

**University of KwaZulu-Natal (Pietermaritzburg)**

**Sources of stress among university students at the University of KwaZulu-Natal, Pietermaritzburg: Differences between level of study and race**

By

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**COLLEGE OF HUMANITIES**

**DECLARATION**

Submitted in partial fulfilment of the requirements for the degree of the Masters in Counselling Psychology, M Soc. Sc. (Counselling Psychology), University of KwaZulu-Natal, Pietermaritzburg, South Africa.

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## **Abstract**

The study explored the links between 31 sources of stress, as per the Student Stress Scale, and gender, level of study, race and social class, as well as the relationship between stress and health. Two-hundred-and-five (205) undergraduate and post-graduate students from the University of KwaZulu-Natal, Pietermaritzburg campus, participated in the study. The results showed that there were five significant differences in sources of stress between male and female students, six significant differences between undergraduate and post-graduate students, nine significant differences between black students and students of other races and three significant differences between students of different socio-economic statuses. Furthermore, there were no significant relationships found between stress and overall health and anxiety; however, significant relationships were found between stress and depression, bodily pain and flu/cold.

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## **Chapter 1: Introduction**

The aim of the study was to find associations between stress and gender, level of study, race and social class, as well as to find a relationship between stress and health. The study was conducted on two hundred and five (205) undergraduate and post-graduate students at the University of KwaZulu-Natal, Pietermaritzburg (UKZNP).

There have been a number of studies that have been conducted on stress amongst university students. These studies have concluded that many university students experience stress at some point in their university life. Literature on stress among university students will be discussed in Section 2.5 of the Literature Review.

This was a descriptive study with a quantitative design. The underlying theoretical framework for the study was provided by the life events approach to stress. Life events include any positive or negative events that cause changes in a person's social or personal environment. These changes tend to force a person to make behavioural changes or some readjustments to his or her life. Life events will be discussed in more detail in Section 2.3.3 of the Literature Review.

The interest in life events and their effects on people led to the development of the Social Readjustment Rating Scale (SRRS) by Holmes and Rahe in 1967. The SRRS quantifies the amount of change one has been required to adapt to in response to life events in the previous year. It also predicts the likelihood of disease and illness after the exposure to stressful life events. This will be discussed further in Section 4.5 of the Methodology. From this Insel and Roth developed the Student Stress Scale (SSS). The SSS is the instrument that was used in the present study.

The study used a convenience sampling technique as the most easily accessible group of students was students from UKZNP. Data was collected using the SSS and a brief demographic questionnaire. The data was quantitative in nature and was analysed using chi-square tests and Pearson's Correlation Coefficient tests in the Statistical Package for Social Sciences (SPSS) version 20. The chi-square tests were performed on stress and gender, level of study, race and social class. The Pearson Correlation coefficient was performed on stress and total health, anxiety, depression, bodily pain and flu/cold. The methodology of the study will be discussed in more detail in Chapter 4.



## **Chapter 2: Literature Review**

### **2.1 Introduction**

Stress in students is a widely researched issue. Although most studies on stress in students have ranged from investigating the types of sources of stress experienced by university students to the effects of stress on students, these studies have all suggested that all students will experience stress at some point in their university years. Stress in university students will be discussed further in Section 2.5.

It is clear from the literature that research on stress is complicated by challenges in terms of definition. For example, Robotham (2008) noted the difficulties in defining the term stress. He suggested that stress is not a unidimensional concept and hence there have been different types and models of stress that have been offered by a number of authors. The difficulties of defining stress will be further explored in Section 2.2 and the different models of stress will be discussed in Section 2.3.

Although the main focus of the literature review will be around stress in university students (Section 2.5), the relationships between stress and level of study (Section 2.6), stress and race (Section 2.7), stress and social class (Section 2.8) and stress and health (Section 2.9) will be discussed as well. This is because studies around these topics have suggested that there are relationships between the above-mentioned aspects and stress.

### **2.2 Stress definitions**

As suggested above, there is no one universal definition of the term stress. Krohne (2002) suggests that the term originated in the discipline of physics. It was used to analyse how constructed structures must be made in order to carry heavy loads and be resistant to deformation by external forces (Krohne, 2002). He also noted that according to physics, one has to differentiate between stress, “the external pressure or force applied to a structure” and strain, “the resulting internal distortion of the object” (Krohne, 2002).

According to Krohne (2002), the definition of the term stress has evolved in the shift from its use in physics to the behavioural sciences. For example, Cassidy (1999) discusses stress from

a biological point of view. In this context, he notes that Hans Selye used the term stress to refer to a pattern of physiological and psychological reactions of an individual to situations (Cassidy, 1999). These situations or external forces that impinge on the body are called stressors (Krohne, 2002).

Nowadays, stress has become a popular term that refers to the consequences of the failure of an organism to respond appropriately to emotional or physical threats, whether actual or imagined (Antonovsky, 1997). This definition implies that stress is environmentally caused. This definition of stress underlies the transactional model of stress, which is discussed in more detail in Section 2.3.2. Other more sophisticated definitions, such as “stress is a process which causes or precipitates an individual to believe that they are unable to cope with the situation facing them” (Mumtaz, Jahangeer, Habib, Adnan & Mumtaz, 2010, p. 421), support the idea that cognitive factors are of great importance for the majority of stress experiences (Fisher, 1994).

Psychobiological theories of stress have attempted to explain stress as a stimulus and a response (Antonovsky, 1997). Stress as a stimulus refers to environmental factors (stressors); these stressors can either be external, for example temperature, or internal, for example pain (Antonovsky, 1997). Stress as a response refers to what happens within the individual as a result of environmental factors, for example, a weakened immune system following an examination period (Antonovsky, 1997).

Although, by nature, the definition of stress appears negative, it is important to note that stress can have a positive effect on individuals as well (Robotham, 2008). That is, stress can be useful in enabling individuals to respond effectively in an emergency. Positive stress was termed eustress by Hans Selye (1974). Eustress was defined as stress that is healthy, or stress that gives one a sense of fulfilment or other positive feelings (Selye, 1974). In terms of day-to-day living, negative stress can be referred to as daily hassles and positive stress as uplifts (Kanner, Coyne, Schaefer & Lazarus, 1981); these will be discussed more in Section 2.4.

## **2.3 Models of stress**

As there is no one universal definition of stress, a number of theories have been proposed in an attempt to explain the nature and causes of stress. For the purpose of the study, three

models of stress will be discussed: firstly, the General Adaption Syndrome, secondly, the Transactional Model and, thirdly, the Life Events Model. Emphasis will be put on the Life Events Model of stress, as it is the primary theoretical basis of the research.

### **2.3.1 General Adaption Syndrome**

The General Adaption Syndrome is a theory proposed by Hans Seyle (Gatchel, Baum & Krantz, 1989). Seyle (1991, in Monat & Lazarus, 1991, p. 22) defines stress as “the non-specific (common) result of any demand upon the body.” That is, Seyle believed that stress was a specific syndrome, in that it follows certain patterns and affects specific organs, but it is non-specifically induced. Seyle initially studied how animals reacted to constant stress; these studies were then used to deduce how humans reacted to stress. This then led to the development of the idea of the General Adaption Syndrome (GAS) (Monat & Lazarus, 1991).

The GAS consists of three stages of response. The first stage is called *alarm*. This occurs when the organism first becomes aware of the stressor and prepares to resist it (Gatchel et al., 1989). During this stage, the body produces adrenaline in order to bring about the fight-or-flight response (Gatchel et al., 1989). If the stress continues, the organism enters into the second stage known as *resistance*. This refers to the organism’s application of various coping mechanisms which typically achieve suitable adaption (Gatchel et al., 1989). This stage can be seen as the adaption part of the syndrome, as the body may physically attempt to change in order to cope with the additional stress (Gatchel et al., 1989). Eventually, resistance to stressors ends and the third stage, *exhaustion*, occurs. During this stage, all of the body’s resources have been depleted and the body becomes unable to maintain normal function, resulting in illness (Gatchel et al., 1989).

The notion of non-specificity, that is, that stress does not seem to be induced by anything in particular, is the most criticised aspect in this theory. This is because the notion of non-specificity seems to fail to take into account psychological mechanisms in determining the organism’s response to a stressor (Gatchel et al., 1989). Lazarus and Folkman (1989) also criticised this theory, noting that depicting stress only as an external event ignores individual differences in the perception or appraisal of stress.

### 2.3.2 Transactional Model

According to Lazarus and Folkman (1984), stress results from an imbalance between demands and resources. From this assumption, these authors developed the transactional model of stress. This model's interpretation of stress is focused on the transaction between people and their external environments (Quine & Pahl, 1991). The model conceptualises stress as being the result of how a stressor is appraised (negatively or positively) and how one appraises one's resources to cope with the stressor.

The core assumption of this model is that stressful experiences are construed as a person-environment transaction (Lazarus & Folkman, 1984). These transactions depend on the impact of the external stressor. This is mediated, firstly, by the person's appraisal of the stressor and, secondly, on the social and cultural resources at the person's disposal (Aldwin, 1994). When a person is faced with a stressor, the person first evaluates the potential threat; this is known as the primary appraisal, as it is the person's judgement about the significance of the event for them.

Lazarus and Folkman (1984) suggested that people can make five types of appraisals: harm, which refers to the psychological damage that has already happened; threat, which refers to the anticipation of harm that may be imminent; loss, which refers to the imagined psychological loss that has occurred; challenge, which results from demands that a person feels confident about mastering; or benign, where the stressor is seen as being harmless or as having little or no detrimental effect on the individual (Aldwin, 1994).

The secondary appraisal then follows. This refers to one's assessment of one's coping resources and options (Lazarus & Folkman, 1984). Thus, the secondary appraisal stage addresses what one can do about one's situation. Lazarus and Folkman (1984) argue that stress results if there is an imbalance between the requirements of the environmental situation and one's appraisal of one's ability to cope with it (Aldwin, 1994).

One of the criticisms of the transactional model of stress has been that centring stress on cognitive appraisals gives too much weight to rational cognitive processes (Aldwin, 1994). That is, in this model, stress is said to arise depending on how one evaluates the stressor and one's ability to cope with it. It does not take into consideration one's emotional reaction to the stressor. In response to this, Lazarus (1991, in Krohne, 2002) developed a theory of

emotion that also included a stress theory. This theory can be seen as an extension to the already developed transactional model. In this theory, Lazarus (1991) distinguishes further between the two forms of appraisals, primary and secondary appraisal (Krohne, 2002). According to this emotional theory, primary appraisal is concerned with whether something of relevance to the individual's well-being occurs, whereas secondary appraisal is concerned with the individual's coping options (Krohne, 2002).

Lazarus (1991) also added the consideration of emotional processes to the concept of appraisal. That is, emotional processes such as stress are "dependent on actual expectancies that persons manifest with regard to the significance and outcome of a specific encounter" (Krohne, 2002, p.3). This helps to explain why individuals differ in terms of quality, intensity and duration of an emotion that arises due to events that are objectively equal for different individuals (Krohne, 2002).

Another criticism of this theory is that it implies that stress is solely dependent on subjective perceptions without much regard to objective factors. For example, there could be other objective external circumstances that do not depend upon an individual's perception, for example, major traumas such as wars or devastating earthquakes (Aldwin, 1994).

### **2.3.3 Life events**

The life events approach to stress is loosely based on Seyle's theory of the generality of the stress process (Cassidy, 1999). Central to this approach is the idea of change being "stressful and requiring adaption" (Cassidy, 1999, p. 38). Paykel and Roa (1984, in Jones & Bright, 2001, p. 21) defined a life event as "a discrete change in the subject's social and personal environment." This includes any event, positive or negative, which forces the person to face substantial change in their daily life and requires some readjustment or behavioural adaption (Cassidy, 1999).

The role of life events in the life histories of ill people was first investigated by Holmes and Rahe in 1967 (Fisher, 1994). This investigation came about as a result of their clinical experiences with patients. From this, Holmes and Rahe (1967) found that major life events occurred frequently in the backgrounds of many of their patients (Fisher, 1994). Holmes and Rahe (1967) also found that there seemed to be a causal relationship between life events and health. To investigate this hypothesis, Holmes and Rahe (1967) used a sample of 394

participants to rate 43 life events. They derived these life events from clinical experience based on which life events required the most readjustment on the part of the person experiencing the event (Holmes & Rahe, 1967).

The participants were also required to assign a numerical value, known as Life Change Units (LCU), to the amount of readjustment needed for each event. In order to give participants a reference point, marriage, as a life event, was assigned an arbitrary value of 500 LCU (Cooper & Dewe, 2004). Each event was then considered in relation to whether or not it required more or less adjustment than marriage. Using this data, Holmes and Rahe (1967) then developed the Social Readjustment Rating Scale, containing 43 life events. In the final scale, the highest LCU score for an event was 100 points (*death of a spouse*).

To calculate an individual's score on this measure, they are required to tick on the list each event that they have experienced in the last year and then add up the number of Life Change Units associated with each (Jones & Bright, 2001). Individuals who score 300 or more have a high health risk. Individuals who score between 150 and 300 have about a 50-50 chance of serious health change within the next two years, and individuals who score between 0 and 150 have a one-in-three chance of serious health change (Cooper & Dewe, 2004).

Criticisms of this approach are that it does not discriminate between positive and negative events (Jones & Bright, 2001). This theory suggests that any life event changes have the potential to damage health because they require readjustment. However, according to Pearlin (1989), it is the quality of the event that is crucial; that is, how the event is appraised in the primary appraisal stage of the transactional model. In addition, changes which are "undesired, unscheduled, non-normative and uncontrollable" are the most harmful (Pearlin, 1989, p. 45). For example, changes that require the most readjustment or that cause the most disruption to one's life are the most harmful.

Another criticism is that the theory of life events ignores individual differences (Jones & Bright, 2001). Lazarus (1990, in Jones & Bright, 2001) noted that the theory ignores the different significances of life events to people who have varying priorities, motivations and coping styles. Another criticism put forward by Brown (1974, in Jones & Bright, 2001) is that the relationship between life events and illness may result from a third variable such as anxiety. That is, those with high levels of anxiety may be particularly liable to report stressful life events *and* be particularly prone to illness.

