A PSYCHO-EDUCATIONAL COMPARISON OF STRESS AMONG GRADE 12 LEARNERS IN SUBURBAN AND TOWNSHIP SCHOOLS

by

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DECLARATION

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ABSTRACT

The aim of this study was to identify and compare the experiences of stress among Grade 12 learners in suburban and township schools. The positivist research paradigm was employed. The researcher followed a quantitative approach. The study sample comprised 360 participants who completed a questionnaire consisting of 53 closed-ended questions and an open-ended question which required them to state other experiences of stress that were not mentioned in the closed-ended questions. The participants were purposefully selected from four suburban and five township schools in Gauteng province, South Africa. Descriptive statistics, such as frequencies, means, medians, and standard deviations, were used to summarise all the sections of the questionnaire. Validity and reliability of the questionnaire were confirmed by means of exploratory factor analysis (EFA) and Cronbach's alpha. The EFA results revealed the following stress factors that were identified by the participating Grade 12 learners in this study: school environment; socio-economic factors; uncertainty about the future; parental pressure; external pressure; peer pressure; familial support; intrapersonal; school environment; and learning and development. The top experiences of stress that were identified by both groups were uncertainty about the future; academic pressure; external pressure; familial support; and learning and development. The experiences of stress that were of lesser concern to both groups were peer pressure, school environment, and parental pressure. An independent T-test and the Wilcoxon rank-sum test were conducted in order to establish the differences between Grade 12 learners in suburban and township schools with regard to their experiences of stress. The results were as follows: statistically significant ($p<0.05$) differences were found with regard to socio-economic, peer pressure, familial support, academic-related and uncertainty about the future stress factors. Also, non-significant differences ($p>0.05$) were found between the two settings with regard to external pressure, school environment, learning and development, and parental pressure stress factors. Recommendations are made for Grade 12 learners and other stakeholders (educators and parents) in suburban and township schools to help prevent and manage stress among Grade 12 learners. It is hoped that these recommendations will help stakeholders and will advance knowledge on the prevention and management of stress among Grade 12 learners.

Keywords: stress, Grade 12 learners, stress factors, suburban schools, township schools, comparison, differences, experiences.

ISISHWANKATHELO

Injongo yesi sifundo yayikukuchonga nokuthelekisa amava oxinzelelo nokuxhalaba kubafundi beBanga le-12 kwizikolo zasezidolophini nasezilokishini. Isifundo sakhelwe kwindlela yophando ekholelwa ekubeni ukuze kuqondwe kakuhle ukuziphatha kwabantu kufuneka kubekho uqwalaselo nozathuzo. Uphando luqhutywe ngokuqwalasela amanani, apho isifundo sisebenzise abathathi nxaxheba abangama-360 nabaphenduliswa imibuzo engama-53 eneempendulo ezithe ngqo (imibuzo evalekileyo) kunye nomnye umbuzo onokuphenduleka ngokwembono yomphenduli (umbuzo ovulekileyo), apho kwakufuneka banike ingxelo ngamava abo oxinzelelo nokuxhalaba (angachazwanga kwimibuzo evalekileyo). Abathathi nxaxheba bakhethwa ngobuchule kwizikolo ezine zasezidolophini nakwezihlanu zasezilokishini kwiphondo laseGauteng, eMzantsi Afrika. Kwasetyenziswa iindlela zobalo ezichazayo ezifana nokubalwa kwexesha lezihlandlo ekuqwalaselwe ngazo, ebizwa ngegama lesiNgesi elithi *frequencies,* umndilili (*means*)*,* esona sibalo sikholise ukufumaneka embinini (*medians*) kunye nokubalwa kwamanani abonisa umahluko (*standard deviations*) xa kwakushwankathelwa onke amacandelo ephepha loluhlu lwemibuzo. Ukufaneleka nokuthembeka kwaqinisekiswa ngokusebenzisa uhlalutyo olwaziwa ngokuba yi*exploratory factor analysis (EFA)* kunye ne*Cronbach's alpha*. Iziphumo zeEFA zadiza ukuba abafundi beBanga le-12 bachonga ezi mbangi zoxinzelelo nenkxalabo: imeko engqonge isikolo, iimeko zentlalo noqoqosho, ukungaqiniseki ngekamva, uxinzelelo oluvela kubazali, uxinzelelo oluvela ngaphandle, uxinzelelo oluvela kubahlobo, inkxaso yosapho, imiba engaphakathi emntwini, kwakunye nokufunda nophuhliso. Awona mava oxinzelelo aphambili kuwo omabini amaqela asezidolophini nasezilokishini yaba kukungaqiniseki ngekamva, uxinzelelo lokuqhuba kakuhle ezifundweni, uxinzelelo oluvela ngaphandle, inkxaso yosapho, kwakunye nokufunda nophuhliso. Amava oxinzelelo nenkxalabo angafaki xinzelelo kakhulu kuwo omabini amaqela asezidolophini nasezilokishini yaba luxinzelelo oluvela kubahlobo, imeko engqonge isikolo kunye noxinzelelo oluvela kubazali. Ngokusebenzisa iinkqubo zobalo zovavanyo oluzimeleyo oluyi *T-test* kunye noluyi *Wilcoxon Ranked Test* ekumiseleni umahluko kumava ala maqela mabini, kwafunyaniswa ezi ziphumo: umahluko obalulekileyo ($p<05$) wafumaneka kwimiba yezentlalo noqoqosho, uxinzelelo lwabahlobo, inkxaso yosapho, imiba enxulumene nezemfundo kunye nokungaqiniseki ngekamva. Umahluko ongabalulekanga ($p>05$) wafumaneka kuxinzelelo lwangaphandle, kwimeko engqonge isikolo, kwimfundo nophuhliso kunye noxinzelelo lwabazali. Esi sifundo sinikezela amacebo abalulekileyo kubafundi nabanye abachaphazelekayo kwezemfundo (abasemagunyeni, ootitshala kunye

nabazali) ekuncedeni ukuba kuthintelwe okanye kulawulwe uxinzelelo nenkxalabo kubafundi beBanga le-12.

Amagama aphambili: uthelekiso, umahluko, abafundi beBanga le-12, uxinzelelo nenkxalabo, iimbangi zoxinzelelo, indawo yokuhlala esedolophini, ilokishi, ukuxhalaba

MANWELEDZO

Ndivho ya ngudo iyi ho vha u topola na u vhambedza tshenzhemo ya mutsiko vhukati ha vhagudiswa vha Gireidi ya 12 zwikoloni zwa vhupo ha tshikolobulasi na kha nyingaḓorobo. Ngudo yo bviselwa khagala nga u ṱalutshedza na u humbulela. Hu tshi khou shumiswa kuitele kwa khwanthethivi sa ngona ya ṱhoḓisiso, ṱhoḓisiso yo katela vhadzheneleli vha 360 vhe vha ḓadza mbudzisambekanywa dzo bveledzwaho nga mbudziso dza 53 dzi re na phindulo dzine dza pimea na nthihi yo engedzwaho, ya mbudziso pfufhi u vha tendela u vhiga nga ha tshenzhemo ya mutsiko (u songo bulwaho kha mbudziso dzi re ne na phindulo dzine dza pimea) Vhadzheneleli vho nangwa hu na zwe zwa sedzwa khazwo u bva kha zwikolo zwiṋa zwa vhuponi ha kha nyingaḓorobo na zwiṱanu zwa vhuponi ha tshikolobulasi vunduni ḽa Gauteng, Afrika Tshipembe. Zwitatisiṱika zwa mbuletshedzo ṱhukhu u fana na tshivhalo, nḓila, tshikati na u fhambana ha zwilinganyo zwo shumiswa u nweledza khethekanyo dzoṱhe dza mbudzisambekanywa. U tevhekana ha mielo na u tea ha mielo zwo khwaṱhisedzwa nga nḓila ya u nweledza data na (EFA) na Cronbach's alpha. Mvelelo dza EFA dzo wanulusa uri vhagudi vha Gireidi ya 12 vho topola zwiṱaluli zwi tevhelaho zwa mutsiko: vhupo ha tshikolo, zwiṱaluli zwa ikonomi ya matshilisano, u sa khwaṱhisedzwa nga ha vhumatshelo, mutsiko wa vhabebi, mutsiko u no bva nnḓa, mutsiko wa thangana ya murole, thikhedzo ya muṱa, mafhungo a vhushaka na vhaṅwe, u guda na mveledziso. Tshenzhemo dza nṱhesa dza mutsiko dzine vhuvhili ha zwigwada zwa vhuponi ha nyingaḓorobo na tshikolobulasi dzo vhiga, ndi u sa khwaṱhisedzwa nga ha vhumatshelo, mutsiko wa akademi, mutsiko une wa bva nnḓa, thikhedzo ya muṱa, na u guda na mveledziso. Idzo tshenzhemo dza mutsiko dze dza sa tou vhilaedzisa nga maanḓa vhukati ha vhuvhili ha zwigwada ho vha mutsiko wa thanga ya murole, vhupo ha tshikolo na mutsiko wa vhabebi. Musi ho no shumiswa maitele a siṱasiṱikhaḽa o ḓiimisaho nga oṱhe a T-test na Wilcoxon Ranked Test u bveledza phambano kha tshenzhemo ya zwigwada zwivhili, mvelelo dzo tevhelaho dzo rekhodiwa: ho wanala phambano ya ndeme ya sitatisiṱika ($p<0.05$) zwi tshi ḓa kha mafhungo a zwa matshilisano a ikonomi, mutsiko wa thanga ya murole, thikhedzo ya muṱa, zwiṱaluli zwi elanaho na mutsiko wa akademi na u sa khwaṱhisedzwa nga ha vhumatshelo. Ho bveledzwa phambano i si na ndeme ya ($p>0.05$) nga mutsiko wa nnḓa, vhupo ha tshikolo, u guda na mveledziso, mutsiko wa vhabebi.. Ṱhoḓisiso yo ṋetshedza themendelo dza ndeme kha vhagudiswa na vhadzhiamikovhe vha pfunzo vhoṱhe (vhaofisiri, vhadededzi na vhabebi) u thusa u thivhela na u langula mutsiko vhukati ha Vhagudiswa vha Gireidi 12.

Maipfi a ndeme: u vhambedza, phambano, vhagudiswa vha Gireidi ya 12, mutsiko, zwiṱaluli zwa mutsiko, nyingaḓorobo, tshikolobulasi, tshenzhemo

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CHAPTER 1: ORIENTATION TO THE STUDY

1.1 Introduction to and background of the study

The purpose of this research was to identify and compare the experiences of stress among Grade 12 learners in suburban and township schools in South Africa. Identifying and analysing the experiences of stress among learners in different geographical settings assisted the researcher to make appropriate area-specific recommendations. These recommendations may help to prevent and manage stress in learners who are in this critical grade in the South African secondary educational system.

People use the term “stressed” when they are overwhelmed, overloaded, or when they feel that they cannot cope. A situation that is perceived as stressful by one person, may be perceived as merely challenging by another person (Sripongwiwat, Bunterm & Tang 2018:197). Stress is therefore created by individuals' unique perception of what they encounter in life and is based on their personality traits and available resources (Bester 2019:25).

In South Africa, many Grade 12 learners find themselves in situations where excessive demands are placed on them because this is their final year in high school. As they have little control over the situation, they often feel inadequate, helpless, and stressed (Tlale 2016:381). Other than the heavy demands that are placed on Grade 12 learners at school, they also experience stress that emanates from family pressure, peer pressure, and internally generated and socio-economic factors, for example (Harrison, Loxton & Somhlaba 2019:2; Najafi, Movahed, Barzegar & Siamak 2018; Sithole 2017:24, 36; Sripongwiwat et al 2018:202).

The problem with stress is that it can be either good or bad, depending on how the individual handles the situation at hand. If not managed well, stress may hold negative consequences that are emotionally, physically, mentally, and socially challenging (Acosta-Gómez, Roca-Chiapas, Zavala-Bervena, Cisneros, Pérez, Rodrigues & Novack 2018:3).

Contemporary researchers refute the assumption that stress has only negative consequences or that it should be approached from a “deficit-oriented” perspective (Liu, Vickers, Reed & Hadad 2017:1). Furthermore, according to Branson, Palmer, Dry and Turnbull (2019a:626), the traditional assumption about stress is that it is inherently dysfunctional, whereas contemporary

models distinguish between positive and negative aspects of stress. Researchers refer to positive or good stress as *eustress* and to negative or bad stress as *distress* (Branson et al 2019a:626; Li, Cao & Li 2016:1210; Stromback, Malmgren-Olsson & Wiklund 2013:2). The terms *eustress* and *distress* are discussed in detail in § 1.6.

Without disregarding the important aspects of eustress, the researcher in the current study attempted to investigate adolescents' experiences of negative stress (distress) in order to make recommendations that would help to prevent and manage stress, as mentioned earlier in this section.

1.2 Problem statement and rationale

The researcher embarked on this study on stress among Grade 12 learners due to several reasons. First, in 2014, the researcher's daughter, who was in Grade 12 at the time, showed higher levels of stress that year than in any high school year before. Her sources of stress varied and included academic achievement, family pressure, prospects, and internally generated stress. She became anxious whenever a family member(s) visited, because she knew the most likely question that would be asked would entail her future education and career plans. She would then be lectured about the importance of the matter and that she had to make her decision "immediately" or else she would not be able to study the following year. Instead of encouraging her, this increased her anxiety. The pressure from family members is in line with studies on stress and adolescence and the role family members play in adolescents' experiences of stress (Gathol 2017:39).

Second, the researcher observed how the parents of Grade 12 learners related to and interacted with their children. The researcher noticed that most parents put pressure on children to live up to their expectations, which tend to be excessive, resulting in stress, with some children becoming demotivated and/or rebellious, often yielding more negative consequences. This observation is supported by Tlale (2016:320), who argues that, due to their cultural backgrounds, learners are put under pressure to perform well in Grade 12.

Another study also showed that more than 50% of Grade 12 learners in India had admitted to having three tutors (Dimitrov 2017:24) to obtain good marks to make their parents proud. In many cases, parents have the best intentions for their children, including the intention for them to excel academically in Grade 12 and to get placement in a reputable college or university. However,

parents do not realise that too much pressure can affect their children negatively and thus create "parental deficit" (Camara, Bacigalupe & Padilla 2017:124).

Third, Grade 12 learners experience a lot of pressure at school, where they are expected to perform well academically, which could lead to stress (Acosta-Gómez et al 2018:3). At the researcher's daughter's school, statistics of the performance of past learners were tabled and analysed for all to see at the first parent-teacher-learner meeting of the year, which meant that pressure to perform started early in the year. The school made it clear to the learners that it was their turn to work extra hard so as to not let the school down. From that meeting onwards, Grade 12 learners had to attend extra classes. This meant more work at school and at home (homework) and, by default, learners were discouraged from participating in extracurricular activities.

Pressure that learners are subjected to could have both positive and negative results. On the positive side, pressure can be a catalyst to work hard and succeed beyond expectation and can thus motivate Grade 12 learners to obtain good results that enable them to enrol in colleges or universities (Li et al 2016:1; Brulé & Morgan 2018:2).

On the negative side, too much pressure could have the opposite effect and could cause learners to experience excessive stress, which, in turn, leads to failure (Brulé & Morgan 2018:2). Da Costa (2008:51) found that academic workload is the top stressor among adolescents. This is supported by a study conducted in South Africa by Strydom, Pretorius and Joubert (2012:86), who found that Grade 12 learners had higher rates of anxiety and depression than Grade 11 learners. The results of the latter survey further revealed that schoolwork was regarded as the top stressor among Grade 12 learners, followed by pressure about the future. The results of this study are also in line with the results of studies conducted in other developing countries. For example, the results of a study conducted in Mexico with 335 high school learners revealed that schoolwork was deemed one of the main sources of stress (49%), followed by choosing a career (12.87%) (Acosta-Gómez et al 2018:3). Pressure leads to anxiety and, according to Myer, Stein, Herman, Seedat and Williams (2009:354), anxiety can be debilitating and may cause poor school performance.

Fourth, media reports on suicide by Grade 12 learners were among the motivators for conducting this study. Almost every year in South Africa when the Grade 12 results are announced, some learners either try to commit suicide or actually do commit suicide (African News Agency 2018; Sobuwa 2019). As an educational psychologist, the researcher can attest to this, as adolescents

have been referred to her after suicide attempts due to the pressure (including academic pressure) they are experiencing in life. The issue of student suicide is not unique to South Africa. According to Dimitrov (2017:24), India is one of the countries with the highest rate of suicide among people aged between 15 and 29. A study by Bruffaerts, Bonnewyn and Demyttenaere (2010:133) further revealed that students who do not continue to tertiary education face numerous mental challenges, such as anxiety and substance abuse. Untreated mental disorders, such as depression and anxiety, can have a negative impact on adolescents and can sometimes lead to suicide. Suldo, Shaunessy and Hardesty (2008:274) also state that suicide is linked to the negative effects of stress, meaning that stress is usually the trigger for suicides among teenagers.

Fifth, this study is crucial as Grade 12 learners are also going through the adolescence stage, which is characterised by emotional, psychological, and physical changes which tend to heighten the impact of mental disorders. Researchers (e.g., Casey, Jones, Levita, Libby, Pattwell, Ruberry, Soliman & Somerville 2010:225; Van Ede & Louw 2018:368) explain that adolescence is a period of "storm and stress" due to the challenges adolescents experience because of "physical maturity, drive of independence and psychological changes". These changes, when combined with external factors (such as family, economy, environment, and school, among others), could impact negatively on the lives of adolescents if not managed properly. This is more so when there is added pressure to pass Grade 12 and to prepare for life after school.

In this study, the researcher focused on the above to investigate the experiences of stress among Grade 12 learners. Furthermore, this study was conducted in the South African context to understand the experiences of stress among Grade 12 learners. Although learners in Grade 12 seem to experience similar stressors, as they are all in the same developmental stage of life, the researcher believes that they experience stress differently due to their contextual differences. The aim of this study was to provide stakeholders with recommendations to assist Grade 12 learners with strategies to minimise and manage stress. To achieve this, it was vital to understand the factors that cause stress among adolescents from different contexts so that tailor-made solutions could be developed to address their needs.

This study focused on suburban and township schools as study areas because these schools are not separated only geographically but also socially, culturally, and economically – learners thus face different pressures due to their socio-economic class. This economic segregation is a result of apartheid. Apartheid is a system that segregated people based on race, and white people were

favoured over other races (Mhlauli, Salani & Mokotedi 2015:3). The apartheid system created a situation whereby schools in suburban areas where white people lived, were well-built and funded, while African people were relegated to townships, where the schools were underfunded and overpopulated, and these areas were associated with violence and high crime levels. However, two decades after independence, the same is still true of the education system of South Africa (McKeever 2017:114–115). In post-apartheid South Africa, class is a differentiator between people, with economically advantaged people taking their children to well-funded suburban schools with lower teacher–learner ratios. The poor, however, continue to take their children to township schools that are still underfunded, have higher teacher–learner ratios and are characterised by violence, as reported in studies conducted by Van Rooyen, Naude, Nel and Esterhuyse (2014:340). Township schools, according to Boqwana (2009:20) and Ngqela and Lewis (2012:87), have serious challenges, such as blocked sewage systems, cold rooms, vandalism of school property, poor lighting, lack of safety, and lack of classroom management.

Another interesting phenomenon is that some parents who live in townships send their children to better-resourced suburban schools. This can be deemed a limitation of this study, since there is a danger that a learner who lives in a township but goes to a suburban school might attribute their sources of stress to where they live and not to where they attend school, which, in this case, is a suburb. However, the status quo is different for a suburban learner: such a learner's chances of attending a township school are limited, as suburban schools are better resourced than township schools. It would thus not be beneficial to leave a well-resourced school for an under-resourced school.

Furthermore, Department of Basic Education's (DBE) National Education Infrastructure Management System (NEIMS) report seems to confirm the assertion by Boqwana (2009) and Ngqela and Lewis (2012) in a published report describing the results of an audit carried out in South African schools in May 2011. The review revealed the appalling condition of township schools in Gauteng province as far as infrastructure is concerned. The NEIMS report revealed that 11 township schools in Gauteng had either insufficient infrastructure or a dysfunctional sanitation system. Motseke (2013:23) states that such challenges are likely to contribute to high stress levels among Grade 12 pupils. Contrary to townships, suburbs are urban residential areas which are characterised by affluence and are well developed (Wray, 2014:80).

In the past, the population in suburbs was mainly white, but presently, the population in suburbs comprises mixed races – all racial groups are represented (Findley & Ogbu 2011; Wray 2014:80). It can be argued that, because of the social and economic class of parents, Grade 12 learners who attend suburban schools have better access to books, technology, well-furnished classrooms, and a better lifestyle, giving them an advantage over learners in township schools. However, although suburban schools may have an economic advantage, they also face different forms of stress, which can have debilitating effects, hence the need to investigate the experience of stress in this group. Bhasin, Saini and Sharma (2010:161) reveal that adolescents from affluent families experience a lot of stress in the last two grades of high school, which implies that academic pressure can be one of the causes of stress in this group. In addition, researchers have raised substance abuse as more prominent in children staying in suburbs because of various factors, including stress (Chinawa, Manyike, Obu, Odetunde, Aniwada, Ndu & Chinawa 2014:7; Lieber 2015).

The discussion so far has shown that Grade 12 learners experience stress, regardless of their location; however, stressors differ, hence the need for research to identify possible stressors in this regard. Research in South Africa has focused more on stress affecting educators than on stress experienced by Grade 12 learners. Furthermore, there seems to be a lack of comparative research on adolescents in Grade 12, and therefore research was necessary to assist stakeholders through intervention guidelines on supporting Grade 12 learners in this regard. Stress management begins with the identification of stressors. Hence, it is hoped that this research would help to give insight into the experiences of stress among Grade 12 learners in suburban and township schools. This research would help to contribute to the body of knowledge in the field of psychology. Furthermore, it is hoped that the psycho-educational recommendations made in this study would provide psychologists, education practitioners, the DBE, and other stakeholders with knowledge on experiences of stress among learners in different locations so that solutions can be identified to curb possible stressors.

1.3 Formulation of the problem

1.3.1 Research question

Research conducted in South Africa show that Grade 12 learners – like any other students in their last year of secondary school across the globe – experience higher levels of stress than any grade

(Hetrick & Parker 2019:10). Research also reveals that socio-economic conditions in South African townships differ from those in suburbs; therefore, the experiences of stress among learners in township schools might differ from those among learners in suburban schools (Kim-Spoon 2017:503; Ponnet, Wouters & Goedemé, 2016:575)

The researcher in the current study therefore aimed to explore the experience of stress among Grade 12 learners in general and to explore how the experience of stress by learners in township schools and suburban schools differ. The reason for this was to make contextually appropriate recommendations for different stakeholders dealing with Grade 12 learners.

In light of the discussion above, the main research question of the study was as follows:

What are the experiences of stress among Grade 12 learners and how do suburban and township schools differ in the experience of stress?

Thus, the researcher explored the experiences of stress among Grade 12 learners, in this case focusing on the differences and similarities between learners in suburban schools and learners in township schools.

1.3.2 Secondary research questions

Schulze (2002:87) suggests that the main research problem should be refined by identifying sub-problems, as their solutions could contribute to the solution of the main problem. In line with this suggestion, the sub-problems or secondary research questions were as follows:

i) What are the main causes of stress according to literature?
ii) What do Grade 12 learners in suburban and township schools identify as experiences of stress?
iii) What are the differences and similarities in terms of stressors among Grade 12 learners in suburban and township schools?
iv) What recommendations can be made to stakeholders to minimise and manage stress among Grade 12 learners?

1.3.3 Aim and objectives of the study

The main aim of this study was to compare the experiences of stress among Grade 12 learners in suburban and township schools.

The objectives were as follows:

i) to identify causes of stress among adolescents in general by conducting a literature study;
ii) to determine the stressors among Grade 12 learners in suburban and township schools empirically;
iii) to identify differences and similarities in stressors among Grade 12 learners in suburban and township schools;
iv) to make recommendations to stakeholders to minimise and manage stress among Grade 12 learners.

1.4 Hypotheses

The researcher's hypotheses were informed by the literature. A literature review was conducted on the experiences of stress among adolescents in South Africa and internationally. The literature review was further complemented by the researcher's own experiences as a mother of a Grade 12 learner and as a psychologist. The hypotheses are presented below.

1.4.1 Null hypotheses

A null statement suggests that there is no relationship or effect between the variables in one's study (Wilson & MacLean 2011:80). In this study, the null hypotheses were as follows:

$H_0$1 There is no difference in academic-related stress between Grade 12 learners attending township schools and their counterparts in suburban schools.

$H_0$2 There is no difference in the school environment between Grade 12 learners attending township schools and their counterparts in suburban schools.

$H_0$3 There is no difference in intrapersonal factors affecting Grade 12 learners attending township schools and their counterparts in suburban schools.

$H_0$4 There is no difference in socio-economic status between Grade 12 learners attending township schools and their counterparts in suburban schools.

$H_0$5 There is no difference in uncertainty about the future between Grade 12 learners attending township schools and their counterparts in suburban schools.

$H_0$6 There is no difference in peer pressure between Grade 12 learners attending township schools and their counterparts in suburban schools.

$H_0$7 There is no difference in family-related pressure between Grade 12 learners attending township schools and their counterparts in suburban schools.

1.4.2 Alternative hypotheses

An alternative hypothesis is an alternative to the null hypothesis; it is a statement "about what the relationship between the variables in your study might be" (Wilson & MacLean 2011:79). The alternative hypotheses were as follows:

H_a1 There is a difference in academic-related stress between Grade 12 learners attending township schools and their counterparts in suburban schools.

H_a2 There is a difference in the school environment between Grade 12 learners attending township schools and their counterparts in suburban schools.

H_a3 There is a difference in intrapersonal factors affecting Grade 12 learners attending township schools and their counterparts in suburban schools.

H_a4 There is a difference in socio-economic status between Grade 12 learners attending township schools and their counterparts in suburban schools.

H_a5 There is a difference in uncertainty about the future between Grade 12 learners attending township schools and their counterparts in suburban schools.

H_a6 There is a difference in peer pressure between Grade 12 learners attending township schools and their counterparts in suburban schools.

H_a7 There is a difference in family-related conditions between Grade 12 learners attending township schools and their counterparts in suburban schools.

1.5 Research methodology

1.5.1 Research design

In this study, a quantitative research design was used to collect and analyse the data. According to Esse and Owusu (2017:35), quantitative data analysis can be turned into numbers in a formal, objective, and systematic process to get information and describe variables. For this purpose, a questionnaire consisting of 53 closed-ended questions and an open-ended question was used to

collect data. The questionnaires were distributed to 360 learners in both suburban and township schools.

1.5.2 Research paradigm

The researcher employed postpositivism, which is considered a flexible research perspective that has emerged from various critiques of logical positivism (Tanlaka, Ewashen & King-Shier 2019:740). The researcher employed this paradigm because it has the elements of positivism and allows one to use other research methods (Parry, Gnich & Platt 2019:215; Tanlaka et al 2019:740). More information on postpositivism is discussed further in chapter 3.This study was quantitative in nature and an open-ended question was added in the survey questionnaire so that the participants could indicate the items that were not included in the closed-ended questions.

1.5.3 Sampling techniques

Non-probability sampling (specifically purposive sampling) was used in this study. Purposive sampling was chosen because of its advantages, such as being easy to administer, being less costly and less time-consuming, and assuring a high participation rate (Wilson & McLean 2012:165–166). Purposive sampling was also used because the participants were most representative of the characteristics of the population that were of interest to the researcher (Bonds-Raacke & Raacke 2010:144). Learners in both suburban and township schools participated in the study. Four schools were selected in suburbs, and five schools were selected in townships. The learners who participated were all volunteers and were readily available to participate in the study.

1.5.4 Data collection instrument

After a comprehensive literature review, the researcher developed a five-point Likert scale questionnaire. The questionnaire consisted of four sections: Section A provided background information on the study; Section B focused on biographical information; and Section C focused on various stressors which the learners had to rank.

In Section D, the learners had to name at least three stressors not mentioned in the questionnaire. The questionnaire was subjected to pre-testing (§ 1.4.10).

1.5.5 Data collection

Data were collected in selected suburban and township schools by means of a questionnaire consisting of closed-ended questions and an open-ended question. Before data collection, permission was sought from the Gauteng Department of Education to conduct the study. In addition, permission was requested from the school principals of the selected schools. The researcher conducted the research on the days allocated by the principals. An educator was availed to the researcher in all selected schools to help with the distribution of the questionnaires and to keep order in classrooms.

The learners who were allowed to participate in the study were 18 years and older and completed a consent form. After the learners completed the questionnaires, the questionnaires were collected and locked away for safe keeping.

1.5.6 Validity and reliability

In order to ensure the validity of the questionnaire, it was reviewed by two professors at the University of South Africa (UNISA) – one was familiar with the subject of stress among adolescents, and the other was an expert in quantitative research. The questionnaire was also read and corrected by a statistician at UNISA (see Annexure F for the credentials of the statistician). The validity of the constructs (dimensions) in the questionnaire was further established through exploratory factor analysis (EFA). In order to determine the reliability of the constructs or dimensions in the questionnaire, Cronbach's alpha was calculated. The consistency of the survey questionnaire was determined by subjecting it to pre-testing through a pilot study.

A pilot study was conducted to:

- pre-test the questionnaire to detect possible flaws therein, for example, unclear or ambiguous items;
- identify potential practical problems in the research procedure, for example, whether the time allocated for the completion of the questionnaire was too little or too much.

The total sample size for the pilot study was 22 learners – 15 from a township school in Tembisa and seven from a suburban school in Centurion. The schools and learners who participated in the pilot study were excluded from the main study.

1.5.7 Data analysis

Descriptive and inferential statistics were applied to analyse and interpret the data that emerged from the closed-ended section of the questionnaire.

Guidelines proposed by Creswell (2014:162–163) were followed to analyse and interpret the closed-ended section of the questionnaire. Content analysis was also employed to analyse the open-ended section of the questionnaire. After both sets of data were processed, the results obtained were condensed and interpreted.

1.5.8 Ethical considerations

Before the research commenced, the researcher wrote letters to the following authorities to request permission to conduct the research: the Gauteng Department of Education and principals of the selected schools. Permission to conduct research was also granted by UNISA Ethics Committee. In conducting the research, the researcher also adhered to the code of conduct for psychologists as stipulated by the Health Professions Council of South Africa (HPCSA) regarding confidentiality of information and anonymity in research.

The participants first signed consent forms before research commenced, and they were instructed not to write down their names so that anonymity could be maintained. More information on ethics is provided in chapter 3.

1.5.9 Demarcation of the study

The study included 360 Grade 12 learners in nine schools in Gauteng province. The selected schools were in Tembisa, Tshwane North, Midrand and Centurion. Four suburban schools and five township schools were selected. As regards the participant group, 190 Grade 12 learners in township schools were selected, and 160 Grade 12 learners in suburban schools were selected. The schools were chosen because of their proximity to the researcher.

1.6 Literature overview

This section provides a literature review on stress among adolescents, with particular focus on Grade 12 learners.

Literature shows that numerous studies have been conducted on the experiences of stress among adolescents in South Africa and internationally, but little research has been conducted on the experiences of stress among Grade 12 learners in suburban and township schools in particular. Without doubt, research findings on stress among adolescents can be applied to Grade 12 learners, but the main problem is that they do not focus specifically on Grade 12 learners, hence the need for research on stress that focuses on Grade 12 learners and especially how socio-economic factors cause stress in their lives. In the literature consulted, the following were predominant as experiences of stress among adolescents: the possibility of not getting placement in college or university; getting poor grades; academic pressure; home factors; school environment; peer pressure; and intrapersonal factors. Table 1.1 provides an overview of the literature that was consulted on the experiences of stress among adolescents.

