Research, 35*: 1103-1119.

Ryff, C.D. & Keyes, C.L.M. (1995). The structure of psychological wellbeing revisited. *Journal of Personality & Social Psychology, 69* (4): 719-727.

Schaffner, A.D. (2005). Social, environmental, and spiritual factors in college adjustment. Dissertation Abstracts International: Section B. Sciences and Engineering, *66(b)*, 3426.

Seifert, T.A. (2005). The Ryff scales of psychological well-being. Assessment Notes, Spring 2005.

Shankland. R, Genolini. C, Franca, L.R., Guelfi, J-D. & Ionescu, S. (2010). Student adjustment to higher education: The role of alternative educational pathways in coping with the demands of student life. *Higher Education, 59*: 353-366.

Simmons, S. (2008). Adaptation to college and Individuation-attachment: A review of first year students in contemporary Ireland. Thesis submitted for a Masters degree in Child, family and Community Studies at the Dublin Institute of Technology, Ireland.

Smith, G. (2007). The psychofortology of post-graduate learners in the faculty of health sciences at the Nelson Mandela Metropolitan University. A thesis submitted for a Masters degree in Counselling Psychology.

Smith, T.L. & Meyers, L.S. (1997). Sense of coherence: its relationship to personality, stress and health measures. *Journal of Social Behaviour & Personality, 12*(2): 513-526.

Sommer, M., Dumont, K. (2011). Psychosocial factors predicting academic performance of students at a historically disadvantaged university. *South African Journal of Psychology, 41* (3): 386-395.

Strauser, D.R., Lustig, D.C., Ciftci, A. (2008). Psychological well being: its relation to work personality, vocational identity and career thoughts. *The Journal of Psychology, 142* (1): 21-35.

Suresky, M.J., Zauszniewski, J.A. & Bekhet, A.K. (2008). Sense of coherence and quality of life in women family members of the seriously mentally ill. *Issues in Mental Health Nursing, 29*:265-278.

Tartas, M., Walkiewicz, M., Majkowickz, M. & Budzinsky, W. (2011). Psychological factors determining success in a medical career: a 10 year longitudinal study. *Medical Teacher, 33*: e163-e172.

Thieke, W.S. (1994). Developmental change in freshmen students: Validating Chickering's theory of student development. Paper presented at the annual meeting of the Association for the study of higher education, Arizona: USA.

Tinto, V. (1987). Leaving College: Rethinking the Causes and Cures of Student Attrition. Chicago: University of Chicago Press.

Togari, T., Yamazaki, Y., Takayama, T.S., Yamaki, C.K. & Nakayama, K. (2008). Follow-up study on the effects of sense of coherence on well being after two years in Japanese university undergraduate students. *Personality and Individual Differences, 44*: 1335-1347.

Tuna, M.E., (2003). Cross-cultural differences in coping strategies as predictors of university adjustment of Turkish and U.S. students. Thesis submitted in partial fulfillment of Doctor of Philosophy at the Middle East Technical University.

Uskul, A.K. & Greenglass, E. (2005). Psychological wellbeing in a Turkish-Canadian sample. *Anxiety, Stress & Coping, 18* (3): 269-278.

Van der Merwe, N. (2005). The relationship between psychological well being and academic performance of university students. Mini dissertation submitted in partial fulfillment of an MA in Industrial Psychology at the North West University, Potchefstroom.

Van Dierendonck, D., Diaz, D., Rodriguez-Carvajal, R., Blanco, A. & Moreno-Jeminez, B. (2008). Ryff's Six-factor model of psychological well-being: A Spanish exploration. *Social Indices Research, 87*: 473-479.

Vastamaki, J., Moser, K. & Paul, K.I. (2009). How stable is sense of coherence? Changes following an intervention for unemployed individuals. *Scandinavian Journal of Psychology, 50*: 161-171.

Ventegodt, S., Omar, H.A. & Merrick, J. (2011). Quality of life as medicine: Interventions that induce salutogenesis. A literature review. *Social Indicators Research, 100*:415-433.