The criticism that attracted the most attention was around “whether it is the objective presence of life events that should be the focus of interest or the person’s appraisal of them as being stressful” (Jones & Kinman, 2001, in Cooper & Dewe, 2004, p. 45). The counter-argument put forward by Dohrenwend and ShROUT (1985, p. 782) was that “researchers should measure pure environmental events, uncontaminated by perceptions, appraisals or reactions.” An alternative approach to the focus on life events emerged from these critiques. This focussed on the argument that daily hassles and uplifts were a more useful measure than stressful life events because of their conceptual closeness to the person’s experiences and because they were more closely related to illness (Jones & Kinman, 2001, in Cooper & Dewe, 2004). This will be discussed in the following section.

## **2.4 Daily hassles and uplifts**

According to Kanner et al. (1981, p. 3) hassles are the “irritating, frustrating, distressing demands that to some degree characterise everyday transactions with the environment.” Some examples would be traffic jams and arguments. On the other hand, uplifts are the minor positive experiences of daily life, for example, relating well with one’s spouse or completing a task (Kanner et al., 1981).

As mentioned above, it has been suggested that daily hassles are a more useful measure of stress than life events and they are more closely related to disease. This is because daily hassles are more proximal measures whereas life events are distal measures (Jones & Bright, 2001). In order to explain this relationship, Jones and Bright (2001, p. 25) noted that the “proximal environment consists of person-environment transactions that the person can appraise as harmful, threatening or challenging.” Thus the more one appraises these interactions as harmful, threatening or challenging, the more stress they are likely to experience; this, in turn, would be more likely to lead to illness.

On the other hand, the nature of the measures of life events is distal. Thus life events measure only the existence of the event and not its significance to the individual (Jones & Bright, 2001). Kanner et al. (1981) concluded from this, that it is these day-to-day events that ultimately have proximal significance for health outcomes and whose cumulative impact should also be assessed. On the other hand, it is, as Aldwin (1994) noted, difficult to believe

that losing a spouse (life event) has fewer health outcomes than being stuck in traffic a few times (daily hassle).

Furthermore, to conclude that daily hassles and uplifts are a better predictor of illness or health outcomes seems a bit presumptuous considering that a major life event, such as a divorce, is likely to also increase the likelihood of daily hassles (Jones & Bright, 2001). Kanner et al. (1981) also suggested that daily hassles may mediate the life event-health relationship, in that “life events may lead to minor disruptions in routines and coping processes which then lead to poor health” (Jones & Bright, 2001, p. 25). However, this does not mean that certain hassles may not occur or exist independently of the existence of major life events; however, these maybe due to one’s personal style or environment (Jones & Bright, 2001).

## **2.5 Stress and university students**

A number of studies on stress amongst university students have been conducted. Although the scope of these studies varies from investigating the sources of stress experienced by university students to the effects these stressors have on students’ health, they have all concluded that students at all levels of study experience some academic stress (Misra & Castillo, 2004). According to Misra and Castillo (2004), this is because university attendance, in general, is a stressful period for many students as they go through the process of adapting to new educational and social environments. In addition, most students are in a challenging developmental stage of their lives.

Robotham (2008) reviewed literature on stress among higher education students. In this review, he noted that stressors related to studying (academic stressors) were reported more frequently by students than any other stressors. Stressors most commonly reported included striving to meet assessment deadlines, fear of failure, difficulties with time management, too little time for academic work and change in sleeping habits (Robotham, 2008). Hughes (2005, in Robotham, 2008) also noted that students who are classified as high achievers are more likely to be predisposed towards experiencing stress.

Another frequently reported source of stress was examinations. Abouserie (1994, in Robotham, 2008) found that it was actually the anxiety associated with writing tests and



examinations, rather than the exam itself, which generates stress. This was based on the finding that a majority of students reported a reduction in stress once they had started their first exam (Robotham, 2008). Other significant sources of stress that have been reported by students are stressors related to the transition to university, stressors related to finances and, for international students, stressors related to being in a different country.

Hudd (2000, in Robotham, 2008) found that students' responses to stress varied and could be categorised into: emotional, cognitive, behavioural and physiological responses. For most students, responses to stress were physiological and emotional, which included nausea and stomach pains, restlessness, changes in eating and sleeping patterns, and irritability. Stress also seemed to cause cognitive symptoms in students such as lack of concentration, as well as behavioural symptoms such as over- or under-eating, or drug and alcohol abuse (Mechanic, 1978).

### **2.5.1 Sources of stress in university students**

Yusoff, Rahim and Yaacob (2010) conducted a study on Malaysian university medical students in order to determine their main sources of stress. It was found that the main sources of stress among medical students were academic stress, in that all of the top ten reported stressors were academic stressors. These included, for example, tests/examinations, large amount of content to be learnt, lack of time to review what had been learnt and getting poor marks (Yusoff et al., 2010). This was attributed to the pressure of academic achievement. In particular, if these students experience academic failure, this can reduce their self-esteem and therefore affect their personal and professional development (Yusoff et al., 2010).

Similarly, Li, Lin, Bray and Kehle (2005) found that the most frequently reported sources of stress among Chinese college students were also academic stresses, such as low learning efficiency. Learning efficiency refers to the amount of time, effort and other personal resources one spends when acquiring a given set of information or skills. Other academic stresses included competition with classmates, exam pressure, academic ranking and low grades (Li et al., 2005). Possible reasons for this, according to Li et al. (2005, p.321), are how the "social, economical changes" occurring in China contribute to this pressure as well as the social pressure to perform well academically.

Interestingly, in comparing these findings on Chinese students to American students, Li et al. (2005) found that American university students also frequently reported academic stressors as

their main source of stress but the difference was in the rank ordering of stressors. For American students, the most frequently reported academic stressors were tests and finals, papers and essay examinations, classroom environments and 'professor' (Li et al., 2005). It can be seen that for American students, their top stressors are related to exams, whereas for Chinese students it was low learning efficiency and competition (Li et al., 2005). The differences between these two sets of results could be due to the fact that, in China, tests and examinations are infrequent and normally occur at the end of the semester (Li et al., 2005). This could also be due to the fact that Chinese students are more concerned about whether their university experiences are beneficial to the development of their abilities and whether such abilities relate to their long-term goals (Li et al., 2005).

In another study on American students, Feven, Sheldon and Ivor (2007) found that the top five sources of stress reported by students were in three categories: intrapersonal (death of a family member), academic (time management, low grades and missed classes) and interpersonal (boyfriend or girlfriend problems). The findings of this study were somewhat similar to those found by Ross, Niebling and Heckert (1999). Ross et al. (1999) found that the most frequently reported sources of stress by college students from a mid-western college were intrapersonal (change in eating and sleeping habits), academic (increased work load) and environmental (vacations or breaks).

In a recent study by Pillay and Ngcobo (2010) to determine the sources of stress experienced by students in a rural, historically black university, it was found that students frequently reported academic stress as their main source of stress. These academic stressors included the fear of failing, and actually failing tests and exams (Pillay & Ngcobo, 2010). The majority of students who participated in this study were from a rural background with disadvantaged and impoverished secondary school settings where educators are less well trained (Pillay & Ngcobo, 2010). This leads to school leavers being insufficiently prepared for university education; hence, the highest levels of stress being reported by these students related to academic performance (Pillay & Ngcobo, 2010). Other frequently reported stressors were accommodation difficulties, financial problems and death of a family member or other significant persons (Pillay & Ngcobo, 2010). The finding that, for two-thirds of the students, death of significant others was a stress is hardly surprising given the high mortality rate in South Africa in the context of the HIV/AIDS pandemic.

## 2.6 Stress and level of study

Yusoff et al. (2010) conducted a study that investigated the sources of stress among university medical students. The study was conducted on students in their first, second, third, fourth or fifth year of study. Yusoff et al. (2010) distributed two semi-structured, self-administered questionnaires to the medical students. The first questionnaire was the 12-item General Health Questionnaire (GHQ-12), which was used to measure stress levels. The participants were asked to rate the presence of 12 manifestations of stress in themselves during the previous week. For each question they chose from four responses: 'not at all', 'no more than usual', 'rather more than usual' and 'much more than usual' (Yusoff et al., 2010). When analysing this data, a score of zero was given to each of the first two responses and a score of one was given to each of the last two responses. Participants with a total score of four or more were considered to be "under significant unfavourable stress" (Yusoff et al., 2010, p. 31).

The second questionnaire used by Yusoff et al. (2010) was the Medical Students Stressor Questionnaire (MSSQ) which is used to identify sources of stress. According to Yusoff et al. (2010), the items on the MSSQ represent 40 events that previous research has found to be sources of stress in medical students. The participants were asked to rate each event in relation to themselves during the previous weeks by choosing from five responses: 'causing no stress at all', 'causing mild stress', 'causing moderate stress', 'causing high stress' and 'causing severe stress' (Yusoff et al., 2010). In order to analyse the questionnaire, the responses were assigned scores from zero to four for each item; for example, a response of 'causing no stress at all' was assigned a score zero and 'causing severe stress' a score of four (Yusoff, et al., 2010). Yusoff et al. (2010) conducted data collection at the beginning of the 2008/2009 academic year so as to avoid the stressful examination period which could potentially bias the measurement.

From this study, Yusoff et al. (2010) found that the only significant factor affecting stress among medical students was year of study. The results showed that the overall prevalence of stress among the medical students was 29.6%, with the prevalence of stress for the first, second, third, fourth and fifth students being 26.3%, 36.5%, 31.4%, 35.3% and 21.9% respectively (Yusoff et al., 2010).

Medical training at the Universiti Sains Malaysia occurs in three phases over five years, first year is Phase I, year two and three are Phase II and years four and five are Phase III. As can be seen from the above statistics, the highest prevalence of stress was amongst second- and fourth-year students, 36.5% and 35.3% respectively. This was attributed to the fact that each of these groups is in the early stage of Phases II or III, respectively, and since each phase requires the use of different learning approaches, the high levels of stress could be due to the students' attempt to adjust to the new required learning approaches (Yusoff et al., 2010).

The lowest stress prevalence was found in the first- and final-year groups, with 26.3% and 21.9% respectively. A possible reason for the lower stress prevalence in final-year students is that they have developed adequate skills to manage their studies and therefore are able to cope better with stress, as compared to students in other years of study (Yusoff et al., 2010). For first-year students, however, it is likely that they were still experiencing the stage of 'euphoria and novelty' as the study was conducted two months into the academic year (Yusoff et al., 2010). Moreover, during this time period, the academic subjects they were enrolled in were subjects that the students had learned during their matriculation year (Yusoff et al., 2010).

Similarly, in a study by Suppe (1998) on medical students, it was found that stress in second- and third-year students was significantly greater than in first-year students. Suppe (1998) attributed this to the excessive load of practicals as well as course work which students were required to complete, whereas first-year students were not required to do any practicals or as much course work. Furthermore, the observed results could be due to second- and third-year students being fearful of not realising their dreams to become doctors, as well as to the perceived competition to qualify for post-graduate studies (Suppe, 1998).

## **2.7 Stress and race**

Feven et al. (2007) conducted a study investigating the relationship between race and stress. The sample consisted of 344 predominantly (94%) African-American undergraduate students enrolled at a historically black college or university and 165 predominantly (79%) white students enrolled at a predominantly white institution. In order to explore this relationship, Feven et al. (2007) explored the relationships between self-esteem (using the Rosenberg Self-Esteem Scale), social support (using a social support scale) and stress (using the Student

Stress Survey). The questionnaires were self-administered and used four-point likert scales that ranged from 'strongly agree' to 'strongly disagree' for the Rosenberg Self-Esteem Scale, 'none of the time' to 'all of the time' for the social support scale and 'not a problem at all' to 'very much a problem' for the Student Stress Scale.

Feven et al.'s (2007) study on black and white American students at two institutions found that there was a significant difference in the sources of stress experienced by college students in terms of race. It was found that more white students, in both institutions, reported low grades as a significant source of stress as compared to African-American students whether or not they were attending predominantly white institutions or historically black colleges or universities (Feven et al., 2007). Despite this, African-American students attending either predominantly white institutions or historically black colleges or universities reported higher levels of academic stress overall (Feven et al., 2007).

It was also found that the main sources of stress for both African-American and white students at predominantly white institutions, were academic stressors, whereas for all students at historically black colleges or universities, the main source of stress experienced was interpersonal stress, notably girlfriend or boyfriend problems and death of a family member (Feven et al., 2007).

Expanding the above, the top five sources of stress experienced by all students at historically black colleges or universities were, in descending order: death of a family member, low grades, time management, girlfriend or boyfriend problems and missed classes (Feven et al., 2007). In comparison, the top five sources of stress reported by (both black and white) students at predominantly white institutions were: low grades, time management, death of a family member, class load and being 'on hold' (where students are prevented from registering for various reasons).

It can be noted from the above that academic sources of stress contribute to a significant amount of stress experienced by all students (Feven et al., 2007). That is, three of the top five stressors for students from a historically black college or university were academic stressors (low grades, time management and missed classes), and for students (both black and white) from a predominantly white institute, academic stressors such as low grades, class load and time management were amongst the top five sources of stress for students (Feven et al., 2007). Furthermore, Feven et al. (2007) noted that students from a historically black college

or university reported higher levels of interpersonal stress than did students (both black and white) from a predominantly white institute.

Feven et al. (2007) also found that the top five sources of stress experienced by white students at predominantly white institutions were: low grades, class load, lack of sleep, difficulties with time management and other responsibilities. From this, Feven et al. (2007) concluded that there are differences in the main sources of stress experienced by students attending historically black colleges and universities and those attending predominantly white institutions. Table 1 summarises the top five sources of stress for the students in Feven et al.'s (2007) study.