Number	Theme and definition	Focus	Literature
01	**Academic stress** Academic stress is defined as "pressure to achieve high marks and concerns about receiving poor grades" (Pascoe, Hetrick & Parker 2019:1). Similarly, Malhotra and Mahashevta (2019:9216) define academic pressure as pressure to accomplish and perform better. Literature consulted showed how significant this theme was as a cause of stress among Grade 12 learners.	Academic stress plays a significant role in the life of adolescents	Akande (2014:34); Essel & Owusu (2017:2); Hubbard, Reohr, Tolcher and Downs (2018:293); Katyal (2014:7); Lee (2013:117); Muhumad (2010:2); Pariat et al (2014:40); Pascoe et al (2020:106); Seiffge-Krenke and Persike (2013:105); Sonmez and Capri (2013:148); Sripongwiwat et al (2017:1); Wahab (2013:83); Xiao (2013:1)
		Academic stress ranks high as a stressor	Hubbard et al (2018:293); Inge and Seiffge-Krenke (2012:863); Pascoe et al (2020:106); Strydom et al (2012:84); Yusoff (2010:11)
		Academic pressure as a prominent component of academic stress	Chriest et al (2018); Essel and Owusu (2017:2); Katyal (2014:11); Rahim et al (2016:109); Reddy et al (2018:531); Strydom et al (2012:84); Varlow et al (2005:31)

02	**School environment** The school environment is broadly characterised as the school infrastructure, total number of learners in a class and ventilation (Motseke 2013:23). The researcher believes that the nature of the school environment can either set the stage for learners to experience high levels of stress or not.	Township schools have poor infrastructure compared to suburban schools	Ang'alika et al (2016:78); Anuradha (2013:73); Bayat et al (2014:195); Boqwana (2009:20), Lewis & Motseke (2013:23); Ngqela and Lewis (2012:87); Marais (2016:3); Map-fumo et al (2014:191); Motseke (2013:23); Muthusany (2015:26); Sithole (2017:24); Najafi et al (2018); Qasim and Arif (2014:145)
03	**Intrapersonal factors** According to Sudha and Karthikeyan (2016:84), intrapersonal stress occurs when an individual is dissatisfied due to some emotional problems. They also add that "health complaints, change in food habits and sleeping habits, new assignments, self-responsibility, puberty" are important factors that affect intrapersonal stress.	Intrapersonal factors are considered a source of stress	Akande, Olowonirejuaro and Okwara-Kalu (2014:32); Arun et al (2017:64); Bester (2019:25); Erbacher and Singer (2018:186); Lester and Walker (2007:327); Kai-wen (2010:36); Murray et al (2011:270); Shulubane et al (2013:2); Simuforosa (2013:373); Singer (2018:186); Sripongwiwat et al (2018:202); Sudha and Karthikeyan (2016:84); Van der Merwe (2004:14)

	The components of intrapersonal stress that were covered in the study included: - body image - peer pressure		
		Components of intrapersonal stress: - body image - peer pressure	Akande et al (2014:32); Arun, Garg and Chavan (2017:64); Bester (2019:26); Erkutlu and Chafia (cited in Simuforosa (2013:373); Huli (2014:55); Kai-wen (cited in Akande et al 2014:32); Lal (2014:124); Lester and Walker (2007:327); Mogobye (2011:53–54); Murray, Byrne and Rieger (2011:270); Tlale (2016:319); Van der Merwe (2004:15); Veselska (2010:11)
04	**Socio-economic factors** Socio-economic factors include the family's socio-economic status, including availability of civic amenities, sources of income generation, and living standard of the family concerned	Socio-economic factors as causes of stress	Bayat et al (2014:43); Conger et al (2010:685); Farley and Kim-Spoon (2017:503); Harrison et al (2019:2); Huli (2014:50); Ponnet (2016:2); Reiss et al (2019); Terzian et al (2010:1); Van Rooyen et al (2014:340)

	(Sudha & Karthikeyan 2016:84; Kim-Spoon 2017:503). Components of socio-economic factors, such as finances, alcohol and drug abuse and how they can cause stress, were discussed in this study.	Alcohol and drug abuse	Chinawa et al (2014:7); Christian Addiction Support (2016:8); Goldbach et al (2015:960); Liu at (2014:1); Morojele et al (2012:232); Reddy et al (2010); Tate et al (2007:255); Tlale (2016:340); Tunnard (2002:14); UN World Drug Report (2014)
		Finance	Ponnet (2016:2)
		Globalisation	Conger et al (2002); Huli (2014:50); Lenhart et al (2010); Wright (2015:789)
		Violence	Abu-Kaf, Braun-Lewensohn and Kalagy (2017:1); Baruth and Mokoena (2016:97); Centre for Justice and Crime Prevention (2016:5); Chandra and Batanda (2006:1); Collings (2013:13); Eagle (2015:83); Elghossain (2019:8); Harber and Mncube (2017:58); Kaminer and Eagle (2010:123); Mazerolle et al (2011:17); Msila (2009:81); Mulumeoderhwa and Harris (2013:222);

			Ndimande (2009:123); South African Institute of Race Relations (2008)
05	**Uncertainty about the future** Uncertainty about the future entails a sense of unpredictability, uncontrollability, and a sense of threat (Peters, McEwen & Friston 2017:167; Hillen, Cutheil, Strout, Smets & Han 2017:62). Uncertainty about the future in this study pertained to "unemployment after completion of studies" and "getting placement in university".	Unemployment after completion of studies	Gelhaar et al (2007:129); Seiffge-Krenke et al (2010:705); Seiffge-Krenke et al (2012:258); Statistics SA (2015:4); Trading Economics (2019); World Bank (2014)
		Getting placement in university	BusinessTech (2016); City Press (2017); Seiffge-Krenke et al (2012:258); Yusoff (2010:11)
06	**Family-related stress** These are stressors that emanate within a family setting or environment (Patel, Clarke, Eltareb, Macciomei & Wickham 2016:164; Sudha & Karthikeyan 2016:84).	Extended family	Acosta-Gómez et al (2018:3); Lovell and White (2019:92); Pasley and Petren (2015:2); Patel et al (2016:164); Sharma (2013:6); Tam, Findlay and Kohen (2017:48); Woodbridge (1998:62)
		Parent related	Akande et al (2014:33); Kruger (1992:116); Galambos, Sears, Almeida and Kolaric

			(1995:201); Seiffge-Krenke and Persike (2013:103, 2017:52); Shin et al (2016:638)
		Marital discourse	Akande et al (2014:33); Galambos, Sears, Almeida and Kolaric (1995:201); Galla (2012:219); Hamid and Shah (2016:180); Kruger (1992:116); Seiffge-Krenke and Persike (2015:38); Seiffge-Krenke and Persike (2017:52); Shalini and Acharya (2013:194); Shin et al (2016:638); Waghachavare, Chavan, Dhumale and Gore (2013:294)
		Death of a family member	Bergman, Axberg and Hanson (2017:1); Murburg and Bru (2004:387); Rosenbaum-Feldbrügge (2019:1828); Spillane, Matvienko-Sikar, Larkin, Corcoran and Arensman (2018:1); Stikkelbroek, Bodden, Reitz, Vollebergh and Van Baar (2016:49); Tafà, Cerniglia, Cimino, Ballarotto, Marzilli and Tambelli (2018:2)

Table 1.1: Overview of literature consulted on the experiences of stress among adolescents

1.7 Concept clarification

(a) Stress

Stress is categorised into two types: eustress and distress (Branson et al 2019a:626; Li et al 2016:1210). Eustress is associated with positive feelings and health benefits, whilst distress refers to negative stress (Li et al 2016:1210). Stress can be eustress for a Grade 12 learner if it functions as a motivator, for example, motivating the learner to perform well in their studies (Kshirsagar Rajnandini & Seema 2016:2). In this study, the term *stress* refers to negative stress; the aim was to investigate the experiences of negative stress. Stromback et al (2013:2) define stress as a condition in which one's circumstances are so demanding that one is unable to cope with them. This definition refers to self-generated stress. *Stress* in this study refers to internal factors as outlined by Stromback et al (2013:2) as well as external factors such as school environment, familial pressure, and uncertainty about the future. The concept of stress is explored further in § 2.2 and 2.3.

(b) Grade 12

Grade 12 is the last class of secondary schooling in the South African schooling system. Grade 12 is also known as *matric* in South Africa. For the purposes of this study, *Grade 12* refers to those Grade 12 learners (360) in suburban and township schools who consented to participate in this study.

(c) Gauteng

South Africa has nine provinces. Gauteng is one of the smallest provinces, but it is the economic hub of the country (Thoka & Geyer 2019: 307). The study was conducted in Gauteng North and South. Figure 1.1 shows the provinces of South Africa. Gauteng Province, in which the study was conducted, is indicated in orange.

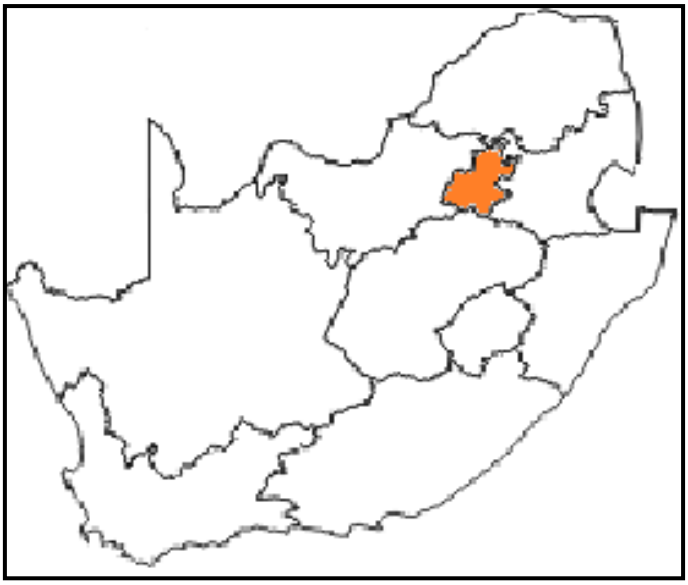

Figure 1.1: Provinces of South Africa

Source: (provinces of south africa map - Bing images)

(d) Township

For the purposes of this research, the term *township* refers to a high-density urban residential area. During the apartheid era, townships were reserved for black Africans, people of colour, and Indians. A township is usually underdeveloped, associated with crime and poverty and is usually built on the periphery of towns and cities. The selected townships for this study are in Tembisa and Midrand, Gauteng South. Photographs 1 and 2 below (Figure 1.2) show the different areas of Tembisa township.

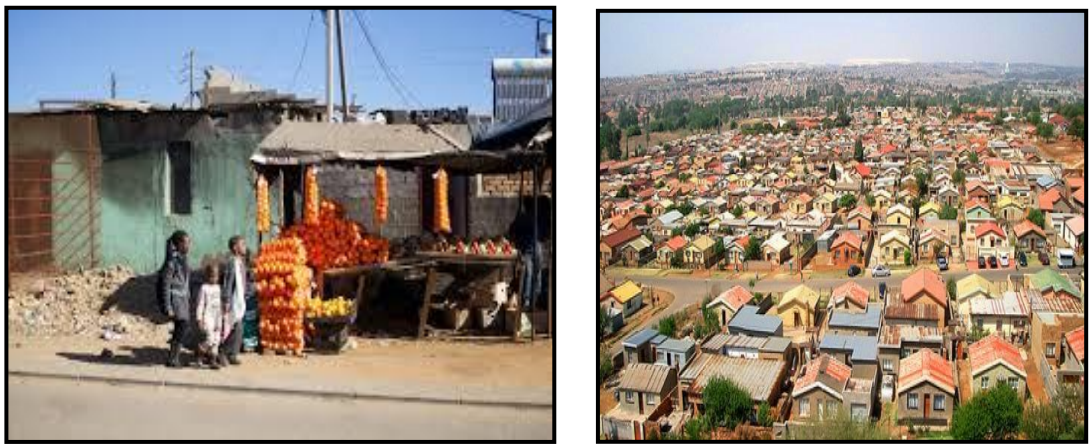

Figure 1.2: Photographs 1 and 2 – Different areas of Tembisa

Source: (areas of thembisa - Bing images)

e) Suburb

The term *suburb* refers to an urban residential area which is characterised by affluence and is well developed. The suburbs of Gauteng were segregated during the apartheid era, and these were reserved for the white population only. Presently, the population in the suburbs is mixed and the common denominator is money. The suburb selected in this study was Centurion, Gauteng North. Photographs 3 and 4 (Figure 1.3) show examples of suburbs of Centurion.

Figure 1.3: Photographs 3 and 4 – Suburbs of Centurion

Source: Wikipedia (2021) (https://en.wikipedia.org/wiki/Category:Suburbs_of_Centurion)

(f) Adolescence

Researchers define *adolescence* differently and argue that the difficulty in defining this concept may lie in adolescents' cultural, historical, and social context (Lovell & White 2019:4). Adolescence is the developmental stage between the ages of 10 and 19 (Chinawa et al 2014:1). However, other scholars like Sawyer, Azzopardi and Wickremarathne (2018:1) opt for a more expanded and inclusive definition that corresponds closely with adolescent growth, and according to this definition, the end of this stage varies between 17 and 21 years. It is also argued that this is a stage during which certain specific types of stressors are likely to occur due to physical and sexual changes in adolescents because of puberty (Hallajian 2016:206; Krapić, Hudek- Knežvic & Kardum 2015:652).

The research participants in this study were at least 18 years old but younger than 21 and were therefore covered by this definition. The Grade 12 learners who participated in this study were in the end stage of adolescence.

1.8 Chapter outline

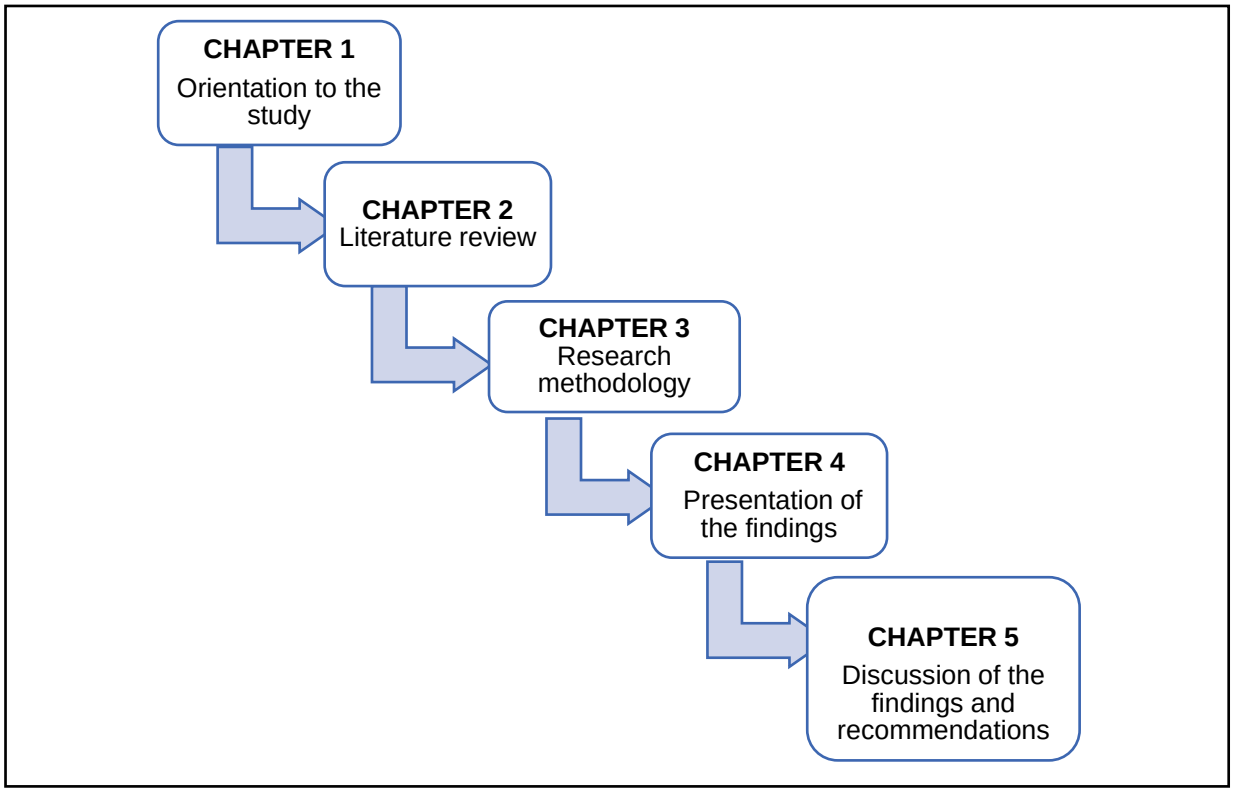

Figure 1.4: Chapter outline

This study comprised five chapters:

Chapter 1 introduces the study and presents a background of the problem. The following are discussed: literature review; research questions; hypotheses; objectives of the study; scope; limitations of the study; concept clarification; method of research; structure of the study; ethical considerations; and a conclusion.

Chapter 2 focuses on the literature that addresses the causes of stress among adolescents in general and among Grade 12 learners in particular. Theories that address the concept of stress are discussed critically.

Chapter 3 outlines the research methodology that was employed in this study. This chapter focuses on the research techniques that were applied in the study.

Chapter 4 presents the results that emerged from the data and the interpretation of the findings of the study.

Chapter 5 presents a discussion of the findings, and recommendations are made. In this chapter, the information from previous chapters is collated and the findings from the empirical research are summarised. In addition, recommendations are made for learners, parents, teachers, and psychologists. Lastly, the limitations of this study are discussed, and suggestions for further studies are made.

1.9 Summary

Stress is a human phenomenon experienced frequently but differently by adolescents, especially those who are in Grade 12. Parents and teachers should be aware of the various factors that can induce stress in Grade 12 learners. The importance of making recommendations for all stakeholders in this context – especially for parents and teachers – cannot be over-emphasised. In chapter 2, different approaches to stress are discussed and experiences of stress among adolescents are explored. Moreover, the concept of stress is explored further, with emphasis on the components of stress, the causes of stress, models of stress and the conceptual framework for this study.

CHAPTER 2: LITERATURE OVERVIEW

STRESS

Clammy hands,
And a tap-tap-tapping foot.
Even lying there in bed,
The tests and projects and quizzes,
And quizzes and projects and tests
Cannot be forgotten.
The endless list of deadlines
Seems to never stop growing
And the pressure builds up.
It builds and builds and builds.
But the release valve
Is nearly within reach.
There is a pause;
A pause used to fantasize
About a burden-free life.
And during this pause,
The pressure swiftly, silently
Envelops the dreamer
To ensure that this dreamer,
This naïve, hopeful student
Will never cease working…
Working towards
Some perverted portrayal
Of success.

A poem by a high school learner

2.1 Introduction

In this chapter, a literature review on stress among adolescents is presented. First, the concept of stress, as well as approaches to dealing with the experiences of stress in adolescence, are discussed. Second, the following causes of stress are discussed: academic or school-related causes; school environment; intrapersonal; peer pressure; family; socio-economic factors; and concerns about the future. As most Grade 12 learners in South Africa are between 17 and 19 years old, the researcher deemed it relevant to focus on research conducted on stress and adolescence in general so as to create a basis for this study. The researcher decided to focus on Grade 12 learners, as they, among others, undergo immense stress when preparing for examinations, during and after examinations. Stress is detrimental to their emotional, psychological and physical wellbeing, hence the importance of this research (Sasikumar & Bapitha 2019:654; Tlale 2016:318). The results of the review suggest that there is limited research on the experiences of stress among Grade 12 learners in South Africa. There is, however, extensive research and literature on the general experiences of stress among adolescents. In the South African context, we also need to consider our past and that the school system still needs to address the apartheid legacy. Therefore, this study concentrated on comparing Grade 12 adolescents in suburban and township schools as far as their experiences of stress is concerned. The hypothesis was that the main stressors for adolescents in suburban and township schools, respectively, differ, hence the need for this comparison so as to suggest intervention guidelines for these specific contexts. To conclude, the conceptual framework for the study is discussed. Section 2.6 clarifies the model underpinning the conceptual framework and elaborates on the key components that form the framework.

2.2 Clarification of the concept of stress

The historical roots of the word *stress* are subsequently briefly discussed in order to understand the approaches to stress within the context of this study.

> The etymological meaning of stress (- “c. 1300) is, "hardship, adversity, force, pressure," in part it is a shortening of Middle English distress (n.); in part it is from Old French estrece, meaning "narrowness, oppression," or from Vulgar Latin *strictia”. From Latin strictus itstress refers to "tight, compressed, drawn together," a past participle of stringere, which is to "draw tight" (see strain (v.)). This means that “physical strain on a material object" is from mid-15c. Stress has its origin as an abstract force in mechanics from 1855. The purely

> psychological sense is attested from 1955. (https://www.etymonline.com/word/stress)

Research indicates that, 100 years ago, stress did not exist as a psychological phenomenon. Instead, it was used in the field of physics to refer to the interaction between a “force and the resistance to counter that force” (Robinson 2018:1; Tan & Yip 2018:17). Overall, the concept of stress was used to refer to physical pressure. According to theorists, Claude Bernard (1813–1878) is considered the person who laid a foundation contributing to stress research (Robinson 2018:1). Bernard, an experimental physiologist, was the first to systematically explore the regulatory mechanisms involved in stabilising the internal environment. His discoveries laid the foundation for what has come to be understood as homeostatic mechanism, which is the cornerstone of stress research (Fink 2017:1; Robinson 2018:2).

Walter Cannon, who first coined the term *stress* in 1915, later adopted the term as a psychological construct while conducting work on the fight-or-flight response. His work was based on animal experiments. Cannon coined the word *homeostasis*, referring to a set of acceptable ranges of values for internal variables. Cannon explained that threats to homeostasis evoke activation of the sympathoadrenal system as a functional unit (Godoy, Rossignnoli, Delfino-Pereira, Garcia-Cairasco & Umeoka 2018:2; Goldstein & Kopin 2007:109; Skoluda, Strahler, Schlotz, Niederberger, Marques, Fischer, Thomas, Spoerri, Ehlert & Nater 2015:227).

Hans Selye (1907–1982), however, is known to be the first person to give a clear definition of stress. He defined *stress* as a “nonspecific response of the body to a demand”. He rejected the study of specific disease signs and symptoms and focused on universal patient reactions to illness instead (Fink 2017:2). By “nonspecific”, Selye referred to a set of shared elements of responses, regardless of the nature of the causative agent or stressor (Goldstein & Kopin 2007:109).

Since Hans Selye’s contributions to stress research, there have been further advancements in stress research, and Lazarus (1922–2002) is one of the prominent figures in this area of research. He developed a theory that synthesised the findings from other disciplines. His theory considered the multiple factors involved in stress response (Tan & Yip 2018:170). In his theory, he added the importance of personal meaning or appraisal and emotions, as well as the fact that the variance in people’s interpretation of stress was due to personal differences (Godoy et al 2018:2; Viner 1999:391).

Further advancements in the definition *stress* have been made after Lazarus' psychological model of stress – for example, the conservation of resources (COR) approach and nongenomic inheritance (Seong, Shimizu, Nakamura & Ishii 2011:1049). The COR purports that human beings strive to "obtain, retain, foster and protect" (Hobfoll, Halbesleben, Neveu & Westman 2018:104) those resources that preserve a person's wellbeing in the face of stressful encounters (Hobfoll 1989:513). *Nongenomic* refers to stress that is transgenerational – parents' stressful experiences can influence their offspring's vulnerability to pathological conditions (Lacal & Ventura 2018:1; Seong et al 2011:1049). In the discussion below, the different approaches to or models of stress are presented.

As indicated in the discussion above, theorists and researchers have multiple ways of explaining what stress is. According to Hopkins (2014:23) and Slavich (2016:346), even though there is lack of consensus on the definition, most researchers in the field of stress do agree that three different meanings of the term *stress* can be distinguished: stimulus, response, and transaction.

As indicated earlier, two types of stress and their effects have been identified. Stress can have either a negative or positive effect on a person, depending on the person's circumstances (Sheth, Mcglade & Yurgelun-Todd 2017:1; Yaribeygi, Panahi, Sanraei, Johston & Sahebkar 2017:1070). Branson et al (2019a:626) further argue that contemporary models of stress tend to emphasise both the negative and positive aspects of stress. The two dimensions of stress (§ 1.6) are called distress (which refers to negative stress) and eustress (which refers to positive stress) (Branson, Dry, Palmer & Turnbull 2019b:1; Li et al 2016:1209).

The transactional model of stress purports both the negative and positive aspects of stress. This model acknowledges that stress is subjective and is dependent on one's appraisal of a demand. When a response to a demand exceeds the individual's coping skills, distress occurs. However, if the response to a demand does not exceed one's coping skills, the response is regarded as eustress as it elicits a desirable or positive response (Folkman & Lazarus 1995). More information on the transactional model of stress is discussed in § 2.5.4. In the following paragraphs, the discussion focuses on various aspects of eustress and distress.

First, Yerkes-Dodson Law asserts that the optimum levels of stress activation or arousal can lead to optimum levels of functioning, after which performance stress declines (Chaby, Sheriff, Hirrlinger & Braithwaite 2015:38; Cherry 2020). In addition, a study conducted by Peifer, Engeser, Schachinger, Engeser and Antoni (2014:1165) also reported a u-shaped

inverted connection between optimal performance ability, physiological arousal, and cortisol level during task performance. Both the Yerkes-Dodson Law study and the study by Peifer et al (2014) are relevant to the research participants in this study: the pressure of stress experienced by a Grade 12 learner chasing a deadline to submit an assignment, for instance, may motivate the learner to put in extra hours of work in order to complete the task at hand, and after submitting the assignment, stress levels return to normal, or once the arousal reaches the optimal level, the performance of the learner starts to diminish. If an individual's anxiety level is at an optimum balance, they would perform better by remembering the correct answers to the question. However, if the individual is over-anxious, they will feel nervous, which will consequently hamper their ability to remember the information they have learnt for the test.

Eustress has a positive impact on various aspects of the individual. Eustress can help to boost one's emotional wellbeing. In a study conducted by Branson et al (2019a:636) on 1 081 Australian adolescents, they found that eustress was "the most strongly influential factor for the wellbeing on an adolescent and that it was directly related to increased wellbeing". The results of their study demonstrated that stress could have positive consequences.

Another positive effect of eustress is demonstrated by Babu, Sudhir, Mahapatra, Das, Rathnaiah, Anand and Detels (2016:109) in their study on the link between stress and quality of life. Babu et al (2016) found that their research participants attributed higher levels of stress to their improved quality of life, which they enjoyed. In other words, higher levels of stress acted as a form of motivation for them to get an improved quality of life. However, on the flip side, a review of 13 articles conducted by Ribeiro, Pereira, Freire, Oliveira, Casotti and Boer (2017:70) on research participants in higher education showed that stress was associated with low quality of life and wellbeing.

As regards negative stress (or distress), researchers report numerous effects that stress has on individuals. First, stress can be either a triggering or aggravating factor for many diseases and pathological conditions (Kai-Wen 2010:2; Krapić et al 2015:525; Yaribeygi et al 2017:1057). For example, stress affects the nervous system and can cause structural changes in the different parts of the brain at any stage of a person's lifespan, including adolescence (Lupien, McEwen, Gunnar & Heim 2002:434). In addition, Sarahian, Sahraei, Zardooz, Alibeik and Sadeghi (2014:71) contend that chronic stress can lead to a degeneration of brain mass and reduction of its weight. Yaribeygi et al (2017:1070) also share this view. A review conducted by Sheth et al (2017:1) confirms the devastating effects that chronic stress has on

the adolescent brain and especially that “adolescence is a period characterized by a combination of significant brain alterations, high levels of stress, and emergence of psychopathology”.

In addition, researchers claim that there is a negative relationship between stress and psychopathology during adolescence, as it is a critical stage of development (Muhtadie & Johnson 2015:93; Sheth et al 2017:2). Fink (2016:4) points out that stress plays a crucial role in mental disorders. For example, stress and anxiety aggravate schizophrenia, and people with schizophrenia often experience difficulty coping with stress. Also, Muhtadie and Johnson (2015:93) add that life stress is a major predictor of bipolar disorder.

Lastly, the results of a study conducted by Farmer and Kashdan (2015:102), which examined the reactivity of people with seasonal affective disorder to stressful laboratory tasks, revealed that all research participants reported increases in negative affect and decreases in positive affect and self-esteem on days when they experienced more stressful social events.

Furthermore, there is evidence that there is a negative relationship between stress and behavioural constructs among adolescents (Pizzagalli 2014:395). One of the most prevalent behavioural constructs, which is prevalent among adolescents, is anhedonia (Bennik, Nederhof, Ormel & Oldehinkel 2014:579). *Anhedonia* means diminished or reduced interest to feel or experience pleasure (Ho & Sommers 2013:201). Lastly, there is also evidence that stress may have a negative effect on memory (Shields, Sazma, McCullough & Yonelinas 2017:636).

The results of a study conducted with 66 adults who were exposed to stress showed that stress can interfere with one’s ability to generalise memories to new and different situations (Dandolo & Schwabe 2016:682). This conclusion suggests that stress can have a negative impact on learners, because for them to perform well academically, they need to have the ability to generalise information learnt to new situations. A task that requires problem-solving, for example, would need someone with the ability to apply what has been learnt previously to a current task.

Moreover, research reveals that stress may influence any stage of memory processing (Schwabe, Joëls, Roozendaal, Wolf & Oitzl 2011:1741). In general, researchers list the stages of memory processing as encoding, consolidation, retrieval, and extinction (Alberini, 2011; Daumas, Halley, Francés & Lassalle 2005:375; Schwabe et al 2012:1741). The influence of stress on an individual is dependent on the stage of memory processing, during which the individual gets stressed, so the influence of stress is timing dependent (Schwabe et al

2012:1741). A study conducted by Schwabe et al (2012:1743) revealed that, when stress occurs prior to or during encoding, it impairs memory. The exception is if the delay between the stressor and encoding was short and the study materials were directly related to the stressor. In that exceptional case – that is, where delay was very short – stress improved encoding.

In contrast, post-encoding, stress improves memory, unless the stressor occurred in a different physical context than the study materials. Ultimately, these analyses suggest that stress disrupts some specific or occasional memory processes while enhancing others and the effects of stress are controlled by a number of critical factors.

In conclusion, the researcher acknowledges the importance of both eustress and distress in the life of the adolescent but decided to investigate the causes of negative stress among Grade 12 learners, as she believed there was a gap in the literature in this regard. Also, she decided to focus on this research because there are still reports of high occurrence of stress worldwide. For example, a survey undertaken by the American Psychological Association (APA) (2016) revealed that 78% of the population in the USA have experienced stress-related symptoms. Therefore, acquiring information on the causes of stress would help to suggest intervention guidelines on how to prevent and manage stress. Intervention strategies for preventing and managing stress are discussed in chapter 5.

2.3 Adolescence and stress

Although stress is considered a common phenomenon “in all phases of life”, researchers agree that adolescence is an incredibly stressful life stage (Lal 2014:123; Persike & Seiffge-Krenke 2012:864; Tate, Patterson, Nagel, Anderson & Brown 2007:249; Van Rooyen et al 2014:340). Opateye (2014:242) agrees with this line of thought and emphasises that stress is one of the psychological traits observed in learners. Adolescent stress has been highlighted as a crucial health issue because of its ability to disturb adolescents’ capacity to manage demands set by day-to-day life (Simuforosa 2013:373). Kelley, Schochet and Landry (2004:27) argue that adolescent-specific stressors are necessary for adolescence, as they are a key factor in successful transition to adulthood. Stress can therefore be both harmful and necessary for the wellbeing of adolescents.

Researchers also seem to agree that adolescents experience heightened stress during this developmental stage (Eiland & Romeo 2013:163; Judeel 2014:22; Krapić et al 2015:562). Habeeb and Fatema (2016:590), for example, contend that adolescents may experience “heightened” stress and stress-related psychological dysfunctions, such as anxiety and

depression, because of the perturbations of the growing adolescent brain. In addition, Krapić et al (2015:562) state that adolescents experience more stress during this period because they must cope with a number of common stressors and those that are specifically related to puberty, like maintaining romantic relationships.

Furthermore, Rudolf and Fly (2014:92) state that the adolescence stage, in which Grade 12 learners find themselves, is a developmental stage commonly associated with "storm and stress". The term *storm and stress* was coined by Hall because he viewed adolescence as a period of inevitable turmoil that takes place during the transition from childhood to adulthood (Arnett 1999:317). *Storm* refers to a decreased level of self-control, and *stress* refers to an increased level of sensitivity (Arnett 1999:317; Meyers 2018; Sawyer, Azzopardi & Wickremarathne 2018:223). The following are the three main categories of *storm and stress* as described by Hall:

- Conflict with parents: adolescents tend to rebel against authority figures as they seek greater independence and autonomy.
- Mood disruption: hormonal changes and the psychological stress of adolescence can cause uncontrollable shifts in emotions.
- Risky behaviour: the combination of a neurological need for stimulation and emotional immaturity leads to increased risk-taking behaviour during adolescence (Sawyer & Patton 2011:110).

Other researchers agree that adolescence is characterised by "stressful experiences and cumulative changes" (Lal 2014:123, 2016:590; Murray et al 2011:270; Seiffge-Krenkre 2012:863). This is also attested by Schlegel (1995:16), who conducted ethnographic data studies in over 140 cultures and concluded that the adolescent period in almost all societies is marked by stress and cumulative changes.

Other researchers have challenged Hall's assertion that adolescence is characterised by storm and stress (; Kanwar 2020:753; Krapić et al 2015:565; Susman & Rogol 2004). Susman and Rogol (2004), for instance, claimed that the concept of storm and stress is not universal and is exclusively a biologically- based phenomenon. Several researchers agree with Susman and Rogol (2004) and claim that there are other factors that Hall generalised, such as individual differences and culture (Arnett 1999:322; Kanwar 2020:753). For example, Seiffge-Krenke (2012:865) maintains that not all adolescents experience *storm and stress*, since there are cultural variations in the pervasiveness of adolescence storm and stress and therefore some cultures' adolescents experience less storm and stress. Nonetheless, the researchers

contend that storm and stress is most likely to occur in the developmental stage of adolescence (Arnett 1999:322; Kanwar 2020:753; Seiffge-Krenke 2012:865).

Moreover, what is viewed as stressful by one culture may not be viewed as stressful by another. Persike and Seiffge-Krenke's (2012:865) assertion is thus relevant to this study, since it implies that Grade 12 learners in township schools may experience stress differently than learners in suburban schools. This is the hypothesis put forward in this study: the experiences of stress among Grade 12 learners in township schools differ from those experienced by Grade 12 learners in suburban schools. This ties in with the transactional approach to stress – that individuals' perception of stress is informed by their frame of reference.

2.4 Experiences of stress among adolescents

Bernstein, Penner, Steward and Roy (2008) define a *source of stress* as "every circumstance or event that impends to disturb people's daily functioning and causes them to make adjustments". The researcher aligns with this definition. According to Van Rooyen et al (2014:340), the stressors experienced by South African adolescents are similar to stressors experienced by adolescents in other countries. These stressors are "peer and family conflicts, academic and scholastic problems". The results of a study conducted by Simuforosa (2013:376) revealed that "puberty, poor academic performance, too much homework, family related problems like domestic violence, death and poverty, love affairs, and the influence of peers" are the main causes of stress among adolescents.

In line with the discussion above, the experiences of stress discussed in this study are academic or school related; family related; intrapersonal; peer pressure; school environment; socio-economic factors; and worry about the future. In Figure 2.1, an illustrative summary of the causes of stress is presented.