Weathington, B.L., Cunningham, C.J.L. & Pettinger, D.J. (2010). Research methods for the behavioural and social sciences. USA: John Wiley & Sons, Inc.

Wilks, S.E. & Spivey, C.A. (2010). Resilience in undergraduate social work students: social support and adjustment to academic stress. *Social Work Education, 29* (3): 276-288.

Wintre, M.G., Knoll, G.M., Pancer, S.M., Pratt, M.W., Polivy, J., Birnie-Lefcovitch, S. & Adams, G.R. (2008). The transition to university: The Student-University Match Questionnaire. *Journal of Adolescent Research, 23* (6): 745-769.

Wickens, L. & Greeff, A.P. (2005). Sense of family coherence and the utilization of resources by first year students. *The American Journal of Family Therapy, 33*: 427-441.

Wissing, M.P. & van Eeden, C. (2002). Empirical clarification of the nature of psychological well being. *South African Journal of Psychology, 32* (1): 32-44.

Wissing, M.P., Thekiso, S.M., Stapelberg, R., van Quikelberge, L., Choabi, P., Moroeng, C., Nienaber, A., Temane, Q.M. & Vorster, H.H. (2010). Validation of three Setswana measures for psychological well being. *SA Journal of Industrial Psychology, 36* (2)

World Health Organisation, (2010). Definition of health accessed from https://apps.who.int/aboutwho/en/definition.html.

Yazedjian, A. & Toews, M.L. (2006). Predictors of college adjustment among Hipanic students. *Journal of first year experience & students in transition, 18*(2): 9-29.

Ying, Y., Lee, P. & Tsa, J. (2007). Attachment, sense of coherence and mental health among Chinese American college students, variation by migration status. *International Journal of Intercultural Relations, 31*: 531-544.

Appendicx A

29 Item Sense of Coherence –Orientation to Life Questionnaire

(Source: Antonovsky, Aaron, Unravellling the Mystery of Health.How People Manage Stress and stay well. San Francisco 1987).

C = Comprehensibility   **Ma** = Manageability   **Me** = Meaningfulness

R = reverse the score before calculating the total (only for items marked with R)

The following are questions related to our lives, each one has seven possible answers, with 1 and 7 representing extreme descriptions. Please circle any number that best describes your feelings and please provide only one answer for each question.

1.	**R** - When you talk to people do you have the feeling that they don't understand you **(C)**	1 – Never	2	3	4	5	6	7 – Always have this feeling
2.	In the past when you had to do something which depended upon cooperation with others you had a feeling that it **(Ma)**	1 – Surely wouldn't be done	2	3	4	5	6	7 – Surely would be done
3.	Think of people with whom you come into contact daily besides the ones to whom you feel closest. How well do you know most of them? **(C)**	1 – You feel that they are strangers	2	3	4	5	6	7 – You know them very well
4.	**R** - Do you have the feeling that you don't really care about what goes on around you? **(Me)**	1 – Very seldom	2	3	4	5	6	7 – Very often
5.	**R** - Has it happened in the past that you were surprised by the behavior of people whom you thought you knew well? **(C)**	1 – Never happened	2	3	4	5	6	7 – Always happened
6.	**R** - Has it happened that people whom you trusted disappointed you? **(Ma)**	1 – Never happened	2	3	4	5	6	7 – Always happened
7.	**R** - Life is: **(Me)**	1 – Full of interest	2	3	4	5	6	7 – Completely routine
8.	Until now your life has had: **(Me)**	1 – no clear goals or purpose at all	2	3	4	5	6	7 – Very clear goals and purpose
9.	Do you have the feeling that you are being treated unfairly? **(Ma)**	1 – Very often	2	3	4	5	6	7 – Very seldom or never
10.	In the past ten years your life has been: **(C)**	1 – Full of changes without you knowing what will happen next	2	3	4	5	6	7 – Completely consistent and clear
11.	**R** - Most of the things you do in future will probably be: **(Me)**	1 – Completely fascinating	2	3	4	5	6	7 – Deadly boring
12.	Do you have the feeling that you are in an unfamiliar situation and don't know what to do? **(C)**	1 – Very often	2	3	4	5	6	7 – Very seldom or never
13.	**R** – What best describes how you see life? **(Ma)**	1 – one can always find a solution to painful	2	3	4	5	6	7 – There is no solution to painful