**Table 1: Top five sources of stress for historically black colleges and universities (HBCU) and predominantly white institutions (PWI).**

Source	HBCU Students (N = 344)	PWI Students (Black) (N =26)	PWI Students (White) (N = 139)
1	Death of a family member (82%)	Low grades (62%)	Low grades (72%)
2	Low grades (69%)	Time management (62%)	Class load (72%)
3	Time management (61%)	Death of a family member (54%)	Sleeping (50%)
4	Boyfriend/Girlfriend problems (57%)	Class load (50%)	Time management (48%)
5	Missed classes (55%)	On hold (46%)	Responsibilities (43%)

Gad and Johnson (1980) conducted a study on 167 adolescents, 98 white and 69 black, between the ages of 12 and 14, to determine the relationships between adolescent life stress, race, socio-economic status and levels of perceived stress. In order to collect the data, the participants were given four questionnaires to complete; the first was an adaptation of the Life Experiences Survey, where the participants were required to indicate which of 53 events

they had experienced within the past year, as well as indicate whether they perceived the event as having a positive or negative impact on their lives (Gad & Johnson, 1980). The second questionnaire consisted of ten items that were designed to elicit information about the participants' perceptions of their health status and personal adjustment in the last year (Gad & Johnson, 1980). The third questionnaire was designed to assess the participants' use or avoidance of drugs. The last questionnaire consisted of fourteen items that "yielded subjective ratings of social support provided by family and friends" (Gad & Johnson, 1980, p. 14).

Gad and Johnson (1980) then made comparisons between black and white participants as well as between participants who differed in terms of socio-economic status. In this study, it was found that there were no differences between the two race groups when positive life change scores are considered. However, significant differences were found with regard to negative life change scores, where black adolescents displayed significantly greater negative life change than did white adolescents (Gad & Johnson, 1980).

## **2.8 Stress and social class**

In a study by Baum, Garofalo and Yali (2006), it was found that there is a relationship between chronic stress and socio-economic status. Chronic stress refers to "stress that persists abnormally or that lasts for a long time, either because it occurs repeatedly, episodically, or continuously or because it poses severe threats that are not easily adopted or overcome" (Baum et al., 2006, p. 132). Baum et al. (2006) found that low socio-economic status often places people in particular settings that are potentially more stressful than the settings that higher socio-economic status provides. Generally, low socio-economic status is associated with greater limits on choices about where one will live; thus, lower socio-economic status tends to expose people to residential areas characterised by high crime rates and drug abuse, as well as to environments that lack access to resources (Baum et al., 2006).

In addition, people from lower socio-economic status groups may experience more distress and poorer health outcomes due to their inability to purchase goods and services that reduce stress or minimize sources of stress (Baum et al., 2006). This would include the ability to buy healthy, nutritious food and being able to afford access to a gym or other exercise facilities.

Baum et al. (2006) also found that social status is associated with a greater frequency of stressful life events, for example, marital difficulty, deaths in the family and divorce. It was also found that depression, mental health problems and other indices of stress are more common in lower socio-economic status groups than in middle and upper socio-economic groups. Furthermore, Gad and Johnson (1980) found that adolescents from lower socio-economic groups, regardless of race, experienced higher levels of negative life circumstances compared to adolescents from higher socio-economic status groups, for example, being unable to buy branded clothing or experiencing unsafe living conditions.

## **2.9 Stress and health**

A number of studies have been conducted to explore the relationship between stress and health. As suggested earlier, this link between stress and health was at the foundation of the development of the Social Readjustment Rating Scale. Wheatley (1993) noted that the relationship between stress and illness is not simply a cause-and-effect one, but rather it is bi-directional and could be considered cyclical. In other words, “stress may cause or aggravate pre-existing physical illness and conversely physical illness can constitute a stress factor” (Wheatley, 1993, p. 6). Wheatley (1993) also suggested that merely experiencing stress does not necessarily translate into illness but it is when stress is prolonged, and the individual is experiencing difficulty in coping with it, that illness is more likely to develop.

Wheatley (1993) noted that there is considerable evidence that stress may initiate heart attacks or aggravate heart conditions as it is implicated in a number of risk factors for heart disease. For example, the minor stressors of daily life may contribute to people engaging in ‘comfort eating’ and thus eating more than dietary restrictions allow, resulting in obesity. It has been found that there is an adverse association between obesity and heart disease.

According to a study by Sarason, Sarason, Potter and Antoni (1985), it was negative life events that occurred in the recent past that were related to reports of illness. In this study, they found that the most frequently reported conditions were ankle and knee pains, as well as backaches, headaches and skin disorders (Sarason et al., 1985).

Kendler, Karkowski and Prescott (1999) conducted a study on the relationship between stressful life events and the onset of major depression. From this they concluded that stressful



life events have a substantial causal relationship with the onset of episodes of major depression (Kendler et al., 1999). Kendler et al., (1999) found that events judged to be independent of the respondent's behaviour were strongly associated with the risk of onset of depressive episodes. However, when the data were controlled for event severity, it was found that the probability of an onset of depression was about 80% greater for stressful events that were judged to be dependent on the individual's behaviour than those that were judged to be independent of the individual's behaviour. They also found that of the 15 stressful life events they investigated, 11 were "significantly associated with the onset of major depression in the month of occurrence and two others in subsequent months" (Kendler et al., 1999, p. 840).

Furthermore, Damush, Hays and DiMatteo (1997) found that stressful life events were related to poor health-related quality of life, which refers to poor functioning and well-being in one's physical, mental and social domains of life. They also noted that "merely experiencing a life change or event does not necessarily result in a negative outcome" (Damush et al., 1997, p. 181), but it is the subjective cognitive appraisals that determine the outcome. Therefore, if an event is negatively perceived, it has a greater potential for having an unfavourable impact on one's health-related quality of life.

The above-mentioned study was conducted on American college students and was conducted to investigate the relationship between stress and health-related quality of life in terms of depression, anxiety and bodily pain. Damush et al. (1997) found that experiencing distressing life events was related to greater anxiety, depression and bodily pain. This was especially noted in students who were experiencing stressful life events that they perceived to be negative in the family/parents area.

## **2.10 Conclusion**

The primary theoretical basis of this research was the Life Events Model of stress. This approach to stress suggests that change, whether positive or negative, is taxing and requires some readjustment. As such, life events compel one to experience changes that require readjustment. This, as Holmes and Rahe (1967) suggested, can lead to disruptions in one's personal life that can lead to poor health.

As previous studies have indicated, at some point in their academic careers, students experience stress, with academic stressors being the most frequently reported sources of stress by all students. It has also been found that students' reactions to stress can be categorised as being physical, emotional, cognitive or behavioural.

With regard to different variables, it has been found that students in their final year of study experience a significantly lower amount of stress than students in lower levels of study. This has been attributed to final-year students being able to manage their stress and studies better. Feven et al. (2007) found that students of different races tend to experience different primary sources of stress. It was found that black students tend to experience higher levels of interpersonal stress than other students. As mentioned above, people from low SES backgrounds tend to experience more stress than people from higher SES statuses. This, as Buam et al. (2006) suggested, can be attributed to the privilege and comfort that high SES statuses provide, for example, better access to health care and safety.

In addition, previous research has concluded that there is a clear direct link between stress and physical and emotional/mental health. Sarason et al. (1985) noted that the most reported physical conditions associated with stress were ankle and knee pains, backaches, headaches and skin disorders. It has also been found that stressful life events can lead to poor health related quality of life.

### **Chapter 3: Aims and rationale**

The basic aim of this study is to identify the main sources of stress experienced by students. In particular, the study aims to find out whether there are differences in the sources of stress experienced by students of different races and students at different levels of study, i.e. undergraduate and post-graduate students. Thus, the study aims to determine what types of stresses are experienced the most by students of a certain race and those of a certain level of study. In addition to the above stated aim, the study also seeks to determine if there is a relationship between stress and health in students. More specifically, the study seeks to find what the nature of the relationship between stress and certain kinds of illnesses is, for example upper respiratory tract infections (i.e. colds or 'flu') and depression.

The rationale behind the study is that, inasmuch as stress amongst students has frequently been studied, these studies have mainly been conducted in western countries and a few have been conducted in South Africa. In addition, after reviewing the literature, it has been found that there are no studies of stress that seek to explore the effect of race on sources of stress experienced by students.

Furthermore, the main sources of stress experienced by students in South Africa are likely to be different from those of students in western countries. This is because, according to a study by Ross et al. (1999), the top five sources of stress reported by students at an American college were mainly intrapersonal in nature (change in eating habits, change in sleeping habits and new responsibilities). The other two were environmental (vacation/breaks) and academic (increased workload) in nature. On the other hand, in a South African context it would be expected that students would most frequently report sources of stress that are mainly of an interpersonal and intrapersonal nature. This is due to the high prevalence of HIV/AIDS in South Africa, as well as the large number of people who live under conditions of poverty in South Africa.

Another reason why it was important to conduct this study was that, in South Africa, race plays a major role in most aspects of society and therefore it is interesting to find if there are any differences in the types of stress experienced by students of different races.

## **Chapter 4: Methodology**

### **4.1 Introduction**

The basic aim of this study was to identify the main sources of stress experienced by students. In particular, the study aimed to find out whether there are differences in the sources of stress experienced by students of different races, different socio-economic status and students at different levels of study i.e. undergraduate and post-graduate students. Thus, the study aimed to determine what types of stresses are experienced the most by students of a certain race and those of a certain level of study. In addition to the above stated aim, the study also sought to determine if there is a relationship between stress and health in students. More specifically, the study sought to find what the nature of the relationship between stress and certain kinds of illnesses is, for example, flu and depression.

The current study tests the following null hypotheses:

1. It is hypothesised that there is no difference between the main sources of stress experienced by South African students and those reported in the student stress literature.
2. The sources of stress experienced by different races will not differ significantly.
3. Students at different levels of study will not differ significantly in terms of sources of stress.
4. Students' socio-economic status does not have a significant impact on the sources of stress that they tend to experience.
5. There is no significant relationship between students' stress and their health.

The following sections will be covered in this chapter: research design (Section 4.2), sampling (Section 4.3), data collection (Section 4.4), instrument (i.e. the instrument used for data collection) (Section 4.5), data analysis (Section 4.6) and ethical considerations (Section 4.7).

## **4.2 Research design**

This is a descriptive study using a quantitative design; according to Hopkins (2008, p. 68), the main aim of quantitative research is to “determine the relationship between one or more factors (the independent variable/s) and another (the dependent variable) in a population.” As such, the study aims to discover whether there is a relationship in university students between source of stress and race, source of stress and level of study, source of stress and socio-economic status and stress and health. Descriptive research also tends to investigate large groups of subjects who are often in pre-existing categories (Whitley & Ball, 2002). For example, in this study the students are either in undergraduate or post-graduate levels of study; they are also categorised by race, socio-economic status and faculty of studies. In addition, descriptive research also tends to produce results that show average group behaviour (Whitley & Ball, 2002).

Descriptive studies are embedded in a positivist paradigm. A paradigm, according to Guba and Lincoln (1994, p. 105), can be defined as “the basic belief system or world view that guides the investigation.” Positivism is defined as an epistemology “which seeks to explain and predict what happens in the social world by searching for regularities and causal relationships between its constituent elements” (Krauss, 2005, p. 761). As such, the study sought to find regularities in the types of stressors experienced by students of similar races and students of similar levels of study. The study also aimed to determine the relationship between health and stress.

The design used to address the research questions was appropriate as it allowed the researcher to gather that which is quantitative in nature and can therefore be subjected to statistical testing. It was also an appropriate design because it allowed the researcher to “simply describe the phenomena” as experienced by the participants (Krauss, 2005, p. 760).

## **4.3 Sampling**

For the current study, all participants attended the University of KwaZulu-Natal, Pietermaritzburg campus (UKZNP). This campus in particular was chosen as it was easily accessible to the researcher and as it contained both undergraduate and post-graduate

students. The sample consisted of 105 undergraduate students and 100 postgraduate students, between the ages of eighteen and thirty-five. There were 120 African student participants, 39 white student participants, 34 Indian student participants and 12 coloured student participants. In terms of gender, there were 153 female participants and 52 male student participants. The demographic characteristics of the participants are presented in Table 4.1.

**Table 4.1: Demographic characteristics of participants**

	Gender		Race		Faculty				Level of study	
	M	F	Black	Other	HDSS	Commerce	Science	Law	Under-graduate	Post-graduate
N	53	152	120	85	134	42	22	7	103	102
%	25.4	74.6	58.5	61.5	65.4	20.5	10.7	3.4	50.2	49.8

To recruit participants, the researcher stood in popular lunch spots on the university campus and asked students to fill in questionnaires as they went past. The questionnaires were also handed out during lectures after the researcher had sought permission from the relevant gate keepers (see the following section).

The sampling technique used was convenience sampling. In this type of sampling, the researcher selects those who are convenient and appropriate as respondents (Terre Blanche et al., 2006); that is, members of the population are chosen based on their relative ease of access (Howell, 2007) and on their relevance to the research question. This type of sampling was used because it allowed the researcher to achieve the sample size with relative ease, speed and in an inexpensive manner (Howell, 2007).

One of the limitations of this type of sampling is that it is a non-probability sampling technique. This means that the results of the study cannot be generalised to the public as a whole or even to all student populations, as the sample is not fully representative of the entire student population at UKZNP. For example, the total number of students registered at UKZNP is 9 380; however, only 24.2% (n=2 269) are non-black students, whereas 41.5% (n=85) of the sample are non-black students. Furthermore, 56.2% (n=5 275) is made up of female students, whilst in the sample, the female population accounts for 74.1% (n=152). However, the results give an indication of the hypothesised relationships between stress and health in students. The limitation mentioned above poses a potential threat to the external

validity of the study (Terre Blanche et al., 2006). According to Campbell and Stanley (1966), external validity attempts to address the question ‘to what population, setting, treatment variables and measurement variables can this effect be generalised?’ To counter this threat, the sample was taken from across the university faculties.

#### **4.4 Data collection**

Data was collected on a number of different occasions and in different places. This occurred during lectures and at popular lunch venues on the university campus. In order to collect data in lectures, permission was sought from Heads of Schools and lecturers to hand out the scales to students during lectures. The researcher was given fifteen minutes to conduct data collection at the end of the lectures. During this time, the researcher would briefly explain the purpose of the study to the students in the lecture hall and hand out the questionnaires to students who were interested in participating in the study. The students were then required to fill in the questionnaire during the lectures and give them to the researcher as they left the lecture.