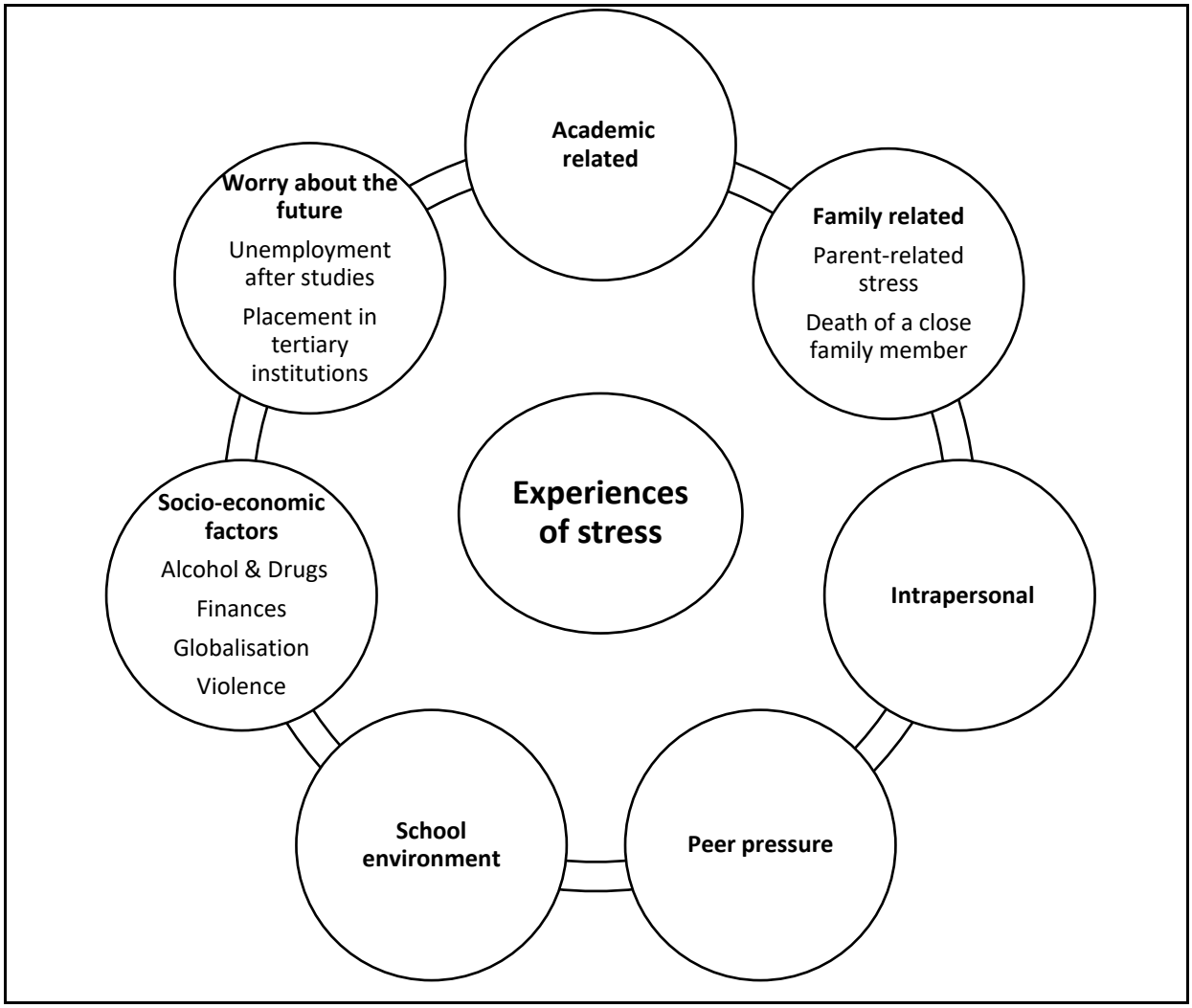

Figure 2.1: Summary of the experiences of stress in adolescence

The different stressors presented in Figure 2.1 are explained next.

2.4.1 Academic or school-related stress

Research shows that academic stress plays a significant role in the life of adolescents (Akande et al 2014:34; Essel & Owusu 2017:2; Hubbard et al 2018:293; Muhumad 2010:2; Lee 2013:117; ; Pascoe et al 2019:3; Persike 2013:105; Sripongwiwat et al 2018:198; Sonmez & Capri 2013:148; Wahab 2013:83).

Scholars differ in the way they define academic stress. Xiao (2013:1) defines this concept as "students' interactions with environmental stressors, the student's cognitive appraisal of and coping with the academic-related stressors and psychological or physiological response to stressors". This definition incorporates prominent components of the transactional approach, on which the conceptual framework for this study is based. Katyal (2014:7) also explained that

academic stress is a common feature in schools, and it reaches its peak in the final year of schooling when learners have to compete for college admissions. Pariat, Rynjah and Kharjana (2014:40) explain that learners spend more of their time at school than doing other activities and therefore school can be a source of stress. Both definitions provided above are relevant to this study because of the reasons stated earlier.

Literature shows that academic stress is not only one of the causes of stress among adolescents but also ranks high as a stressor (Hubbard et al 2018:293; Pascoe et al 2019:3). A cross-sectional study conducted by Inge and Seiffge-Krenke (2012:863) in 20 countries on adolescents' stress perceptions and coping styles revealed that parental and school-related stress ranked the highest in all the countries. These results are also supported by studies conducted in Malaysia and in South Africa. Yusoff (2010:11), who conducted research on adolescence stress in Malaysia (Malaysia is a developing country like South Africa), also found that the 10 top stressors of secondary school learners were related to academic matters. In addition, the results of a study by Strydom et al (2012:84) in South Africa revealed similar results: the leading source of stress reported by the research respondents was schoolwork (81.4%), followed by uncertainty about the future or future plans (77.8%).

It is also worth noting that stress can affect all learners, regardless of their academic stream. A study conducted by Waghachavare, Chavan, Dhumale and Gore (2013:294) revealed that learners are exposed to stress, regardless of the academic stream they follow. Waghachavare et al found that all the research participants, notwithstanding their selected academic stream (which, in this research, was either maths, arts or accounting), were exposed to stress.

Furthermore, according to Strydom et al (2012:84), there are many components of academic stress, of which one is academic pressure. Some of the causes of academic pressure are school, parents and self-generated causes. Pascoe et al (2019:104) argue that students get stressed because of pressure to achieve high marks and fears about getting poor grades. This is also confirmed by the researcher's observation in this study. In chapter 1, the researcher mentioned that she observed tremendous pressure induced by schools on Grade 12 learners at her own daughter's school. These learners were strongly encouraged to excel in their final examinations and to perform better than the previous class, which put a lot of pressure on them.

Another study which revealed the role of high expectations and stress on students showed that some teachers set higher expectations for students in terms of understanding, being capable or knowledgeable, and students that were differentiated more by teachers to have

higher competency, felt disconnected from the school team, which resulted in higher stress (Timmermans & Rubie-Davies 2018:241).

In addition to schools or teachers putting pressure on students to perform well academically, studies have shown that parents also put pressure on their children due to their high expectations (Kumar & Judaun 2018:160; Subramani & Venkatachalam 2019:95). According to Strydom et al (2012:84), parents and educators put pressure on learners because academic performance is deemed an important operative factor in determining entrance to university. Katyal (2014:11) agrees with this and explains that parents "look upon their adolescents as a means of achieving their own thwarted ambitions" and that "parents who had a brilliant career may like their adolescents to match or exceed that standard as it adds prestige in society". The researcher agrees that parents put pressure on their children because of their own selfish needs and would also like to argue that, in the South African context, this may be due to the past political system of the country (apartheid). Apartheid, which was in operation in South Africa until 1994, ensured that black people received inferior education, which resulted in limited career advancement opportunities. It is against this background that black parents may be more inclined to put pressure on their children to succeed academically, with the assumption that their children will have a better future than they have had. This is supported by the results of a community survey that was conducted in 2016, which revealed that young adults who completed secondary education in South Africa were more concerned about equal educational attainment or upward educational mobility compared to their parents (Community Survey 2016:86). The largest gains were observed among black Africans, with 75% of the youth being first-time achievers of a secondary school education, followed by coloureds (70.3%). Whites who completed high school maintained similar educational levels as their parents – 23% of whites experienced upward mobility and 27% faced downward mobility (Community Survey 2016:86).

Researchers also consider academic workload a basis for academic pressure (Essel & Owusu 2017:2; Varlow, Wuthrich, Murrihy, Remond, Tuqiri, Van Kessel, Wheatley, Dedousis-Wallace & Kidman 2009:31). In a study that was conducted by Essel and Owusu (2017:2) among Finnish students, it was discovered that the main aspect of academic pressure was scholastic workload. Drawing on her own experiences as a psychologist, educator and a mother of a child who has completed Grade 12, the researcher in this study agrees with the assertion that school workload can contribute to academic pressure. In the researcher's experience, learners are often summoned by the school to attend extra lessons on weekends, to attend extra classes after school and at times, they must attend summer and winter classes during their holiday period, which increases their workload. Overall, learners face pressure from all angles

to perform well academically. Reddy, Menon and Thattil (2018:531) also argue that academic pressure is due to various internal and external expectations placed on learners.

In addition, research shows that adolescents from low socio-economic backgrounds are likely to obtain poor academic results (Abu-Kaf, Braun-Lewensohn and Kalagy 2017:1; Kruger 1992:10; Kiang, Andrews Stein, Supple & Gonzalez 2013:838). One of the reasons for poor academic performance, according to Kruger (1992:110), may be the inability of parents to afford the basic needs of the family. As already mentioned in the previous chapter, the likelihood of learners in township schools to be from poor socio-economic backgrounds is higher than for learners in suburban schools because of the South African political background of segregation (apartheid).

The researcher expected that the learners in township schools would possibly score high on academic-related stress in the current study.

2.4.2 Family-related stress

Researchers define *family* differently as informed by different factors, including cultural background (Lovell & White 2019:92; Sharma 2013:6; Tam et al 2017:48). According to Pasley and Petren (2015:2), the Western definition of family tends to refer to a nuclear family, meaning parents and dependent children.

A broader definition of *family*, however, includes grandparents, cousins, uncles, aunts, and family friends who may not be blood related but share a special bond (Lovell & White 2019:92; Pasley & Petren 2015:2). In this study, the broader definition is used, which include blood relatives and those sharing “a special bond” (Pasley et al 2015) as the research participants came from different cultural backgrounds.

Literature shows that family-related factors can also cause stress. The ecological systems theory states that “stressors within the family directly impact adolescent development and school functioning in terms of behaviour, mental health and academic stress” (Patel et al 2016:164). The research conducted by Woodbridge (1998:62) showed that stress at home was rated as one of the top three stressors after pressure at school and pressure other than at school and home. Interestingly, the results of a study conducted 20 years later by Acosta-Gómez et al (2018:3) with 335 high school students aged 15 to 19 revealed that family-related stress was rated as one of the top three stressors among high school students. The following family-related factors are discussed below: parenting style; death of a close family member; and marital discord.

Parent–adolescent-related stress is noticeable among adolescents (Akande et al 2014:33; Seiffge-Krenke & Persike 2017:52; Waghachavare et al 2013:294) (see discussion on parent-related stress in § 2.4.1). Seiffge-Krenke and Persike (2015:38) conducted a study on adolescents in Costa Rica, Korea, and Turkey which revealed that adolescents in these countries considered parent-related stress greater than peer-related stress.

Galla, Wood, Ciu, Langer, Jacobs, Ifekwunigwe and Larkins (2012:219) argued that parental pressure in South Africa was so intense at the time that every Grade 12 learner wanted to see their name in the local newspaper where the final results were published – the consequence of not finding one's name was considered shameful and degrading as it implied that one had not met the expectations of one's parents. Another reason listed as a cause of parental stress, according to Seiffge-Krenke and Persike (2017:52), is related to children having conflict with their parents because of adolescents' efforts to establish more established, egalitarian relationships, and this search for autonomy often causes a tension in their relationships.

Another factor that causes conflict between parents and their children is parenting style (Hamid & Shah 2016:180; Seiffge 2013:105). Hamid and Shah (2016:180) contend that value orientation of a parent could result in a difference in stress perception. Parenting style involves the techniques parents adopt when parenting that affect their children's emotions and behaviour (Matejevic, Jovanovic & Jovanovic 2014:281; Shalini & Acharya 2013:194). Parents and adolescents get into clashes due to conflicting views about independence and discipline (Kruger 1992:116). Shin et al (2016:638) further say that negative parenting practices – for example, excessive interference – lead to adolescents experiencing stress to some degree. According to Mashela (2009:16), "parents get into conflict with their adolescent children in matters concerning time to be at home, style of dress, music, money spending patterns, indulgence in liquor and smoking". All sources of conflict mentioned by Mashela (2009) could cause stress.

Another study showed "lack of support from parents" as a major source of stress (Bayat, Louw & Rena 2014:195; Kai-Wen 2010:5). The study conducted by Bayat et al (2014:195), for instance, on the impact of socio-economic factors on selected high school learners in the Western Cape, South Africa, showed that lack of support from parents was one contributor to underperformance.

Divorce is another family-related stressor (Essel & Owusu 2017:27; Machela 2009:16). According to Statistics South Africa (2017:8), the divorce rate in South Africa is extremely high. For example, the divorce rate in the country was 55% in 2015, having increased by 5%

between 2014 and 2015, as compared to the divorce rate in Nigeria (an African country that falls in the same economic bracket as South Africa), which was reported to be on average about 0.2% around the same period (The Economist 2016). Statistics South Africa (2017:8) also indicates that Gauteng province, which is where the participants in this study resided, has the highest divorce rate in South Africa. Furthermore, 55.6% of divorces that occurred in 2015 involved parents of children who were younger than 18 years. As has already been alluded to, divorce can cause stress in adolescents. It was thus highly likely that learners in the current study whose parents had divorced would list or rate their parents' divorce as a stressor.

The death of a close family member – for example, a parent, or a sibling – has always been a bitter experience for any adolescent (Murburg & Bru 2004:387) and various studies have shown that such an experience can be very stressful (Bergman et al 2017:1; Stikkelbroek et al 2016:49).

Research also shows that the death of a close family member can, among others, lead to poor academic performance, which could also result in stress (Coyne & Beckman 2012:109; Murburg & Bru 2004:387; Rosenbaum-Feldbrügge 2019:1828; Spillane et al 2018:1; Tafà et al 2018:2). Latter researchers further assert that family members experience elevated levels of stress when they have lost their loved one through suicide.

In addition, an investigation conducted by Stikkelbroek et al (2016:49) with 2 230 Dutch adolescents found that internalising problems had increased in adolescents after family bereavement in comparison with their non-bereaved peers and these could be predicted by pre-loss factors. In this study, the researcher focused on the negative effects of death of a family member on adolescents, including stress. All the studies mentioned above indicate that the death of a family member can be a cause of stress among adolescents. In the case of South Africa, as mentioned in § 2.4.6.4, there are high incidences of violence, especially in townships. Therefore, the likelihood of learners who attended township schools pointing out this factor as a cause of stress was very high.

2.4.3 Peer pressure and stress

Peer pressure is also deemed one of the sources of stress among adolescents (Bester 2019:26; Lal 2014:124; Mogobye 2011:53–54; Simuforosa 2013:376; Tlale 2016:319). Peer relations are crucial to adolescents, and therefore peer acceptance is a competing or compelling social reward for them (Guyer, Choate & Pine 2012:81). According to Colins, Grisso, Mulder and Vermeiren (2014:331), peer relationships can lead to either eustress or

distress. It is eustress when the influence of peers drives one to perform better in one's studies, for instance. However, it leads to distress when peers exert pressure on how individuals must behave or how they must dress, for example; such pressure can become a significant source of stress for students (Bester 2019:26; Lal 2014:124). Huli (2014:55) asserts that peer pressure is strong during adolescence. Since so much time is spent with peers, their influence can be more powerful than that of parents, teachers, and other authority figures. Huli explains that teenagers spend more time during the day with peers than with family members. As such, the opinions of their peers directly affect the perspectives and values adolescents hold. Thus, the pressure of fulfilling the demands of their friends and balancing those with what they want can be a source of stress for some adolescents.

There are many ways in which peers can exert pressure on the individual. For example, insofar as fashion is concerned, youth often are pressured to keep up with trends. In contemporary South African townships, especially in Gauteng province, there is a youth subculture closely related to fashion that has emerged, called *izikhothane* (Richards 2015:1). According to Mchunu (2016:132), *izikhothane* youth culture has taken some of the South African townships by storm. The term "*izikhothane*" is an adaptation of the Zulu word meaning "to lick" or "to boast" (City Press, April 2012). Langa (2019) states that *izikhothane* are teenagers who buy luxurious clothing, then proceed to trample on them and burn them as a show-off to their friends. Richards (2015:1) and Richards and Langa (2018:87) express their concern about the music and dance that influence this community.

Learners in township schools where *izikhotane* are prominent can be easily influenced to pay too much attention to fashion, and this could lead to and/or become a source of stress when their expectations are not met. Therefore, this factor has been selected as a greater source of stress for Grade 12 learners in township schools than for Grade 12 learners in suburban schools.

2.4.4 School environment

Literature identifies the school environment as one of the causes of stress among learners (Ang'alika, Aloka & Raburu 2016:78; Najafi, Movahed, Barzegar & Siamak 2018). Sithole (2017:24) alludes to the positive effect of well-designed buildings on learning and believes that the physical environment directly enhances or affects learners' achievements and safety. Results of different studies show that research participants consider several components as stressors. For example, the study conducted by Najafi et al (2018) with high school female students in Shiraz, Iran, showed that factors affecting thermal comfort (e.g., air temperature,

humidity, wind speed, students' clothes, and physical activity), physical factors, security and environmental interventions had an impact on the stress students experienced in the educational environment.

According to researchers (Ang'alika et al 2016:78; Motseke 2013:23; Najafi et al 2018; Reddy & Anuradha 2013:73), the following factors are deemed stress-inducing components of the school environment: blocked sewage systems; cold rooms; vandalism of school property; poor lighting; lack of safety; and lack of classroom management. In this study, the following components of the school environment were considered: blocked sewage systems; cold rooms; vandalism of school property; poor lighting; lack of safety (Ang'alika et al 2016:75; Anuradha 2013:73; Motseke 2013:23; Najafi et al 2018; Reddy & Anuradha 2013:73) and overcrowding (an additional component reported in this study).

Research shows that overcrowding holds consequences for learners. According to Marais (2016:3), overcrowding affects learner behaviour. For example, the noise level tends to be high in overcrowded classrooms (Qasim & Arif 2014:145), and this negatively affects academic achievement (Bayat et al 2014:195). Moreover, similar studies across the globe reveal that not only learners but also teachers perceive overcrowding as a source of stress.

In the study conducted by Reddy and Anuradha (2013:73), for instance, it was found that school physical environments, such as dilapidated teacher's houses, crowded classrooms, and inadequate and/or informal furniture arrangement were key stressors for teachers. A similar study conducted in Zimbabwe revealed that crowded classrooms were a major source of stress for teachers (Map-fumo, Mukwidzwa & Chireshe 2014:191).

In the South African context, similar results have been obtained. For example, Muthusamy (2015:26) found that teachers regarded overcrowding as stressful and identified the following consequences of overcrowding: inadequate classroom space; issues related to health and safety; minimal learner and teacher interaction; disruptive behaviours; teachers experiencing emotional and psychological problems; increased workload; and overcrowding. Thus, as has also been discussed above, it is clear that overcrowded classrooms have a negative impact on both teachers and learners.

According to Lewis and Motseke (2013:23), above-mentioned negative components of the school environment are found in schools that are based in townships, and all of these factors could contribute to higher stress levels among Grade 12 pupils attending those schools. Also, the researcher would like to argue that the stressors that are associated with the school

environment are more prominent in township schools than in suburban schools because of the state of affairs stated in § 2.5.5. If latter assertion is correct, it would imply that the school environment could be rated high by learners in township schools compared to learners in suburban schools.

2.4.5 Socio-economic factors

Research shows that socio-economic factors can cause stress among adolescents (Farley & Kim-Spoon 2017:503; Reiss, Meyrose, Otto, Lampert, Klasen & Ravens-Sieberer 2019; Van Rooyen et al 2014:340). Researchers report that low socio-economic status (SES) can lead to increased levels of stress in families (Conger, Conger & Martin 2010:685; Reiss et al 2019; Terzian, Moore & Nguyen 2010:1). Van Rooyen et al (2014:340) argue that young South Africans face "daily socio-economic challenges the ripple effect of which might have a negative impact on their mental health". Tlale (2016:319) agrees with the latter view and claims that many South African parents/guardians cannot afford the costs of schooling.

Some learners go to school hungry as their caregivers are either partially or fully dependent on social grants that are provided by the government, and this causes stress in learners. Of relevance to this study is the issue raised by Bayat et al (2014:43): most underperforming schools are located in townships, and many social "dysfunctionalities" are manifested, emanating from the social environment in which they are rooted. This implies that this socio-economic factor may arise as one of the main causes of stress among learners in township schools as compared to learners in suburban schools.

Various researchers have identified a number of socio-economic factors. These include finances, violence, and globalisation, which are discussed in the following paragraphs. One of the other identifiable causes of stress among adolescents listed under socio-economic factors is alcohol and substance abuse (Morojele et al 2012:232 Reddy, James, Sewpaul, Koopman, Funani, Sifunda & Omardien 2010; Tunnard 2002:14). There are many causes of alcohol and drug abuse, among others, stress (Liu, Keyes & Li 2014:1; Tate et al 2007:255). Goldbach, Cardoso, Cervantes and Duan (2015:960) investigated the relationship between eight domains of stress and alcohol use among 901 Hispanic adolescents between 11 and 19 years old. They concluded that there was a strong relationship between stress and alcohol abuse.

According to Tate et al (2007:255), "adolescence drug use" has been associated with retrospective reports of stress, and stressful life events have been associated with alcohol and drug abuse. Research conducted in South Africa gives a grim picture of the high rate of drug and alcohol abuse in the country. According to the UN World Drug Report (2014), substance

dependency is extremely high in South Africa. Substance dependency statistics show that South Africa has double the global average of drug consumption.

According to Christian Addiction Support (2016:8), 15 out of every 100 people in South Africa have a drug problem, and the average age is 12 years. In addition, the National Survey of High Schools conducted in 2008 by Reddy et al (2010) with Grade 8 to 11 learners confirms that there are high levels of alcohol and drug abuse among South African learners. The survey revealed that 12% of South African learners had tried at least one illegal drug: “about 50% of the learners had taken alcohol, 30% had smoked cigarettes, 13% had used cannabis in their lifetime, and 7.4% had taken mandrax while 12% had indulged in inhalants of various sorts”. Against this background, there is a high possibility that learners in both suburban and township schools could be affected if either one or both parents use and abuse alcohol and drugs.

Another identifiable cause of socio-economic stress among adolescents is money. Studies have shown that there is a link between finances and stress, and according to Ponnet, Wouters, Goedemé and Mortelmans (2016:575), lack of finances can have “negative adolescence outcomes”, like anxiety and problem behaviour.

Literature shows that globalisation can cause parent–child bonding to take the strain because of the nature of modern-day careers which require parents to spend more time at work than with their children (Conger et al 2002; Ponnet 2016:2). Ponnet 2016:2 argue that the strain created by a lack of parent–child bonding can have a negative psychological impact on adolescents.

To make matters worse, Huli (2014:50) reports that a new trend amongst adolescents is getting “instant gratification from the electronic media and gadgets”, and this was found to be a source of stress. This notion is also supported by Lenhart, Purcell, Smith and Zickuhr (2010), who highlight that adolescents spend 90% of their time surfing the Internet, which, in itself, stresses the body. Huli (2014:50) says that technology is not only a source of stress for adolescents but also affects their relationships with their families and peers. Wright (2015:789), in her study on late adolescence, discovered that there is a positive relationship between cyber bullying and perceived stress; the occurrence of cyber bullying is more intense if the adolescent is experiencing high perceived stress from parents, peers, and academics. It was assumed that cyber bullying could be a source of stress for the Grade 12 learners who participated in this study.

Previous studies show that school violence is another cause of stress among Grade 12 learners (Chandra & Batanda 2006:1; Collings 2013:13; Mulumeoderhwa & Harris 2013:222). The Centre for Justice and Crime Prevention (2016:5) defines school violence as follows:

> … any acts of violence that take place inside an educational institution, when travelling to and from school or a school-related event, or during such an event. These school-based acts of violence can be both physical and non-physical and may or may not result in bodily or emotional harm to the victim. This violence typically takes the form of learner-on-learner, learner-on-educator, educator-on-educator, and educator-on-learner violence and severely disrupts the normal functioning of the schooling system.

Baruth and Mokoena (2016:97) further define violence as "any behaviour of learners, educators, administrators or non-school persons, attempting to inflict injury on another person or danger to school property". Both definitions are relevant to this study. Baruth and Mokoena (2016:97–101) list the following forms of school violence: bullying; gang-related violence; violence related to drugs and alcohol abuse; illegal firearms; and sexual violence and harassment.

The negative consequences of violence during adolescence, according to Elghossain, Bott, Akik, Ghattas and Obermeyer (2019:8), are as follows: "[it] will affect the health, wellbeing, and capacity of the next generation to shape society, as they navigate rapid social and political change". In addition, studies by Mazerolle, Legosz and Finighan (2011:17) reveal that depression, reduced perception of self-worth, poorer school outcomes, chronic absenteeism, suicide and psychological change are consequences of violence.

Research in South Africa reveals that South African learners are exposed to high levels of school-based and community-based violence (Collings 2013:13; Eagle 2015:83; Kaminer & Eagle 2010:123–124), which contributes to high levels of stress. A report by the South African Institute of Race Relations (SAIRR) (2008) revealed that only 23% of South African learners felt safe at school, which is low compared to other countries. For example, schools in Norway, Sweden, reported that 70% of learners felt safe at school.

From these two reports (the SAIRR report and the Norwegian and Swedish schools report), it is clear that South African learners are more prone to stressors that are related to violence compared to their counterparts in Europe. As regards community violence, Kaminer and Eagle (2010:123) conducted a survey with 185 learners in five township schools in the Western Cape. They found that 73% of the learners indicated that they had witnessed someone being

beaten up; 57% had witnessed someone being attacked with a sharp knife; and 45% had witnessed someone being threatened with a gun. Other than community violence, incidents of violence also occur at schools (see Table 2.1).

Table 2.1 lists different incidents of violence that occurred in South African schools in the first six months of 2019 (City Press 2019).

4 June 2019: Forest High School Grade 10 pupil Daniel Bakwela (16) was stabbed to death in a suspected gang attack. Two other pupils were hospitalised.
30 May 2019: A Grade 11 pupil at Vuluhlanga High School in Butterworth, Eastern Cape, was stabbed by a fellow pupil, allegedly with a sharpened spoon, for his lunch.
21 May 2019: A 15-year-old Grade 9 pupil stabbed a 16-year old pupil to death at the Robert Machaka Secondary School in Ga-Mamabolo, Limpopo. The two allegedly fought while playing. Subsequently the suspect stabbed the Grade 8 pupil to death and fled.
21 May 2019: A 15-year old pupil in Mankweng, Limpopo, allegedly stabbed a classmate after a fight at school.
12 May 2019: A 35-year-old security guard at Woodlands Secondary School in Mitchells Plan was stabbed to death while patrolling the school grounds.
14 March 2019: A 10-year-old boy escaped with minor injuries after being stabbed at school at Welgevonden near Ventersdorp, North West.
13 March 2019: A 19-year-old from Mondeor High in Gauteng was fatally stabbed while walking to school.
13 March 2019: A pupil was stabbed at Tlhabane Technical School near Rustenburg in North West.
26 February 2019: A 13-year-old allegedly used a pair of scissors to stab his 14-year-old classmate to death at Mateane Primary School in Diretsane, North West.
2 February 2019: A Grade 12 pupil at Diepdale Secondary School in Diepkloof, Soweto, was stabbed eight times, allegedly by a schoolmate, in a fight.
15 January 2019: A 16-year-old Grade 7 pupil from Mpeko Primary School in Peddie, Eastern Cape, was allegedly stabbed by a 15-year-old classmate. He died in hospital two days later.

Table 2.1: Incidents of violence in South African schools as reported by City Press (2019)

As indicated in the table above, there were 11 reported incidents of violence in South African schools within a period of six months. With so many incidents reported, this factor could not be ignored as a cause of stress among Grade 12 learners. Literature also shows that violence is more prominent in township schools than in suburban schools (Van der Merwe 2015:1; Van Rooyen et al 2014:340; Westhuizen & Maree 2009:45). Learners in township schools are more exposed to violence than learners in suburban schools because learners in township schools

are exposed to challenges “emanating from social, political and economic adversities” (Van Rooyen et al 2014:340).

Other researchers like Baruth and Mokoena (2016:96), Collings (2013:13), and Westhuizen and Maree (2009:45) concur that violence is prevalent in township schools, with learners carrying knives and guns. Xaba (2006:566) argues that lack of resources, poor infrastructure and location are contributing factors to the prevalence of violence in townships.

Msila (2009:81) and Ndimande (2009:123) add that South African townships are densely populated and have a low socio-economic status, which is a contributing factor to violence. Masitsa (2011:164) further argue that violence is 13 times more likely in secondary schools than in primary schools. This means Grade 12 learners are likely to experience school violence. Gang violence is another form of violence that is prevalent in townships. In *Daily Maverick*, Van der Merwe (2015:1) reported that 12 000 learners were unable to go to school due to gang violence in the Western Cape. Additionally, a young boy was sentenced following the murder of a learner after a gang-related shooting incident at a school in Cape Town. Van der Merwe (2015:1) further reported that the shooting was one of many incidents of school violence in the Western Cape. A study conducted by Ncontsa and Shumba (2013:7) in four schools in the Eastern Cape revealed that the effects of violence on school learners include depression. Various researchers have reported a link between depression and stress. Researchers emphasise that stress has negative health outcomes, among others, depression (Caspi et al 2003:386; Skipworth, 2011:51).

According to Van der Merwe (2015:1 cited in *Daily Maverick*); violence also occurs in suburban schools. Other researchers share the view that shootings, stabbings, and other physical and emotional violence occur in both public and private schools (Akiba, LeTendre, Baker & Goesling 2002:832; Zulu, Urbani & Van der Merwe 2004:70). The researcher is of the view that the occurrence of violence is less in suburban schools than in township schools. This assumption is based on several reports published on the occurrence of violence in township schools compared to urban schools (Msila 2009:81; Ncontsa & Shumba 2013:7; Ndimande 2009:123; Van Rooyen et al 2014:340).

2.4.6 Uncertainty about the future

In this subsection, the discussion focuses on concerns about unemployment after completion of studies and getting placement in tertiary institutions, for example, university or college.

2.4.6.1 Unemployment after completion of studies

One of the stressors related to uncertainty about the future is securing employment after completion of studies. A study conducted by Gelhaar, Seiffge-Krenke, Borge, Cicognani, Cunha, Loncaric, Stenhausen and Metzke (2007:129) with European adolescents found that anxiety about being unemployed was one of the stressors reported. Also, in a study by Seiffge-Krenke, Macek, Persike, Chau, Hendry, Kloepp, Terzini-Hollar, Tam, Naranjo, Herrera, Menna, Rohail, Veisson, Hoareau and Luwe, (2010:703) in four European countries, it was noted that adolescents in France and Italy experienced higher levels of stress about their future compared to their counterparts in Germany and Britain. Seiffge-Krenke et al (2012:258) further in their research with adolescents across 18 countries found that adolescents were more stressed about their future prospects than they were about school. Since no similar studies seem to be available in South Africa, it would be reasonable to surmise that the same anxiety exists among South African adolescents because of the high unemployment rate among youth in the country.

According to a report released by the World Bank in 2014, the South African youth unemployment rate was between 47.9% and 52.6%. The World Bank's definition of youth is between 15 and 24 years of age. Grade 12 learners in South Africa fall into this category, since most of them are aged 17 and above. This was corroborated by the South African labour market report released by Statistics South Africa (2015:4) which revealed that, between 2008 and 2015, 221 000 of South African youth were unemployed. In 2019, Trading Economics (2019) reported that the youth unemployment rate in South Africa was 58.10% in the fourth quarter of 2019 from 58.20% in the third quarter of 2019.

The statistics above show that there is no respite in the unemployment statistics, making it highly likely that Grade 12 learners would experience stress about their employment prospects.

2.4.6.2 Getting placement in tertiary institutions

Another factor that contributes to stress among high school students is getting placement in a tertiary institution, for example, college or university (Seiffge-Krenke et al 2012:258; Yusoff 2010:11). The result of Yusoff's research that learners were stressed about the possibility of not getting placed in a tertiary institution also apply to South Africa, because there are not enough colleges or universities to accommodate all qualifying learners. According to BusinessTech (2016), at the time, there was not enough space in South African universities to accommodate even half of the learners who qualified to enrol for bachelor's degrees. This situation is still true for South Africa today. According to Seeth (City Press 2017), the University of Johannesburg received 135 500 applications for admission to undergraduate first-year programmes in 2016, while the space earmarked for newcomers was 10 500.

Looking at the above statistics, it can be concluded that there is a serious shortage of space to accommodate students in South African tertiary institutions. The possibility of not getting placement in a tertiary institution, according to Muhumad (2010:2) and Yusoff (2010:11), might cause stress in some adolescents. The researcher concurs with latter assertion.

2.4.7 Intrapersonal factors

According to research, intrapersonal factors can also cause stress in adolescents (Akande et al 2014:32; Sripongwiwat et al 2018:202; Van der Merwe 2004:14). Researchers mention numerous components of intrapersonal stress. These are discussed below.

According to Sudha and Karthikeyan (2016:84), intrapersonal stress occurs when one is dissatisfied due to some emotional problems; "health complaints, change in food habits and sleeping habits, new assignments, self-responsibility, puberty" are important factors of intrapersonal stress. According to Akande et al (2014:32), other causes of intrapersonal stress include financial difficulties, public speaking, outstanding personal achievement, minor violations of school rules or regulations, and change in religious belief. Van der Merwe (2004:15) adds "nutritional status; habitual behavioural response; attitudes; thoughts; self-image and self-concept; feelings of anger; fear and worry; anticipation; imagination; memory; overall health and fitness levels; presence of illness and infection; emotional wellbeing; how much sleep and rest one gets" as causes of intrapersonal stress. Bester (2019:25) confirms Van der Merwe's assertion that there is a link between self-concept and stress. In his study with 358 adolescents, Bester (2019:26) found that "self-concept correlated positively with interpersonal relationships and negatively with stress and the personality variables (especially self-concept) were the most important variables to explain the variance in stress".

Kai-wen (2010:36) conducted research among college students in Taiwan, and he identified relationships as a source of stress. Kai-wen found that the students were interested in building relationships with the other sex, making new friends and being accepted by their peers, and if those needs were not met, stress would occur. Furthermore, according to Simuforosa (2013:373), high expectations about the self were also found to be intrapersonal stressors.

Lester and Walker (2007:327) argue that there is a connection between stress and suicide; their argument is based on “retrospective studies of the lives of completed suicide in the hours, days, weeks, and months prior to their deaths” which showed that the levels of stressful events were higher than usual.