	things in life							things in life
14. **R** - When you think about your life you very often: **(Me)**	1 – Feel how good it is to be alive	2	3	4	5	6		7 – Ask yourself why you exist at all
15. When you face difficult problems the choice of a solution is: **(C)**	1 – Always confusing and hard to find	2	3	4	5	6		7 – Always completely clear
16. **R** - Doing the things you do every day is: **(Me)**	1 – A source of deep pleasure and satisfaction	2	3	4	5	6		7 – A source of pain and boredom
17. Your life in the future will probably be: **(C)**	1 – Full of changes without knowing what will happen next	2	3	4	5	6		7 – Completely consistent and clear
18. When something unpleasant happened in the past your tendency was: **(Ma)**	1 – "To eat yourself up about it"	2	3	4	5	6		7 – To say "ok that's that, I have to live with it" and go on
19. Do you have very mixed up feelings and ideas? **(C)**	1 – Very often	2	3	4	5	6		7 – Very seldom or never
20. **R** - When you do something that gives you a good feeling: **(Ma)**	1 – It's certain that you will go on feeling good	2	3	4	5	6		7 – It's certain that something will happen to spoil the feeling
21. Does it happen that you have feelings inside you would rather not feel? **(C)**	1 –Very often	2	3	4	5	6		7 – very seldom or never
22. You anticipate that your personal life in the future will be: **(Me)**	1 – totally without meaning or purpose	2	3	4	5	6		7 – Full of meaning and purpose
23. **R** – do you think that there will always be people whom you will be able to count on in the future **(Ma)**	1 – You are certain there will be	2	3	4	5	6		7 – You doubt there will be
24. Does it happen that you have the feeling that you don't know exactly what is about to happen? **(C)**	1 – Very often	2	3	4	5	6		7 – Very seldom or never
25. **R** – Many people even those with a strong character sometimes feel like sad sacks (losers) in certain situations. How often have you felt this way in the past? **(Ma)**	1 – Never	2	3	4	5	6		7 – Very often
26. When something happened you have generally found that: **(C)**	1 - you overestimated or underestimated its importance	2	3	4	5	6		7 – You saw things in the right proportion
27. **R** - When you think of the difficulties you are likely to face in important aspects of your life do you have the feeling that: **(Ma)**	1 – You will always succeed in overcoming the difficulties	2	3	4	5	6		7 - You won't succeed in overcoming the difficulties
28. How often do you have the feeling that there is little meaning in the things you do in your daily life? **(Me)**	1 Very often	2	3	4	5	6		7 – Very seldom or never
29. How often do you have feelings that you are not sure you can keep under control? **(Ma)**	1 Very often	2	3	4	5	6		7 – Very seldom or never

Comprehensibility: 11 items (1,3,5,10,12,15,17,19,21,24,26)

Manageability: 10 items (2,6,9,13,18,20,23,25,27,29)

Meaningfulness: 8 Items (4,7,8,11,14,16,17,18)

APPENDIX B

RYFF SCALES OF PSYCHOLOGICAL WELL-BEING

The following set of statements deals with how you might feel about yourself and your life. Please remember that there are neither right nor wrong answers.