In addition, individual students were approached at popular lunch venues around the university campus. This was so that participants had a table to work on. However, the noise and social interaction at these venues may have been distracting to participants. The researcher would, once again, briefly explain the nature of the study to the students as well as inform them that participation was voluntary. The researcher would then give questionnaires to students who were interested in participating in the study. The participants were required to fill in the questionnaire and give it back to the researcher. They were given between five and ten minutes to fill in the questionnaire.

The student participants were informed about the nature and aims of the study through an informed consent form (see Appendix 1). The students were required to read the consent form and were encouraged to seek clarification about the nature of the study if they were unsure before filling in the questionnaire. Using a brief demographic questionnaire (see Appendix 2), data was collected on participants’ gender, age, race, level of study, socio-economic status, and faculty. Furthermore, participants were required to complete the Student Stress Scale (see Appendix 3) in order to gather data on the sources of stress experienced by students. Attached to the Student Stress Scale was a brief health questionnaire (see Appendix

3). This questionnaire was designed to assess participants' self-reported general state of health over the last year.

The researcher handed out a total of 300 questionnaires. Of these, 95 questionnaires were not filled in correctly, in that the participants did not fill in part(s) of the brief demographic questionnaire or questions that related to their state of health. Hence, these questionnaires could not be used as part of the research.

## **4.5 Instrument**

In order to collect stress data, the Student Stress Scale was used (see Appendix 3). This scale was developed by Insel and Roth (1985, in Ross, Niebling & Heckert, 1999) and is an adaptation of the Social Readjustment Rating Scale developed by Holmes and Rahe in 1967. The SRRS measures the amount of change, using Life Change Units (LCU), a respondent was required to adapt to in the previous year. It was designed to predict the likelihood of disease and illness following exposure to stressful life events.

According to Kothari (2004), validity is the extent to which a test measures what it claims to measure. Predictive validity refers to the "extent to which a score on a scale or test predicts scores on some criterion" (Kothari, 2004, p. 35). The Social Readjustment Rating Scale has been found to have good predictive validity (Bieliauskas & Webb, 1974). This is because Aponte and Miller (1972, in Bieliauskas & Webb, 1974) found that there was a relationship between life events stress and patients' past psychiatric history. The scale has also been found to have high reliability (Bieliauskas & Webb, 1974). Gerst, Grant, Yager and Sweetwood (1978) found that the SRRS has a test-retest total correlation that ranged from 0.83 in the short term (3-6 months), to 0.69 in the moderate time (6-12 months) and 0.59 in the long term (12-24 months). They also found that the rank order correlations for the SRRS ranged from 0.89 to 0.96 over the same time frame (Gerst et al., 1978).

The Student Stress Scale is made up of 31 items referring to life events (e.g. death of a close family member, change of major and pregnancy) which are divided into four categories: intrapersonal, interpersonal, academic and environmental sources of stress. In completing this scale, the participant is required to put a mark next to any event that has occurred in their life within the past year. If a particular event has occurred more than once in the respondent's



life, then the respondent is required to indicate this by putting the relevant number of marks next to the item. Each life event is rated using Life Change Units; for example, death of a close family member is rated 100, pregnancy is rated 45 and change in major is rated 39. To calculate a person's life change score, the scores of all events marked are added together. This score, like the SRRS scores, indicates one's likelihood of becoming ill.

The Student Stress Scale has been found to have good predictive validity ( $r=0.51$ ) (Konduri, Gupchup, Borrego & Worley-Louis, 2006). According to Konduri et al. (2006), the scores on the Student Stress Scale were found to be negatively related to the mental component of the Health-Related Quality of Life (HRQOL) index. HRQOL is defined as a "patient's subjective perception of the impact of his [sic] disease and its treatment on his daily life, physical, psychological and social functioning and well-being" (European Medicines Agency, 2005, p.3). This finding suggests that students who have higher stress scores perceive their stress to have a negative effect on their psychological functioning and well-being.

Busari (2011) also found that the Student Stress Scale has good convergent and divergent validity. Convergent validity refers to "the degree to which scores on a test correlate with scores on other tests that assess the same construct" (Kothari, 2004, p. 36) and divergent validity refers to "the degree to which scores on a test differ from other test scores that measure unrelated constructs" (Kothari, 2004, p. 36). In terms of convergent validity, the Student Stress Scale was highly correlated with the Student Problems Inventory and the Student-life Stress Inventory Scale ( $r=0.76$  and  $0.69$  respectively) (Busari, 2011). In terms of divergent validity, the Student Stress Scale showed a low correlation with the Acculturative Stress Scale for International Students; this test measures acculturative stress (Busari, 2011).

According to studies by Busari (2011) and Konduri et al. (2006), the Student Stress Scale also demonstrates excellent reliability. Reliability refers to the consistency of a measure, that is, the ability of the test to provide the same result repeatedly (Tredoux & Durrheim, 2004). Konduri et al. (2006) found that the Cronbach coefficient for the Student Stress Scale was 0.90; this indicates that the scale is a reliable measure of self-reported stress. The Student Stress Scale also demonstrated good internal consistency, with all the subscale alphas being above 0.80.

Place of residence was used in order to obtain an estimate of participants' socio-economic status. According to Onzima (2011), socio-economic status depends on a combination of

variables, which include occupation, education, income, wealth, and place of residence. As the study was conducted on students, it was decided that parents' place of residence would be the best measure of socio-economic status as most students do not have a source of income, and are still dependent on their parents/families for support.

In order to investigate the relationship between stress and health, participants were asked to rate their health over the last 12 months. The rationale behind this was that the SSS is meant to predict the likelihood of illness; therefore, it is expected that if one was to experience a large amount of stress in the previous 12 months, one would also be more likely to experience health-related difficulties. Participants were also asked to rate the number of times they suffered from flu/cold, bodily pain, anxiety or depression in the previous 12 months. According to Damush et al. (1997), students who experience a substantial amount of stress are more likely to experience bodily pain, depression and anxiety.

#### **4.6 Data analysis**

The data collected was quantitative in nature. After the data was collected using the brief demographic scale and the Student Stress Scale, it was coded and captured in the Statistical Package for Social Sciences (SPSS). For the brief demographic scale, level of study was coded 0 for *undergraduate* and 1 for *post-graduate*; socio-economic status was coded 0 for *rural*, 1 for *township* and 2 for *suburb*; faculty of study was coded 0 for *Humanities, Developmental and Social Sciences*, 1 for *Science*, 2 for *Commerce* and 3 for *Law*; and gender was coded 0 for *male* and 1 for *female*. Race was coded 0 for *black* and 1 for *other*. White, coloured and Indian race categories were collapsed into one category, as the sample in each of these race groups was too small to yield significant results.

Each of the 31 stressors on the Student Stress Scale, for example, *death of a family member*, *trouble with parents* and *change in university* and so on, was coded 0 for not experienced and 1 for experiencing it once, 2 for experiencing twice and so on. The total Life Change Unit score for each participant was calculated and captured in SPSS. The coding and data capturing was done by the researcher.

SPSS was then used to analyse the data using the chi-square and correlation tests. According to Dyer (1997), a chi-square statistic is used to investigate whether distributions of

categorical variables differ from one another. In other words, it tests for associations between two or more sets of categories (Tredoux & Durrheim, 2004). In this study, the categories are level of study, race, socio-economic status and the 31 stressors as measured by the Student Stress Scale. According to Tredoux and Durrheim (2004), the chi-square test has two assumptions that must be satisfied. The first assumption is that the number of participants expected in each cell must reach a certain minimum; as a rule of thumb, the expected frequency should be no less than five in at least 80% of the cells. The second assumption is that all items or people involved in the test should be independent of each other. That is, each observation must come from a different participant and no participant should be omitted from the table. The chi-square test is a non-parametric test; that is, it is a test that does not rely on population estimates or how evenly the data is distributed among the sample (Terre Blanche et al., 2004).

In order to compute the cross-tabulations for each chi-square, the variables level of study, race and socio-economic status were used for the rows and each of the 31 stressors was used for the columns. In each of the cross-tabulations, the observed and expected counts and the adjusted and standardised residuals were calculated. Using the chi-square statistic and the adjusted residuals, the associations between level of study, race, socio-economic status and each of the 31 stressors from the Student Stress Scale were explored for significant relationships. The computation of the cross-tabulations and the exploration were done by the researcher.

The data was also analysed using Pearson's Correlation Coefficient, in order to determine the relationship between health and stress. According to Tredoux and Durrheim (2004, p. 171), "a correlation is a measure of the strength and direction of the linear association between two variables." That is, a correlation coefficient measures how one variable affects another variable; for example, as one variable score increases so does the other variable score (positive correlation) or as one variable score increases, the other variable's score decreases (negative correlation). To calculate the correlation coefficients, the variables used were Total LCU points and Flu/Cold, Total LCU points and Bodily pain, Total LCU points and Anxiety and Total LCU points and Depression.

## **4.7 Ethical Issues**

In order to obtain ethical clearance, the researcher was required to hand in a proposal for the study. The proposal included a description of the study, a motivation for the study, a brief discussion of the methodology and the rationale behind the study. The proposal also included a brief description of ethical considerations. The proposal was handed in to the School of Psychology and the Faculty Board at UKZNP for approval and ethical clearance, which was obtained (Protocol Reference Number HSS/0436/011M).

### **4.7.1 Informed Consent**

Before completing the brief demographic scale and the Student Stress Scale, the participants were provided with information on an information sheet about the study (see Appendix 1). For the participants who were approached at lunch venues, this information was explained verbally. The participants were also informed that the study was voluntary. It was not necessary to obtain permission from any authorities as all the participants were over the age of 18.

### **4.7.2 Confidentiality and Anonymity**

As there was no need to collect identifying information, confidentiality and anonymity were guaranteed. For identification purposes, the questionnaires/participants were assigned numbers; for example, there are participants numbered 1 up to 205.

### **4.7.3 Beneficence and non-maleficence**

Apart from their time, participants did not incur any costs for participating in the study and there was no need for participant deception. The participants may benefit from this study as it potentially provides the Student Counselling Centre with information about the types of sources of stress that students experience. The results of the study will be made available to the Student Counselling Centre through email or as a presentation to the Centre.

### **4.7.4 Data storage**

In terms of data storage, the questionnaires used to obtain the data will be kept by the researcher in a locked and secure cupboard for a duration of five years; thereafter, they will be shredded.

## **4.8 Conclusion**

The aim of this study was to explore the main sources of stress experienced by university students. For this, an adaptation of Holmes and Rahe's Social Readjustment Rating Scale was used. This is the Student Stress Scale which was developed by Insel and Roth in 1984. The study also aimed to explore the relationship between stress, gender, level of study, race and social class as, individually, these aspects have been found to have a relationship with stress as indicated by previous studies. As the data collected was quantitative in nature, the data was analysed on SPSS using chi-square tests in order to ascertain the associations between stress and the independent variables. The study also aimed to explore the relationship between stress and health. In order to do this, the data was analysed using Pearson's correlation tests.

## Chapter 5: Results

### 5.1 Introduction

This chapter reports the results yielded from the data analysis. Firstly, the frequency of occurrence of each source of stress will be given, and then the results of the associations of between the sources of stress and gender, level of study, race and social class will be reported. Lastly, the results of the correlations between Life Change Units and Health will be given.

### 5.2 Student Stress Scale frequency of stressors

The Student Stress Scale yields how many times stressors are experienced by a respondent. In this study, the most frequently reported source of stress was *increased academic workload* (reported 153 times), while the least frequently reported source of stress was *fired from job* (reported 5 times). In addition, the sources of stress *change in sleeping habit* (135), *change in eating habits* (116) and *lower marks than expected* (113) were found to be amongst the most frequently reported sources of stress by the participants, whereas *jail term* (6), *divorce between parents* (7) and *marriage* (8) were found to be among the least reported sources of stress by the participants. See Table 5.1 for the frequency of each source of stress.

**Table 5.1: Frequency of stressors**

Sources of stress	Undergraduate (N = 103)	Postgraduate (N = 102)	Overall Frequency (N = 205)
Increased academic workload	73	80	153
Change in sleeping habits	66	69	135
Change in eating habits	61	55	116
Lower marks than expected	67	47	114
Change in social habits	51	60	111
Change in financial status	49	52	101
Change in health of family member	48	46	94
Death of a close family member	51	37	88
Serious argument with close friends	43	41	84
Change in living conditions	39	42	81
Outstanding personal achievement	35	40	75
New girlfriend or boyfriend	46	28	74
Change in number of family get-togethers	33	30	63
Too many missed lectures	48	12	60
First semester at university	35	22	57
Trouble with parents	25	31	56
Major personal injury	26	23	49
Death of a close friend	29	16	45
Failed important module	29	14	43
Change in major	22	12	34
Chronic transport problems	16	15	31
Minor traffic violation	13	12	25
Failed more than 1 module	17	3	20
Change in university	6	12	18
Pregnancy	8	9	17
Sex problems	8	9	17
Serious arguments with lecturer	9	7	16
Marriage	6	2	8
Divorce between parents	5	2	7
Jail term	3	3	6
Fired from job	3	2	5

Table 5.2 shows the range of frequency of the Life Change Units as reported by the participants and the range of the Life Change Units for each stressor. It can be noted each stressor was reported at least once by the participants.