In a cross-sectional study conducted by Arun et al (2017:64) on stress and suicidal ideation, which compared typical academically achieving adolescents with students with academic difficulty and those with specific learning disabilities (SLD), they found that a higher number of students who were academically competent had increased suicidal ideas as compared to the other two groups. Arun et al (2017:64) concluded that high-achieving students' high suicidal ideation could be ascribed to parental pressure to achieve. The results of the study implied that it is irrelevant whether a learner is academically competent or not, all learners are prone to stress, which can vary depending on their social, economic, and academic circumstances.

In addition to Arun et al's (2017:64) study on stress and suicide, other studies also show a higher rate of suicide and suicidal ideation in adolescence. Erbacher and Singer (2018:186) argue that suicide is responsible for more deaths in 10- to 24-year-olds than all-natural causes combined. Also, in South Africa, Shulubane, Ruiter, Van der Borne, Sewpaul, James and Reddy (2013:2) found that the causes of stress in learners varied and included academic circumstances, socio-economic difficulties, unemployment, family and individual crisis situations, and humiliation. It was important to explore how adolescents in township schools experience stress compared to their counterparts in suburban schools.

Lastly, as mentioned in the introduction to this sub-section, there is also a relationship between body image and stress. Marcotte (cited in Murray et al 2011:270) conducted a study with adolescent females and found that there was a relationship between body image of adolescents and stress, and that negative body image may increase the chances of one getting stressed. Murray et al (2011:275) also conducted a study with 533 Grades 7 to 10 high school students and found that high levels of stress among adolescents were associated with dysfunctional body images.

2.5 Approaches to understanding stress

There are different approaches to understanding stress. In this section, the following approaches to stress are explored: response-oriented approach; general adaptation syndrome; stimulus-oriented approach; transactional approach; and the COR approach.

Figure 2.2 illustrates the five different approaches to understanding stress explored in this study.

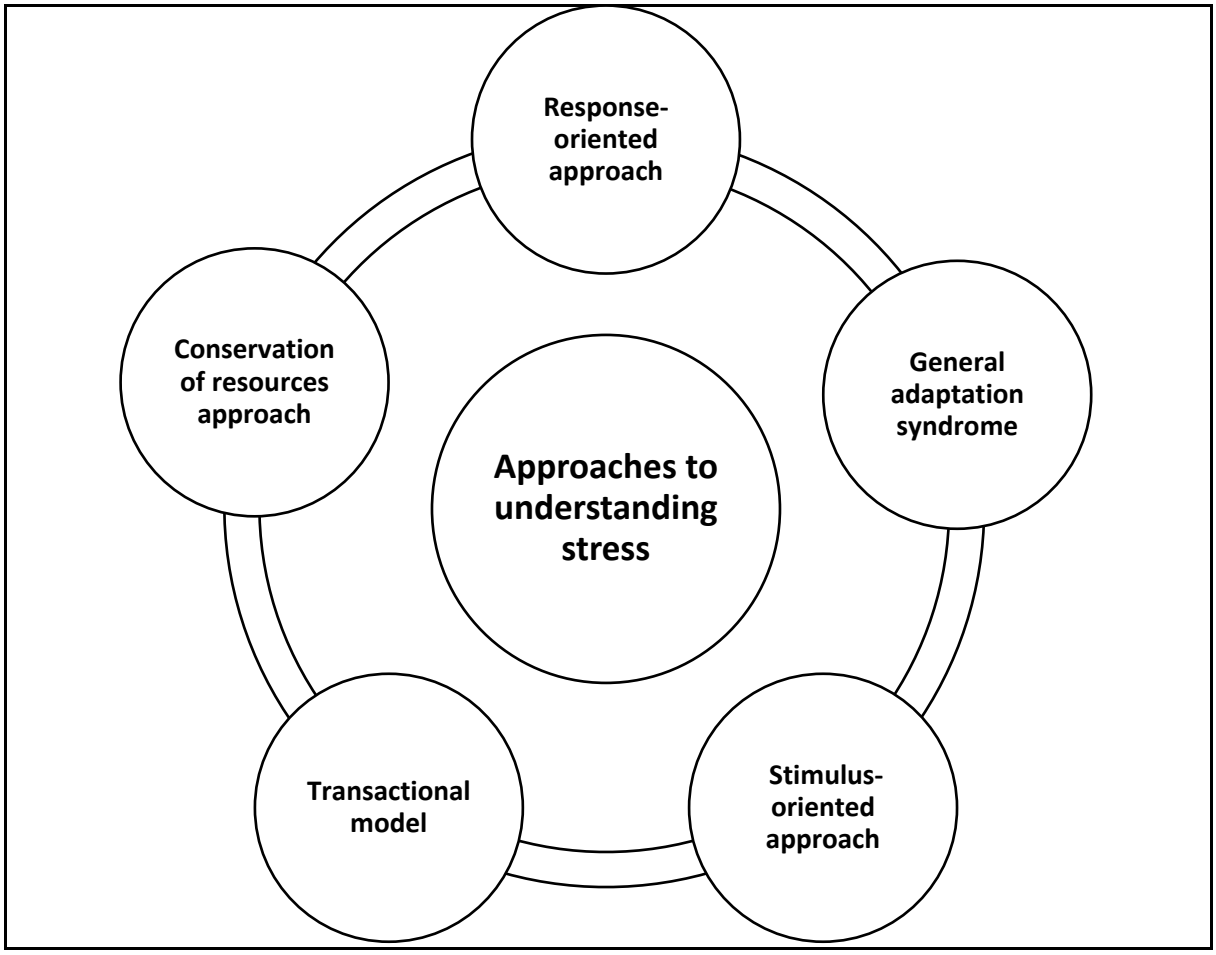

Figure 2.2: Five approaches to understanding stress

2.5.1 Response-oriented approach

The response-oriented approach regards stress as the response of individuals to events occurring in the environment (Skipworth 2012:9; Yusoff 2010:2). According to this approach, a stressed state is caused by non-specific physiological reactions. In other words, there is no specific cause of stress; stress is recognisable as physiological symptoms, such as

headaches, chest pains, rapid heartbeat, increased blood pressure, and the response to stress is the same, whether the stimulus is pleasant or unpleasant (Fink 2017:1; Grunberg, Berger & Hamilton 2011:287). This approach concurs with the view that stress is a physiological state in which arousal of the sympathetic nervous system results in many physiological and somatic changes and finally disruption of homeostasis (Afsharinia 2014:611).

The sympathetic nervous system and the parasympathetic nervous system are branches of the autonomic nervous system. Both branches control the same group of body functions, but they have opposite effects on the functions they regulate (Ogden, Henderson, McGlone & Richter 2019:1; Won & Kim 2016:666). The sympathetic nervous system prepares the body for intense physical activity and is often referred to as the **fight-or-flight response**. The parasympathetic nervous system, on the other hand, relaxes the body and inhibits or slows many high energy functions and, as such, provides a "**rest and digest**" function (Alkon, Boyce, Nellands & Eskenazi 2014; Won & Kim 2016:666).

In Figure 2.3, a schematic representation of the response model of stress, as adapted from Sutherland and Cooper (2000:47), is presented.

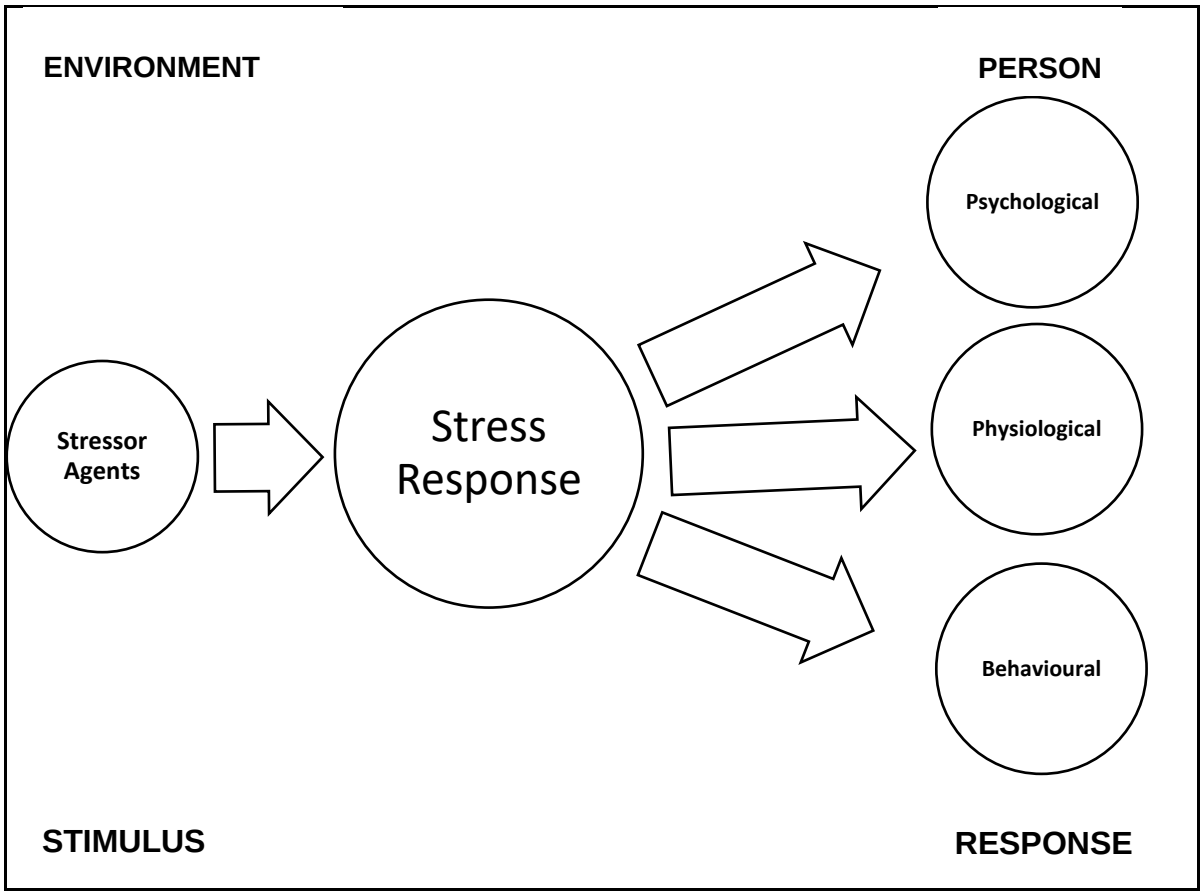

Figure 2.3: Schematic representation of the response model of stress (adapted from Sutherland & Cooper 2000:47)

As seen in Figure 2.3, according to the response-oriented approach, persons respond to stress agents physiologically, psychologically, and behaviourally.

Hipp (2008:1) also compares these physiological reactions to stress to rubber bands that continue to cover one's head, and when the whole head is covered with them, stress occurs. Each rubber band represents a stressful situation or condition, and as more stressors reveal themselves, the person's head gets engulfed. Hipp (2008:1) states that the pressure inside is called stress. Figure 2.4 below illustrates the state of stress as defined by Hipp (2008:1).

Figure 2.4: Stress ball (adapted from Hipp 2008)

Figure 2.4 illustrates the response one has when one is perpetually (as one rubber band after the other is added) bombarded with a stressful situation.

2.5.2 General adaptation syndrome (GAS)

The physiological reaction to stress is clearly explained by Hans Selye (1956), who is considered the father of stress (Fink 2010:1; Crevecoeur 2016:2; Sutherland & Cooper 2000:47; Tan & Yip 2018:170). Hans Selye developed a three-stage model called general

adaptation syndrome (GAS) to explain the concept of stress-related illnesses in an effort to fathom the body's physical reaction to biological stress. He termed these stages *alarm*; *adaptation or resistance*; and *exhaustion and collapse* (Selye 1976:54). The alarm stage, according to Selye, is activated when the body's defence systems come into use in order to counter certain biological stressors (Vogel 2006:14). Selye uses the term *fight or flight* when the body prepares for immediate reaction to stressors.

Bodily reactions to situations that cause stress include loss of muscle tone and rapid heartbeat. These bodily reactions are a result of secretion of hormones into the blood system to restore balance in the body (Cooper 2010:22; Tan & Yip 2018:170).

Other theorists agree with Selye's classification of the fight or flight concept as a protocol response to stress (Lovallo 2005:69; Nimako 2004:5) and they argue that the term *fight or flight* has been adopted as a metaphor for human behavioural responses. According to these scholars, the individual either fights or flees (flight) in response to sympathetic arousal, depending on the nature of stress. Nimako (2004:5) further explains that we are just like our ancestors who had to decide whether to fight a dangerous animal or flee. The same physiological reaction to stress is still evident, where, for example, a person's blood pressure rises in a stressful situation.

Figure 2.5 illustrates the fight-or-flight response. It shows that the person on the right chooses to fight, while the person on the left chooses to flee (flight) in a particular stressful situation.

Figure 2.5: The fight-or-flight response to stress (adapted from McLeod 2010, https://www.simplypsychology.org/stress-biology.html)

The second stage of Selye's GAS theory is the adaptation or resistance stage. Adaptation or resistance occurs when the stressor continues to exhaust the body infinitely, the body's energy is depleted and resistance deteriorates, resulting in fatigue and, in some cases, even death (Fink 2017:1; Selye 1950:4660, 1997:135; Vogel 2006:19).

Similar stimuli can have either a positive or negative outcome depending on how the individual experiences and manages the stressor (Fink 2017:1). The third stage is called *exhaustion*. During this stage, an individual cannot resist stress any longer; their emotional, physical and mental resources are exhausted. In other words, the person's adaptive resources are depleted (Crevecoeur 2016:2; Fink 2017:1; Godoy et al 2018:2; Vogel 2006:16).

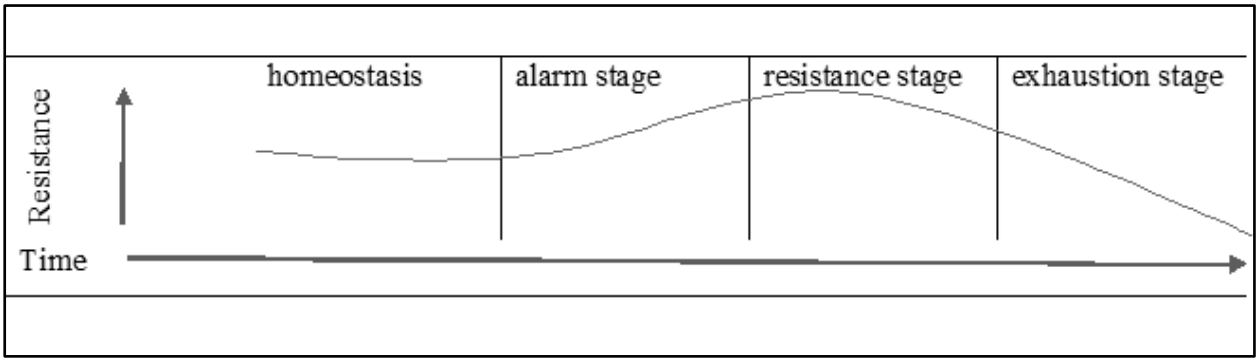

Figure 2.6: Stages of Selye's general adaptation syndrome (https://www.researchgate.net/publication/291348598_Stress_Lifestyle_and_Health/figures?lo=1)

Figure 2.6 above shows that, at first, the body fights, but after a long time of fighting, it reaches the exhaustion stage in which there is a decline in resistance: the body can thus no longer fight, and the stressor continues to exhaust the body infinitely. Although the model has helped scholars and researchers understand the concept of stress, more criticism is also levelled against it. The response-oriented approach is criticised for not acknowledging the role of psychological and social stressors (Cartwright & Cooper 1997:4; Fink 2016:126, 2017:5). This model is also criticised for ignoring a person's ability to recognise stress (Cartwright & Cooper 1997:4). Fink (2010:1) also criticises it for ignoring cognitive factors.

Despite the criticism levelled against the response-oriented approach, it is still relevant to this study, since it lays the foundation of what happens to someone physiologically, psychologically and behaviourally when confronted with stress. Research shows that adolescents also display

physiological responses, like headaches and sleep problems, when dealing with stress (Afsharinia 2014:611).

As the researcher has already stated, she finds this model relevant, and in chapter 5, one of the proposed interventions addresses the management of physical consequences of stress. Also, it is recommended in chapter 5 that learners determine what situations or events can trigger GAS (Ramachandiran & Dhanapal 2018:2115), as well as what lifestyle change one can adopt so as to reduce exposure to such triggers. Suggestions are also made concerning the type of assistance the school, family, and government can provide to Grade 12 learners to either avoid the stress trigger where possible or to find ways to reduce its impact.

2.5.3 Stimulus-oriented approach

In the stimulus-orientated theory, stress is defined as a "response to changes that take place within an individual or within an environment" (Cohen, Gianaros & Manuck 2016:456; Cooper, Dewe & O'Driscoll 2001:8; Papathanasiou, Tsaras, Neroliatsiou & Roupa 2015:46). Thus, internal and/or external changes that are perceived with apprehension as demanding or disorganising, stimulate the experience of stress (Cooper et al 2001:8). Major life changes, such as the death of a parent, are deemed stressful. This model further proposes that life changes – life events or stressors – whether positive or negative, are stressors that tax the adaptation capacity of an individual, causing physiological and psychological strains that lead to health problems. Holmes and Rahe (1967) are regarded as prominent stimulus-orientated stress theorists and they developed a scale containing a list of major life events that are stressors, known as the Social Readjustment Rating Scale (Joung 2007:487; Papathanasiou et al 2015:46). This scale was developed to measure the impact of life changes. The scale is based on the observation that important life changes, whether positive (such as marriage) or negative (such as death of a close friend) induce stress (Joung 2007:487). The scale consists of a list of 43 life events that reflect life changes (Cohen et al 2016:456). These life events and their scores are listed below.

Social Readjustment Rating Scale	
Life events	**Score**
1. Death of a spouse	100
2. Divorce	73
3. Marital separation	65
4. Jail term	63
5. Death of a close family member	63
6. Personal injury or illness	53
7. Marriage	50
8. Fired at work	47
9. Marital reconciliation	45
10. Retirement	45
11. Change in health of a family member	44
12. Pregnancy	40
13. Sex difficulties	39
14. Gain of a new family member	39
15. Business readjustments	39
16. Change in financial state	38
17. Death of a close friend	37
18. Change to different line of work	36
19. Change in a number of arguments with spouse	35
20. Mortgage of over $ 50 000	31
21. Foreclosed mortgage	30
22. Change in responsibilities at work	29
23. Son or daughter leaving home	29
24. Problems with in-laws	29
25. Outstanding Personal Achievements	28
26. Wife starting or stops work	26
27. Begin or end school	26
28. Change in living conditions	25
29. Revision of personal habits	24
30. Trouble with boss	23
31. Change in work hours or conditions	20
32. Change in residence	20
33. Change in school	20

34. Change in recreation	9
35. Change in religious activities	19
36. Change in social activities	18
37. Loan less than 50 000	17
38. Change in sleeping habits	16
39. Change in no. of family get-togethers	15
40. Change in eating habits	15
41. Vacation	13
42. Holidays	12
43. Minor violation of laws	11

Table 2.2: Social Readjustment Rating Scale with assigned values (Holmes & Rahe 1967)

In Table 2.2 above, each life event was assigned a value in arbitrary “life changing units” chosen to reflect the relative amount of stress each event caused in the population studied (Joung 2007:487). Also, the items were rated in terms of the amount of readjustment required (Lewis 2003:34). For example, the death of a spouse was the highest-rated (100) life event and minor violation of laws was the lowest-rated (11) life event. Holmes and Rahe (cited in Kobasa 1979:2) claim that readjustment required by major life events subsequently increases the risk of physical sickness as stress is cumulative. So, to estimate the total stress one is experiencing, one should add up the values corresponding to the events that have occurred in one's life over the past year. However, the level of stress caused by a particular stressor varies from one person to the next due to the variability in circumstances, interpretation, goals, personality, values, coping strategy, and resources (Joung 2007:487).

Therefore, when measuring stress, it is important to consider a person’s unique circumstances. Although the main aim of this study was not to measure the stress of Grade 12 learners, the principle that it was based on – namely, the individual’s unique circumstances – was relevant. The argument put forward in this study is that the causes of stress among learners are informed by their unique circumstances, which are influenced by their suburban or township environment. As a result, their perception of the causes of stress may not be the same.

Criticism has also been levelled against the stimulus-oriented approach. For example, Scully, Tosi and Banning (2000:864) state that, although the research on examining stress using Holmes and Rahe’s self-report checklist has provided valuable evidence linking stress to

various disease endpoints, many problems have been identified using this this methodology. Researchers question the view that major life changes are the main sources of stress.

Other researchers (e.g., Compas 1989:550; Lippold, Davis, McHale & Buxton 2016:1028) argue that the effect of daily hassles – for example, interpersonal conflicts, work demands, and college examinations – are more problematic for health outcomes than the effects of major life events. According to Kanner, James, Schaifer and Lazarus (1981:1), daily hassles are more problematic than major life events, while Yaribeygi et al (2017:1057) assert that the sources of stress must not be limited to major life changes but that any intrinsic or extrinsic stimulus that evokes a biological response is stress, and whatever the stimulus is, "stress can exert various actions on the body ranging from alterations in homeostasis to life-threatening effects and death".

Furthermore, other scholars have also criticised the limited content of items that are in these scales/inventories and the questionable methods of assigning weights (Zimmerman 1993). Some researchers have proposed alternative ways to mitigate this concern. Aldwin (2012:70), for instance, suggests that personal interview strategies are more effective in determining the causes of stress in unique stressful situations than a standardised checklist. Since these are deemed labour-intensive, Lepore (1995:29) recommends the use of observational methods. Such an approach was significant for this study as adolescence experience different life events in their lives. For example, in the South African context, there are high levels of violence. The occurrence of community violence is 94% for girls and 90% for boys (Seedat, Nyamai, Njennga, Vythillingum & Stein 2004:169). Exposure to violence is also more likely among adolescents who smoke or use drugs and alcohol, who do not live with their fathers, are unemployed, live in poor housing, and have financial difficulties (Stansfeld, Rothon & Lund 2017:257).

The researcher found the above approach relevant to this study. Baruth and Mokoena (2016:97–101) and Van Rooyen et al (2014:340) claim that South African adolescents are more vulnerable to stress than adolescents elsewhere in the world due to South Africa's history (apartheid). Apartheid, according to Van Rooyen et al (2014:340), highlighted social risk factors that are unique to South Africa. The social risk factors they (Van Rooyen et al 2014:340) cite include homelessness, HIV/AIDS, violence, the legacy of apartheid, high incidences of poverty and undereducated parents. This approach was thus relevant to the Grade 12 learners in this study, especially those who lived in the township, because of the high chances of experiencing events that could cause lifelong stress.

In her recommendations provided in chapter 5, the researcher also considered the diverse settings of suburban and township schools.

2.5.4 The transactional approach

The approaches discussed above – namely, the response-oriented and stimulus-oriented approaches – do not seem to consider individuals' perception or interpretation of stressful events. According to the response-oriented approach, stress is considered the body's reaction to stressors, while, according to the stimulus-response model, stress is caused by external events. Cooper, Dewe and O'Driscoll (2001:72) and Papathanasiou et al (2015:46) emphasise that both these approaches ignore individual differences, perceptions, and cognitive processes that might reinforce those differences. Transactional theorists suggested another approach to explain stress from a psychological viewpoint.

Proponents of the transactional approach focus on the concept of perceived stress. Perceived stress refers to interactions between an environmental precipitant (external stress), physiological reactions of the body (distress), and the person's cognitive, emotional and behavioural response to this interaction (Acosta-Gómez et al 2018:1; Sildo 2008:274). In other words, stress is not based on either environmental or personal input but reflects personal agenda (motives and beliefs) in conjunction with environmental characteristics that may pose threat, harm, or challenges, depending on the individual's personal characteristics. To understand this approach, it would be pragmatic to look at the model proposed by Richard Lazarus, who is considered a prominent cognitive phenomenological theorist (Kruger 1992:63; Smith & Kirby 2011:195). Lazarus, who formulated the transactional model, defines stress as transactions between the person and the environment. This approach avers that stress does not occupy the individual or a situation unconnectedly but is a transaction between the two (Cohen et al 2017:458; Goh, Sawang & Oei 2010:13).

The transactional approach also emphasises the role of cognition, in which people have a capacity to think, evaluate, and react.

Evaluation can have three outcomes: events deemed irrelevant; events deemed positive to the individual's wellbeing; and events deemed negative on the individual's wellbeing (Silinda 2018:3). More information on the transactional approach to stress is provided in § 2.6, since this approach was adopted as the basis for the conceptual framework for this study.

Various scholars have levelled criticism against the transactional approach. For example, this approach has been criticised for its lack of attention to the concepts that are not grounded in

theory (Kruger 1992:66). Lewis (2001:272–288) agrees that the model is not comprehensive enough. He argues that perceptions are also influenced by age, gender and culture, thereby impacting on individuals' experience of stress. As regards adolescents, Sildo (2008:274) describes stress as a reciprocal and ongoing transaction between adolescents' cognitive and perceptual appraisal of environmental events and coping resources. In chapter 5, recommendations are provided for learners based on this model.

2.5.5 Conservation of resources approach (COR)

The COR approach is discussed in this sub-section. COR was developed by Hobfoll (2001:34). Hobfoll introduced a new angle to the definition of stress. Unlike other models, which are concerned with factors that create stress, the COR model is concerned with resources that preserve a person's wellbeing in the face of stressful encounters (Hobfoll et al 1989:513). This model is based on the "supposition that people strive to retain, protect and build resources and what is threatening to them is the potential or actual loss of these valued resources" (Hobfoll 2001:341; Hobfoll, Halbesleben, Neveu & Westman 2018:105). The model is based on the following principles:

- Stress is seen as a potential loss of resources; a resource can be a material or personal characteristic. Loss of a resource may be experienced through a situation (Hobfoll et al 2018:105).
- Some resources are also beneficial to other resources; these resources act to preserve and protect. One such resource, for example, is self-esteem.
- Hobfoll and Leiberman observed that women with high self-esteem made good use of social support when confronted with stress, whereas those who with low self-esteem made use of social support as an indication of personal inadequacy (Krohne 2002:5; Ritchie, Little & Campbell 2018:179).
- Lastly, after stressful circumstances, individuals have an increasingly depleted resource pool to combat further stress. Such depletion impairs their ability to cope with further stress. This results in a loss spiral.

This process view of resource investment requires one to focus on how the interplay between resources and situational demands changes over time as stressor sequences unfold (Krohne 2002:5; Ritchie, Little & Campbell 2018:179). The proposed intervention guidelines focus on identifying resources that preserve adolescents' wellbeing in the face of stressful encounters.

In summary, the approaches aimed at understanding stress, as discussed above, present different views of what stress is and how it comes about. Through these approaches, the

complicated concept of stress is easier to understand. The next section explores stress among adolescents.

2.6 Conceptual framework

2.6.1 Distinct approaches to stress: An orientation

In this chapter, research-based papers, articles, journals, and books are reviewed to identify factors that cause stress among Grade 12 learners and in adolescence overall.

The understanding gained from the literature allowed the researcher to construct a conceptual framework (see Figure 2.7). This conceptual framework derived from two sources: the scholarly literature, and the transactional approach to stress. Before elaborating further on the conceptual framework, it is important to first reflect on the conceptualisation of stress as indicated by the distinct approaches to stress (§ 2.5). Theorists view stress as a response, a stimulus, and a transaction (Hopkins 2014:23). Another approach to stress (see § 2.5) is the COR approach.

These approaches have been discussed extensively at the beginning of this chapter, and the criticism levelled against each approach was discussed in § 2.5.1 to 2.5.7. The transactional approach to stress seemed to be the most satisfactory approach on which to build the conceptual framework for this study, as it can help one understand the causes of stress better than any other approach (see Figure 2.4).

There are several reasons why the researcher did not see fit to employ other models or approaches to the conceptual framework, even though some aspects might have been relevant to this study. First, the COR approach to stress was not employed as a basis for the framework of this study because it is concerned with resources that preserve one's wellbeing in the face of stressful encounters and does not focus on factors that create stress (Campbell 2018:179; Hobfoll 1989:513) and this research is focused on factors that create stress.

The other three approaches to stress – namely response, stimulus, and transactional – focus on factors that cause stress. Response-based approaches describe stress as a physiological response pattern. The stress-as-stimulus approach treats stress as a significant life event or change that acts as an independent variable and demands response, adjustment, or adaptation. Although these two approaches do look at the factors that cause stress, they do not, however, look at the role the environment plays when it comes to stress, while the transactional approach does. Therefore, the transactional approach was selected as the

theoretical basis for the conceptual framework for this study, since individuals' ability to think, evaluate and interact with their environment is best highlighted using this model as compared to any other model. This element was important in this study as the research participants were selected from two different settings – suburb and township.

The conceptual framework for this study was based on the understanding that the experiences of stress, as indicated by Grade 12 learners' responses to the survey, would be informed by their perceptions of their interactions with their environment – two clearly different backgrounds, namely suburb and township. The conceptual framework assisted the researcher to develop the research design and to select the research methods that would be most appropriate to investigate the experiences of stress amongGrade 12 learners in suburban and township schools.

The conceptual framework for the study is outlined next, based on the concepts espoused in the transactional approach.

2.6.2 Grade 12 learners and their environment

The transactional approach, on which this framework is based, emphasises the relationships between persons and their environment (Sildo 2006:274; Silinda 2018:3). It presents stress as a product of transactions between persons and their environment. The argument that is put forward in this study is that stress for a Grade 12 learner denotes the relationship between the learner and the learning environment which poses significant challenges, including academic pressure.

The hypothesis is that the stress factors that learners are likely to report as causes of stress are the following:

- academic or school-related
- school environment
- intrapersonal
- socio-economic factors
- uncertainty about the future
- peer pressure
- family related.

As stated in § 1.4, the hypotheses were informed by the researcher's experiences as a mother of a Grade 12 learner, her interactions with parents of Grade 12 learners and as a

psychologist, and by the literature (Camara et al 2017:123; Harrison et al 2019:2; Sripongwiwat et al 2018:197; Tlale 2016:318; Waghachavare et al 2013:295). She argues that, based on the different environments in which these learners attend school (one group attend suburban schools, whilst the other group attend township schools), the causes of stress that are prominent in one group are not the same as those that are prominent in the other group due to socio-economic factors that may be influenced by the geographical settings (Harrison et al 2019:2).

The researcher felt that the learners were able to identify what stressed them as informed by their relationships with their respective environments.

In this study, the learners' environment comprised various factors – namely, intrapersonal factors, school environment, and family environment.

2.6.3 Link between individuals' appraisal of a stressor and individuals' response to it

The central feature in the transactional approach is the cognitive process (Newness 2011:22; Sildo 2006:274). The cognitive process comprises the subjective assessment of whether a demand threatens the individual's wellbeing and an appraisal of the resources required to meet the demand (Goh et al 2010:13; Ogden et al 2019:4). The demands can be environmental or internal and are appraised in terms of harm, loss, threat, or otherwise challenging wellbeing (Webster, Beehr & Love 2011:506).

The transactional approach maintains that we go through two stages of appraisal before feeling and responding to stress (Harrison et al 2019:2). According to the transactional approach, in our primary appraisal, we analyse and evaluate the situation to decide if it will affect us personally and bring either gain or harm. If it does not affect us, we do not worry about it. Thereafter, we decide whether it is relevant or irrelevant, and if we consider it to be relevant, we decide if the effect is positive or dangerous (Silinda 2018:3).

Primary appraisal is informed by the individual's initial perception of whether an event or stressor is irrelevant or stressful (Harrison et al 2019:2). Events perceived as stressful are further appraised as challenges or hindrances. Events perceived as having the potential for growth are referred to as challenge appraisals, while those events perceived as harmful to the attainment of goals are referred to as hindrance appraisals (Webster et al 2011:506). Grade 12 learners may appraise stress as both a challenge and a hindrance. For example, planning for a matric farewell function or matric dance could bring joy to learners, as it gives them the opportunity to showcase their creativity.

Learners are also at risk of experiencing stress if they find it difficult to cope with multiple responsibilities and expectations – for example, family responsibilities and study and peer pressure. If individuals perceive an event to be dangerous, they make a secondary appraisal.

They then decide if they have the ability to cope with the situation, usually by examining the balance of situational demands (such as risk, uncertainty, and difficulty) and their perceived resources (such as social support and expertise), and if they feel demand outweighs resources, they experience negative stress (Harrison et al 2019:2). Reappraisal also takes place, which is the *ongoing process that involves continually reappraising both the environmental demand and the resources available for responding to that environmental demand.* This approach is applicable to this study, because Grade 12 learners would evaluate stress as either positive or negative, depending on the resources they might have or be exposed to in their socio-economic background. Such resources include good time-management styles, good support systems, and psychological resources. Appraisal is also an important aspect for the conceptual framework, as it hinges on “multiple human, social, and environmental factors”, which were key in this study. Figure 2.7 below presents the conceptual framework for this study.