Circle the number that best describes the degree to which you agree or disagree with each statement.	Strongly Disagree	Disagree	Disagree Slightly	Agree Slightly	Agree	Strongly Agree
1. Most people see me as loving and affectionate.	1	2	3	4	5	6
2. I am not afraid to voice my opinion, even when they are in opposition to the opinions of most people.	1	2	3	4	5	6
3. In general, I feel I am in charge of the situation in which I live.	1	2	3	4	5	6
4. I am not interested in activities that will expand my horizons.	1	2	3	4	5	6
5. I live life one day at a time and don't really think about the future.	1	2	3	4	5	6
6. When I look at the story of my life, I am pleased with how things have turned out.	1	2	3	4	5	6
7. Maintaining close relationships has been difficulty and frustrating for me.	1	2	3	4	5	6
8. My decisions are not usually influenced by what everyone else is doing.	1	2	3	4	5	6
9. The demands of everyday life often get me down.	1	2	3	4	5	6
10. I don't want to try new ways of doing things—my life is fine the way it is.	1	2	3	4	5	6
11. I tend to focus on the present, because the future always brings me problems.	1	2	3	4	5	6
12. In general, I feel confident and positive about myself.	1	2	3	4	5	6
13. I often feel lonely because I have few close friends with whom to share my concerns.	1	2	3	4	5	6
14. I tend to worry about what other people think of me.	1	2	3	4	5	6
15. I do not fit very well with the people and the community around me.	1	2	3	4	5	6
16. I think it is important to have new experiences that challenge how you think about yourself and the world.	1	2	3	4	5	6
17. My daily activities often seem trivial and unimportant to me.	1	2	3	4	5	6

Circle the number that best describes the degree to which you agree or disagree with each statement.	Strongly Disagree	Disagree	Disagree Slightly	Agree Slightly	Agree	Strongly Agree
18. I feel like many of the people I know have gotten more out of life than I have.	1	2	3	4	5	6
19. I enjoy personal and mutual conversations with family members or friends.	1	2	3	4	5	6
20. Being happy with myself is more important to me than having others approve of me.	1	2	3	4	5	6
21. I am quite good at managing the many responsibilities of my daily life.	1	2	3	4	5	6
22. When I think about it, I haven't really improved much as a person over the years.	1	2	3	4	5	6
23. I don't have a good sense of what it is I'm trying to accomplish in my life.	1	2	3	4	5	6
24. I like most aspects of my personality.	1	2	3	4	5	6
25. I don't have many people who want to listen when I need to talk.	1	2	3	4	5	6
26. I tend to be influenced by people with strong opinions.	1	2	3	4	5	6
27. I often feel overwhelmed by my responsibilities.	1	2	3	4	5	6
28. I have a sense that I have developed a lot as a person over time.	1	2	3	4	5	6
29. I used to set goals for myself, but that now seems a waste of time.	1	2	3	4	5	6
30. I made some mistakes in the past, but I feel that all in all everything has worked out for the best.	1	2	3	4	5	6
31. It seems to me that most other people have more friends than I do.	1	2	3	4	5	6
32. I have confidence in my opinions, even if they are contrary to the general consensus.	1	2	3	4	5	6
33. I generally do a good job of taking care of my personal finances and affairs.	1	2	3	4	5	6
34. I do not enjoy being in new situations that require me to change my old familiar ways of doing things.	1	2	3	4	5	6
35. I enjoy making plans for the future and working to make them a reality.	1	2	3	4	5	6
36. In many ways, I feel disappointed about my achievements in my life.	1	2	3	4	5	6
37. People would describe me as a giving person, willing to share my time with others.	1	2	3	4	5	6

Circle the number that best describes the degree to which you agree or disagree with each statement.	Strongly Disagree	Disagree	Disagree Slightly	Agree Slightly	Agree	Strongly Agree
38. It's difficult for me to voice my own opinions on controversial matters.	1	2	3	4	5	6
39. I am good at juggling my time so that I can fit everything in that needs to be done.	1	2	3	4	5	6
40. For me, life has been a continuous process of learning, changing, and growth.	1	2	3	4	5	6
41. I am an active person in carrying out the plans I set for myself.	1	2	3	4	5	6
42. My attitude about myself is probably not as positive as most people feel about themselves.	1	2	3	4	5	6
43. I have not experienced many warm and trusting relationships with others.	1	2	3	4	5	6
44. I often change my mind about decisions if my friends or family disagree.	1	2	3	4	5	6
45. I have difficulty arranging my life in a way that is satisfying to me.	1	2	3	4	5	6
46. I gave up trying to make big improvements or change in my life a long time ago.	1	2	3	4	5	6
47. Some people wander aimlessly through life, but I am not one of them.	1	2	3	4	5	6
48. The past has its ups and downs, but in general, I wouldn't want to change it.	1	2	3	4	5	6
49. I know that I can trust my friends, and they know they can trust me.	1	2	3	4	5	6
50. I judge myself by what I think is important, not by the values of what others think is important.	1	2	3	4	5	6
51. I have been able to build a home and a lifestyle for myself that is much to my liking.	1	2	3	4	5	6
52. There is truth to the saying that you can't teach an old dog new tricks.	1	2	3	4	5	6
53. I sometimes feel as if I've done all there is to do in life.	1	2	3	4	5	6
54. When I compare myself to friends and acquaintances, it makes me feel good about who I am.	1	2	3	4	5	6