**Table 5.2: Frequency and means of stressors and range of Life Change Units**

Sources of stress	Range of frequency of stressor	Under-graduate stressor frequency mean	Post-graduate stressor frequency mean	Range of Life Change Units
Death of a close family member	0-13	0.485	0.363	0-1300
Death of a close friend	0-2	0.282	0.157	0-146
Divorce between parents	0-1	0.049	0.020	0-65
Jail term	0-2	0.029	0.029	0-126
Major personal injury or illness	0-4	0.252	0.226	0-252
Marriage	0-2	0.058	0.020	0-116
Fired from job	0-1	0.029	0.020	0-50
Failed important module	0-3	0.282	0.137	0-171
Change in health of family member	0-4	0.466	0.451	0-180
Pregnancy	0-3	0.078	0.088	0-135
Sex problems	0-4	0.078	0.088	0-176
Serious argument with close friends	0-4	0.418	0.402	0-160
Change in financial status	0-6	0.476	0.510	0-234
Change in major	0-2	0.214	0.108	0-78
Trouble with parents	0-6	0.243	0.304	0-234
New girlfriend or boyfriend	0-7	0.447	0.275	0-266
Increased academic workload	0-7	0.709	0.775	0-259
Outstanding personal achievement	0-18	0.340	0.412	0-648
First semester at university	0-2	0.340	0.226	0-70
Change in living conditions	0-3	0.379	0.412	0-93
Serious argument with lecturer	0-8	0.087	0.069	0-240
Lower marks than expected	0-9	0.651	0.471	0-261
Change in sleeping habits	0-8	0.641	0.677	0-232
Change in social habits	0-8	0.495	0.588	0-232
Change in eating habits	0-7	0.592	0.539	0-196
Chronic transport problems	0-9	0.155	0.137	0-234
Change in number of family get-togethers	0-16	0.320	0.294	0-416
Too many missed lectures	0-8	0.466	0.118	0-200
Change in university	0-3	0.058	0.118	0-72
Failed more than 1 module	0-3	0.165	0.029	0-69
Minor traffic violation	0-5	0.146	0.167	0-100



### 5.3 Health results

In terms of health, 131 participants (63.9%; UG: 74; PG: 57) reported being in generally good health over the last year, 61 (UG: 22; PG: 39) participants reported having a generally moderate health and 13 (UG: 7; PG: 6) reported being in generally poor health. With regard to specific illnesses, 41 participants (UG: 11; PG: 30) reported suffering from anxiety six or more times over the course of the last year, and 27 (UG: 13; PG: 14) students reported suffering from bodily pain six or more times over the last year. Table 5.3a and Table 5.3b show the frequency of each illness as reported by the students.

**Table 5.3a: Frequency of illness in undergraduate students (N = 103)**

<b>ILLNESS</b>	<b>0</b>	<b>%</b>	<b>1-2</b>	<b>%</b>	<b>3-5</b>	<b>%</b>	<b>6+</b>	<b>%</b>
<b>Flu/cold</b>	13	<b>12.6</b>	60	<b>58.3</b>	26	<b>25.2</b>	4	<b>3.8</b>
<b>Bodily pain</b>	21	<b>20.4</b>	38	<b>36.9</b>	31	<b>30.1</b>	13	<b>12.6</b>
<b>Anxiety</b>	28	<b>27.2</b>	39	<b>37.9</b>	25	<b>24.3</b>	11	<b>10.7</b>
<b>Depression</b>	37	<b>35.9</b>	38	<b>36.9</b>	19	<b>18.4</b>	9	<b>8.7</b>
<b>TOTAL</b>	<b>99</b>		<b>175</b>		<b>101</b>		<b>37</b>	

**Table 5.3b: Frequency of illness in post-graduate students (N =102)**

<b>ILLNESS</b>	<b>0</b>	<b>%</b>	<b>1-2</b>	<b>%</b>	<b>3-5</b>	<b>%</b>	<b>6+</b>	<b>%</b>
<b>Flu/cold</b>	15	<b>14.7</b>	57	<b>55.9</b>	29	<b>28.4</b>	1	<b>0.9</b>
<b>Bodily pain</b>	20	<b>19.6</b>	41	<b>40.2</b>	27	<b>26.5</b>	14	<b>13.7</b>
<b>Anxiety</b>	21	<b>20.6</b>	31	<b>30.4</b>	20	<b>19.6</b>	30	<b>29.4</b>
<b>Depression</b>	46	<b>44.1</b>	35	<b>34.3</b>	10	<b>9.8</b>	11	<b>10.8</b>
<b>TOTAL</b>	<b>102</b>		<b>164</b>		<b>86</b>		<b>56</b>	

## 5.4 Associations between source of stress and gender

Table 5.4 shows the results of the associations between gender and the 31 sources of stress. From the table it can be noted that *minor traffic violation* ( $p < 0.001$ ), *lower marks than expected* ( $p < 0.01$ ), *failed important module* ( $p < 0.05$ ), *new girlfriend or boyfriend* ( $p < 0.05$ ) and *too many missed lectures* ( $p < 0.05$ ), are significantly more likely to be experienced by male students than by female students.

**Table 5.4: Associations between source of stress and gender**

Sources of stress	Male	Female	$\chi^2$	$P$
	52	153	$df=1$	
Death of a close family member	20	68	0.567	0.451
Death of a close friend	12	33	0.052	0.820
Divorce between parents	2	5	0.039	0.843 <sup>a</sup>
Jail term	3	3	1.981	0.159 <sup>a</sup>
Major personal injury or illness	13	36	0.046	0.830
Marriage	3	5	0.647	0.421 <sup>a</sup>
Fired from job	3	2	3.247	0.072 <sup>a</sup>
Failed important module	16 (2.0)	27 (-2.0)	4.032	0.045*
Change in health of family member	24	70	0.003	0.960
Pregnancy	5	12	0.160	0.689
Sex problems	6	11	0.965	0.326
Serious argument with close friends	21	63	0.010	0.920
Change in financial status	52	73	0.584	0.445
Change in major	12	22	2.122	0.145
Trouble with parents	16	40	0.418	0.518
New girlfriend or boyfriend	25 (2.1)	49 (-2.1)	4.334	0.037*
Increased academic workload	36	117	1.075	0.300
Outstanding personal achievement	21	54	0.433	0.510
First semester at university	14	43	0.027	0.870
Change in living conditions	21	60	0.022	0.882
Serious argument with lecturer	7	9	3.098	0.078
Lower marks than expected	37 (2.6)	77 (-2.6)	6.820	0.009**
Change in sleeping habits	30	105	2.064	0.151
Change in social habits	34	77	3.544	0.060
Change in eating habits	31	85	0.260	0.610
Chronic transport problems	12	19	3.435	0.064
Change in number of family get-togethers	15	48	0.116	0.733
Too many missed lectures	21 (2.0)	39 (-2.0)	4.159	0.041*
Change in university	7	11	1.906	0.167
Failed more than one module	8	12	2.507	0.113
Minor traffic violation	13 (3.3)	12 (-3.3)	10.669	0.001**

Note: <sup>a</sup> results inconclusive as one or more cells have expected counts less than 5.

\*  $p < 0.05$  \*\*  $p < 0.01$  \*\*\*  $p < 0.001$

Adjusted residuals in parentheses

## 5.5 Associations between source of stress and level of study

The results of the association between the 31 sources of stress and level of study are shown in Table 5.5. From the table, it can be noted that *too many missed lectures* ( $p < 0.001$ ), *failed more than one module* ( $p < 0.001$ ), *new girlfriend or boyfriend* ( $p < 0.01$ ), *lower marks than expected* ( $p < 0.01$ ), *death of a close friend* ( $p < 0.05$ ), *failed important module* ( $p < 0.05$ ) and *first semester at university* ( $p < 0.05$ ) are significantly more likely to be experienced by undergraduate students than by post-graduate students.

## 5.6 Associations between source of stress and race

The results of the association between race and the 31 sources of stress are shown in Table 5.6. From this table, it can be noted that *sex problems* ( $p < 0.01$ ) and *lower marks than expected* ( $p < 0.01$ ), *failed important module* ( $p < 0.05$ ), *change in living conditions* ( $p < 0.05$ ), *change in financial status* ( $p < 0.05$ ) and *new girlfriend or boyfriend* ( $p < 0.05$ ), are significantly more likely to be experienced by black students than by students from other races. It can also be noted that students of other races are significantly more likely to experience *trouble with parents* ( $p < 0.01$ ), *change in health of family member* ( $p < 0.01$ ) and *minor traffic violation* ( $p < 0.05$ ) as stressors than are black students.

## 5.7 Associations between source of stress and socio-economic class

Table 5.7 shows the results of the associations between social class and the 31 sources of stress. The students' parents' place of residence was used as a proxy for socio-economic class, with 'suburb' denoting high socio-economic status background and 'rural' denoting low socio-economic background. It can be seen that students from an average socio-economic status background ('township') are significantly more likely to experience *lower marks than expected* ( $p < 0.01$ ) and *divorce between parents* ( $p < 0.05$ ) than are students from a low socio-economic status background. Students from a high socio-economic status background are significantly more likely to experience *trouble with parents* ( $p < 0.05$ ) than are students from an average or low socio-economic status background.

**Table 5.5: Associations between source of stress and level of study**

Sources of stress	Under-graduate	Post-graduate	$\chi^2$	<i>P</i>
	103	102	<i>df</i> =1	
Death of a close family member	51	37	3.667	0.056
Death of a close friend	29 (2.2)	16 (-2.2)	4.651	0.031*
Divorce between parents	5	2	1.301	0.254 <sup>a</sup>
Jail term	3	3	0.000	0.990 <sup>a</sup>
Major personal injury or illness	26	23	0.204	0.651
Marriage	6	2	2.041	0.153 <sup>a</sup>
Fired from job	3	2	0.195	0.659 <sup>a</sup>
Failed important module	29 (2.5)	14 (-2.5)	6.438	0.011*
Change in health of family member	48	46	0.047	0.829
Pregnancy	8	9	0.075	0.784
Sex problems	8	8	0.075	0.784
Serious argument with close friends	43	41	0.051	0.821
Change in financial status	49	52	0.238	0.626
Change in major	22	12	3.410	0.065
Trouble with parents	25	31	0.967	0.325
New girlfriend or boyfriend	46 (2.6)	28 (-2.6)	6.580	0.01**
Increased academic workload	73	80	1.546	0.214
Outstanding personal achievement	35	40	0.605	0.437
First semester at university	35 (2.0)	22 (-2.0)	3.933	0.047*
Change in living conditions	39	42	0.235	0.628
Serious argument with lecturer	9	7	0.250	0.617
Lower marks than expected	67 (2.7)	47 (-2.7)	7.471	0.006**
Change in sleeping habits	66	69	0.290	0.590
Change in social habits	51	60	1.789	0.181
Change in eating habits	61	55	0.586	0.444
Chronic transport problems	16	15	0.027	0.869
Change in number of family get-togethers	33	30	0.166	0.684
Too many missed lectures	48 (5.5)	12 (-5.5)	30.044	0.000***
Change in university	6	12	2.257	0.133
Failed more than one module	17 (3.3)	3 (-3.3)	10.709	0.001** <sup>a</sup>
Minor traffic violation	13	12	0.035	0.851

Note: <sup>a</sup> results inconclusive as one or more cells have expected counts less than 5.

\*  $p < .05$  \*\*  $p < .01$  \*\*\*  $p < .001$

Adjusted residuals in parentheses

**Table 5.6: Associations between source of stress and race**

Sources of stress	Black	Other	$\chi^2$	<i>P</i>
	120	85	<i>df</i> =1	
Death of a close family member	56	32	1.652	0.199
Death of a close friend	26	19	0.014	0.688
Divorce between parents	4	3	0.006	0.939 <sup>a</sup>
Jail term	5	1	1.566	0.211 <sup>a</sup>
Major personal injury or illness	32	17	1.216	0.270
Marriage	3	5	1.518	0.218 <sup>a</sup>
Fired from job	3	2	0.005	0.946 <sup>a</sup>
Failed important module	32 (2.4)	11 (-2.4)	5.655	0.017*
Change in health of family member	45	49	8.134	0.004**
Pregnancy	12	5	1.109	0.292
Sex problems	15 (2.6)	2 (-2.6)	6.736	0.009** <sup>a</sup>
Serious argument with close friends	50	34	0.057	0.811
Change in financial status	68	33	6.388	0.012*
Change in major	20	14	0.001	0.970
Trouble with parents	22 (-3.4)	34 (3.4)	11.764	0.001**
New girlfriend or boyfriend	50 (2.0)	24 (-2.0)	3.891	0.049*
Increased academic workload	89	64	0.033	0.855
Outstanding personal achievement	44	31	0.001	0.977
First semester at university	36	21	0.695	0.405
Change in living conditions	55 (2.2)	26 (-2.2)	4.838	0.028*
Serious argument with lecturer	10	6	0.112	0.738
Lower marks than expected	77 (2.9)	37 (-2.9)	8.584	0.003**
Change in sleeping habits	78	57	0.094	0.759
Change in social habits	62	49	0.717	0.397
Change in eating habits	69	47	0.099	0.754
Chronic transport problems	15	16	1.550	0.213
Change in number of family get-togethers	32	31	2.247	0.134
Too many missed lectures	34	26	0.122	0.727
Change in university	12	6	0.537	0.464
Failed more than 1 module	15	5	2.475	0.116
Minor traffic violation	10 (-2.0)	15 (2.0)	4.031	0.045*

Note: <sup>a</sup> results inconclusive as one or more cells have expected counts less than 5.