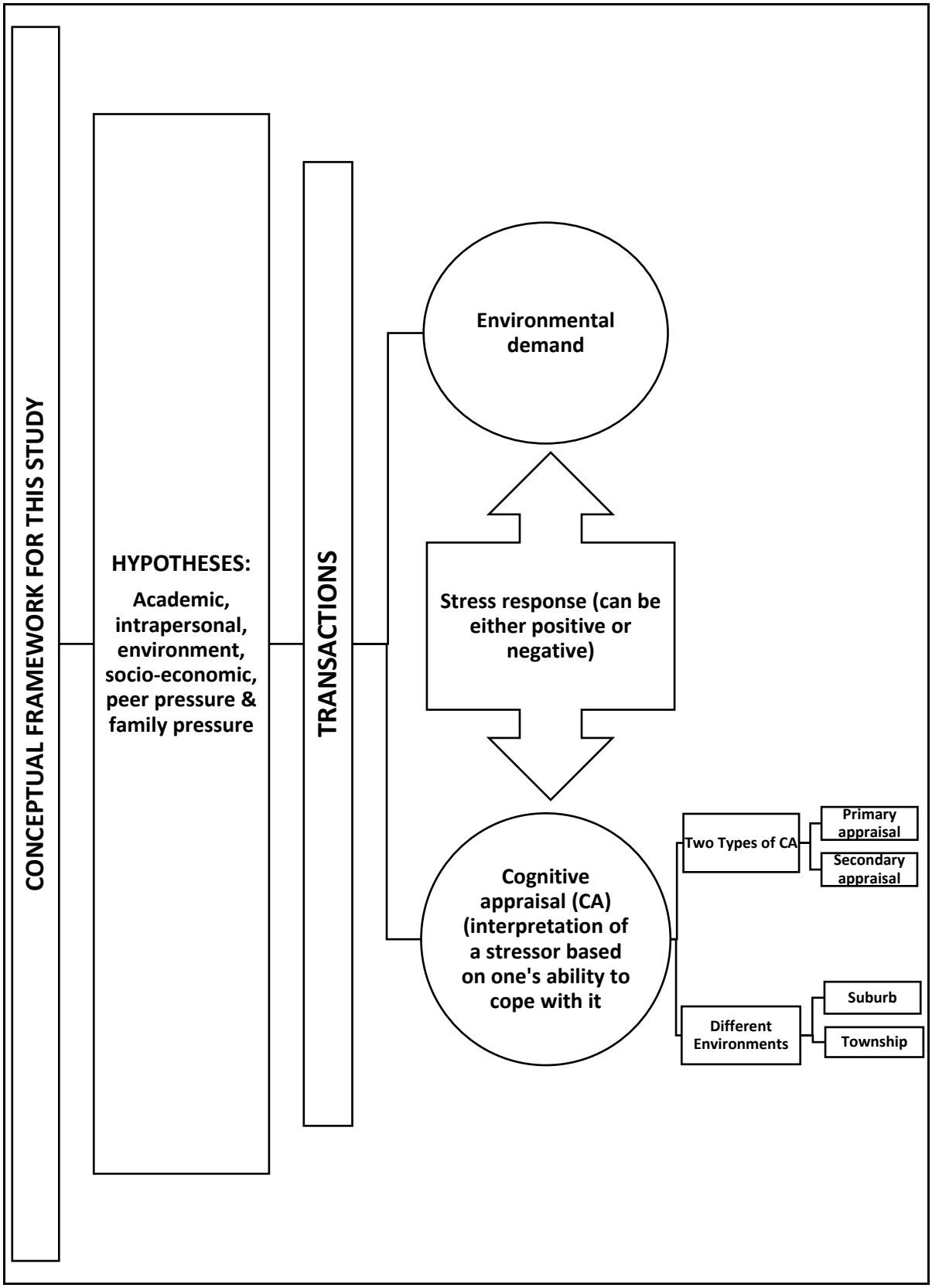

Figure 2.7: Schematic presentation of the conceptual framework for this study

2.6.4 Gap to be closed

A limited number of studies have been conducted in South Africa on the causes of stress among Grade 12 learners, and even those studies (Tlale 2016:318) give an incomplete perspective on the causes of stress. Bester's investigation, for example, "was to determine the interrelatedness between personality variables, interpersonal relationships, and stress in adolescents" (2019:25) and not necessarily the causes of stress.

Even though numerous studies have been conducted internationally on adolescence and the causes of stress (Harrison et al 2019:2; Pascoe et al 2019:2; Seiffge-Krenke & Persike 2013:105; Swan, Pillay, Kliewer & Hubbard 2018:293; Yusoff 2010:11), few have focused on the last grade of secondary school. At least some of those studies have been based mostly in India and Thailand, which are both developing countries, and that has been helpful in providing relevant literature for this study (Gathol 2017:3; Malhotra & Mahashevta 2017:9215; Sripongwiwat et al 2018:197). Since South Africa is also a developing country, the research conducted in these countries was found to be relevant to the context of South Africa.

A further gap that has been identified in the literature is the non-existence of research on the causes of stress among Grade 12 learners in suburban schools and township schools. It is hoped that this research would close this gap by providing information that may help and equip prospective Grade 12 learners to manage stress and, where possible, prevent negative stress, since it has been established in research that significant life events and more common stressors during adolescence have been linked to "behaviour and more serious mental health problems" (Monteiro et al 2014:15). The ability of Grade 12 learners to manage stress may be crucial to protecting their mental health. As stated by Chavan, Dhumale and Gore (2013:294), stress management "may buffer the impact of experienced stress on mental health".

In chapter 5, recommendations are made for all relevant stakeholders on how to help Grade 12 learners to prevent negative stress where possible and to manage stress when it is not possible to prevent it. Guidelines on stress management are also provided for Grade 12 learners in different geographical locations.

2.7 Conclusion

In this chapter, the concept of stress was discussed in detail. It was highlighted that stress can be both negative and positive. Negative stress is referred to as *distress*, whilst positive stress is referred to as *eustress*. The focus of this study was on negative stress, and Grade 12 learners were expected to share their experiences of stress. The aim of the study was to

explore the differences between the experiences of stress of Grade 12 learners in suburban and township schools respectively.

This chapter also presented literature on the causes of stress among adolescents. The causes of stress that seem to be prevalent among adolescents include the following: academic or school related; family related; intrapersonal; peer pressure; school environment; socio-economic factors; and worry about the future. There was little literature on this subject in the South African context and most literature from international sources did not specifically cover the last class of schooling but adolescence in general.

Different approaches to stress were also explored. These included the response-oriented approach; general adaptation syndrome; stimulus-oriented approach; transactional approach; and the COR approach. It can be concluded from the investigation of these approaches that stress is a physical and psychological response to a threat or frustrated need; it is viewed as a response to either external or internal stimuli; and lastly, stressors can be both external and internal. Finally, the conceptual framework for this study – constructed from the literature (transactional approach to stress) – was discussed in detail.

In the next chapter, the research methodology employed in this study is discussed.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

The purpose of this chapter is to discuss the research methodology. The specific data collection procedures that were used are outlined. The discussion focuses on the sampling techniques, data collection instrument, the data collection and data analysis process, validity and reliability, ethical considerations, and limitations of the study.

It was hoped that the chosen research design would generate useful information on the causes of stress among Grade 12 learners in suburban and township schools.

The researcher addressed the following main research question: **What are the experiences of stress among Grade 12 learners and how do suburban and township schools differ in the experience of stress?** The following null hypotheses were developed (see chapter 1) so as to answer the question above:

$H_0$1 There is no difference in academic-related stress between Grade 12 learners attending township schools and their counterparts in suburban schools.
$H_0$2 There is no difference in the school environment between Grade 12 learners attending township schools and their counterparts in suburban schools.
$H_0$3 There is no difference in intrapersonal factors affecting Grade 12 learners attending township schools and their counterparts in suburban schools.
$H_0$4 There is no difference in socio-economic status between Grade 12 learners attending township schools and their counterparts in suburban schools.
$H_0$5 There is no difference in uncertainty about the future between Grade 12 learners attending township schools and their counterparts in suburban schools.
$H_0$6 There is no difference in peer pressure between Grade 12 learners attending township schools and their counterparts in suburban schools.
$H_0$7 There is no difference in family-related pressure between Grade 12 learners attending township schools and their counterparts in suburban schools.
The following alternative hypotheses were also developed (§ 1.4.1) in order to address the question above:
H_a1 There is a difference in academic-related stress between Grade 12 learners attending township schools and their counterparts in suburban schools.
H_a2 There is a difference in the school environment between Grade 12 learners attending township schools and their counterparts in suburban schools.

H_a3 There is a difference in intrapersonal factors affecting Grade 12 learners attending township schools and their counterparts in suburban schools.
H_a4 There is a difference in socio-economic status between Grade 12 learners attending township schools and their counterparts in suburban schools.
H_a5 There is a difference in uncertainty about the future between Grade 12 learners attending township schools and their counterparts in suburban schools.
H_a6 There is a difference in peer pressure between Grade 12 learners attending township schools and their counterparts in suburban schools.
H_a7 There is a difference in family-related conditions between Grade 12 learners attending township schools and their counterparts in suburban schools.

The above-stated hypotheses were informed by literature on stress and adolescence (see chapter 2). Also, learners were required to complete a survey questionnaire that consisted of closed-ended questions as well as an open-ended question. The closed-ended questions were crafted from various sources of information, including books, articles, journals, and newspapers that addressed the causes of stress among adolescents. Since information that specifically addressed the causes of stress among Grade 12 learners was scarce, information on adolescence was considered relevant and was applied to this study. Adding an open-ended question was necessary because the questionnaire was not tunnelled, tuned, and streamlined to get a choreographed response. The questionnaire sought to obtain the respondents' perception and real experiences and not just imposed/suggested answers on their experiences of stress. If the respondents had been limited or restrained to only the closed questions, other possible experiences of stress would not have emerged. The researcher therefore felt that, without such data, the study would not have succeeded in providing a complete picture of the experience of stress in this study population.

3.2 Research paradigm

Several researchers (McBurney& White 2010:24; Obiora & Udalla 2018:29–31; Oluwagbamila & Saman 2019:22) regard a research paradigm as a set of laws, theories, methods, and applications forming a scientific research tradition. Grant and Onsanloo (2014:13) add that, "without a theoretical framework, the structure and vision for a study is unclear, much like a house that cannot be constructed without a blueprint". These researchers' sentiments imply that one's research paradigm is the framework of one's study. To borrow the words of Grant and Onsanloo: a house must have a "blueprint" (2014:13); the blueprint for this study was postpositivism (§ 1.4.2).

However, to have a clearer perspective on postpositivism, it is important to discuss positivism first, which is regarded by researchers as having evolved from the positivist paradigm (Tanlaka, Enwashen & King-Shier 2019:741). Postpositivism emerged as a reaction of educational researchers to the limitations of positivism (Groff 2004:4; Panhwar, Ansari & Shar 2017:1; Tanlaka et al 2019:741). Therefore, in § 3.2.1 and 3.2.2, the researcher provides an overview of positivism and its limitations as the basis for the discussion of postpositivism, which was applied in this study.

3.2.1 An overview of positivism

Researchers emphasise certain aspects of positivism in their definitions. For example, Coolican (2006:275) defines positivism as a methodological belief that a phenomenon can be reduced to observable facts and can be measured, while Aliyu, Bello, Kasim and Martin (2014:81) emphasise that positivism views reality and truth as free and independent of the observer. Oluwagbamila and Saman (2019:22) approach positivism from another angle, listing the following characteristics: its mode of obtaining knowledge is observation; the key research instrument is a questionnaire; the nature of research is facts-based; the nature of thought is empirical; and the method of analysis is descriptive statistical analysis.

Most researchers concur with the characteristics listed by Oluwagbamila and Saman (2019:22); however, their explanations may differ in some instances (Bisman 2010:9:10; Hammersley 2019:177; Henn, Weinstein & Foard 2006:27).

Generally, positivism subscribes to the view that researchers are objective: researchers are interested in the discovery of facts and the method of discovering those facts is through testing of hypotheses and quantitative research methods. However, criticism has been levelled against positivism, including the limitations of the epistemological base of positivism, namely that it rejects the existence of individual or subjective perspectives (Bismam 2010:5; Panhwar, Ansari & Shah 2017:253).

Also, according to Hammersley (2013:23–24), if positivism is employed in social research, it would be impossible to measure phenomena like attitudes and intentions, as these concepts may not explicitly be observed or measured. Furthermore, since positivism is aimed at generalising the results of research, it runs the risk that the views of individuals with knowledge about the phenomenon under investigation may be neglected (Hammersley 2013:23–24).

Next, the paradigm that was employed in this study (postpositivism) is discussed.

3.2.2 Postpositivism

According to Teddie and Johnson (2009:68), postpositivism emerged as a result of dissatisfaction with positivism. Tanlaka, Ewashen and King-Shier (2019:740) agree that postpositivism emerged due to critique of logical positivism and therefore refer to postpositivism as a contemporary philosophy of science.

This discussion highlights why researchers view postpositivism as contemporary or as an extension of positivism. First, from a postpositivist theoretical perspective, the researcher used multiple methods and observation to conduct the research (Creswell 2009:7). This is considered a flexible research perspective (Panhwar, Ansari & Shah 2017:254; Parry, Gnich & Platt 2001:215; Tanlaka, Ewashen & King-Shier 2019:740).

The use of multiple measures and observation, according to some researchers, reduces researcher bias/prejudice (Bonell, Moore, Warren & Moore 2018:2; Panhwar, Ansari & Shah 2017:254). Likewise, personal bias/prejudice of the research participants is also reduced as more than one research method and technique are employed to ensure that the subjects are studied from more than one angle (Panhwar, Ansari & Shar 2017:256; Phillips & Burbules 2000:29).

Another feature of postpositivism is “critical realism” (Bisman 2010:9; Bonell, Moore, Warren & Moore 2018:2; Tanlaka et al 2019:741). The concept of critical realism implies that a postpositivist theorist is critical of the fact that belief, theory, and view can never be rationally supported nor justified conclusively. Overall, postpositivists accept that human limitations and characteristics can interfere with knowing the truth or reality as it is (Tanlaka et al 2019:741). In other words, postpositivists accept that knowledge is fallible as it is shaped by contextual influences (McEvoy & Richards 2003) and trust that “objective investigation will bring us closer to the truth” (Aliyu et al 2014:89).

Furthermore, unlike positivism, which is concerned with the subjectivity of reality, postpositivism is concerned with the objectivity of reality (Bisman 2010:9, Panhwar et al 2017:254). Postpositivists argue that researchers push aside their biases and beliefs, looking the world as it “really” is (Phillips & Burbules 2000:29).

In light of the arguments above on the features of postpositivism, the researcher acknowledges her limitations; hence, she employed a survey questionnaire consisting of closed-ended questions and an open-ended question to try and “reduce any personal biases and prejudices”.

In the next paragraphs, a summary is provided of the similarities and differences between positivism and postpositivism. Regarding ontology – that is, whether one believes there is one verifiable reality or multiple socially constructed realities – a positivist believes that there is one verifiable reality, whereas a postpositivist believes that there are multiple realities (Bisman 2010:9). In other words, they both believe that reality exists, but a postpositivist is critical of the view that reality can never be fully apprehended but can be approximated (De Vos, Strydom, Fouché & Delport 2011:7), while a positivist believes that reality is indeed apprehendable (Bisman 2010:9; Aliyu et al 2014:89).

Regarding epistemology – which relates to what can be known about reality/realities (Kirunja 2017:33) – positivists believe in the subjectivity of reality, while postpositivists pursue objectivity by recognising the possibility of bias and prejudice (Panhwar et al 2017:254).

Methodologically, positivists employ quantitative methods (Oluwagbamila & Saman 2019:22), whilst postpositivists may use quantitative as well as qualitative methods (Parry, Gnich & Platt 2001:215). In other words, postpositivists look at critical multiplism when testing hypotheses (Denzin & Lincoln 2011:8; Tanlaka, Ewashen & Shar 2019:741).

Lastly, as regards axiology – that is, value and belief – positivists assume that research can be value-neutral, while postpositivists assume that research cannot be value-neutral and may be influenced by a number of aspects, such as interpretation and analysis of work (Kirunja 2017:34).

As mentioned earlier, postpositivism has been employed as research paradigm in this study, as it embraces quantitative research methods but also realises the fallibility of human beings, who may be biased and prejudiced. Therefore, in this study, both closed-ended and an open-ended question were employed to reduce the probability of researcher bias/prejudice.

Furthermore, postpositivism accommodates features of positivism, so the positivist methodology of drawing hypotheses was utilised in this study. Also, the steps of another quantitative research method were followed – that is, developing a survey questionnaire consisting of 54 questions. The first 53 questions were closed-ended questions, while the 54th question was an open-ended question, which is a feature of postpositivism (employing different methods to obtain data).

Moreover, different approaches were applied to analyse the questions. Descriptive statistics were used to analyse the data related to the 53 closed-ended questions, exploratory factor

analysis was used to establish validity, and Cronbach's alpha was employed to establish reliability.

As the researcher compared Grade 12 learners in township schools and their counterparts in suburban schools as regards their experiences of stress, an independent T-test and the Wilcoxon rank-sum test were employed to establish differences and similarities in this regard. Also, content analysis – which is a feature of postpositivism – was employed to quantify themes in the responses to the 54th question.

Postpositivism was employed in this study, as it seeks to investigate the phenomenon objectively by means of quantitative research methods and also accommodates fallible researchers who may bring their biases to the research process. Such an approach considers that the results of a study may be prone to some degree of error.

3.3 Quantitative methodology

Researchers define *research methodology* as a design process or a guide for carrying out research (Bogdan & Biklen 2007:35; Igwenagu 2016:6). It is generally agreed that there are three types of research methodologies, namely quantitative, qualitative, and mixed methods research (Creswell 2011:4–5; Long 2014:428; Wilson & MacLean 2011:85). Each methodology, according to Long (2014), reflects a set of ontological and epistemological assumptions, and choosing a research methodology depends on the paradigm that guides the research (Adu-Gyamfi 2017:6; Long 2014:428). A definition of each approach is provided, followed by a detailed discussion of the chosen approach.

First, a quantitative research approach is defined by Maree and Pietersen (2012:145) as a process that is systematic and objective in the way it uses numerical data from only a selected sub-group of a universe (or population) to generalise the findings to the universe that is being studied. Other researchers also allude to the fact that quantitative researchers investigate the answers to questions like who, how, much, what, where, when, how, many, and how (Apuke 2017:40). In contrast, a qualitative research approach is interested in investigating the meaning that people create (Merriam & Tisdell 2016:74). Also, Wilson and MacLean (2011:188) contend that the qualitative research approach is based on interpretation of experience and the meaning attached to it. Therefore, qualitative research is exploratory in nature and seeks to interpret meaning from the data. Other scholars, however, contend that qualitative research cannot be defined. Aspers & Corte (2019:139), for example, argues that there is still no proper definition for the term “qualitative”.

The third research approach is called mixed methods research. According to Wilson and MacLean (2011:85), some researchers prefer to employ both above-mentioned research approaches (that is, quantitative and qualitative), hence this approach is called a mixed methods approach. Schoonenboom and Johnson (2017:108) also confirm that a mixed methods design is a combination of qualitative and quantitative research components.

After evaluating each approach, the researcher in this study selected a quantitative research approach with an accompanying cross-sectional descriptive survey design. There are various reasons why the quantitative approach was selected as an appropriate methodology. First, it was adopted so that the aim and the objectives of this study could be fulfilled. The aim of a study, according to Tully (2014:33), "is a broad statement of intention and aspiration; it is the overall goal that you intend to achieve". Therefore, the researcher must decide what "its overall long-term aim is and describe the overall purpose (what should be accomplished) in general terms" (Doody & Bailey 2016:22). Broomfield (2014:390) states that the research objectives should be clear and unambiguous. The broad aim of this study was to identify and compare the experiences of stress among Grade 12 learners in suburban and township schools. The specific objectives of this study were as follows:

i) to identify causes of stress among adolescents in general by conducting a literature study;
ii) to determine the experiences of stress among Grade 12 learners in suburban and township schools empirically;
iii) to identify differences and similarities in stressors among Grade 12 learners in suburban and township schools;
iv) to make recommendations to stakeholders to minimise and manage stress among Grade 12 learners.

In addition, the choice of quantitative research was also motivated by the strengths of such an approach. One of the advantages of quantitative research is that the "degree of association between two variables can be easily calculated" (Queirós, Faria & Almeida 2017:383). This advantage was applicable to this study, as it focused on comparing the experiences of stress between two variables, namely Grade 12 learners in suburban schools and those in township schools. Another advantage is that manipulation of human behaviour is not needed (Queirós et al 2017:383; Schoonenboom & Johnson 2017:108). The behaviour of the respondents in this study was not manipulated because they were required to complete a survey questionnaire.

Furthermore, another advantage of a quantitative research approach is that it seeks to obtain accurate and reliable measurements that sanction a statistical analysis in order to answer the research questions of the particular study (Felix 2015:74; Queirós et al 2017) – in other words, several statistical tests and techniques are part of a quantitative research approach. This advantage is also applicable in this study, as statistical tests were employed. These included exploratory factor analysis, which was used to establish construct validity, and Cronbach's alpha, which was used to establish the reliability of the study. Independent T-tests and Wilcoxon rank-sum test were also conducted to establish whether or not the differences between the experiences of learners in suburban and township schools were significant. Lastly, the quantitative approach was selected because scholars agree that "quantitative data collection generates numerical data through questionnaires and is suitable if a high amount of data from a large sample group has to be collected as in this investigation" (Queirós et al 2017:383).

Next, the research method chosen for this study is discussed.

3.3.1 Survey research as method

Researchers agree that each research approach has a research design associated with it; for example, the quantitative research approach is associated with research designs like surveys, experimental and correlational research (Creswell 2005:51; Kirunga 2017:37).

In this study, a survey research design was employed. According to Check and Schutt (2012:160), survey research involves procedures in quantitative research in which the researcher collects information from a sample of research participants through their answers to questions. Quantitative research strategies also include questionnaires with numerically rated items (Creswell 2005:354; Creswell & Hirose 2019:2; Ponto 2015:168). Creswell and Hirose (2019:2) further say that survey researchers also analyse data statistically "to describe trends about responses to questions and to test research questions or hypotheses".

There are two types of survey research, namely longitudinal and cross-sectional surveys (Creswell 2005:355; Creswell & Hirose 2019:2; Sheperis, Young & Daniels 2017:254). Longitudinal surveys can be administered over time, while cross-sectional surveys can be administered at one point in time (Sheperis et al 2017:254).

A cross-sectional descriptive survey design was selected as a research design for this study (§ 3.3). In a cross-sectional descriptive survey design, the researcher measures the outcome and the exposure in participants simultaneously (Setia 2016:261). There are several kinds of

cross-sectional descriptive survey designs (Creswell 2005:51; Kesmodel 2018:389), and the kind that compares two or more educational groups within an educational setting was relevant to this study. This kind was relevant because the researcher investigated the experiences of stress among two groups, namely Grade 12 learners in suburban and township schools. Also, unlike case-control studies where participants are selected based on their exposure status, participants in a cross-sectional study are selected based on the inclusion and exclusion criteria for the study (Setia 2016:261; Wilson & MacLean 2011:151). In this study, the inclusion and exclusion criteria were as follows:

- research participants were Grade 12 learners;
- both male and female learners were selected;
- all the respondents were 18 years and older;
- respondents had to be able to read the questionnaire (excluding learners who received special concessions in English).

Although survey research was chosen for this study, the researcher was also aware of its limitations. For example, Sheperis et al (2017: 265) warn that survey research is subject to bias, as it relies on self-reported data. Also, the information received depends on the research participants "to truthfully and accurately report their attitude, opinions and beliefs". Sheperis et al further argue that some participants may deliberately answer questions incorrectly or flippantly. Lastly, Sheperis et al state that, since participants know what the study is about, this may lead them to either consciously or unconsciously provide answers that portray them in the best way. However, despite its limitations, it was deemed the most suited for this study.

3.4 Research methodology

3.4.1 Sampling techniques

Sampling, according to Sharma (2017:749), "is a technique (procedure or device) that is employed by a researcher to systematically select a relatively smaller number of representative items or individuals (a subset) from a pre-defined population to serve as subjects (data source) for observation or experimentation as per objectives of his or her study". In this study, purposive sampling – which falls under non-probability sampling techniques – was applied. Purposive sampling entails the use of participants who might be most representative of the topic, who are readily available, and who are volunteers (Bonds-Raacke & Raacke 2010:144; McMillan & Schumacher 2006:126; Wilson & MacLean 2011:165–166; Etikan, Musa & Alkassim 2016:2). Purposes sampling for this study was chosen because the participants were representative of the topic since they were Grade 12 learners, also they

were readily available and they volunteed their participation. As mentioned, (§ 1.5.3): purposive sampling was also chosen because of its advantages, such as being easy to administer, being less costly and less time-consuming, and assuring a high participation rate (Wilson & McLean 2012:165–166). More information on how the research participants for this study were selected is provided (§ 3.4.1.1).

Although purposive sampling has its advantages researchers also list two main disadvantages which are; it can be prone to reseacher's bias since the creation of the sample is subjective and it is based on the judgement of the researcher (Wilson & McLean 2012:165–166; Sharma 2017:750). In addition, that the results of the study cannot be generalised since the selection of the sample is based on non-probability technique (Wilson & McLean 2012:165–166; Sharma 2017:750). Therefore, since tbe results cannot be generalised, that is regarded as one of the limitations of the study.

3.4.1.1 Criteria for sample selection

Wilson and MacLean (2011:166) emphasise that the research participants must fit some criteria in order to be selected for a study. In this study, the selection criteria were as follows (§ 3.4): research participants were Grade 12 learners; both male and female learners were selected; all the respondents were 18 years and older; and the research participants had to be able to read the questionnaire (this excluded learners who received special concessions in English).

The study population comprised Grade 12 learners located in Tembisa and Centurion. Several schools in Tembisa and Centurion were approached, and those who were first to respond and willing to participate, were considered. The selected schools were in close proximity to the researcher. Initially, the researcher intended to conduct research in eight schools – four in the townships and four in the suburbs – but five township schools responded and all of them were included in the study. Four suburban schools indicated interest to participate in the study, and all four were included in the study. In total, nine schools participated in the study. A total of 402 learners (in both the suburban and township schools) volunteered to participate in the study. However, only 360 questionnaires were processed and 42 were discarded due to errors that were found in them. The main error was if a research participant gave more than one response per question. Another reason for excluding research participants was because substantial information was missing in their respective questionnaires. The 360 questionnaires were still considered a good number: the response rate was 89.5%, which is more than 50%

of the required response return rate (Creswell 205:368). A schematic representation of the study sample is presented below.

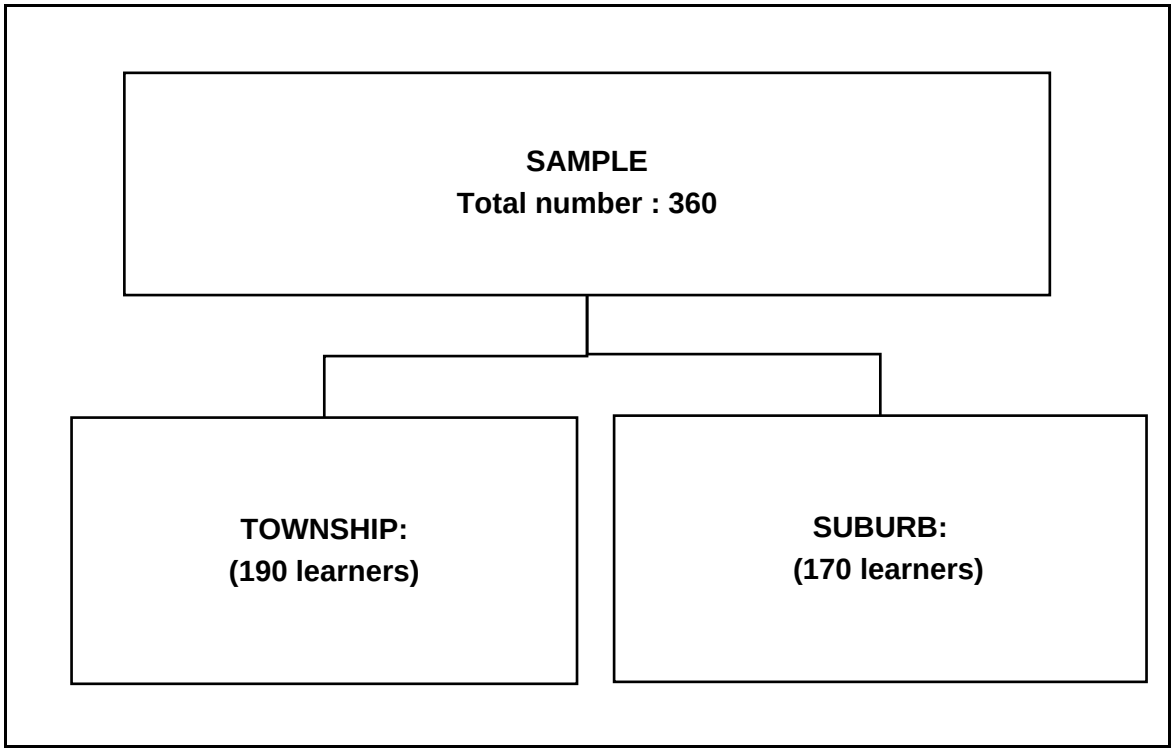

Figure 3.1: Schematic representation of the study sample

As indicated in Figure 3.1, the sample comprised 360 learners, of whom 190 were in township schools and 170 learners were in suburban schools. In Table 3.1, the total number of participants per school and setting is presented.

Setting	School 1	School 2	School 3	School 4	School 5	Grand Total
Suburb	49	36	45	40	-	170
Township	44	42	38	40	26	190

Table 3.1: The total number of participants per school and setting

3.4.2 Data collection instruments

The data collection instrument that was used in this study was a survey questionnaire with closed-ended questions and an open-ended question. The questionnaire was used to collect data from Grade 12 learners in suburban and township schools.

3.4.2.1 Survey questionnaire

The survey instrument that was employed in this study consisted of self-structured questions that provided a general overview of the experiences of stress among Grade 12 learners in suburban and township schools (see Annexure A).

Maree and Pietersen (2012:145) list the following advantages of survey questionnaires: many respondents can complete the questionnaire in a short space of time; test administrators can check questionnaires for accuracy; and this method is cheap and easy to conduct. McMillian and Schumacher (2010:195) agree and state that respondents can be reached across long distances; the response rate is optimal; and the interviewer can immediately assist with issues in the questionnaire that are not clear to the respondents. All above-stated advantages prompted the researcher to select a survey questionnaire to collect data.

The questionnaire consisted of the following sections:

- **Section A** focused on the “setting". The respondents had to indicate whether they were in a township or suburban school.
- **Section B** collected biographical information of the respondents, for example, their gender.
- **Section C** comprised 53 statements developed to investigate the sources of stress among the participant group. This section required the respondents to respond to the statements (a list of stressors as obtained from the literature review) using a Likert scale.

In a Likert scale, research participants are given a series of statements or items and they are asked to indicate to what extent they agree or disagree with each statement (Wilson & MacLean 2011:262; Wu & Leung 2017:527). The Likert scale has two varieties: a symmetric and an asymmetric Likert scale (Joshi, Kale, Chandel & Pal 2015:399). A symmetric Likert scale is when the position of neutrality is exactly in the middle, and the extreme left means one strongly disagrees and the extreme right means one strongly agrees. The advantage of such a scale is that “it provides independence to a participant to choose any response in a balanced and symmetric way in either directions” (Joshi et al 2015:397). In contrast, an

asymmetric Likert scale offers less choices on the one side of neutrality (average) as compared to the other side. The scale has different options; these include 10-point, 7-point, 5-point and 4-point options (Lipovetsky & Conklin 2018:169; Wilson & MacLean 2011:262). The choice of option for a researcher depends on the aim of the research (Joshi et al 2015:399). In this study, the researcher chose a 5-point Likert scale because it allowed research participants to choose their responses in a balanced way either direction.

The learners were asked to rank the stressors on a scale of 1 to 5.

1- Strongly disagree
2- Disagree
3- Neutral
4- Agree
5- Strongly Agree

In the last section, Section D, learners had to list at least three stressors, if any, not mentioned in the questionnaire. Section D was developed to obtain further information on the subject. It was imperative for the researcher to add this category to let the respondents have an active role and for the researcher to gather realities that may not be obvious in the literature or the questionnaire.

Researchers mention a number of advantages of adding a question at the end of a survey. Singer and Couper (2017:117) suggest that such an addition can “significantly enhance the insights gained from quantitative studies”. Additional advantages, as highlighted by Biemer Biemer, Groves and Lyberg (2011), include that it increases the chances of success and effectiveness of the research. Furthermore, an open-ended question also helps the researcher find matters not covered by the closed-ended questions (Biemer et al 2011), although the questionnaire was developed with a substantial amount of thorough background research and piloting.

Lastly, Decorte et al (2019:2) argue that closed-ended questions represent the researcher’s agenda, even if they have been developed through consultation with representatives of the study population and have been piloted; so, an open-ended question(s) also accommodates research participants' voice. Therefore, an open-ended question was added in the questionnaire so that this study could be enhanced, and the researcher’s bias/prejudice could be minimised (§ 3.2.2).

- **Questionnaire design**

The researcher followed the recommended seven-step process of questionnaire design by Cant, Gerber-Nel, Nel and Kotzé (2008:148) to design the questionnaire for this study. These steps, as well as how they were applied in this study, are discussed next.

Step 1: Specify the required information

Cant et al (2008) claim that the required information must be specified in the questionnaire. In this study, the specific information required in the questionnaire was the experiences of stress among Grade 12 learners in suburban and township schools.

Step 2: Specify the content of the questions

The content of the questions was based on the literature review and was aimed at answering the main research question: *What are the experiences of stress among Grade 12 learners and how do suburban and township schools differ in the experience of stress?* The literature consulted helped the researcher to devise seven (7) broad categories under which stressors were categorised. The categories were: academic or school related; school environment; intrapersonal; peer pressure; family; socio-economic factors; and future related factors.

Step 3: Specify the structure of questions

The questionnaire comprised four sections (§ 3.5).

Step 4: **Careful wording of questions**

Care was taken in crafting the questions to ensure that they were not ambiguous (but specific) and not prone to misinterpretation. The pilot study assisted in eliminating ambiguous questions which seemed to be confusing to the research participants.

Step 5: Determine the sequence of questions

The sequence of the questions in the survey questionnaire was based on the views of various researchers. The research participants were required to answer Section A first, where the had to indicate whether they were in a township or suburban school. Section B followed, where personal data about the respondent were collected, for example, gender. The learners were then expected to respond to Section C, which comprised 53 statements designed to determine the sources of stress. Lastly, the research participants had to answer Section D, where they had to list at least three stressors, if any, not mentioned in the questionnaire.

Step 6: Determine the layout of the questionnaire

Creswell (2012) claims that a questionnaire must have a “pleasing layout” with enough white space between the questions and the use of one scale – for example, “strongly disagree to strongly agree” for multiple-choice questions – so that participants do not repeat responses. The researcher decided to divide the questionnaire into four distinct parts or sections (Section A to Section D as has already been discussed [§ 3.5.2.1]) so that the questionnaire would be intelligible for the research participants. Also, a user-friendly font size was used in the questionnaire so that it would be easy to read. Certain parts of the questionnaire were in bold print for the sake of emphasis.

Step 7: Pilot the questionnaire

The questionnaire was first piloted before it was administered to the research participants. More information on the pilot study is provided in § 3.5.2.3.1.