Item numbers 4, 5, 7, 9, 10, 11, 13,14,15,17,18, 22, 23, 25, 26, 27, 29, 31, 34, 36, 38, 42, 43, 44, 45, 46, 52, 53 labeled."rs" are reverse scored,

Appendix C

Demographic details questionnaire

Dear participant

On the table below please indicate your details by circling the box that describes your situation.

Your gender	Male			Female		
Your current level of study	1st year	2nd year	3rd year	4th year	Honours/Masters	
Your age group	16 – 18	19 – 20	21 -22	23 -24	25 -30	Over 30

Appendix D

Invitation to participate in a research study

Dear participant

My name is Tshiamo Daniel Tlatsana; I am studying for a Master of Social Science in Clinical Psychology at the Mafikeng campus of the North West University. As a prerequisite to obtaining this qualification I am required to conduct an independent research on a topic of interest under the supervision of a senior lecturer.

The topic of my research study is **"The relationship between wellness and adjustment to the university environment"**. The study aims to explore some of the factors that help students in adjusting to the university environment to facilitate a smooth and enjoyable study duration. The findings of such a study may provide beneficial information to influence policy with regard to the provision of essential student support services geared towards enhancing optimal adjustment.

Expectations from willing participants

As a participant in the study you will be required to complete the following questionnaires;

a) The **Sense of Coherence scale** – this questionnaire seeks to establish whether an individual finds their experiences (in this case university life) manageable, comprehensible and meaningful

b) The **Psychological Well-being scale** seeks to measure an individual's level of well being by determining their functioning in six areas; autonomy, environmental mastery, personal growth, positive relations with others, purpose in life and self acceptance

c) **Demographic details questionnaire** – to gather information with regard to your gender, age and level of study.

NB. It will take approximately 15 minutes to complete the questionnaires

Confidentiality and anonymity

To ensure your confidentiality as a participant you will only be required to provide details regarding your gender, age and level of study. Participation in the study is voluntary and can be terminated at any time if you feel uncomfortable.

Informed consent

The above information is provided to help you make an informed decision whether to participate or not.

Sincerely yours

TD Tlatsana: Researcher   Signed: Participant

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

Private Bag X6001, Potchefstroom
South Africa 2520

Tel: (018) 299-4900
Faks: (018) 299-4910
Web: http://www.nwu.ac.za

Ethics Committee
Tel   +27 18 299 4850
Fax   +27 18 293 5329
Email Ethics@nwu.ac.za

ETHICS APPROVAL OF PROJECT

This is to certify that the next project was approved by the NWU Ethics Committee:

Project title : Wellness and adjustment to university environment: A study on students of the North West University.
Student : TD Tlatsana
Project leader: Dr. C. Oduaran
Ethics number: **NWU-00019-12-A9**
Status: S = Submission, R = Re-Submission P = Provisional Authorisation, A = Authorisation
Expiry date: 2017/03/07

The Ethics Committee would like to remain at your service as scientist and researcher, and wishes you well with your project. Please do not hesitate to contact the Ethics Committee for any further enquiries or requests for assistance.

The formal Ethics approval certificate will be sent to you as soon as possible.

Yours sincerely

Me.Marietjie Halgryn
NWU Ethics Secretariate