\*  $p < .05$  \*\*  $p < .01$  \*\*\*  $p < .001$

Adjusted residuals in parentheses

**Table 5.7: Associations between source of stress and social class**

Sources of stress	Rural	Township	Suburb	$\chi^2$	$p$
	36	53	116	$df=2$	
Death of a close family member	16	26	46	1.353	0.508
Death of a close friend	3	15	27	5.263	0.072 <sup>a</sup>
Divorce between parents	0 (-1.2)	5 (2.8)	2 (-1.5)	8.100	0.017* <sup>a</sup>
Jail term	1	2	3	0.184	0.912 <sup>a</sup>
Major personal injury or illness	10	12	27	0.369	0.832
Marriage	0	2	6	1.963	0.375 <sup>a</sup>
Fired from job	0	1	4	1.464	0.481 <sup>a</sup>
Failed important module	9	16	18	5.151	0.076
Change in health of family member	13	21	60	3.815	0.148
Pregnancy	4	6	7	1.793	0.408 <sup>a</sup>
Sex problems	2	8	7	4.357	0.113 <sup>a</sup>
Serious argument with close friends	13	24	47	0.769	0.681
Change in financial status	19	31	51	3.286	0.193
Change in major	5	11	18	0.951	0.622
Trouble with parents	4 (-2.4)	10 (-1.6)	42 (3.3)	11.285	0.04* <sup>a</sup>
New girlfriend or boyfriend	15	24	35	40188	0.123
Increased academic workload	28	35	90	2.791	0.248
Outstanding personal achievement	17	19	39	20207	0.332
First semester at university	13	16	28	2.164	0.339
Change in living conditions	16	27	38	5.478	0.065
Serious argument with lecturer	5	5	6	3.164	0.206
Lower marks than expected	17 (-1.1)	39 (3.1)	58 (1.8)	9.442	0.009**
Change in sleeping habits	24	34	77	0.093	0.954
Change in social habits	14	32	65	4.371	0.112
Change in eating habits	17	30	69	1.681	0.431
Chronic transport problems	6	10	15	1.080	0.583
Change in number of family get-togethers	10	18	35	0.424	0.809
Too many missed lectures	9	16	35	0.384	0.825
Change in university	2	5	11	0.567	0.753 <sup>a</sup>
Failed more than one module	4	4	12	0.414	0.813 <sup>a</sup>
Minor traffic violation	5	4	16	1.442	0.486 <sup>a</sup>

Note: <sup>a</sup> results inconclusive as one or more cells have expected counts less than 5.

\*  $p < .05$  \*\*  $p < .01$  \*\*\*  $p < .001$

Adjusted residuals in parentheses

## 5.8 Summary of positive and negative associations

Table 5.8 shows a summary of Tables 5.4 and 5.5. As was described in the previous chapter, the sources of stress in the Student Stress Scale are divided into four categories. The first category is interpersonal sources of stress; these are an outcome of interactions with other people, for example, having an argument with a friend or a new girlfriend or boyfriend. The second category is intrapersonal sources of stress; these result from internal sources, for example, changes in eating or sleeping habits. The third category is academic sources of stress; these arise from school related activities or issues, for example, lower marks than expected or a change in major. Lastly, the fourth category is environmental sources of stress; these are due to problems in the environment, for example, chronic transport problems or change in living conditions. Table 5.8 shows the positive associations of sources of stress with gender and level of study. Only significant results are shown.

**Table 5.8: Positive associations between sources of stress, gender and level of study**

Category	Source of stress	Gender	Level of study
Interpersonal	New girlfriend or boyfriend	Male*	Undergraduate*
Intrapersonal	First semester at university		Undergraduate*
	Minor traffic violation	Male**	
	Death of a close friend		Undergraduate*
Academic	Lower marks than expected	Male**	Undergraduate**
	Missed too many lectures	Male*	Undergraduate***
	Failed important module	Male*	Undergraduate*
	Failed more than one module		Undergraduate** <sup>a</sup>
Environmental			

Note: <sup>a</sup> results inconclusive as one or more cells have expected counts less than 5.

\* p<.05 \*\*p<.01 \*\*\*p<.001

Table 5.9 shows another summary of Tables 5.4 and 5.5. It shows the negative associations between sources of stress and gender and level of study. Only significant results are shown.

**Table 5.9: Negative associations between sources of stress, gender and level of study**

Category	Source of stress	Gender	Level of study
Interpersonal	New girlfriend or boyfriend	Female*	Postgraduate*
Intrapersonal	First semester at university	Female**	Postgraduate*
	Minor traffic violation		
	Death of a close friend		Postgraduate*
Academic	Lower marks than expected	Female**	Postgraduate**
	Missed too many lectures	Female*	Postgraduate***
	Failed important module	Female*	Postgraduate*
	Failed more than one module		Postgraduate** <sup>a</sup>
Environmental			

Note: <sup>a</sup> results inconclusive as one or more cells have expected counts less than 5.

\* p<.05 \*\*p<.01 \*\*\*p<.001

Table 5.10 shows a summary of Tables 5.6 and 5.7. It shows the positive associations of sources of stress with race and social class. Only significant results are shown.

**Table 5.10: Positive associations between sources of stress, race and social class**

Category	Source of stress	Race	Social class
Interpersonal	New girlfriend or boyfriend	Black*	
	Trouble with parents	Other**	High SES*** <sup>a</sup>
	Sex problems	Black*** <sup>a</sup>	
Intrapersonal	Change in financial status	Black*	
	Minor traffic violation	Other*	
Academic	Lower marks than expected	Black**	Average SES**
	Failed important module	Black*	
Environmental	Change in living conditions	Black*	
	Divorce between parents		Average SES* <sup>a</sup>
	Change in health of a family member	Other**	

Note: <sup>a</sup> results inconclusive as one or more cells have expected counts less than 5.

\* p<.05 \*\*p<.01 \*\*\*p<.001



Table 5.11 shows another summary of Tables 5.6 and 5.7. It shows the negative associations of sources of stress with race and social class. Only significant results are shown.

**Table 5.11: Negative associations between sources of stress, race and social class**

Category	Source of stress	Race	Social class
Interpersonal	New girlfriend or boyfriend	Other*	
	Trouble with parents	Black**	Low SES, Average SES** <sup>a</sup>
	Sex problems	Other** <sup>a</sup>	
Intrapersonal	Change in financial status	Other*	
	Minor traffic violation	Black*	
Academic	Lower marks than expected	Other**	Low SES, High SES**
	Failed important module	Other*	
Environmental	Change in living conditions	Other*	
	Divorce between parents		Low SES, High SES* <sup>a</sup>
	Change in health of a family member	Black**	

Note: <sup>a</sup> results inconclusive as one or more cells have expected counts less than 5.

\* p<.05 \*\*p<.01 \*\*\*p<.001

The above four tables show that level of study has the most associations with academic stressors. Level of study is associated with five (*lower marks than expected, first semester at university, missed too many lectures, failed important module and failed more than one module*) out of the eight academic stressors. The tables also show that race has the most associations with interpersonal stressors. Race is associated with *new girlfriend or boyfriend, trouble with parents* and *sex problems*. It can also be seen that the stressor *lower marks than expected* is associated with all four variables (gender, level of study, race and social class).

Furthermore, it can be seen that social class does not have any associations with intrapersonal stressors and that the variables gender and level of study do not have any associations with environmental stressors. It can also be noted that race is the only variable that has associations with at least one stressor from each category. For example, race is associated with the interpersonal stressor *trouble with parents*; it is associated with the intrapersonal stressor *change in financial status*; in terms of academic stressors, it is associated with *lower marks than expected* and with environmental stressors, it is associated with *change in living conditions*.

## 5.9 Correlation between LCU and health

Table 5.12 shows the results for the correlation between total life change units and health. From the table, it can be noted that there is no statistically significant relationship between overall *health* and total LCUs ( $p>0.05$ ) or between *anxiety* and total LCUs ( $p>0.05$ ). It can also be noted that there are statistically significant 2-tailed correlations between total LCUs and *bodily pain* ( $p<0.01$ ), total LCUs and *flu/cold* ( $p<0.05$ ), and total LCU and *depression* ( $p<0.05$ ).

**Table 5.12: Correlation of LCUs and health**

Correlation	Pearsons' r	Sig. 2-tailed
LCU*overall Health	0.052	0.455
LCU*Flu/Cold	0.153	0.028*
LCU*Bodily pain	0.181	0.010**
LCU*Anxiety	0.130	0.063
LCU*Depression	0.141	0.045*

Note: \*  $p<0.05$  \*\* $p<0.01$

## 5.10 Conclusion

From the data, it was found that the most frequently reported sources of stress by students at UKZNP were *increased academic workload, change in sleeping habits and change in eating habits*, whilst the least frequently reported sources of stress were *fired from a job, jail term and divorce between parents*. With regard to health, most students (69.3%) reported to be in good health, with the most frequently reported health problems being anxiety and bodily pains. It was also found that there were five significant results between stress and gender, seven significant results between stress and level of study, nine significant results between stress and race and three significant results between stress and social class. Furthermore, the only significant results found in terms of the relationship between stress and health were for *bodily pain, flu/cold and depression*.

## Chapter 6: Discussion

### 6.1 Introduction

This chapter seeks to explain the negative and positive associations between stress, gender, level of study, race, social class and health. The discussion will offer hypotheses about the links between sources of stress, gender, level of study, race and social class and between stress and health, in order to attempt to understand these associations.

The top five reported sources of stress by participants in this study were in three categories: interpersonal stressors (*change in social habits*), intrapersonal stressors (*change in sleeping habits* and *change in eating habits*) and academic stressors (*increased academic workload* and *lower marks than expected*). When looking at each variable, for example, gender, and each category within the variable, for example, male and female, it can be seen that at least four of the top five reported sources of stress are in the top five for both male and female participants. This demonstrates that academic and intrapersonal stressors, especially, contribute a significant amount of the stress experienced by students.

As with the study by Ross et al. (1999), some of the most frequently reported sources of stress were *increased workload*, *change in sleeping habits* and *change in eating habits*. Ross et al. (1999) also found that intrapersonal stressors contribute significantly to the amount of stress experienced by students; in their study, three out of the top five (*change in sleeping habits*, *change in eating habits* and *vacations/breaks*) sources of stress reported by students were in the intrapersonal category. In the current study, it was found that two (*change in sleeping habits* and *change in eating habits*) of the top five reported sources of stress were in the intrapersonal category.

Furthermore, as with the study by Pillay and Ngcobo (2010), some of the most frequently reported sources of stress were *increased academic work load* and *lower marks than expected*. These sources of stress are related to performance; as such, this relates to students being inadequately prepared for university education in high school. This will be discussed in more detail below. Other frequently reported sources of stress were *change in living conditions*, *change in finances* and *death of a close family member*.

This chapter will discuss the significant findings of the study. Section 6.2 will focus on the significant results found within the interpersonal sources of stress category. Section 6.3 will discuss intrapersonal sources of stress. The significant results of the academic sources of stress will be discussed in Section 6.4 whilst Section 6.5 will discuss the significant findings of the environmental sources of stress.

## **6.2 Interpersonal sources of stress**

According to Ross et al. (1999), interpersonal sources of stress are stressors that result from interactions with other people. In the present study, the interpersonal sources of stress with significant associations are *new girlfriend/boyfriend*, *trouble with parents* and *sex problems*.

### **6.2.1 New girlfriend/boyfriend**

The finding that male participants are more likely than female participants to experience the stressor *new girlfriend/boyfriend* can be explained by the finding that “male students are more likely to be sexually active than female students” (Hoque, 2011a, p. 146). According to Hoque (2011a, 2011b), it was found that in the 12 months prior to his studies the average number of sexual partners for male and female undergraduate students were four and two respectively. This suggests that male students tend to have more girlfriends in one year than do female students. Furthermore, Katyal and Awasthi (2005) found that adolescent females tend to have higher emotional intelligence than do adolescent males. Katyal and Awasthi (2005, p.153) defined emotional intelligence as the “the capacity to create positive outcomes in relationships with others and with oneself.” This suggests that females are more likely to be more committed in their relationships than are males; hence, male students are more likely to experience having more partners than would female students.

Undergraduate students are more likely than postgraduate students to experience the stressor *new girlfriend/boyfriend*. This could be due to the fact that the beginning of university brings about changes to one’s living arrangements and friendship networks; it also brings about greater independence, freedom and responsibility in one’s personal life (Al-Qaisy, 2010). As such, undergraduate students tend to have more freedom to engage in romantic relationships than they might have had at home. Moreover, the transition to university life can be very

overwhelming as most undergraduate students will find themselves in a new environment and surrounded by strangers. Engaging in a romantic relationship at this time might exacerbate the students' experience of stress.

It was also found that black students experienced the stressor *new girlfriend/boyfriend* significantly more than coloured, Indian and white students. This can be attributed to the fact that black people in South Africa tend to be poorer than other races as black people did not have access to good education during the apartheid era. This meant that black people had limited career options, such as teaching, nursing, garden workers and domestic workers. Hoque (2011b) suggested that poverty and the need to survive may force people into multiple relationships or into prostitution.

A large number of black students at UKZNP come from poor financial backgrounds and hence might engage in multiple relationships as a means of financial security. In addition, the limited career options for black people and the high mortality rate associated with the HIV/AIDS epidemic may have caused family disruptions, for example, breadwinners relocating in order to find jobs or children being left orphaned due to HIV/AIDS. This family disruption may possibly lead to reduced social support and hence, apart from socio-economic factors, black students may be more likely to enter into romantic relationships in search of social support and comfort. At the same time, being in a romantic relationship can be financially costly, hence these students are torn between their emotional needs and their financial constraints.

### **6.2.2 Trouble with parents**

This stressor was experienced significantly more by coloured, Indian and white students. Almost 95% of the students living in residence at UKZNP are black. This suggests that many students from other races live at home with their parents. Therefore, it is easy to understand how these students are significantly more likely to experience *trouble with parents* as a stressor than do black students, as they spend more time with their parents than do black students.

Furthermore, *trouble with parents* is positively associated with high SES. As university accommodation is subsidized by government funding, such as the National Student Financial Aid Scheme (NSFAS), and off-campus accommodation proves to be a lot more costly

(Report on the ministerial committee for the review of the provision of student housing at South African universities, 2011), more students from a low or average SES background tend to live on campus than those from a high SES background. This means that students from a high SES background tend to have more interaction with their parents and hence might experience more trouble/conflict with parents than do students from a low or average SES background.

### **6.2.3 Sex problems**

The stressor *sex problems* was experienced significantly more by black students than by students of other races. A possible explanation for this is that, as Ngubane (2010, p. 2) suggests, within African culture, “adults often assume that young people are too young to discuss or be concerned about sex.” Hence, young black people tend to engage in sexual relationships without adequate information they need for healthy relationships. As a result, they may end up contracting HIV or other sexually transmitted infections. Furthermore, in a study by the International HIV & AIDS Charity (2009), it was found that the prevalence of HIV in South Africa was highest amongst the black population (13.6%), followed by the coloured population (1.7%) and least amongst the white and Indian populations (0.3%, respectively). This can result in black people experiencing more difficulties and stress in terms of opportunistic illnesses and the negotiation of safe sex.