3.4.3 Data collection

Prior to collecting data from the designated schools, the researcher obtained ethical clearance from UNISA's College of Education Ethics Committee and permission from the Department of Education to conduct this study. In addition, permission was sought to collect data from the principals of the selected schools, and it was granted. The principals set times for data collection and provided the researcher with an aid to help with the research. All the allocated dates and times were set by the principals of the participating schools. Questionnaires were distributed to the participating learners in a group session. Research was conducted outside the learners’ instruction time, and only learners who had completed consent forms were allowed to participate in the study. Only learners who were 18 years and older were allowed to participate. Questionnaires were collected immediately after the participating learners had finished completing them and those were stored in a secure and lockable cabinet. However, only 360 questionnaires were used in the study, since the rest were spoilt as they were not completed properly, while others were disqualified because they were completed by participants who turned out to be under 18 years of age, which was below the demarcated age.

3.4.4 Data analysis

In the paragraphs below, a discussion is provided on the pilot study and how the data from the closed-ended questions and the open-ended question were analysed.

3.4.4.1 Pilot study

Before the main study could be conducted, a pilot study was conducted. A pilot study is a mini version of a full-scale study (De Vos et al 2011:241; Lee, Whitehead, Jacques & Julious 2014:1). In other words, the pilot study includes fewer respondents who are similar to the sample the researcher intends to use in the study.

The questionnaire was subjected to pre-testing among a group of learners who were not part of the final study but had characteristics similar to those that were included in the main study. The pilot study was conducted to pre-test the designed questionnaire in order to detect flaws, such as unclear or ambiguous items (Lee et al 2014:1).

In addition, the pilot study was conducted to identify practical problems in the research procedure – for example, whether the time allocated for the completion of the questionnaire was too little or too much (De Vos et al 2011:241). The total sample size for the pilot study was 22 Grade 12 learners – 15 were in a township school in Tembisa, and seven were in a suburban school in Centurion. Purposive sampling was employed in the pilot study.

- Implication of the results of the pilot study

After the pilot study, the following changes were made:

- The statistician who conducted the data analysis recommended that some questions be removed from the questionnaire in order for it to be reliable.
- The researcher also discovered that the time that she had allocated for the administration of the questionnaire had to be adjusted from 15 minutes to 10 minutes.
- The language used in some of the questions had to be revised and simplified.

After the identified flaws in the pilot study were attended to, the final questionnaire was discussed with the promoter of the study and approved by the statistician (whose credentials are presented in Annexure F).

3.4.4.2 Data analysis used for the Likert scale questions

To analyse the data that emerged from the closed-ended questions, the researcher applied the steps outlined by Creswell (2014:162–163). In addition to Creswell's steps, guidelines by other researchers were followed as well. In the paragraphs below, Creswell's steps for data analysis are discussed, and an explanation is provided as to how they were applied in the study.

In Step 1, Creswell (2014) suggests that the researcher reports on the number of participants who completed the questionnaire. In this study, all the participants in suburban schools, with their summative results of the survey questionnaire, were listed (see Annexure H). Also, all the participants in township schools, with their summative results of the survey questionnaire, were listed (see Annexure G).

In Step 2, Creswell (2014) recommends that descriptive analysis be applied to identify general trends in the study. *Descriptive statistics* is a term given to analysis performed on a sample of data to get a clear understanding of a population. It involves summarising and organising data as numbers (Jones 2017:87; Wilson & McLean 2012:282). Jones (2017:88) states that raw data can be challenging to interpret, and so descriptive statistics is a means of organising and summarising data. To understand the data, the data can be reduced or summarised to measures of central tendency, namely a mean, mode, and median (Ali & Bhaskar 2016:662). Descriptive statistical analysis was employed to assist in answering the main research question. Also, it was used as an initial data analysis step in which the characteristics of the sample were described, the data were organised and summarised, and mean averages for each item in the survey questionnaire per participant were calculated for both township school learners and suburban school learners (Annexure C). Descriptive statistics were also used in this study to present all the stress factors identified by Grade 12 learners in both suburban and township schools, and those were presented as mean averages, medians, and standard deviations.

In Step 3, Creswell (2014) proposes that the researcher establishes the validity of the test scores by using factor analysis, for example. Factor analysis is used to reduce the data to a smaller set of identifiable underlying factors (latent variables) or factors that share common variance (Maskey, Fei & Nguyen 2018:91; Watson 2017:232; Yong & Pearce 2013:92). Researchers agree that there are two major classes of factor analysis, namely exploratory factor analysis (EFA) and confirmatory factor analysis (CFA), which can be used to test validity (Prudon 2015:2; Williams, Brown & Onsman 2012:3; Watson 2017:232; Alavi et al 2020:2209). On the one hand, EFA is a data-reducing technique that allows the researcher to explore the main dimensions in the data collected; in other words, the researcher does not have expectations regarding the nature and number of variables (Watson 2017:232). On the other hand, in CFA, the researcher tests a proposed theory and he or she holds certain assumptions based on that theory (Williams, Onsman & Brown 2010:3). In this study, EFA was employed to establish validity. It was deemed applicable in this kind of study, as the researcher was not certain what the nature of her data would be and how many dimensions would be in a set of variables. Next, an evaluation criterion for validity is discussed.

The evaluation criteria followed in this study were based on the five-step exploratory factor analysis protocol suggested by Williams et al (2010:4). Step 1, according to Williams (2012), is to determine whether or not the data are suitable for factor analysis. Step 2 is to determine how the factors will be extracted. Step 3 is to establish what criteria will assist in determining factor extraction. Step 4 involves selection of the rotation method, and step 5 entails interpretation and labelling. In the following paragraphs, information on the suggested steps and how they were applied in this study are discussed. Researchers generally agree on the aspects that need to be determined in order to establish appropriateness of the data for factor analysis, namely, sample size and the strength between variables (Chan & Idris 2017:403; Pallant 2013; Williams et al 2010:4). As regards the sample size, researchers claim that there is no clear consensus on the guidelines in this regard (Beavers, Lounsbury, Richards, Huck, Skolits & Esquivel 2013:2; De Winter, Dodou & Wieringa 2009:147).

Researchers have made different suggestions on what appropriate sample size is. Hair, Black, Babin and Anderson, for instance, suggested that sample size should be 100 cases or larger, while Tabachnick and Fidell (2007) suggested that at least 300 cases is required for factor analysis. Guadagnoli and Velicer (1988:274) also proposed that a smaller size under 150 participants should be sufficient only if the dataset has several high factor loading scores of >80. Beavers et al (2013:3) also support the consideration of factors and suggest that 10 to 12 items that load moderately at 0.40 or higher is acceptable, and a sample size of 150 or more is needed to be confident in the results. In the current study, the criteria for sample size were met as the study had 360 research participants; meaning that it exceeded both criteria that are suggested by researchers – that is, 100 cases and 300 cases. Also, the study met the criteria for factors; there were more than 12 items that loaded at 0.40 as presented in chapter 4.

Regarding establishing suitability and appropriateness of data for factor analysis, researchers agree that there are two tests one can use, namely the Kaiser-Meyer-Olkin (KMO) test and Bartlett's Test of Sphericity (Beavers et al 2013:4; Izquierdo, Olea & Abad 2014:398). The KMO value is used to provide a measure of the appropriateness of the data for conducting EFA. According to Hadi, Abdullah and Sentosa (2016:2016), Hair et al (2010) and Izquierdo et al (2014:398), if the Kaiser-Meyer-Olkin (KMO) value is greater than 0.6, it is appropriate to conduct EFA.

Bartlett's test of Sphericity is used to assess the strength of the relationship between the variables, thus determining whether it is useful to conduct factor analysis (Binti, Zakaria, Nordin, & Meerah 2011:2093; Hadi et al 2016:2016). Bartlett's Test of Sphericity must be

significant at $\alpha < .05$, then factorability of the correlation matrix is assumed (Binti et al 2011:2093). Therefore, if the correlation structure between the individual variables (in the factor analysis) is too weak, it is not worthwhile to conduct EFA. The results of Bartlett's Test of Sphericity and of the Kaiser-Meyer-Olkin test are discussed in chapter 4.

According to Wilson, the second step is to determine how the factors will be extracted.

The factor extraction method allows researchers to estimate factor loadings and correlations between variables or factors (Esquivel 2013:8; Izquierdo, Olea & Abad 2014:396). There are different ways in which factors can be extracted: Maximum Likelihood (ML); Principal Component Analysis (PCA); Principal Axis Factoring (PAF); Unweighted Least Squares (ULS); Generalised Least Squares (GLS); Alpha Factoring (AF); and Image Factoring (IF) (Beavers et al 2013:5; Izquierdo, Olea & Abad 2014:396; Williams 2012:4).

Researchers' choice of method depends on their goal and the distributional assumptions required by their method (Izquierdo et al 2014:396). Commonly used methods are PCA, PAF, and ML (Beavers et al 2013:8; Thompson et al 1996:197). Yong and Pearce (2013:83) distinguish between PCA and PAF: the former produces components, whereas the latter produces factors. Yong and Pearce (2013:83) further argue that PCA can be used as a first step to reduce data before the real factor analysis. ML is more useful for confirmatory factor analysis and is used to estimate the factor loadings for a population (Yong & Pearce 2013:83). PAF was chosen in this study as it requires "no distributional assumptions and may be employed if data are not normally distributed" (Beavers et al 2013:5) (see § 3.5.4.3.1).

PAF was used to establish communalities. Communality indicates the proportion of an item's variance that is shared with the other items (factor structure) (Pituch & Stevens 2016:356). The communalities therefore indicate the extent to which an individual item "relates" to or correlates with the factor structure (the rest of the items). Communalities that are low for a particular variable may struggle to load significantly on any factor. Therefore, a value near 1 indicates a high proportion of "common" variance, and higher communalities are considered better (Pituch & Stevens 2016:356). Researchers differ with regard to determining the cut-off point for communalities. According to Hadi et al (2016:2017), a value lower than 0.3 is considered low. Guadagnoi and Velicer (1988:265) consider items greater than 8 to be stable, while Child (2006) advise that any item with a communality score below 0.2 be removed. In this study, the items with low communalities (0.2 or lower) were considered for removal and EFA-repeated communalities were determined for each item. So, after the removal of values

lower than 0.2, the range of values of the communalities of the items that remained in this study, ranged from 0.216 to 0.640 (§ 4).

Step 3, according to Wilson et al (2010), is to establish what criteria will assist in determining factor extraction. Researchers agree that the criteria used to extract the required number of factors in EFA include using the eigenvalue-greater-than-1 rule, also called Kaiser-Guttman criterion or the scree plot test (Matsunaga 2010:101; Binti et al 2011:2093; Williams et al 2010:6). Using the eigenvalue-greater-than-1 rule means retaining all factors whose computed eigenvalue is greater than 1. The output (Annexure M) shows that 63% cumulative variance is explained by 15 factors with eigenvalues greater than 1. The 15-,14-,13-,12- and 11-factor solutions were fitting, but none of these solutions produced factors with at least three items each (which is a requirement); therefore, the 10-factor solution was chosen. Combined, the 10 factors explained 52% of the cumulative variance and had eigenvalues greater than 1.

Step 4, according to Wilson et al (2010)'s guidelines, involves the selection of the rotation method. There are two main rotation methods, namely orthogonal or oblique (Beaves et al 2013:10; Yong & Pearce 2013:84). The orthogonal method ensures that the rotated factors are not correlated with each other, while the oblique method allows for correlation between the rotated factors (or constructs), and this method is preferred when the correlation between constructs needs to be explored (Beaves et al 2013:10). Many oblique rotations are used, including oblimax, quartimin, maxplane, orthoblique (Harris–Kaiser), promax, and oblimin (Pituch & Stevens 2016:345). Oblimin rotation was used in this study. The loading of an item indicates the extent to which an individual item "loads" on a factor. A value near 1 indicates that an item loads high on a specific factor. Field (2013:692) recommends suppressing factor loadings less than 0.3, and Tabachnick and Fidell (2014) recommend ignoring factor loadings with an absolute value less than 0.32. A loading of 0.40 and greater is considered meaningful (Binti et al 2011:2093).

In interpreting the rotated factor pattern in this study using oblimin rotation, an item was said to load on a given factor if the factor loading was 0.35 or greater for that factor and less than 0.35 for the other.

Using these criteria, certain items were found to load on certain factors, for example, seven items were found to load on the first factor, which was subsequently named "socio-economic factors". More information on the results of EFA is provided in chapter 4.

Step 5, according to the guidelines provided by Wilson (2012:8), involves interpreting and labelling factors. Several researchers suggest guidelines that researchers can follow. Sarstedt (2019:117) advises that, before a researcher can start labelling a factor, he or she must first establish whether the factors can be named in the first place. According to Yong and Pearce (2013:91), “naming of factors is more of an ‘art’ as there are no rules for naming factors, except to give names that best represent the variables within the factors”. Williams (2012:8) states that interpretation involves the researcher looking at which variables are attributable to a factor; labelling involves naming that factor or giving it a theme.

In addition, Samuels (2016:2) claims that factors should have at least three items with a loading factor of 0.4 to be considered. Lastly, Williams (2012:8) says that the names given to the factors must make theoretical sense to the researcher. Considering all the guidelines provided by the researchers above, the individual statements in this study were allocated to each of the 10 factors according to their individual factor loadings. More information on the names of the factors is provided in chapter 4.

In conclusion, EFA was conducted with the obtained data to extract the new factor structure and to examine construct validity. Factors were extracted by the PAF method and rotated by oblimin rotation. The 10-factor solution was chosen, and the combined 10 factors explained 52% of the cumulative variance and had eigenvalues greater than 1. The names of the factors and their loadings are explained in chapter 4. More information is presented in § 3.6 on the different types of validity for instrument development.

Creswell also proposes that reliability of test scores must be established. More information on the concept of “reliability” is provided in § 3.6. Cronbach's alpha is the most commonly used instrument to measure internal consistency of a set of survey questions (Louangrath 2013; Heale & Twycross 2015:66; Taber 2017:1273). “Internal consistency measures the extent to which the individual items within a measuring instrument are measuring the same construct consistently” (Mentz & Botha 2012:82). In this study, Cronbach's alpha was employed to test internal consistency of the scores. Next, an evaluation criterion for reliability is discussed. Scholars differ with respect to the issue of "acceptable" or "good enough" Cronbach alpha values. For instance, George and Mallery (2003:231) suggest the following rules of thumb for Cronbach's alpha: a value of >.9 can be considered excellent; a value of 8 can be considered good; a value of >.7 can be considered acceptable; a value of >.6 can be considered questionable; a value of >.5 can be considered poor; and a value of <.5 can be considered unacceptable.

Other researchers, however, regard 0.7 as an acceptable value (Nunnally 1978; Shemwell, Chase & Schwarts 2015:68). Taber (2017:4, 14), who reviewed more than 64 articles that employed Cronbach's alpha to measure reliability, also agrees that most scholars in the reviewed articles regarded a cut-off point of .70 as an acceptable value. Other researchers suggest that high value alpha offers better reliability (Taber 2017:1).

Other scholars, though, regard a value of 6 as acceptable (Murphy & Davidsholder 1988:89; Ursachi, Horodnic & Zait 2015:681; Van Griethuijsen, Van Eijck, Den Brok, Skinner, Mansour, Gencer & Bou Jaoude 2016:589) and suggest that a general accepted rule for reliability is 0.6–0.7, which indicates an acceptable level of reliability, and 0.8 or greater, a very good level. Hair et al (2006) say that researchers can accept values near .60, especially if the factor has only a few items. The value of .60 and greater was considered acceptable in this study.

In step 4, Creswell (2014) recommends that data can be analysed through inferential statistics to address the research question – for example, to establish differences and similarities in the data and to test hypotheses. Inferential statistics are calculations that use the law of probability to make judgements about a population based on quantitative data obtained from the sample (Gravetter & Forzano 2012:396; Mathipa & Gumpo 2015; Wilson & MacLean 2012:317). Inferential statistics are also employed to test hypotheses about relationships or dissimilarities in a population, using the data attained from the sample (Trochim 2020).

In order to establish which statistical test to employ in the study, assumptions of normality and homogeneity of variance were assessed (Creswell 2014:163; Hopkins, Dettori & Chapman 2018:643). Normality was assessed by establishing skewness and kurtosis, and Levene's test was employed to establish homogeneity of variance.

The acceptable range of skewness for normal distribution of data is -1 to +1, meaning that, if skewness is between -1 and +1, the distribution is moderately skewed; whilst the significant levels of Levene's test can be viewed as $p = 0.05$, which is an indication that the variance of the two samples is not the same (George & Mallery 2010).

In this study, the distribution of data was inspected in terms of skewness and kurtosis to determine whether the data were normally distributed or not, informing the decision with regard to using a non-parametric and parametric method. The results revealed that the sample of all stress factors, except for one, were normally distributed and the variances were homogeneous. This result therefore necessitated that the researcher employed both non-parametric and parametric methods.

Researchers, however, have different views on which statistics must be used when analysing Likert scale data (Gardner & Martin 2007:439; Jamieson 2004:1217; Murray 2013:258). There is a view that non-parametric tests can be the only statistics used to analyse Likert scale data, since Likert scale data are of an ordinal or rank order nature (Jamieson 2004:1217; Martin 2007).

Also, there is another view that parametric tests can be used to analyse Likert scale data. Norman (2010:625), for example, suggests that Likert scale data can be analysed using parametric tests without "fear of coming to the wrong conclusion". Murray (2013:258) also agrees with this line of thinking. In the study that Murray (2013:258) conducted – which was aimed at establishing whether the type of statistical tests conducted on Likert scale data affect the conclusions or not – this researcher concluded that both parametric and non-parametric tests do not affect the conclusions drawn from the results. In this study, both statistical techniques were used.

After inspection of the histogram skewness, kurtosis and Levene's test, the results indicated that all the identified stress factors, except for one, were normally distributed and the variances were homogeneous. Consequently, an independent T-test, which is a parametric test, was conducted in this study to establish the differences between the two independent samples.

An independent T-test is a statistical test that is used to compare the means of two separate samples, and it is also used to establish whether there is significance difference between the mean scores of the two samples (Gravetter & Forzano 2012:299; Wilson & MacLean 2011:352; Wiid & Diggines 2013:277). In interpreting the independent T-test results, the following rule of thumb was followed: p-value less than 0.05 was considered statistically significant. However, researchers raise some concerns regarding this interpretation, as it is regarded to have limitations. An effect size estimate is therefore also used to offer a truer measure of the amount of effect between variables (Ferguson 2016:302). Coe (2002) also agrees with this assertion that effect size is beneficial to use and offers many rewards over the utilisation of tests of statistical significance – for example, it is beneficial because it looks at the size of the difference rather than confounding this with the sample size. According to Gravetter and Forzano (2012:427), the resultant measure of effect size is defined as "Cohen's d". In this study, Cohen's d values were calculated to assess practical significance. Cohen's d effect size was interpreted as follows: below 0.2 was considered negligible; 0.2 = small effect; 0.5 = medium effect; and 0.8 = large effect (Cohen 1988:79).

To establish the differences between the stress factors of which the data were not normally distributed and of which variances were not homogeneous, the Wilcoxon rank-sum test was employed, which is a non-parametric test. This test is used as an alternative to the two-sample T-test, and it is based solely on the order in which the observations of the two samples fall (Nahm 2016:10).

The results of the Wilcoxon rank-sum test were interpreted as follows: p-values below 0.05 were considered statistically significant, and as regards establishing an effect size, the effect size was considered low if the value of *r* varied around 0.1, medium if *r* varied around 0.3, and large if *r* varied more than 0.5 (Cohen 1988:80).

Step 5, which is the last step, according to Creswell, entails drawing conclusions from the results. A report on how the results answered the research question is provided in chapter 4.

3.4.4.3 Analysis of the data emerging from the additional item

The process of analysing the open-ended question was as follows: First, data were collected from the participants through the last question of the questionnaire. Second, the data were organised according to the setting of the respondents – that is, the results of the townships schools were grouped, and the results of the suburban schools were grouped. Third, content analysis was utilised to analyse the data.

There are numerous definitions of content analysis. One definition that was most relevant to this study is that of Gheyle and Jacobs (2017:3): "Content analysis is 'summarizing,' quantitative analysis of messages that relies on a scientific method (including attention to objectivity – intersubjectivity, appropriate design, reliability, validity, generalizability, replicability and hypothesis testing)." This definition was applicable as this study was quantitative in nature.

According to Gheyle and Jacobs (2017:3), certain steps should be followed when conducting content analysis, namely: categories are decided upon from the beginning; unambiguous coding rules are laid out to know what goes where; and after coding, statistical tools are used to analyse the results and to test their reliability and validity.

Singer and Couper (2017:117) agree with these steps but they add a dimension. According to them, when content analysis is conducted, the responses of the participants must be coded, meaning that each unit or response must be assigned a numerical code informed by the type of response the research participant has given. Furthermore, Singer and Couper (2017:117)

argue that open-ended questions are in and of themselves qualitative because they cannot be counted as they appear. To "use" them quantitatively, they must be coded or transformed in some countable way. This changes the questions, and they are no longer just open-ended questions. Using open-ended questions as quantitative data requires that they be transformed in such a way that they are no longer open-ended questions; therefore, they must be assigned a numerical code.

- **Applying the steps of content analysis (Gheyle & Jacobs 2017; Singer & Couper 2017:117) to the study**

In this study, Singer and Couper's (2017:117) steps of content analysis, as mentioned above, were applied. First, the participants' responses were coded (Singer & Couper 2017:117), then the same or similar responses were categorised. For example, if the response “workload” was recorded from a suburban school, the response was put under the category “academic-related stress”, of which the code was S1 (the S in “S1” stands for suburb).

The categories were predetermined and were informed by the hypotheses (§ 1.6) and the literature review. Thereafter, a statistical procedure, which was a calculation of the mean average of each category, was conducted.

3.4.5 Integration of the data from the closed-ended questions and the open-ended question

In phase 3 of the data analysis, the data from the closed-ended and the open-ended question were compared, interpreted and integrated (see Figure 3.2).

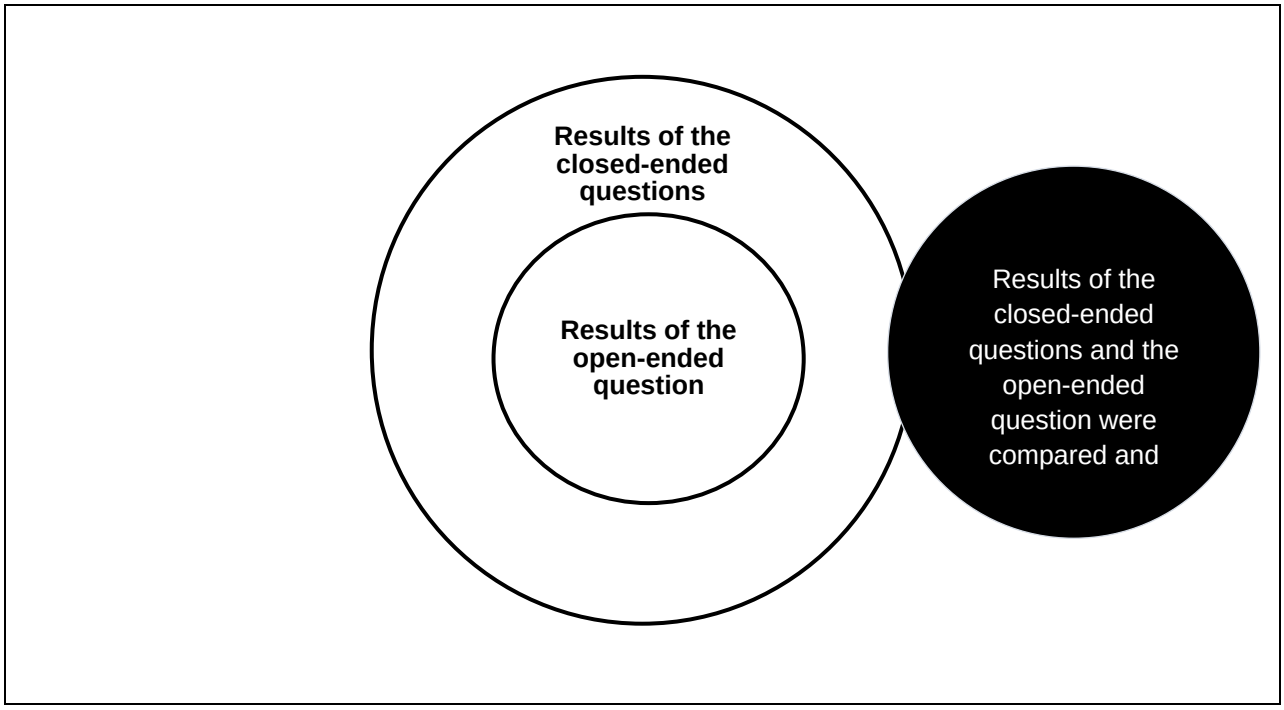

Figure 3.2: Integrating the results of closed-ended questions and the open-ended question

3.5 Validity and reliability

3.5.1 Validity

Validity is defined as the extent to which the investigated concept is accurately measured (Drost 2011:105; Heale & Twycross 2015:66; Noble & Smith 2015:34). In other words, for the study to be valid, the researcher must capture accurately what the research participants were trying to convey. Validity has two components: internal and external validity.

3.5.1.1 Internal validity

Internal validity refers to the validity of the measurement and test itself (Mojahan 2017:72; Taherdoost 2016:28). In other words, it refers to the way the research group is selected and how the data are analysed. Patino and Ferreira (2018:183) claim that there are a number of factors that may undermine internal validity, such as “errors in measurement or in the selection of participants in the study”. To increase internal validity, Patino and Ferreira (2018:183) suggest that researchers should ensure careful study planning and adequate quality control and implementation strategies, such as including adequate recruitment strategies, data collection and analysis strategies and sample size.

In this study, the researcher tried to maintain internal validity by carefully planning the process of obtaining data; this included deciding on the nature of the sample, their location, and holding meetings with the participating schools prior to conducting the study so that the terms of reference could be understood clearly by the schools, teachers, learners, and the researcher. Furthermore, the researcher employed the services of a qualified and experienced statistician who had worked for UNISA for over 10 years to check the validity of the test (see Annexure F).

3.5.1.2 External validity

External validity refers to the ability to generalise the findings to the target population (Khorsan & Crawford 2014:3). External validity can be increased by using broad inclusion criteria that result in a sample that is more inclusive of the study population (Okobeng cited in Patino & Ferreira 2018:183).

External validity was addressed in this study by attempting to include as many research participants as was considered feasible. In total, 402 learners participated in this study and, ultimately, 360 were found to be credible.

3.5.1.3 Types of test validity for instrument development

There are four types of test validity that determine the accuracy of the actual components of a measurement, namely construct, content, face and criterion validity (Taherdoost 2016:28; Wilson & McLead 2012:74). These are discussed briefly in the following paragraphs.

- **Construct validity**

Construct validity evaluates whether a measurement tool matches the construct one is interested in measuring (Mentz & Botha 2012:81). This type of validity is central to establishing the overall validity of a method. The construct validity of the questionnaire can be established by showing that the questionnaire results agree with predictions based on theory (Wilson & McLead 2012:74). In order to attain construct validity in this study, only relevant questions were included in the questionnaire – that is, questions that measured Grade 12 learners' experience of stress . Also, a retired professor from UNISA, who is an expert on the subject of "stress", had an input in the construction of the questions of the survey questionnaire, and she also checked for discrepancies in the questionnaire. As already mentioned, a statistician was employed to check for discrepancies in the questionnaire. EFA was used in this study to support construct validity (§ 3.5.4.2).

- **Content validity**

Here, one assesses whether the questions in the questionnaire sufficiently cover or are representative of all aspects of the construct that is being assessed (Grant 2017:468; Wilson & McLead 2012:274). To ensure content validity in a questionnaire, Wilson and McLead (2012:274) suggest that the questionnaire must include items that are relevant to the major issues relating to the construct.

In this study, content validity was enhanced by including all the relevant items that covered aspects of the Grade 12 learners 'experiences of stress in the questionnaire.

The items that addressed a certain sub-topic were grouped. For example, all items that sought to assess academic-related causes of stress were grouped under the sub-topic "academic-related factors".

- **Face validity**

Face validity refers to the researcher's subjective assessment of whether the measurement appears to measure what it is supposed to measure (Taherdoost 2016:28; Wilson & MacLean 2011:74). Face validity in this study was optimised by conducting a pilot study which checked the representativity and relevance of the various items in the questionnaire.

- **Criterion validity**

Criterion validity measures "how well one measure predicts an outcome for another measure" (Taherdoost 2016:32). In this study, no other standard of similar measures was available, so there was no need to establish criterion validity.

3.5.2 Reliability

Researchers regard quantitative reliability as the extent to which exact results are produced when there is replication under independent administration of the same instrument (Leung 2015:326; Wilson & MacLean 2011:192). This definition implies that, if the results of a study can be reproduced using a similar methodology, then the instrument is considered reliable. Researchers agree that there are three common measures of reliability: internal consistency reliability, test-retest, and inter-rater reliability (Delport & Roestenburg 2011:177; Heale & Twycross 2015:66; Ursachi et al 2015:680). The reliability test that tests internal consistency was most applicable to this study. Internal consistency reliability refers to the consistency of results in the test and it ensures that the numerous items measured, and the different factors deliver consistent scores.

The reliability of the constructs or dimensions in the questionnaire were tested using Cronbach's alpha (§ 3.5.4.2). Lastly, to ensure the validity and reliability of the study, the questionnaire was reviewed by a statistician.

The questionnaire was also piloted at two secondary schools – one township school in Tembisa and one suburban school in Centurion.

3.6 Ethical considerations

The following ethical considerations were considered in this study:

- **Permission to conduct the study**

Before the research commenced, the researcher applied for and was granted ethical clearance from the University of South Africa's College of Education Research Ethics Committee (see Annexure B). She also wrote letters to the following authorities to request permission to conduct the research:

  - Gauteng Department of Education (see Annexure C);
  - principals of the selected schools (see Annexure D).

Permission was granted by the above-stated institutions. Thereafter, the researcher began the process of collecting data by circulating consent forms to potential respondents. Shaughnessy et al (2012:67) explain that informed consent is a person-voiced readiness to participate in research that is transparent with regard to the nature of the research.

In line with the above explanation of informed consent, the researcher provided all the participants with the relevant information about the study so that they could make an informed decision whether to participate (Creswell 2014:98). The research participants were informed about the purpose of the study; what was expected of them; their right to participate voluntarily; their right to withdraw; risks; confidentiality; and how the data would be used (see Annexure D).

- **Confidentiality**

Researchers must make judgements about what should be reported and what should not be publicly disclosed about their research participants (Sheperis et al 2017:23; Vanclay, Baines & Taylor 2013:247). In conducting this study, the researcher adhered to the code of conduct for psychologists as stipulated by the Health Professions Council of South Africa – confidentiality and anonymity of information obtained from the participants were adhered to.

She ensured that the identities of the participants were protected by not asking for their names in the questionnaires. Instead, each questionnaire was allocated a numerical code to ensure confidentiality of information and anonymity of the research participants. The participating schools were also given codes to ensure anonymity. To further ensure confidentiality, the research participants' consent forms and the completed surveys were stored in a secured, lockable cabinet to be viewed only by the researcher and her research supervisor.

- **Protection against emotional harm**

Wilson and MacLean (2011:599) state that it is the duty of researchers to protect their research participants from undue risks associated with participation in the study. Procedures were followed to protect participants from emotional harm.

It was stated in the consent form and the questionnaire (see Annexures A and E respectively) that participation in the survey was voluntary and that participants had the right to withdraw anytime during the data collection process or thereafter should they wish to do so. Research participants were informed that, should they experience emotional exhaustion, and should there be a need, a psychologist had availed herself to offer debriefing at no cost.

- **Right to withdraw**

The researcher is obliged to inform the research participants of their right to withdraw from participating in the research, including deleting any of their data that have been recorded (Vanclay et al 2013:246).

The participants were informed that they were free to withdraw from participating in the study at any time if they wanted to, without explanation, should they experience emotional discomfort. In this study, no recordings were made, so they were not informed about their right to delete their data.

- **Use of incentives**

No incentives were used to encourage learners to participate in the study.

- **Reporting research findings to the relevant stakeholders**

The results will be communicated to the schools that participated in the study as was stipulated in the letter requesting permission to conduct research in these schools (see Annexure I). Moreover, the results of the study will be communicated to the Gauteng Department of

Education as stipulated in their letter granting me permission to conduct the study (see Annexure J).

3.7 Limitations of the study

The study has various limitations. One of the limitations of the study is that the results cannot be generalised, as purposive sampling (and not non-purposive sampling) was employed. Also, literature on the experiences of stress among Grade 12 learners was non-existent at the time of the study. Hence, the researcher was forced to rely on literature on adolescence in general, which was not specifically about Grade 12 learners.

3.8 Conclusion

In this chapter, the researcher discussed the methodology that was employed to investigate the topic under investigation so as to reach the aim and specific objectives of the study. She deliberated on the research paradigm that underpinned the study, the research design and rationale behind the choice.

Specific information on the data collection instrument, sampling techniques, data analysis, validity and reliability, demarcation of the study, pilot study and ethical considerations and limitations of the study were discussed. In chapter 4, the results of the study are discussed.

CHAPTER 4: RESULTS

4.1 Introduction

In the previous chapter, the research methodology that was applied to answer the main research question, was discussed. The main research question of the study was as follows: *What are the experiences of stress among Grade 12 learners and how do suburban and township schools differ in the experience of stress?* The secondary questions were as follows:

i) What are the main causes of stress according to literature?
ii) What do Grade 12 learners in suburban and township schools identify as stressors?
iii) What are the differences and similarities in terms of stressors among Grade 12 learners in suburban and township schools?
iv) What recommendations can be made to stakeholders to minimise and manage stress among Grade 12 learners?

In this chapter, the results of the 360 completed survey questionnaires are presented and discussed. The survey results are tabulated, presented in sequence and interpreted accordingly. Figure 4.1 gives an overview of how the results are presented. The results of the closed-ended questions are reported first, followed by the results of the open-ended question in which the respondents were required to name three stressors, if any, not mentioned in the questionnaire. As stated in chapter 3 (§ 3.5.2.1), adding an open-ended question to which learners could respond freely was imperative so that the researcher could gather realities that were not obvious in the literature or the questionnaire.

Figure 4.1: Overview of the presentation of the results of the empirical study

4.2 Descriptive statistics

As was mentioned in chapter 3 (§ 3.4), descriptive statistics were employed in the study as an initial data analysis step to understand the sample by summarising and organising its characteristics in an understandable and meaningful (data could be summarised or organised into numbers) (Jones 2017; Wilson & McLean 2012). Next, the results of the demographic profile of the sample are presented and interpreted. Thereafter, the descriptive statistics are presented.

4.2.1 Demographic profile of participants

The sample consisted of 360 learners in nine schools – five township schools and four suburban schools. In Section A of the questionnaire, the research participants were asked to fill in their demographic data. Next, the variables are presented. The results are presented in frequency counts and percentages.

First, the total number of research participants per setting (suburban and township setting) is presented in Table 4.1.

Setting	***No. of schools per setting***	***Frequency***	***Percentage***
Township	*5*	190	52.7
Suburb	*4*	170	47.2
Total	*9*	360	100

Table 4.1: Number of research participants per setting

As indicated in Table 4.1, the total number of respondents in township schools was 190, and the total number of respondents in suburban schools was 170. Therefore, 52.7% of the respondents were in township schools and 47.2% of the respondents were in suburban schools. The respondents in township schools were thus 5.5% more than their suburban counterparts. As stated earlier, one extra township school participated because the researcher

had sent requests for participation to a number of schools, and she considered only those that responded and met the criteria. In this case, five township schools and four suburban schools were thus allowed to participate in the study.

Gender is another variable that was considered in the study. In Table 4.2, gender is presented in frequencies and percentages.

Gender	**Male**		**Females**	
Setting	**Frequency**	**Percentage**	**Frequency**	**Percentage**
Township	85	43.14	112	56.8
Suburb	72	37.3	91	55.8
Total	157	43.6	203	56.38

Table 4.2: Gender distribution of the sample

As regards the distribution of the sample according to gender, as indicated in Table 4.2, the total number of female respondents was 203 and the total number of male respondents was 157. Overall, 56.3% of the research participants were females, and 43.6% were male participants. Therefore, 12.7% more females than males participated in the study.

Nevertheless, the fact that there were slightly more female participants than male participants did not influence the findings as the focal point of the study were stressors caused by various factors, for example, socio-economic factors. Lastly, another demographic factor that was considered in the study was whether learners lived with parents/guardians or were from a child-headed household. In Table 4.3, the nature of the household of the research participants is presented.

Nature of the household	Parent/Guardian headed		Child headed	
Setting	**Frequency**	**Percentage**	**Frequency**	**Percentage**
Township	184	96.8	6	3.15
Suburb	170	100	0	0
Total	354	98.3	6	1.7

Table 4.3: Nature of the household of sample

The results presented in Table 4.3 show that 354 of the respondents lived with parents or guardians, and six respondents were living in child-headed homes.

In all, 98.3% of the sample were living with either a parent or guardian, whilst 1.6% of the total sample were living in child-headed homes. The six learners who indicated that they were living in child-headed homes were all in township schools. Although the latter number is a small percentage, it could have had an influence on learners in township schools scoring higher on socio-economic stress factors than suburban learners.

4.2.2 Descriptive statistics with percentages: survey questionnaire

In Section B of the questionnaire, the research participants were asked to indicate on a five-point scale how much they agreed with each statement about stress experiences ranging from 1 (strongly disagree) to 5 (strongly agree). As per the guidelines provided by Creswell (2014) (§ 3.4.4.3), the first step in data analysis was to gather the raw data collected by means of the questionnaire and then organise and analyse the data, which was done in this study.

In Table 4.4, descriptive statistics with percentages of responses to survey statements by learners in suburban schools are presented. Tables containing descriptive statistics with frequency counts and percentages of responses by learners in both suburban and township schools are also presented in Annexures G and H.

ITEMS	Strongly disagree %	Disagree %	Neutral %	Agree %	Strongly Agree %	Total %
Excessive homework	6.47	10.59	40.59	21.76	20.59	100
Increased workload	2.35	7.65	20.59	35.29	34.12	100
Preparation for examinations	0.59	5.33	22.49	27.22	44.38	100
Educators' work ethics	5.36	21.43	42.86	16.07	14.29	100
Educator absenteeism	16.07	20.24	40.48	11.90	11.31	100
Pressure from educators	8.88	5.33	30.77	36.09	18.93	100
Pressure from school	8.43	12.65	25.30	31.33	22.29	100

ITEMS	Strongly disagree %	Disagree %	Neutral %	Agree %	Strongly Agree %	Total %
Difficulty in understanding lessons	8.82	22.35	26.47	22.35	20.00	100
Having trouble studying	6.47	15.88	31.18	20.59	25.88	100
Extreme hot & cold classrooms	16.67	13.69	40.48	19.64	9.52	100
Dilapidated classrooms	12.50	22.02	44.05	14.29	7.14	100
Noisy classroom	7.69	24.85	26.04	23.67	17.75	100
Poor lighting (poor lighting – too dark or too bright)	22.62	25.60	38.10	8.93	4.76	100
Class Size: Too many learners	17.75	17.75	29.59	14.79	20.12	100

ITEMS	Strongly disagree %	Disagree %	Neutral %	Agree %	Strongly Agree %	Total %
Sanitation facilities	11.76	15.88	31.18	21.76	19.41	100
Ventilation	10.00	19.41	34.12	24.12	12.35	100
Lack of academic resources	17.06	17.06	22.35	24.12	19.41	100
Crime at school	27.06	14.12	18.82	18.24	21.76	100
Getting good grades	4.12	7.06	27.06	26.47	35.29	100
Preparation for matric farewell	24.12	15.88	28.82	12.94	18.24	100
Getting a date for matric farewell	40.24	16.57	24.85	8.28	10.06	100

ITEMS	Strongly disagree %	Disagree %	Neutral %	Agree %	Strongly Agree %	Total %
Worry about making my family proud	9.04	6.02	17.47	23.49	43.98	100
Finding work	15.06	3.61	16.87	21.08	43.37	100
Pressure to take alcohol and/or drugs	65.29	17.65	8.24	5.29	3.53	100
Exclusion from peers	42.60	27.22	13.02	12.43	4.73	100
Ethnicity	40.36	22.29	16.87	17.47	3.01	100
Race	50.89	15.38	11.83	15.98	5.92	100
Fashion	41.18	14.71	18.24	15.88	10.00	100

ITEMS	Strongly disagree %	Disagree %	Neutral %	Agree %	Strongly Agree %	Total %
Finances	23.81	13.10	20.83	22.62	19.64	100
Bullying	50.00	18.24	12.94	8.24	10.59	100
Gossip / Drama	38.24	20.00	14.12	14.71	12.94	100
Love Life	31.18	16.47	19.41	14.12	18.82	100
Parenting styles	21.18	17.06	32.94	11.18	17.65	100
Pressure from parents	5.88	9.41	25.29	27.06	32.35	100
Pressure from siblings	31.18	18.82	21.18	14.12	14.71	100

ITEMS	Strongly disagree %	Disagree %	Neutral %	Agree %	Strongly Agree %	Total %
Pressure from family members	14.12	16.47	24.71	16.47	28.24	100
Lack of financial support	21.89	18.34	27.22	15.38	17.16	100
Family income/status	22.49	17.75	29.59	14.20	15.98	100
Parent and/or guardian relationship	18.93	16.57	33.14	13.02	18.34	100
Responsibilities – Chores	21.89	14.79	34.32	11.83	17.16	100
Having a hard time talking with your parents/guardian	22.35	20.00	24.71	15.88	17.06	100
Not spending as much time as you would like to with your parents/guardian	25.88	15.29	35.29	8.82	14.71	100

ITEMS	Strongly disagree %	Disagree %	Neutral %	Agree %	Strongly Agree %	Total %
Assets	26.19	20.83	37.50	9.52	5.95	100
Fees	20.00	17.65	32.94	16.47	12.94	100
Uniform	29.59	26.04	32.54	7.69	4.14	100
Transport	26.63	26.63	28.99	9.47	8.28	100
Clothing	28.82	20.59	32.94	9.41	8.24	100
School material	28.40	22.49	28.99	12.43	7.69	100
Food	27.38	20.24	22.02	12.50	17.86	100

ITEMS	Strongly disagree %	Disagree %	Neutral %	Agree %	Strongly Agree %	Total %
Personal Hygiene	30.18	16.57	20.12	13.02	20.12	100
Finding a good college or university	5.29	4.12	11.76	20.59	58.24	100
Tertiary acceptance	2.94	7.65	16.47	16.47	56.47	100
Taking a gap year	39.05	15.98	18.93	7.10	18.93	100

Table 4.4: Descriptive statistics with percentages of responses by learners in suburban school

Table 4.4 presents the stress statements in the questionnaire with a percentage for responses for each category of the Likert scale. Table 4.4 reveals the top five items that Grade 12 learners in suburban schools indicated as causes of stress. Those top five items were ranked in descending order as follows: "finding a good college or university" (78.83%); "tertiary acceptance" (72.94%); "preparation of examination" (71.6%); "worry about making my family proud" (67.47%); and "finding work" (64.45%). The top five items that these learners strongly disagreed with are also tabulated. These are "pressure to take alcohol and/or drugs" (82.94%); "race" (79.29%) and "bullying" (68.24%); "exclusion from peers" (69.82); and "ethnicity" (62.65%).

In Table 4.5, descriptive statistics with percentages of the responses to the survey by learners in township schools are presented. Also, in Annexures A and B, tables are presented containing descriptive statistics with frequency counts and percentages of responses by learners in both the suburban and township schools.

Stress statements	Percentage of the rating of the stress statement					Total
						%
	Strongly Disagree %	Disagree %	Neutral %	Agree %	Strongly Agree %	
Excessive homework	11.64	17.46	36.51	25.93	8.47	100
Increased workload	4.76	11.64	16.40	39.15	28.04	100
Preparation for examinations	3.17	8.99	20.63	28.57	38.62	100
Educators' work ethics	9.52	13.23	35.45	25.40	16.40	100

Stress statements	Percentage of the rating of the stress statement					Total
						%
	Strongly Disagree %	Disagree %	Neutral %	Agree %	Strongly Agree %	
Educator absenteeism	22.46	17.11	24.06	14.44	21.93	100
Pressure from educators	7.94	10.05	21.16	28.57	32.28	100
Pressure from school	9.09	10.70	20.86	31.02	28.34	100
Difficulty in understanding lessons	8.95	19.47	33.68	20.53	17.37	100
Having trouble studying	8.47	19.58	29.63	29.10	13.23	100

Stress statements	Percentage of the rating of the stress statement					Total
						%
	Strongly Disagree %	Disagree %	Neutral %	Agree %	Strongly Agree %	
Extreme hot & cold classrooms	15.87	17.99	32.28	18.52	15.34	100
Dilapidated classrooms	15.47	24.66	34.61	14.92	9.94	100
Noisy classroom	10.00	13.68	17.37	25.26	33.68	100
Poor lighting (poor lighting – too dark or too bright)	22.11	28.95	26.84	9.47	12.63	100
Class size: Too many learners	25.79	17.89	17.89	22.63	15.79	100

Stress statements	Percentage of the rating of the stress statement					Total
						%
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
	%	%	%	%	%	
Sanitation facilities	16.04	17.65	33.16	19.79	13.37	100
Ventilation	16.02	16.02	41.99	14.92	11.05	100
Lack of academic resources	11.05	15.26	16.84	25.79	31.05	100
Crime at school	23.28	15.34	14.61	18.52	28.04	100
Getting good grades	12.90	8.60	31.72	23.66	23.12	100

Stress statements	Percentage of the rating of the stress statement					Total
						%
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
	%	%	%	%	%	
Preparation for matric farewell	31.18	19.89	13.98	21.51	13.44	100
Getting a date for matric farewell	37.77	14.36	19.15	12.77	15.96	100
Worry about making my family proud	6.01	4.37	13.11	19.67	56.83	100
Finding work	13.59	10.33	19.02	20.65	36.41	100
Pressure to take alcohol and/or drugs	57.98	17.02	9.57	6.91	8.51	100

Stress statements	Percentage of the rating of the stress statement					Total
						%
	Strongly Disagree %	Disagree %	Neutral %	Agree %	Strongly Agree %	
Exclusion from peers	43.68	23.68	15.26	13.16	4.21	100
Ethnicity	33.70	16.30	25.00	20.11	4.69	100
Race	39.57	15.51	19.25	16.58	9.09	100
Fashion	34.05	15.14	20.54	12.97	17.30	100
Finances	23.40	13.83	16.49	20.21	26.06	100

Stress statements	Percentage of the rating of the stress statement					Total
						%
	Strongly Disagree %	Disagree %	Neutral %	Agree %	Strongly Agree %	
Bullying	43.16	17.37	10.00	11.05	18.42	100
Gossip / Drama	33.87	19.89	12.90	16.67	16.67	100
Love life	28.42	14.74	16.84	18.95	21.05	100
Parenting styles	26.46	17.46	20.63	17.46	17.99	100
Pressure from parents	17.89	12.11	24.21	16.32	29.47	100

Stress statements	Percentage of the rating of the stress statement					Total
						%
	Strongly Disagree %	Disagree %	Neutral %	Agree %	Strongly Agree %	
Pressure from siblings	17.99	19.58	19.58	16.93	25.93	100
Pressure from family members	12.77	15.43	14.36	23.94	33.51	100
Lack of financial support	13.23	18.52	26.98	19.05	22.22	100
Family income/status	12.63	21.58	30.53	19.47	15.79	100
Parents and/or guardian relationship	23.68	19.47	23.68	18.95	14.21	100

Stress statements	Percentage of the rating of the stress statement					Total
						%
	Strongly Disagree %	Disagree %	Neutral %	Agree %	Strongly Agree %	
Responsibilities – Chores	20.00	18.95	24.74	20.00	16.32	100
Having a hard time talking with your parents/guardian	19.15	24.47	21.28	13.30	21.81	100
Not spending as much time as you would like to with your parents/guardian	24.74	25.79	19.47	15.26	14.74	100
Assets	20.21	22.34	34.57	9.57	13.30	100

Stress statements	Percentage of the rating of the stress statement					Total
						%
	Strongly Disagree %	Disagree %	Neutral %	Agree %	Strongly Agree %	
Fees	21.05	18.95	17.37	18.42	24.21	100
Uniform	24.60	23.53	21.93	15.51	14.44	100

Table 4.5: Descriptive statistics with percentages of responses by learners in township schools

Table 4.5 shows the top five stress factors that Grade 12 learners in township schools indicated. These top five items were ranked in descending order as follows: "worry about making my family proud" (76.5%); "preparation for examinations" (67.32%); "increased workload" (67.19%); and "pressure from educators" (61.37%). Also, Table 4.5 summarises the top five stress statements these learners strongly disagreed with. These were ranked in descending order as follows: "pressure to take alcohol and/or drugs" (75%); "exclusion from peers" (67.36%); "bullying" (60.53%); "race" (55.08%); and "gossip/drama" (53.76%).

In the following section, the EFA results are presented.

4.2.3 Exploratory factor analysis

In order to test the validity of all the constructs (dimensions) in the questionnaire, EFA was performed to determine whether the individual questions loaded on (or contributed to) the factors as intended in the questionnaire. As indicated in chapter 3 (§ 3.5.4.2), Bartlett's Test of Sphericity was conducted to determine whether it was useful to conduct factor analysis (Izquierdo, Olea & Abad 2014). The results of this test showed that the correlation structure between the individual variables was worthwhile to conduct EFA, as the p-value was less than 0.01 (sig =0.000).

Also, the Kaiser-Meyer-Olkin (KMO) value, which provides a measure for the appropriateness of conducting EFA, was found to be greater than 0.6, which is the cut-off point to conduct a viable EFA. The KMO value in the current study was 0.78, indicating that it was viable to conduct EFA. Therefore, since the KMO score was .780 and Bartlett's Test of Sphericity was less than 0.01 (sig =0.000), thus meeting the requirements for conducting EFA, EFA was consequently applied to the responses to the 53-item questionnaire and principal axis factoring was used to extract the factors (Table 4.6).

Statement	Initial Communality Score	
Excessive homework	.406	.318
Increased workload	.476	.550
Preparation for examinations	.344	.282
Educators' work ethics	.301	.120
Educator absenteeism	.347	.219
Pressure from educators	.634	.536
Pressure from school	.640	.640
Difficulty in understanding lessons	.526	.612
Having trouble studying	.445	.369
Extreme hot & cold classrooms	.386	.216
Dilapidated classrooms	.371	.280
Noisy classroom	.409	.294
Poor lighting (poor lighting- too dark or too bright)	.443	.378

Statement	Initial Communality Score	
Class Size: Too many learners	.531	.530
Sanitation facilities	.503	.495
Ventilation	.454	.487
Lack of academic resources	.396	.343
Crime at school	.423	.381
Getting good grades	.410	.356
Preparation for matric farewell	.472	.293
Getting a date for matric farewell	.559	.588
Worry about making my family proud	.309	.220
Finding work	.367	.273
Pressure to take alcohol and/or drugs	.395	.329
Exclusion from peers	.421	.370
Ethnicity	.430	.306
Race	.545	.492

Statement	Initial Communality Score	
Fashion	.522	.436
Finances	.521	.478
Bullying	.449	.361
Gossip / Drama	.532	.512
Love life	.534	.531
Parenting styles	.480	.379
Pressure from parents	.587	.463
Pressure from siblings	.513	.519
Pressure from family members	.572	.528
Lack of financial support	.575	.500
Family income / status	.598	.482
Parent and/or guardian relationship	.488	.405
Responsibilities – Chores	.426	.382
Having a hard time talking with your parents/guardian	.456	.346

Statement	Initial Communality Score	
Not spending as much time as you would like to with your parents/guardian	.429	.319
Assets	.437	.342
Fees	.530	.446
Uniform	.534	.427
Transport	.575	.488
Clothing	.617	.546
School material	.552	.487
Food	.583	.481
Personal hygiene	.584	.527
Finding a good college or university	.510	.389
Tertiary acceptance	.543	.501
Taking a gap year	.287	.236

Table 4.6: Extraction method: Principal axis factoring

Table 4.6 shows items with communality scores. As mentioned in chapter 3 (§ 3.5.4.4), principal axis factoring was used to establish communalities in this study. Communalities indicate the extent to which an individual item "relates" to the factor structure (the rest of the items), and a value near 1 indicates a high proportion of "common" variance, according to Pituch and Stevens (2016). As indicated in § 3.5.4.4, the items with a communality score of 0.2 or less must be considered for removal, as advised by Child (2006) and Samuels (2017).

Only one item, according to the results of EFA, scored less than 0.2, namely “educators' work ethics” (Table 4.7). This item had a score of .120 and was consequently eliminated and not further used in the study, as it did not fit the rest of the scale.

In Table 4.7, the modified total variance is presented.

	Initial Eigen Values			**Extraction Sums of Squared Loadings**			**Rotation Sums of Squared Loadings**
	Total	**% of Variance**	**Cumulative %**	**Total**	**% of Variance**	**Cumulative %**	**Total**
1	8.934	16.857	16.857	8.369	15.790	15.790	5.621
2	3.777	7.127	23.984	3.225	6.085	21.874	3.866
3	2.498	4.714	28.697	1.923	3.628	25.502	3.074
4	2.161	4.077	32.774	1.643	3.101	28.603	2.242
5	1.958	3.695	36.469	1.384	2.612	31.215	1.985
6	1.780	3.358	39.827	1.224	2.310	33.525	1.775
7	1.696	3.201	43.028	1.118	2.109	35.635	3.577

8	1.668	3.147	46.175	1.077	2.031	37.666	3.267
9	1.528	2.883	49.058	.964	1.819	39.485	2.409
10	1.437	2.712	51.769	.864	1.629	41.115	2.830
11	1.341	2.531	54.300				
12	1.203	2.270	56.571				
13	1.188	2.242	58.812				
14	1.148	2.166	60.978				
15	1.099	2.074	63.052				
16	.998	1.883	64.935				
17	.990	1.869	66.804				

Table 4.7: Modified total variance

Table 4.7 presents the modified total variance. The original and complete output's total variance (which contained all 53 statements) can be found in Annexure N. In extracting factors, the eigen value was utilised to determine the number of components present (Pieterson & Maree 2007).

Eigen values >1 were considered (§ 3.5.4.2). In addition, the amount of cumulative variance was also produced by the identified components (Hatcher & O' Rourke 2013). Hair et al 2006 claim that a cumulative percentage of 60 or higher is appropriate for social research. In this research, the cumulative percentage of 63.052 was obtained (Table 4.8). In other words, the output's total variance as indicated in Table 4.8 presented 63% cumulative variance, which was explained by 15 factors with eigen values greater than 1.

Therefore, in this study, cumulative variance was more than the cut of value of 60% as indicated in earlier. The 15,14,13,12 and 11 factor solutions were fitting, but none of these solutions produced factors with at least three items each (which was a requirement as explained in § 3.5.4.2), therefore the 10-factor solution was chosen.

The combined 10 factors explained 52% of the cumulative variance and had eigen values greater than 1. To determine the factors or constructs, pattern matrix with rotated factor loadings were used to determine which statements "loaded" on which factor. Principal axis factoring with oblimin rotation was used. The pattern matrix with rotated factor loadings is tabulated below (Table 4.8).

Pattern Matrix

	Factor									
	1	2	3	4	5	6	7	8	9	10
	Socio-economic Factors	Peer Pressure	School Environment	External Pressure	Uncertainty about the Future	Academic	Familial Support	Parental	Intrapersonal	Learning and Development
Transport	.652									
Food	.626									
Clothing	.621									
School material	.618									
Personal hygiene	.603									
Uniform	.486									

Pattern Matrix

	Factor									
	1	2	3	4	5	6	7	8	9	10
	Socio-economic Factors	Peer Pressure	School Environment	External Pressure	Uncertainty about the Future	Academic	Familial Support	Parental	Intrapersonal	Learning and Development
Fees	.475									
Family income / status	.358									
Race		-.640								
Exclusion from peers		-.548								
Pressure to take alcohol and/or drugs		-.529								

Pattern Matrix

	Factor									
	1	2	3	4	5	6	7	8	9	10
	Socio-economic Factors	Peer Pressure	School Environment	External Pressure	Uncertainty about the Future	Academic	Familial Support	Parental	Intrapersonal	Learning and Development
Ethnicity		-.514								
Fashion		-.452								
Bullying		-.432								
Love life		-.393				-.369		-.351		
Gossip / Drama		-.384				-.310		-.350		

Pattern Matrix

	Factor									
	1	2	3	4	5	6	7	8	9	10
	Socio-economic Factors	Peer Pressure	School Environment	External Pressure	Uncertainty about the Future	Academic	Familial Support	Parental	Intrapersonal	Learning and Development
Worry about making my family proud										
Sanitation facilities			.669							
Class Size: Too many learners			.612							
Ventilation			.611							

Pattern Matrix

	Factor									
	1	2	3	4	5	6	7	8	9	10
	Socio-economic Factors	Peer Pressure	School Environment	External Pressure	Uncertainty about the Future	Academic	Familial Support	Parental	Intrapersonal	Learning and Development
Poor lighting (poor lighting- too dark or too bright)			.401							
Noisy classroom			.307							
Educator absenteeism										
Extreme hot & cold Classrooms										

Pattern Matrix

	Factor									
	1	2	3	4	5	6	7	8	9	10
	Socio-economic Factors	Peer Pressure	School Environment	External Pressure	Uncertainty about the Future	Academic	Familial Support	Parental	Intrapersonal	Learning and Development
Pressure from school				.773						
Pressure from educators				.691						
Pressure from parents				.353			-.302			
Educators' work ethics										

Pattern Matrix

	Factor									
	1	2	3	4	5	6	7	8	9	10
	Socio-economic Factors	Peer Pressure	School Environment	External Pressure	Uncertainty about the Future	Academic	Familial Support	Parental	Intrapersonal	Learning and Development
Preparation for matric farewell					.480					
Finding a good college or university					.454					
Tertiary acceptance					.385					
Increased workload						.685				
Excessive homework						.524				

Pattern Matrix

	Factor									
	1	2	3	4	5	6	7	8	9	10
	Socio-economic Factors	Peer Pressure	School Environment	External Pressure	Uncertainty about the Future	Academic	Familial Support	Parental	Intrapersonal	Learning and Development
Pressure from siblings							-.617			
Pressure from family members							-.574			
Lack of financial support							-.378			
Lack of academic resources							-.343			

Pattern Matrix

	Factor									
	1	2	3	4	5	6	7	8	9	10
	Socio-economic Factors	Peer Pressure	School Environment	External Pressure	Uncertainty about the Future	Academic	Familial Support	Parental	Intrapersonal	Learning and Development
Crime at school							-.336			
Assets							-.301			
Responsibilities – chores								-.520		
Parenting styles								-.459		
Parent and/or guardian relationship	.324							-.438		

Pattern Matrix

	Factor									
	1	2	3	4	5	6	7	8	9	10
	Socio-economic Factors	Peer Pressure	School Environment	External Pressure	Uncertainty about the Future	Academic	Familial Support	Parental	Intrapersonal	Learning and Development
Not spending as much time as you would like to with your parents/guardian								-.434		
Having a hard time talking with your parents/guardian								-.349		
Getting a date for matric farewell					.470				.478	

Pattern Matrix

	Factor									
	1	2	3	4	5	6	7	8	9	10
	Socio-economic Factors	Peer Pressure	School Environment	External Pressure	Uncertainty about the Future	Academic	Familial Support	Parental	Intrapersonal	Learning and Development
Finances	.312	-.323							.469	
Finding work									.457	
Getting good grades					.336				.408	
Preparation for examinations										
Difficulty in understanding lessons										.741

Pattern Matrix

	Factor									
	1	2	3	4	5	6	7	8	9	10
	Socio-economic Factors	Peer Pressure	School Environment	External Pressure	Uncertainty about the Future	Academic	Familial Support	Parental	Intrapersonal	Learning and Development
Having trouble studying										.565
Dilapidated classrooms										.332
Taking a gap year										.309

Table 4.8: Principal axis factoring with oblimin rotation method

Table 4.8 presents the factor loadings for the 10 extracted factors. The loading of an item indicated the extent to which an individual item "loaded" on a factor (§ 4.2.3). An item was said to load on a given factor if the factor loading was 0.35 or greater for that factor and less than 0.35 for the other factors. The individual statements (items) were then allocated to each of the 10 factors according to their individual factor loadings, and those 10 factors then formed the factors or dimensions in the questionnaire. The 10 factors were subsequently allocated names.

It must be noted that there were two factors (i.e., academic-related stress and uncertainty about the future) that were considered, even though they did not meet the minimum criteria for three items. Those two factors were included because their inclusion made sense and their reliability status was accepted. The other factors determined through EFA were external pressure; familial support; learning and development; peer pressure; uncertainty about the future; parental factors; socio-economic factors; and school environment factors. In Table 4.9, stress factors and their sub-factors are presented.

Stress factors	Items
Socio-economic factors	Transport, food, clothing, school material, personal hygiene, uniform, fees, family economic status
Peer pressure	Race, exclusion from peers, pressure to take alcohol or drugs, ethnicity, fashion, bullying
School environment	Sanitation facilities, class size too many, ventilation, poor lighting
External pressure	Pressure from school, pressure from educators, pressure from parents

Uncertainty about the future	Finding a good college or university, tertiary acceptance
Academic	Increased workload, excessive homework
Intrapersonal	Getting a date for matric farewell, finances, finding work, getting good grades
Familial support	Pressure from siblings, pressure from family members, lack of financial support
Learning & development	Difficulty in understanding; having trouble understanding and depleted classrooms
Parental	Parenting styles, responsibilities/chores, not spending as much time as you would like to with parents/guardian

Table 4.9: Stress factors and their sub-factors

As indicated in Table 4.9, the categories of stress factors were labelled as follows.

First, the questionnaire items that loaded on factor 1 – which was labelled "socio-economic factors" – were transport, food, clothing, school material, personal hygiene, uniform, fees, and family economic status. The label *socio-economic* was used as the items were socio-economic in nature. As stated in chapter 2 (§ 2.4.6), socio-economic factors could include a family's lack of resources like finances (Baruth & Mokoena 2016; Collings 2013; Ponnet et al 2016).

Second, the questionnaire items that loaded on factor 2 – which was labelled "peer pressure" – were race, exclusion from peers, pressure to take alcohol or drugs, ethnicity, fashion, and bullying. The label "peer pressure" was used as this term seemed to largely cover aspects that were related

to peer pressure. These items, according to literature (§ 2.4.4), include bullying and pressure to take alcohol or drugs (Huli 2014; Bester 2019; Lal 2014).

Third, the questionnaire items that loaded on factor 3 – which was labelled “school environment” – were sanitation facilities, class size (too many learners), ventilation, and poor lighting. The researcher found it appropriate to give those items the umbrella label “school environment”, since these items addressed aspects were related to the school environment. Research conducted in various countries (§ 2.4.5) also acknowledges these items as part of the school environment (Ang’alika et al 2016; Movahed et al 2018; Nafaji et al 2018; Sithole 2017).

Fourth, the questionnaire items that loaded on factor 4 – which was labelled "external pressure" – were pressure from school, pressure from educators, and pressure from parents. The label "external pressure" was assigned as pressure came from other people and things.

Fifth, the questionnaire items that loaded on factor 5 – which was labelled “uncertainty about the future” – were matric farewell, finding a good college or university, and tertiary acceptance. Since most of the items addressed activities pertaining to the future of the learners outside the school learning environment, the researcher deemed it fit to label these items “uncertainty about the future”. As mentioned in § 2.4.7.2, one of the sub-stressors that fall under this stress factor is "uncertainty about the future". Therefore, these items were given the label “uncertainty about the future”.

Sixth, the questionnaire items that loaded on factor 6 – which was labelled “academic-related pressure” – were increased workload and excessive homework. The “academic-related pressure” label was assigned to these items as the items referred to pressure that is academic in nature. In § 2.4.1, different researchers who have listed academic-related items under academic-related stress are cited (Hubbard et al 2018; Strydom et al 2012; Yusoff 2010).

Seventh, the questionnaire items that loaded on factor 7 – which was labelled “intrapersonal” factors – were disregarded as the reliability of this factor was 0.41, which was considered unacceptable (§ 4.4).

Eighth, the questionnaire items that loaded on factor 8 – which was labelled “family support” – were pressure from siblings, pressure from family members, and lack of financial support. This label was assigned because these items referred to family-related matters like pressure from siblings and lack of financial support. In § 2.4.2, for instance, it is stated that stressors stem from

family environment (Patel et al 2016), hence the researcher decided to use the label “family support” in this regard.

Ninth, the questionnaire items that loaded on factor 9 – which was labelled “learning and development” – were difficulty in understanding, having trouble understanding, and depleted classrooms. This label was assigned to those items that dealt with issues of learning and development – *difficulty in understanding* and *having trouble understanding* refer to learning, while *depleted classrooms* refer to development.

Lastly, the questionnaire items that loaded on factor 10 – which was labelled “parental factors” – were "parenting styles", "responsibilities/chores", and "not spending as much time with parents/guardians" as the respondents would have liked to. The researcher assigned this label as the items covered issues related to parents and their children.

In Table 4.10, the mean averages, medians, and standard deviations of all the stress factors identified in both suburban and township schools are presented.

	N	Mean	Median	Std Dev
F1 Socio-economic factors	360	2.75	2.75	0.92
F2 Peer pressure	360	2.22	2.17	0.88
F3 School environment	360	2.88	3.00	0.91
F4 External pressure	360	3.53	3.67	0.97
F5 Uncertainty about the future about the future	359	4.08	4.50	1.05
F6 Academic pressure	360	3.51	3.50	0.93

	N	Mean	Median	Std Dev
F7 Familial support	360	3.11	3.00	1.08
F8 Parental	360	2.84	2.75	0.94
F10 Learning and development	360	3.25	3.00	1.06

Table 4.10: Stress factors – mean scores, medians, and standard deviation (SD)

Table 4.10 presents the mean scores, medians, and standard deviations of the stress factors. All the stress factors that had a mean score of greater than 3 were considered high experiences of stress, and those that had a mean score of less than 3 were considered low experiences of stress.

In addition, according to the results of the empirical study (Table 4.11), the major experiences of stress among learners in both suburban and township schools were ***uncertainty about the future about the future; external pressure; academic related; familial support; and learning and development***. Furthermore, the experiences of stress with low scores were ***peer pressure; parental; socio-economic factor; and school environment.***

The mean scores and standard deviations of the results of suburbs and township schools were also compared to determine similarities and differences in terms of which stress factors were the highest- and lowest-rated in each setting (suburban and township schools respectively). The mean and standard deviation results of the stress factors for suburban schools versus township schools are presented in Table 4.11.

	Suburb		***Township***	
Factors	Mean	SD	Mean	SD
Socio-economic factors	2.61	0.89	2.87	0.93
Peer pressure	2.09	0.82	2.32	0.92
School environment	2.94	0.87	2.81	0.94
External pressure	3.56	0.88	3.50	1.04
Uncertainty about the future	4.19	0.99	3.97	1.09
Academic related	3.65	0.92	3.38	0.93
Familial support	2.92	1.04	3.28	1.09
Learning & development	3.32	1.07	3.18	1.04
Parental related	2.85	0.93	2.82	0.95

Table 4.11: Comparison of the results of suburban schools versus township schools

When comparing the results obtained from suburban and township schools, stress factors with an average score of 3 and greater were regarded as high experiences of stress. The top stress factors for the respondents in suburban schools were uncertainty about the future, external pressure, academic related, and learning and development. The top stress factors for the

respondents in township schools were uncertainty about the future, external pressure, academic related, familial support, and learning and development.

It must be noted that *uncertainty about the future* was identified by respondents in both suburban and township schools as one of the top stress factors. Both groups identified the same factors as causes of stress, though they differed in the way they rated them. For example, academic pressure was rated as the second-highest stress factor by respondents in suburban schools, while it was rated as the third-highest stress factor by respondents in township schools.

Stress factors that were rated differently by the two groups, but appeared in the data from both groups, were academic-related stress factors, external pressure, and learning and development. Factors with a mean score below 3 were rated as low experiences of stress.