## **6.3 Intrapersonal sources of stress**

Intrapersonal stressors refer to stress that results from internal sources (Ross et al., 1997). These are events experienced by the student themselves, independent of their interpersonal or environmental relationships. In the present study, the intrapersonal sources of stress with significant associations are *first semester at university*, *minor traffic violation*, *change in financial status* and *death of a close friend*.

### **6.3.1 First semester at university**

Undergraduate students reported a significantly greater frequency of the stressor *first semester at university*. This could be due to the fact that when data was collected, it was

during the first semester of the year and it would have been their first university semester for most of the first-year students.

### **6.3.2 Minor traffic violation**

Studies by Akerstedt and Kecklund (2001) and Rosenbloom, Ben-Eliyahu and Nemrodov (2009) both found that male drivers are more prone to indulge in risky driving than are female drivers, regardless of their age. This has been attributed to male drivers being more aggressive and overly confident about their driving skills. Akerstedt and Kecklund (2001) suggested that young male drivers are particularly at risk of indulging in risky driving due to peer pressure and inexperience. As such, this could help to explain male participants being significantly more likely to experience *minor traffic violation* as a stressor.

*Minor traffic violation* was also experienced significantly more by black students, compared to students of other races. In a survey conducted by the Department of Transport in 2003, it was found that 20% of South African citizens over the age of 18 were in possession of a driver's licence. In terms of race it was found that 83% of whites over the age of 18 possessed a driver's licence while only 10% of the black population were in possession of a driver's licence. This suggests that the majority of car owners in South Africa are whites and as such, black people might be significantly more inexperienced in driving than are white people. Furthermore, the European Conference of Ministers of Transport (ECMT) (2006, p. 11) found that one of the leading causes of traffic violations amongst drivers is inexperience; "learning to drive takes time and needs extensive practice in order to reach a sufficient competence level." For the inexperienced driver the actions of driving can lead to increased mental workload that may possibly distract attention from the road which could result in traffic violations.

### **6.3.3 Change in financial status**

*Change in financial status* was experienced significantly more by black students compared to students of other races. This clearly relates to sources of funding for students. Traditionally, students' families have been required to raise the funds needed to pay for tertiary education. According to a survey conducted by Statistics South Africa in 2010, it was found that the median monthly earnings of whites and Indian/Asian population (R9 500 and R6 000, respectively) were substantially higher than that of the coloured (R2 652) and the black (R2

162) population. As such, black parents are likely to face more difficulties with regard to paying tertiary tuition fees and this stress is likely to be experienced across the whole family.

As a result of the income disparity discussed above, many students, especially the historically disadvantaged, need to seek funding elsewhere. These sources include banks and bursaries; however, banks require security for loans and bursary funding is limited. That leaves many black students reliant on gaining other means of funding their studies. UKZN is considered to be a historically black and disadvantaged institute (Cebekhulu & Mantzaris, 2006). As such, most black students receive funding from NSFAS (*Report on the ministerial committee for the review of the provision of student housing at South African universities*, 2011).

Breier (2010) noted that NSFAS allocations are announced at the end of the preceding year but the first portion of this is given to institutions only on the first of April each year, as this marks the beginning of the government's fiscal year. As such, many historically black universities experience cash flow problems during the first quarter of the year and subsequently demand an upfront payment from students (Breier, 2010). Furthermore, as the demand for NSFAS is greater than the supply, institutions tend to give students less than the full amount they need so that NSFAS "can spread the available support as far as possible" (Breier, 2010, p. 664). All these factors can be seen to be contributing to the financial difficulties and related stress experienced by black students.

#### **6.3.4 Death of a close friend**

Balk (2008, p. 5) found that at "any given time, 22% to 30% of college undergraduate students are in their first 12 months of grieving." In the present study, it was found that 28% of undergraduate students reported experiencing the *death of a close friend* in the previous 12 months. According to the National Injury Mortality Surveillance System (NIMS) (2009), the leading cause of death amongst youths aged 15 to 24 is violence. In addition, due to the high prevalence rate of HIV amongst youths of the same age, it can be concluded that illness and possibly suicide also contribute to the causes of *death of a close friend* among university undergraduate students. Furthermore, the South African Medical Research Council found that South Africa's injury death rate, in 2010, was nearly twice the global average (Parliamentary Monitoring Group, 2011). This suggests that one is more likely to lose a close friend in South Africa than in most other countries.



## 6.4 Academic sources of stress

According to Ross et al. (1999), academic stressors arise from school-related activities or issues such as scholarship requirements, financial burdens, competition in class and course-related stress. The factors discussed in this section are *lower marks than expected*, *missed too many lectures*, *failed important module* and *failed more than one module*. There are also clear links between some of these factors, for example, missing lectures is likely to lead to lower marks and therefore the student is more likely to be failing courses. This is particularly the case for undergraduate students, who show a pattern of significantly higher stress related to all four of the above-mentioned stressors.

### 6.4.1 Lower marks than expected

The present study, as did the study by Khwaileh and Zaza (2011), found male students tend to report stress around *lower marks than expected* more frequently than their female counterparts. A possible reason for this is that, in the South African cultural context, females are encouraged to spend their free time studying or at home, whereas male students are free to leave home at any time and tend to spend less time studying (Ngubane, 2010). In addition, Biraimah (2008, p. 3) noted that South African women have “historically experienced triple oppression on the basis of race, class and gender.” This oppression has permeated through all aspects of life, including education. As such, women’s access to education has been severely limited. Khwaileh and Zaza (2011, p. 645) suggest that female students tend to feel that they “have something to prove when they go to university and succeed”; female students need to prove to their families that they did not waste their time and effort (and the family’s resources) at university.

The finding that black students are significantly more likely to experience *lower marks than expected* as a stressor compared to students of other races can be related to their educational backgrounds. Given the above discussions about income disparity in South Africa, and also given the severe effects of apartheid education (see below), it is likely that most black students at UKZNP have come from disadvantaged and impoverished high schools. According to Pillay and Ngcobo (2010, p. 237), educators within such schools are “less well trained” and, as such, the general levels of performance outcomes are lower.

In addition, Ocampo (2004) noted that the apartheid system created educational inequalities through the Bantu Education Act, for example, through limiting children's access to quality education on the basis of their race, by separating departments of education by race and by concentrating funding on white schools. Furthermore, the apartheid system also had an effect on the quality of teachers. According to Garson (2004), 96% of teachers at white schools had a teaching certificate whilst only 15% of teachers at black schools were certified. Hence, teachers at disadvantaged and impoverished schools are less well trained. Pillay and Ngcobo (2010) noted that, due to this, such schools struggle to prepare students sufficiently for university education.

In the current study, it was also found that students from an average SES background are significantly more likely to experience *lower marks than expected* more than students from a low or high SES background. This finding is surprising as it would be expected that students from a low SES background would experience having *lower marks than expected* more than students from an average and high SES background, as was found by Ginsburg and Bronstein (1993). Our finding, however, can be explained by the fact that place of residence was used as a proxy for SES; thus, these students might not actually be from an average SES background but from a low SES background. Furthermore, students who reported living in the townships were classified as students from an average SES. It can be noted that townships tend to have more distractions in terms of noise and violence as they are high population density areas. Hence, students living in townships might not be able to concentrate and study as effectively as students living in other residential areas.

It was also found that undergraduate students are significantly more likely to experience *lower marks than expected* than are postgraduate students. Sheard (2009) found that mature-aged students (i.e. students aged 21 years and over) performed better than younger students. Sheard (2009, p. 191) found that mature-aged students have higher levels of "achievement, a willingness to work, persistence, critical reflection and an internal locus of control and self-efficacy" compared to younger students. This could also be due to mature-aged students being more motivated and focused on their life goals, for example, developing a career (Sheard, 2009). Furthermore, the transition from high school to tertiary education imposes a great amount of stress on undergraduates as they adapt to the learning style used at university. Thus, undergraduate students have to start to take more responsibility for their academic work and learn to balance their academic and social lives.

#### **6.4.2 Missed too many lectures**

Male students reported *missing too many lectures* significantly more than female students. According to Khwaileh and Zaza (2011), male students are more likely to miss lectures as they may believe that playing sports, partying, shopping and participating in on-campus activities are the most important part of university life. In contrast, many female students believe they need to work hard to get good grades so that they can compete in a male-dominated environment (Khwaileh & Zaza, 2011).

It was also found that undergraduate students report *missing too many lectures* significantly more than do postgraduate students. This could be due to the fact that postgraduate students tend to be mature students and hence they tend to take their studies more seriously as they “often view education as a catalyst for change in their lives and feel tremendous pressure to succeed” (Sheard, 2009, p. 192). In a similar vein to the gender differences discussed in the previous paragraph, younger students often seem more interested in experiencing ‘the university life’ and will often skip lectures to make time for partying, sport or to participate in on-campus activities.

#### **6.4.3 Failed important module**

The present study found that male students are significantly more likely to report experiencing *failing an important module* than female students. This is similar to the findings discussed in the previous section. According to Sheard (2009), female students report higher levels of commitment to their academic work than do male students. This suggests that female students view their academic work as being important and worthwhile enough to warrant their full attention and effort (Khwaileh & Zaza, 2011). On the other hand, male students tend to view the university experience (i.e. partying, sport, etc.) to be more important (Khwaileh & Zaza, 2011).

This study also found that black students are more likely to report experiencing *failing an important module* than students of other races. As suggested above, Kiger and Loerentzen (1966) suggest that black students tend to enter university less prepared academically compared to students of other races. They also note that these academic achievement disparities continue at the university level and thus black students continue to struggle academically. In addition, continuing the theme of income disparities in terms of race,

worries about money and accommodation, and even about having enough food, may distract poorer black students from their studies.

Undergraduate students reported *failing an important module* significantly more than postgraduate students. This could be explained by the fact that mature students tend to show greater persistence and a willingness to work than do younger students (Sheard, 2009). Sheard (2009) also found that mature-aged students appear to be assertive enough to engage in one-on-one discussions with lecturers and tutors about academic work, which allows for a deeper approach to studying as compared to undergraduate students. In addition, students who fail courses repeatedly are unlikely to progress to post-graduate study.

#### **6.4.4 Failed more than one module**

In the present study, undergraduate students were significantly more likely to have *failed more than one module*. As suggested above, undergraduate students tend to be more interested in experiencing university life (partying, on-campus activities, etc.) than in their actual academic studies. Hence, they are more likely to miss lectures and obtain lower marks than post-graduate students. This also suggests that they are more likely than post-graduate students to *fail more than one module*.

### **6.5 Environmental sources of stress**

Environmental stressors are problems that arise due to the environment, such as noise, crowding, pressure from school (that arises outside of the academic process), and work or family pressures (Ross et al., 1999). The factors discussed in this section are *change in living conditions*, *divorce between parents* and *change in health of a family member*.

#### **6.5.1 Change in living conditions**

Significantly more black students reported experiencing a *change in living conditions* than did students of other races. Pillay and Ngcobo (2010) noted that some students may be from faraway areas and therefore have to find a new place to live that is closer to their tertiary institution. Furthermore, students' financial difficulties might make it hard to secure accommodation that is of the same standard as living at home (Pillay & Ngcobo, 2010). It is also worthwhile to note that black students might also move into residence or communes

which are substantially different from their home environment. As mentioned above, students of other races are more likely than black students to be staying at home during their university years. As such, black students would be more likely to experience a change in living conditions than students of other races.

### **6.5.2 Divorce between parents**

This study has found that students from an average SES background are significantly more likely to report experiencing *divorce between parents* than are students from a low or high SES background. This finding contradicts that of previous studies (Baum et al., 2006; Chun & Sohn, 2009). Previous studies have found that families with lower SES are more at risk of experiencing divorce, as this group of people is more likely to experience stressful life events (Baum et al., 2006). The finding in the present study can be explained by the fact that place of residence was used as a proxy for SES; therefore, participants in this study who were supposedly from an average SES background might in fact be from a lower SES background. Furthermore, considering the high divorce rate in South Africa, it is surprising to note that only seven students reported this as a stressor. According to a report by Statistics South Africa (2012), the divorce rate in 2011 was 12.5%. A possible explanation for this finding could be the great number of single-parent households (i.e. parents who were never married) in South Africa. Holborn and Eddy (2011) noted that only one in three children in South Africa grow up living with both of their parents.

### **6.5.3 Change in health of a family member**

Students from other races are significantly more likely to report experiencing a *change in health of a family member* than are black students. This finding is surprising as previous studies have found that black people in South Africa are more likely to be HIV positive than are people from other races (Connolly, Calvin, Shishana & Stoker, 2004). From this, one would expect black students to report experiencing a *change in health in a family member* more than any other race. However, as HIV is a long-term illness, a person's health might not necessarily change within a short time, whereas for illnesses more common amongst other races, for example cancer, the onset might be sudden and there may be visible signs of the illness. Vorobiof, Sitas and Vorobiof (2001) found that cancer is less common among blacks than in other population groups. They found that 11.3 per 100 000 black people suffered from

cancer compared to 70.2 per 100 000 white people. Therefore, white students might report experiencing a change in health of a family member more often than black students.

## **6.6 Stress and health**

In this study, it was found that there was no significant relationship between stress (as measured by total life change units) and the overall health score. According to Lazarus and Folkman (1984), this is not a surprising result as individuals tend to make subjective cognitive appraisals of life events. Therefore, merely experiencing a life change or event does not necessarily result in a negative outcome. It is the negative perception or appraisal of the event that has the potential of having a negative impact on one's health (Damush, Hays & DiMatteo, 1997) and this was not measured in the present study. Although participants in this study reported experiencing stressful life events in the previous 12 months, there was no significant relationship found between stress and health. This might be because the participants might not have perceived or appraised these events negatively.

Lazarus and Folkman (1984) suggested that anxiety exists due to a perceived lack of resources to manage stressful situations. In this study, it was found that there were no significant relationships between stressful life events and anxiety. When the top ten reported sources of stress are considered, it can be seen that most of these sources of stress are either academic or interpersonal or intrapersonal sources of stress. This suggests that these stressors are events that can be controlled or managed by the students; therefore, the students seem to feel or be aware that they have enough resources to manage these stressful situations.

This study did find that stress is related to depression, bodily pain and flu/cold. Damush et al. (1997) also found that stress was related to depression and bodily pain. They attributed this to the great number of inter- and intrapersonal stressors reported by their participants, for example, change in sleeping habits and change in eating habits, which are also part of the criteria for depression. These types of stressors compromise one's physiological well-being and as such could lead to more experiences of physical and mental illness. However, these aspects were not reported as significant sources of stress by the student participants in the present study.

## **6.7 Conclusion**

This chapter attempted to explain the significant associations found in this study between sources of stress, gender, level of study, race and social class and between stress and health. There are associations between 14 of the 31 sources of stress and the variables gender, level of study, race and social class. The results of the correlations showed that stress was related to depression, bodily pain and flu/cold; they also showed that stress has no relationship with total health or anxiety. The results of the study were discussed according to which category of stressors the sources of stress fell into. The categories intrapersonal and academic sources of stress were found to have the most associations.

## Chapter 7: Conclusion

### 7.1 Introduction

This final chapter will include an overview of the relationships between stress and gender, level of study, race and social class, as well as the relationship between stress and health. A review of the findings will be given and the chapter will conclude with possible limitations of the study and further recommendations.

As noted previously, there is no one general definition of stress. As such, a number of theories have been put forward in order to explain the nature and causes of stress. In this study only three models of stress, the General Adaption Syndrome, the Transactional model of stress and the Life Events model of stress, were discussed. The Life Events model formed the theoretical basis for this study.

The General Adaption Syndrome refers to the body's struggle to maintain balance (Gatchel et al., 1989). According to Gatchel et al. (1989), Seyle observed that, in order to restore its internal state of balance, the body would respond to any external, biological source of stress with a predictable pattern. According to the GAS, a person's adaptive response to stress has three distinct stages. Firstly, the *alarm* stage is the individual's first reaction to stress. That is, the individual recognises the stressor and prepares to deal with it through a fight-or-flight response (Gatchel et al., 1989). If the stress persists, the body shifts to the second stage, *resistance*. This is when the individual makes use of different coping mechanisms in order to attain appropriate adaption (Gatchel et al., 1989). This stage soon ends and moves the individual into the final stage, *exhaustion*. During this stage, the body's ability to resist is lost as its adaptation energy supply is depleted (Gatchel et al., 1989). Therefore, the body is unable to maintain normal functioning. This can result in illness.

The Transactional model of stress suggests that stress results when demands exceed one's ability to cope (Lazarus & Folkman, 1984). Thus, the interpretation of the event, being appraised as stressful or not, is more important than the event itself. The core assumptions of the theory are that when the person is faced with a stressor, they evaluate the potential threat (primary appraisal) and a judgement is made as to whether the event is harmful, threatening, causes loss, challenging or irrelevant (Lazarus & Folkman, 1984). The individual will then



engage in secondary appraisal. This is when the individual evaluates how controllable the stressor is and determines what coping resources are available to them.

The Life Events model of stress is loosely based on the Transactional model of stress. The core assumption of this theory is that change is stressful and requires adaptation (Cassidy, 1999). Life events can be defined as social experiences or changes, with a specific onset and cause, that have a positive or negative psychological impact on the individual. This includes any event that forces an individual to face significant change in their life and requires some readjustment or behavioural adaptation (Cassidy, 1999).

The choice to use the Life Events model of stress as the theoretical basis for this study was because it also formed the theoretical basis for the instrument used. Another reason was that the theory focuses on objective life events which allowed for the use of a quantitative research design as well as the use of the SSS.

There is a vast amount of research that has been conducted on students and stress. Most of this research has been conducted in western universities; thus, an aim of this study was to explore the phenomenon of stress amongst university students in a South African context. It was expected that the main sources of stress experienced by South African students would differ from those experienced by students from western universities. However, it was found that the main sources of stress reported by both kinds of students were very similar. That is, both South African students and students from western universities reported experiencing *increased workload, change in sleeping habits and change in eating habits* amongst their top five sources of stress. However, western students tend to report experiencing intra-personal stressors as their main source of stress, whilst South African students reported experiencing academic stressors as their main source of stress.

## **7.2 Review of findings**

The study aimed to find out whether there were differences in the sources of stress experienced by students of different genders, levels of study, races and socio-economic statuses. The stress data was collected using the Student Stress Scale, based on the Holmes and Rahe Social Readjustment Rating Scale. The SSS yields each participant's sources of stress as experienced within the previous 12 months, as well as the frequency of occurrence

of each stressor. In addition, health data was collected. Each participant was asked to rate their health, i.e. good, moderate or poor, over the previous 12 months. They were also asked to note how many times they experienced flu/cold, bodily pain, anxiety and depression during the previous year. The data collected was quantitative in nature and was analysed using chi-square tests, in order to ascertain the associations between stress and gender, level of study, race and social class. In addition, Pearson's correlation coefficient was used to determine the relationship between total LCU and overall health, anxiety, bodily pain, flu/cold and depression. The results of the chi-square tests indicated that there were associations between fourteen of the sources of stress and gender, level of study, race and socio-economic status. Whilst the results of the correlation suggested that there were significant relationships between stress and depression, bodily pain and flu/cold, there were no relationships between stress and total health and anxiety.

The findings of the study support the hypothesis that there is no significant difference between the main sources of stress experienced by South African students and those reported in international student stress literature. It was found that South African students report academic and intrapersonal stressors as much as students from other countries.

It was found that there were significant differences between male and female students in terms of five sources of stress: *minor traffic violation, lower marks than expected, failed important module, new girlfriend/boyfriend* and *too many missed lectures*. These findings may be due to culturally instilled, gender-stereotypical behaviours. For example, male students are more likely to report being involved in a minor traffic violation; this may be due to males being prone to indulging in risk-taking behaviour, such as risky driving.

Furthermore, it was found that for undergraduate and post-graduate students, there were six sources of stress with significant associations: *failed more than one module, new girlfriend/boyfriend, lower marks than expected, death of a close friend, too many missed lectures* and *first semester at university*. These findings seem to be related primarily to differences in developmental stage in terms of the maturity with which students at different levels approach their studies. Post-graduate students appeared to be more mature students who take their studies more seriously than do undergraduate students, whilst undergraduate students appear to be more interested in the broader university experience than in their studies.

There were nine sources of stress that had significant associations between black students and students of other races: *sex problems, lower marks than expected, failed more than one module, change in living conditions, change in financial status, new girlfriend/boyfriend, trouble with parents, change in health of a family member* and *minor traffic violation*. Black students seem to experience more sources of stress than do students of other races. That is, of the nine significant results, black students were found to experience six of the sources of stress significantly more than students of other races. This was explained as being the result of the historical disadvantage and poverty that is evident amongst black people in South Africa.

It was also found that there were significant associations in terms of three sources of stress experienced by students of different socio-economic status: *lower marks than expected, divorce between parents* and *trouble with parents*. From these findings it can be noted that students from an average SES background tend to experience more stressors than do students from a low or high SES background. The findings also suggest that students from a low SES background experience fewer stressors than do students from an average and high SES background. For this study, place of residence was used as a proxy for SES.

The results of the study supported the hypothesis that there were no significant relationships between stress and total health or between stress and anxiety. This finding can be attributed to the subjective cognitive appraisals that students make of these life events. It is these appraisals that determine the impact the stressor has on one's health. However, it was found that for these students, there were significant relationships between stress and depression, stress and bodily pain, and stress and flu/cold. These findings may be related to the types of stressors most frequently reported by the students. For example, in terms of change in sleeping habits, this source of stress tends to have a negative impact on one's physiological and psychological well-being.

### **7.3 Limitations and recommendations for future research**

A possible limitation of this study is the use of the Student Stress Scale. The questionnaire was developed on a western population and hence some of the stressors may not have been appropriate for South African university students. In order to improve on this, it is

recommended that a questionnaire that is more fully relevant to South African university students be developed. Moreover, the health questionnaire was based on the results of a study conducted on a western student population. Therefore, South African university students' experiences of stress might not result in the same health difficulties as those of western student populations. It is recommended that a questionnaire that is relevant to South African university students be developed or that future studies make use of a questionnaire that has good validity and reliability properties for the purpose of health data collection.

In addition, the use of the Life Events model of stress as a theoretical basis for the study can also be viewed as a limitation. That is, the theory does not take into account individual differences in terms of coping styles and event appraisals. Therefore, a participant reporting that they experienced a particular event does not necessarily mean that they experienced it as a stressful event that required readjustment on their part. For future studies, it is recommended that a theoretical approach that considers individual coping styles and even appraisals be incorporated in to the study, so as to develop a more fine-grained understanding of the true relationship between stress and health.

Another limitation of the study was the sampling technique used. Due to the use of a non-probability sampling technique, the results of the study cannot be generalised to the general student population as the sample is not representative of the entire student population either at UKZNP or in South Africa as a whole. Therefore, it is recommended that a sample that is more representative, especially in terms of faculties and gender, be used in future studies in order to generate results that are more generalisable.

The use of place of residence as an indicator for SES was a major limitation in the study. This did not properly take into account the differences in wealth in each setting. For example, within the rural setting, one might find both farmers and farm labourers. This indicates that there are at least two social classes within the rural setting. Similarly, living in a township was adjudged to represent mid-level SES, whereas townships may contain a range of housing from the very poor to the relatively wealthy.

Lastly, in terms of data analysis, to yield a conclusive result the chi-test test requires that the number of expected frequencies should be greater than five in at least eighty percent (80%) of the cells in the contingency table. A larger sample of about four hundred participants may be helpful in finding more conclusive results. A methodological problem that arose was through

the use of the multiple chi-square tests whereby the family-wise error rate was increased. Family-wise error rate is the probability of making a type 1 error (rejecting a null hypothesis when it is in fact true). This means that the study had a greater chance of having found associations when in actual fact there might be none.

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## **Appendix 1: Participant Information Sheet**

Please read carefully before proceeding to answer the questionnaire. Please note that participation is voluntary and you are free to withdraw at any time should you wish to do so. The study is completely anonymous as there is no need for you to record your name on the questionnaire.

The study aims to identify the main sources of stress experienced by students at the University of KwaZulu-Natal Pietermaritzburg campus. It particularly seeks to find out whether there are any differences experienced by students at different levels of study as well as students of different races. The study also seeks to examine the relationship between stress and health in students.

After filling in the questionnaire, the information will be captured and analysed. Thereafter the questionnaires will be destroyed. The results of the study will be published in a written report which will then be submitted to the school of psychology for evaluation. The results may also be used in the development of stress management workshops or interventions.

Please note that participation in this study is voluntary and you are free to withdraw from the study at any stage, if you wish to do so.

Thank you in advance

Yvonne Chilimanzi

## Appendix 2: Demographic Questionnaire

Please tick the relevant box.

Gender:                      Male                       Female

Age:.....

Level of Study:              Undergraduate                      Post-graduate

Race:              Black               White               Indian               Coloured               Other

If other please specify: .....

What area is your family home in? Rural               Township               Suburb

What kind of school did you matriculate from?

Township (disadvantaged)               Model C               Private

Faculty:

Humanities and Developmental Social Sciences               Science               Commerce               Law

### Appendix 3: Student Stress Scale

Put an X next to any of the events below that you have experienced in the last year. If an event has occurred more than once, put an X for each time that you have experienced that particular event.

Life Event	LCU	Number of times	Total
Death of a close family member	100		
Death of a close friend	73		
Divorce between parents	65		
Jail term	63		
Major personal injury or illness	63		
Marriage	58		
Fired from job	50		
Failed important module	47		
Change in health of a family member	45		
Pregnancy	45		
Sex problems	44		
Serious arguments with close friends	40		
Change in financial status	39		
Change in major	39		
Trouble with parents	39		
New girlfriend or boyfriend	38		
Increased academic workload	37		
Outstanding personal achievement	36		
First semester at university	35		
Change in living conditions	31		
Serious arguments with lecturer/ tutor	30		
Lower marks than expected	29		

Change in sleeping habits	29		
Change in social habits	29		
Change in eating habits	28		
Chronic transport problems	26		
Change in number of family get-togethers	26		
Too many missed lectures	25		
Change in university	24		
Failed more than one module	23		
Minor traffic violations	20		
<b>Total LCU</b>			

How would you rate your health in the past year?

Good       Moderate       Poor

How often in the last year have you experienced any of the following?

Flu/Cold:      1-2 times       3-5 times       6 or more

Bodily pain:      1-2 times       3-5 times       6 or more

Anxiety:      1-2 times       3-5 times       6 or more

Depression:      1-2 times       3-5 times       6 or more



## Appendix 4: Ethical Clearance Letter



Research Office, Govan Mbeki Centre  
Westville Campus  
Private Bag x54001  
DURBAN, 4000  
Tel No: +27 31 260 3587  
Fax No: +27 31 260 4609  
[mohunp@ukzn.ac.za](mailto:mohunp@ukzn.ac.za)

4 July 2011

Miss YD Chillimanzi (206507537)  
School of Psychology  
Faculty of Humanities, Development &  
Social Sciences  
Pietermaritzburg Campus

Dear Miss Chilimanzi

**PROTOCOL REFERENCE NUMBER: HSS/0436/011M**

**PROJECT TITLE: Sources of stress among University students at the University of KwaZulu-Natal, Pietermaritzburg: Differences between level of study and race**

In response to your application dated 29 June 2011, the Humanities & Social Sciences Research Ethics Committee has considered the abovementioned application and the protocol has been granted **FULL APPROVAL**.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment /modification prior to its implementation. In case you have further queries, please quote the above reference number.

**PLEASE NOTE:** Research data should be securely stored in the school/department for a period of 5 years.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully

.....  
Professor Steven Collings (Chair)  
HUMANITIES & SOCIAL SCIENCES RESEARCH ETHICS COMMITTEE

cc. Supervisor: Ms V O'Neill

cc. Mrs B Jacobsen, Higher Degrees Office, Pietermaritzburg Campus



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