The latter among Grade 12 learners in suburban schools were peer pressure, socio-economic factors, parental and familial support, whilst among Grade 12 learners in township schools, they were peer pressure, school environment, socio-economic factors and parental.

In all, low-rated stress factors identified by respondents in both groups were peer pressure, followed by socio-economic factors, parent related, and school environment. More stress factors were identified as low experiences of stress among suburban school learners as compared to those in township schools. Also, more high experiences of stress were identified by the learners in township schools as compared to their counterparts in suburban schools.

4.2.4 Results of the reliability test (Cronbach's alpha)

Cronbach's alpha coefficient was calculated in this study to establish internal consistency, which is a type of reliability (§ 3.5.4.2). In Table 4.12, the stress factors together with their sub-factors (items) and reliability score are tabulated. The acceptable reliability score in this study was a Cronbach's alpha score of between 0.6 and 0.80. A Cronbach's alpha value above 0.7 was considered good reliability; a Cronbach's alpha value above 0.8 was great reliability; and a Cronbach's alpha value below 0.6 was considered unacceptable reliability (Ursachi et al 2015).

Stress factors	Item Numbers	Items	Items left out	Cronbach Alpha	Reliability
Socio-economic factors	46	Transport	None	0.83	Very Good
	49	Food			
	47	Clothing			
	48	School material			
	50	Personal hygiene			
	45	Uniform			
	44	Fees			
	38	Family economic status			
Peer pressure	27	Race	None	0.74	Acceptable
	25	Exclusion from peers			
	24	Pressure to take alcohol or drugs			
	26	Ethnicity			

Stress factors	Item Numbers	Items	Items left out	Cronbach Alpha	Reliability
	28	Fashion			
	30	Bullying			
School Environment	15	Sanitation facilities	None	0.69	Acceptable
	14	Class size			
	16	Ventilation			
	13	Poor lighting			
External Pressure	7	Pressure from school	None	0.66	Acceptable
	6	Pressure from educators			
	34	Pressure from parents			
Post-matric educational opportunities	51	Finding a good college or university tertiary acceptance	None	0.71	Acceptable
	52				

Stress factors	Item Numbers	Items	Items left out	Cronbach Alpha	Reliability
Academic	2	Increased workload	None	0.60	Acceptable
	1	Excessive homework			
Lack of familial support	34	Pressure from siblings	None	0.64	Acceptable
	36	Pressure from family members			
	37	Lack of financial support			
Parental	33	Parenting styles	1 (Having hard time talking with your parents)	0.63	Acceptable
	40	Responsibilities /chores			
	42	Not spending as much time as you would like to with parents/ guardian			
Intrapersonal	29	Finances	None	0.41	Unacceptable
	23	Finding work			

Stress factors	Item Numbers	Items	Items left out	Cronbach Alpha	Reliability
	19	Getting good grades			
Learning and Development	8	Difficulty in understanding	1 (Taking a gap year)	0.70	Good
	9	Having trouble understanding			

Table 4.12: Reliability status of the stress factors

The reliability of all the stress factors is presented in Table 4.12, except for “intrapersonal”, were acceptable. The “intrapersonal” stress factor had a reliability score of 0.41, thus unacceptable reliability.

The “intrapersonal” stress factor was consequently eliminated and was therefore not discussed further in the study, as it was not reliable. The stress factors that were found to be acceptable in terms of reliability were socio-economic factors, peer pressure, school environment, external pressure, uncertainty about the future, academic, familial support, learning and development, and parental. The reliability scores of these ranged between 0.60 to 0.83.

4.2.5 Inferential statistics

Inferential statistics allow the researcher to make inferences or predictions about the data. The data were used to answer the main research question, i.e., *“*What are the experiences of stress among Grade 12 learners and how do suburban and township schools differ in the experience of stress?” This research question was supported by the following secondary research questions:

i) What are the main causes of stress according to literature?
ii) What do Grade 12 learners in suburban and township schools identify as experiences of stress?

iii) What are the differences and similarities in terms of stressors among Grade 12 learners in suburban and township schools?
iv) What recommendations can be made to stakeholders to minimise and manage stress among Grade 12 learners?

In the following sub-sections, assumptions of normality and homogeneity of variance normality are assessed. Also, the independent T-test and Wilcoxon rank-sum test results – which were conducted to compare the data from suburban and township school learners and determine whether or not there were differences in the experiences of stress among these learners (Omair 2014) – are presented.

4.2.6 Testing assumptions of normality and homogeneity of variance

Assumptions of normality and homogeneity of variance were assessed. Normality was assessed by establishing skewness and kurtosis, and Levene's test was employed to establish homogeneity of variance. Table 4.13 shows the results of the assumptions of normality, homogeneity of variance and descriptive statistics which were used to compare the experiences of stress among learners in suburban and township schools. Histograms with skewness that illustrate assumptions of normality and the output from Levene's test for homogeneity of variance are presented in Annexure I.

Stress factor	Setting	Frequency	Mean	SD	Skewness	Kurtosis	Homogeneous variances Levene's Test	Assumptions
Socio-economic	Suburbs	170	2.61	0.89	-0.01	-0.64	$F_{1,358}$=0.18 p-value=0.67	Normal & Homogeneous
	Township	190	2.87	0.93	0.23	-0.65		
Peer pressure	Suburbs	170	2.09	0.82	0.46	-0.42	$F_{1,358}$=2.61 p-value=0.11	Normal & Homogeneous
	Township	190	2.33	0.92	0.45	-0.76		
School environment	Suburbs	170	2.94	0.87	-0.11	-0.30	$F_{1,358}$=2.34 p-value=0.13	Normal & Homogeneous
	Township	190	2.81	0,94	-0.07	-0.52		
External pressure	Suburbs	170	3.56	0,88	-0.34	-0.21	$F_{1,358}$=4.33	

Stress factor	Setting	Frequency	Mean	SD	Skewness	Kurtosis	Homogeneous variances Levene's Test	Assumptions
	Township	190	3.51	1.04	-0.39	-0.42	p-value=0.04	Normal & Homogeneous
Post-matric Education	Suburbs	170	4.19	0.99	-1.22*	0.84	$F_{1,358}$=2.21	Not Normal & Homogeneous
	Township	190	3.97	1.09	-0.83	-0.29	p-value=0.14	
Academic pressure	Suburbs	170	3.65	0.92	-0.26	-0.37	$F_{1,358}$=0.19	Normal & Homogeneous
	Township	190	3.38	0.93	-0.42	-0.15	p-value=0.66	
Lack of familial support	Suburbs	170	2.92	1.04	0.08	-0.55	$F_{1,358}$=0.77	Normal & Homogeneous
	Township	190	3.28	1.09	-0.25	-0.71	p-value=0.38	
Parental	Suburbs	170	2.85	1.07	0.08	-0.39	$F_{1,358}$=0.16	

Stress factor	Setting	Frequency	Mean	SD	Skewness	Kurtosis	Homogeneous variances Levene's Test	Assumptions
	Township	190	2.82	1.04	0.05	-0.53	p-value=0.69	Normal & Homogeneous
Learning and development	Suburbs	170	3.33	0.93	-0.10	-0.71	$F_{1,358}$=0.14 p-value=0.71	Normal & Homogeneous
	Township	190	3.18	0.95	-0.10	-0.67		

Table 4.13: Assumptions of normality, homogeneity of variance, and descriptive statistics of the stress factors

In the following paragraphs, assumptions of normality and homogeneity of variance of the results of the stress factors are elaborated. It must be noted that skewness values outside the range of -1 to +1 were considered, showing non-normality, together with an inspection of the histogram. Histograms for both suburban and township data are presented in Annexure I. A p-value below 0.01 for Levene's test indicated non-homogeneous variances (§ 3.4.4).

In Table 4.14, the socio-economic stress factor scores show that skewness for both suburban and township schools fell within the range of -1 to +1: -0.01 for suburban schools and 0.23 for township schools. The kurtosis statistics was -0.64 for suburban schools and -0.65 for township schools, and the result of Levene's test was not significant – $F(1, 358) = 0.18$, $p > 0.01$, p=0.67 – indicating that the assumption of homogeneity of variance was not violated.

After inspection of the histogram, skewness, kurtosis, and Levene's test, the results indicated that the data for the *socio-economic* stress factor were normally distributed and the variances were homogeneous. Consequently, an independent T-test was performed to establish the differences between the two independent samples.

In Table 4.14, the *peer pressure* stress factor scores show that skewness for both suburban and township schools fell within the range of -1 to +1: 0.46 for suburban schools and 0.45 for township schools. The kurtosis statistics were -0.42 for suburban schools and -0.76 for township schools, and the result of Levene's test was not significant – $F(1, 358) = 0.2.61$, $p > 0.01$, p=0.11 – indicating that the assumption of homogeneity of variance was not violated.

Therefore, after inspection of the histogram, skewness, kurtosis, and Levene's test, the results indicated that the data for the *peer pressure* stress factor were normally distributed and the variances were homogeneous. Consequently, an independent T-test was performed to establish the differences between the two independent samples. In Table 4.14, the *school environment* stress factor scores show that skewness fell within the range of -1 to +1 – 0.11 for suburban schools and 0.07 for township schools. The kurtosis statistics were -0.30 for suburban schools and -0.52 for township schools, and the result of Levene's test was not significant – $F(1, 358) = 0.234$, $p > 0.01$, p=0.13 – indicating that the assumption of homogeneity of variance was not violated.

After inspection of the histogram, skewness, kurtosis, and Levene's test, the results indicated that the data for the *school environment* stress factor were normally distributed, and the variances were homogeneous. Therefore, an independent T-test was performed to establish the differences between the two independent samples.

In Table 4.14, the *external pressure* stress factor scores show that skewness fell within the range of -1 to +1 – 0.34 for suburban schools and 0.39 for township schools. The result of Levene's test was not significant – $F(1, 358) = 4.33$, $p > 0.01$, p=0.04 – indicating that the assumption of homogeneity of variance was not violated.

After inspection of the histogram, skewness, kurtosis, and Levene's test, the results indicated that the data for the *external pressure* stress factor were normally distributed, and the variances were homogeneous. Therefore, an independent T-test was performed to establish the differences between the two independent samples.

In Table 4.14, the *uncertainty about the future* stress factor scores show that skewness fell outside the range of -1 to +1 – -1.22 for suburban schools and -0.83 for township schools.

The kurtosis statistics were 0.84 for suburban schools and -0.29 for township schools, and the results of the Levene's test were significant – $F(1, 358) = 2.21$, $p > 0.01$, p=0.14 – indicating that the assumption of homogeneity of variance was not violated. After inspection of the histogram skewness, kurtosis, and Levene's test, results indicated that the construct score was not normally distributed, and variance was homogeneous. Therefore, the Wilcoxon rank-sum test, which is a non-parametric test that does not assume normality, was done to establish the differences between the two independent samples.

In Table 4.14, the *academic pressure* stress factor scores show that skewness fell within the range of -1 to +1 – -0.26 for suburban schools and -0.42 for township schools. The kurtosis statistics were -0.37 for suburban schools and -0.15 for township schools, and the result of Levene's test was not significant – $F(1, 358) = 0.19, p > 0.01$, p=0.44 – indicating that the assumption of homogeneity of variance was not violated.

After inspection of the histogram skewness, kurtosis, and Levene's test, results indicated that the data for the *academic pressure* stress factor were normally distributed, and the variances were homogeneous. Therefore, an independent T-test was performed to establish the differences between the two independent samples.

In Table 4.14, the *familial support* stress factor scores show that skewness fell within the range of -1 to +1 – 0.08 for suburban schools and -0.55 for township schools. The kurtosis statistics were -0.55 for suburban schools and -0.71 for township schools, and the result of Levene's test was not significant – $F(1, 358) = 0.77, p > 0.01, 0.38$ – indicating that the assumption of homogeneity of variance was not violated.

After inspection of histogram skewness, kurtosis, and Levene's test, results indicated that the data for the *familial support* stress factor were normally distributed, and the variances were homogeneous. An independent T-test was performed to establish the differences between the two independent samples.

In Table 4.14, the *uncertainty about the future* stress factor scores shows that skewness fell within the range of -1 to +1 – -0.08 for suburban schools and -0.42 for township schools. The kurtosis statistics were -0.39 for suburban schools and -0.15 for township schools, and the results of Levene's test were not significant – $F(1, 358) = 0.16, p > 0.05, -0.53$ – indicating that the assumption of homogeneity of variance was not violated. After inspection of the histogram skewness, kurtosis, and Levene's test, results indicated that the data for *uncertainty about the future* were normally distributed and the variances were homogeneous. An independent T-test was performed to establish the differences between the two independent samples.

In Table 4.14, the *learning and development* stress factor shows that skewness fell within the range of -1 to +1 – -0.10 for suburban schools and -0.10 for township schools. The kurtosis statistics were -0.71 for suburban schools and -0.67 for township schools, and the results of Levene's test was not significant – $F(1, 358) = 0.14, p > 0.05, 0.71$ – indicating that the

assumption of homogeneity of variance was not violated. Therefore, after inspection of histogram skewness, kurtosis, and Levene's test, results indicated that the data for the stress factor *learning and development* were normally distributed, and the variances were homogeneous. An independent T-test was performed to establish the differences between the two independent samples.

In summary, to establish the differences between the two independent samples (learners in suburban and township schools) for all stress factors (except for "uncertainty about the future"), an independent T-test was considered, as their data were normally distributed, and the variances were homogeneous. The Wilcoxon rank-sum test was considered for the stress factor *uncertainty about the future*, as its data were not normally distributed, and the variances were not homogeneous. Next, the results of the independent T-test and Wilcoxon rank-sum test for both suburban and township schools are presented.

4.3.2 Results of the independent T-test and Wilcoxon rank-sum test for suburban and township schools

As indicated earlier, differences between stress factors were established by either employing the independent T-test or Wilcoxon rank-sum test, depending on whether or not the data were normally distributed. An independent T-test was first used to compare the means of the stress factors of the two groups (suburban and township schools). The assumptions of the independent T-test are normality and homogeneous variances. The data were found to be normally distributed and there were homogeneous variances in all the stress factors, except for one, namely *uncertainty about the future*. Since the data for the *uncertainty about the future* stress factor were not normally distributed, a Wilcoxon rank-sum test had to be employed, as this test does not assume normality. The results of the independent T-test are presented first, and the results of the Wilcoxon ranks test are presented second.

4.3.2.1 Results of the independent T-test for suburban and township schools

An independent T-test was used to compare the experiences of stress among Grade 12 suburban and township learners. The construct scores or stress factor scores were normally distributed. Those stress factors were socio-economic factors, peer pressure, familial, parental, learning and development, and school environment.

In Table 4.14, a summary of the results of the T-test is presented.

Stress factor	Setting	Mean	SD	t-value and p-value		Effect size Cohen's *D*	
				Result	Interpretation	Result	Interpretation
Socio-economic	Suburbs	2.61	0.89	t(358)=2.70; 0.0073	Statistically significant	0.28	Small effect
	Township	2.87	0.93				
Peer pressure	Suburbs	2.09	0.82	t(358)=2.56; 0.011	Statistically significant	0.27	Small effect
	Township	3.33	0.92				
School environment	Suburbs	2.95	0.87	t(358)=-1.39; 0.165	Not statistically significant	0.15	Negligible
	Township	2.81	0,94				
	Suburbs	3.56	0,88			0.06	Negligible

Stress factor	Setting	Mean	SD	t-value and p-value		Effect size Cohen's *D*	
				Result	Interpretation	Result	Interpretation
External pressure	Township	3.5	1.04	t(358)=-0.55; 0.58	Not statistically significant		
Academic pressure	Suburbs	3.65	0.99	t(358)=-2.78; 0.0057	Statistically significant	0.29	Small
	Township	3.38	1.09				
Lack of familial support	Suburbs	2.92	0.92	t(358)=3.13; 0.0019	Statistically significant	0.33	Small
	Township	3.28	0.93				
Parental	Suburbs	2.85	1.04	t(358)=-0.36; 0.72	Not statistically significant	0.04	Negligible
	Township	2.82	1.09				

Stress factor	Setting	Mean	SD	t-value and p-value		Effect size Cohen's *D*	
				Result	**Interpretation**	**Result**	**Interpretation**
Learning and development	Suburbs	3.33	1.07	t(358)=-1.33; 0.185	Not Statistically significant	0.14	Negligible
	Township	3.18	1.04				

Table 4.14: Comparing groups (suburb and township) by means of an independent T-test

4.3.2.2 Results of the Wilcoxon rank-sum test

A non-parametric test, Wilcoxon rank-sum test, was used to compare suburban and township schools in terms of the stress factor *uncertainty about the future*, since the data for this factor were not normally distributed (§ 4.3). In Table 4.15, a summary of the results is presented.

Stress factor	Setting	Median	Test statistic and p-value	interpretation	Effect size	Interpretation
Post-matric education	Suburban	4.19	S(32407.5) Z=1.92; p-value 0.055	Not statistically significant	r=0.10	Small
	Township	3.97				

Table 4.15: Comparing groups (suburb and township) by means of the Wilcoxon rank-sum test

Next, the null hypotheses of the study were tested based on the results of the independent T-test and the Wilcoxon rank-sum test (see Tables 4.14 and 4.15). In interpreting the independent T-test results, the following rule of thumb was followed: p-value below 0.05 was considered statistically significant (see chapter 3). Also, Cohen's *D* was interpreted as follows: below 0.2 was considered negligible; 0.2 = small effect; 0.5 = medium effect; and 0.8 = large effect (Cohen 1988). The results of the Wilcoxon rank-sum test were interpreted as follows: p-values below 0.05 were considered statistically significant, and as regards establishing an effect size, the effect size was considered low if the value of *r* varied around 0.1, medium if *r* varied around 0.3, and large if *r* varied more than 0.5 (Cohen 1988) (see chapter 3).

Hypothesis 1

The ***null hypothesis*** was "there is no difference in academic-related stress between Grade 12 learners attending township schools and their counterparts in suburban schools", and the ***alternative hypothesis*** was "there is a difference in academic-related stress between Grade 12 learners attending township schools and their counterparts in suburban schools".

Results of the independent samples T-test (Table 4.14) show that respondents in suburban schools (M = 3.65, SD = .92, N = 170) rated the *academic-related* stress factor higher than respondents in township schools (M = 3.38, SD = .93, N = 190). The p-value from the independent T-test was less than 0.05 t(358) = 2.70, p = 0.0057), indicating a statistically significant difference between these two means with a 95% level of confidence. The difference of .27 scale points with a Cohen's effect size of 0.29 was considered small.

It can be inferred from the results that the learners in suburban schools perceived academic-related factors as a greater cause of stress than those in township schools. Therefore, the null hypothesis – "there is no difference in academic-related stress between Grade 12 learners attending township schools and their counterparts in suburban schools" – was rejected.

Hypothesis 2

The ***null hypothesis*** was "there is no difference in the school environment between Grade 12 learners attending township schools and their counterparts in suburban schools", and the ***alternative hypothesis*** was "there is a difference in the school environment between Grade 12 learners attending township schools and their counterparts in suburban schools".

Results of the independent samples T-test (Table 4.14) show that the respondents in suburban schools (M = 2.95, SD = .87, N = 170) rated the *school environment* stress factor higher than

those in township schools (M = 2.81, SD = .94, N = 190). The p-value from the independent T-test was higher than 0.05 t(358) = 2.56, p=0.165, indicating no statistically significant difference between the two means with 95% confidence interval. The difference of .14 scale points (0.15) was considered negligible.

It can be inferred from the results that the suburban and township school learners perceived school environment as a cause of stress to the same extent, therefore the *null hypothesis* – "there is no difference in the school environment between Grade 12 learners attending township schools and their counterparts in suburban schools" – was accepted.

Hypothesis 3

The ***null hypothesis*** was "there is no difference in intrapersonal factors affecting Grade 12 learners attending township schools and their counterparts in suburban schools", and the ***alternative hypothesis*** was "there is a difference in intrapersonal factors affecting Grade 12 learners attending township schools and their counterparts in suburban schools".

The results of the reliability test (Cronbach' s alpha) on "intrapersonal factors" (§ 4.4) showed that the reliability score of "intrapersonal factors" was 0.41, which was below an acceptable rate. Therefore, that factor, and consequently the hypothesis, was eliminated.

Hypothesis 4

The ***null hypothesis*** was "there is no difference in socio-economic status between Grade 12 learners attending township schools and their counterparts in suburban schools", and the ***alternative hypothesis*** was "there is a difference in socio-economic status between Grade 12 learners attending township schools and their counterparts in suburban schools".

The results of the independent samples T-test (Table 4.14) show that the respondents in suburban schools (M = 2.61, SD = .89, N = 170) rated socio-economic stress lower than the respondents in township schools (M = 2.87, SD = .93, N = 190). The p-value from the independent T-test was less than 0.05, t(358) = 2.70, p = 0.0073 indicating a statistically significant difference between those two means, with a 95% level of confidence. The difference of .27 scale points with a Cohen's effect size of 0.28 was considered small. It can be inferred from the results that the learners in township schools perceived socio-economic factors as a greater cause of stress than the learners in suburban schools.

Therefore, the null hypothesis – "there is no difference in socio-economic status between Grade 12 learners attending township schools and their counterparts in suburban schools" – was rejected.

Hypothesis 5

The ***null hypothesis*** was "there is no difference in uncertainty about the future between Grade 12 learners attending township schools and their counterparts in suburban schools", and the ***alternative hypothesis*** was "there is a difference in uncertainty about the future between Grade 12 learners attending township schools and their counterparts in suburban schools".

To test the null hypothesis, a Wilcoxon rank-sum test was conducted to determine if there were differences between suburban and township school learners with regard to the *post-matric education* stress factor. Distributions of the data for this stress factor for both groups were similar, as assessed by visual inspection.

As indicated in Table 4.15, the score for township (Mdn=4) and suburban (Mdn=4.5) school learners was not statistically significantly different – $S = 32407.5$, $p = 0.055$, with a small effect size (z=1.92, r=0.10).

Hypothesis 6

The ***null hypothesis*** was "there is no difference in peer pressure between Grade 12 learners attending township schools and their counterparts in suburban schools", and the ***alternative hypothesis*** was "there is a difference in peer pressure between Grade 12 learners attending township schools and their counterparts in suburban schools".

Results of an independent samples T-test (Table 4.14) show that the respondents in suburban schools (M = 2.09, SD = .82, N = 170) rated peer pressure lower than those in township schools (M = 3.32, SD = .92, N = 190). The p-value from the independent T-test was less than 0.05 t(358) = 2.56; p = 0.011, indicating a significant difference between the means of peer pressure in suburban and township schools at 95% level of confidence (Table 4.19). The difference of 1.24 scale points with Cohen's *D* effect size of 0.27 was considered small. It can be inferred from the results that the learners in township schools perceived peer pressure as a greater cause of stress than the learners in suburban schools.

Therefore, the null hypothesis – "there is no difference in peer pressure between Grade 12 learners attending township schools and their counterparts in suburban schools" – was rejected.

Hypothesis 7

The ***null hypothesis*** was "there is no difference in family-related pressure between Grade 12 learners attending township schools and their counterparts in suburban schools". The ***alternative hypothesis*** was "there is a difference in family-related pressure between Grade 12 learners attending township schools and their counterparts in suburban schools".

The results of the independent samples T-test (Table 4.14) show that the respondents in suburban schools (M = 2.92, SD = 1.04, N = 170) scored familial support (as worded in EFA) lower than the respondents in township schools (M = 3.28, SD = 1.09, N = 190).

The p-value from the independent T-test was less than 0.05 t(358) = 0.36; p = 0.72, indicating a significant difference between the means of familial support-related stress among suburban and township school learners at 95% level of confidence. The difference of .36 scale points with a Cohen's *D* effect size of 0.27 was considered small (Table 4.14). It can be inferred from the results that the learners in township schools perceived familial support as a greater cause of stress than their counterparts in suburban schools.

Therefore, the null hypothesis – "there is no difference in familial support between Grade 12 learners attending township schools and their counterparts in suburban schools" – was rejected.

The independent T-test and Wilcoxon rank-sum test results of the stress factors that were not part of the hypotheses

The results of the independent T-test of other stress factors that were not part of the hypotheses, but established from EFA, are subsequently discussed. These are external pressure, parental, and learning and development.

First, external pressure: the results of the independent samples T-test (Table 4.14) show that the respondents in suburban schools (M = 3.56, SD = 0.88, N = 170) rated external pressure lower than their counterparts in township schools (M = 3.51, SD = 1.04, N = 190). The p-value from the independent T-test was higher than 0.05 t(358) = 0.55, p=0.58, indicating a statistically significant difference. Also, the p-value from the independent T-test was less than 0.05 (p = 0.58), indicating a significant difference between those two means with a 95% level of confidence. The difference of .05 scale points with a Cohen's *D* effect size of 0.05 was considered negligible. It can be inferred from the results that the learners in suburban schools perceived external pressure as a greater cause of stress than those in township schools.

Therefore, the null hypothesis – “there is no difference in external pressure between Grade 12 learners attending township schools and their counterparts in suburban schools” – was rejected.

Regarding learning and development, the ***null hypothesis*** was “there is no difference in learning and development between Grade 12 learners attending township schools and their counterparts in suburban schools”, and the ***alternative hypothesis*** was “there is a difference in learning and development between Grade 12 learners attending township schools and their counterparts in suburban schools”.

Results of the independent samples T-test (Table 4.14) show that the respondents in suburban schools (M=3.33, SD=1.07, N=170) rated learning and development higher than the township school respondents (M=3.18, SD=1.04, N=190). The p-value from the independent T-test was higher than t(358) = 1.33, p=0.185, indicating that there was no statistically significant difference between the two means with a 95% level of confidence. The difference .15 scale points and Cohen’s *D* effect size of 0.14 was considered negligible.

In all, it can be inferred from the results that the learners in both suburban and township schools perceived learning and development to the same extent. Therefore, the null hypothesis – “there is no difference in parental related stress between Grade 12 learners attending township schools and their counterparts in suburban schools” – was accepted.

It can be inferred from the results that the learners in both suburban and township schools perceived uncertainty about the future to the same extent. Therefore, the null hypothesis – “there is no difference in post-matric education between Grade 12 learners attending township schools and their counterparts in suburban schools” – was accepted.

In summary, the results of the independent T-test and Wilcoxon rank-sum test indicated that the following stress factors were statistically significant: ***socio-economic factors***; ***peer pressure***; ***familial support***; and ***academic pressure***. The results of the independent T-test and Wilcoxon rank-sum test also revealed that the following stress factors were not statistically significant: ***external pressure***; ***school environment***; ***learning and development***; and ***parental***.

The similarities and differences between the stress factors in the hypotheses and the stress factors from the results of EFA are summarised below (Table 4.16).

Stress factors in the hypotheses	Stress factors from EFA	Additional – "Not expected" stress factors
Academic	Academic	
School Environment	School Environment	
Intrapersonal	Intrapersonal	
Socio-economic	Socio-economic	
Uncertainty about the future	Uncertainty about the future	
Peer Pressure	Peer Pressure	
Family Related	Family related	
	External Pressure	External Pressure
	Learning & Development	Learning & Development
	Parental	Parental

Table 4.16: Comparison between stress factors in the hypotheses and from the results of EFA

As indicated in Table 4.16, the hypotheses and the results of the EFA had the following stress factors in common: academic, school environment, socio-economic, uncertainty about the future, peer pressure, intrapersonal, and family-related stress.

Unexpected stress factors that emerged from EFA, but were not part of the hypotheses, were external pressure, learning and development, and parental-related stress. It must be noted,

though, that parental-related stress was discussed under family-related stress in the literature review; however, the results of EFA distinguish between parental- and family-related stress.

In the following section, the results of the open-ended question are discussed.

4.3 Results of the open-ended question

Question 54 – the last question in the questionnaire – required the respondents to write down their experiences of stress that were not mentioned in the closed-ended questions.

As indicated in § 3.5.4.3, quantitative content analysis was used to analyse responses to the open-ended question. The data were first organised according to the setting of the respondents: data collected from learners in townships schools were grouped, and data collected from their counterparts in suburban schools were grouped (see Annexures L & M).

The data collected from the two groups were then collated and analysed by means of content analysis (§ 3.5.4.3). Similar responses were assigned the same code. For example, all the responses in relation to academic-related stress were assigned the code T2, and responses pertaining to intrapersonal stress were assigned the code T3. Thereafter, similar responses were categorised/grouped under a main name (Singer & Couper 2017:117). For example, responses pertaining to exam pressure, getting good marks and not getting distinctions were grouped under the main name “academic”. In Table 4.17, a schematic representation of the codes and main name for township schools are presented.

Code	Main Name
T1	Peer pressure
T2	Academic
T3	Intrapersonal
T4	Family
T5	Socio-economic
T6	Future
	Physical aspect

Table 4.17: Codes and main names of stress factors for township schools

As indicated in Table 4.17, all items that were peer pressure-related were coded T1. Items that fell under *township schools* were “friends exploiting you”, “pressure to have sex”;

“boyfriend”, and “fear of being dumped”. The T of T1 represents township, and 1 represents stress factor 1. As regards code T2, the main name associated with that code is *academic*. Examples of items fell under this theme were “not knowing answers to questions”, “not writing all my subjects”, and “not understanding with matric syllabus”. T3 represents items pertaining to intrapersonal stress factors. These were “not meeting my goals”, “fact that I am single”, and “not taken seriously”.

T4 represents stress factors associated with family-related stress, including “my parent’s health”, “losing my parents”, “bad relationship with parents”, and “lack of support from parents”. The fifth code (T5) represents all stress factors associated with socio-economic factors, namely “getting financial aid”, “tavern next to my home”, and “what to eat”. T6 represents stress factors pertaining to future-related stress: “tertiary fees”, “transition from high school to tertiary”, and “do not know what to do after matric”. Lastly, T7 represents stress factors concerning the physical aspect of stress, including “lack of sleep”, “studying extra hours”, and “not having enough time to relax”.

Codes for suburban schools were as follows: S1 for peer pressure; S2 for academic; S3 for intrapersonal; S4 for family; S5 for socio-economic factors; S6 for future; and S7 for physical aspect. The codes and main names for suburban schools are tabulated below.

Code	Main Names
S1	Peer pressure
S2	Academic
S3	Intrapersonal
S4	Family
S5	Socio-economic
S6	Future
S7	Physical aspect

Table 4.18: Codes and main names of stress factors for suburban schools

As indicated above, all items that were peer pressure-related were assigned the code S1. Stress factors under this code were “relationship with friends”, “love life”, and “pretty girls”. The main theme for S2 was *academic*. Examples of items in this case are “examinations”, “school pressure”, and “sports”. S3 represented internal stress. Items included “making myself proud”, “what people think of me”, and “my hair”. S4 pertains to family-related stress, such as

“pressure from parents”, “relative sick”, and “lack of emotional support”. The fifth code (S5) represents all items associated with socio-economic factors, including “having to keep up with the latest trends”, “crime", and "strike that take place during exam time”. S6 represents future-related stress. These items include “admission at university”, “finding a job”, and “getting a bursary”. Finally, S7 represents factors concerning physical stress, such as “lack of sleep”, “lot of work”, and “enough sleep”.

After codes and names were assigned, descriptive statistics were conducted. In Table 4.19, the names, frequencies of responses and frequency (%) in this regard are presented.

MAIN NAME	SETTING	FREQUENCIES	FREQUENCY %
PEER PRESSURE (1)	Township	5	7.81
	Suburb	23	9.34
ACADEMIC (2)	Township	14	20.3
	Suburb	61	24.7
INTRAPERSONAL (3)	Township	16	13.3
	Suburb	50	20.3
FAMILY (4)	Township	11	12.5
	Suburb	21	8.53
SOCIO-ECONOMIC (5)	Township	26	29.7
	Suburb	57	23.2
FUTURE (6)	Township	14	6.25
	Suburb	29	11.8
PHYSICAL ASPECT (7)	Township	10	10.1
	Suburb	5	2.03

Table 4.19: Frequencies of responses and frequency (%)

Table 4.19 presents the frequencies of responses by respondents in both suburban and township schools. Simple frequencies (%) were also calculated so as to rank the stress factors from highest to lowest. The frequencies of the responses indicate the number of responses from each setting per stress factor. The distribution of responses by respondents in suburban schools were as follows: 24.7% academic; 23.1% socio-economic; 20.3% intrapersonal; 11.78% future; 9.34 % peer pressure; 8.53% family; and 2.03% physical related. On the other hand, the distribution of responses by learners in township schools were as follows: 29.68% socio-economic; 20.3% academic; 13.28% intrapersonal; 12.5% family; 10.1% physical

related; 7.81% peer pressure; and 6.25% future. The top two stress factors for the two groups, according to the results, differed: the top two stress factors for learners in suburban schools were academic and socio-economic factors, whilst the top two stress factors for learners in township schools were socio-economic and academic-related factors. Lastly, the third top stress factor for both groups was the same, namely internal-related stress factors.

4.4 Summary of the results

In Table 4.20, the results that emerged from both the closed-ended questions and the open-ended question are presented.

Stress factors from the closed- ended questions	**Stress factors from the open-ended question**	**New issue(s) raised from the open-ended question**
Uncertainty about the future	Future	
External pressure		
Academic	Academic	
Familial support	Family	
Learning & development		
School environment		
Socio-economic factors	Socio-economic	
Peer pressure	Peer pressure	
Parental		
Intrapersonal	Intrapersonal	
	Physical related	Physical related

Table 4.20: Summary of the results

The results reveal that both the closed-ended questions and the open-ended question yielded the same stress factors: socio-economic factors, peer pressure, school environment, external pressure, uncertainty about the future, academic-related stress, and family pressure. The aspects that the respondents did not mention, which were in the closed-ended questions, were familial support and learning and development. A new factor that emerged from the open-ended question, but not from the closed-ended questions, was physical-related stress. This can be investigated in future studies.

4.5 Summary and conclusion

In this chapter, the findings of the empirical research were analysed, presented, and interpreted. The findings were reviewed in relation to the existing literature, survey questionnaire, research question, and hypotheses. The validity of the study was tested using EFA with PAF and oblimin rotation. The following 10 factors were extracted: socio-economic factors; peer pressure; school environment; external pressure; uncertainty about the future; academic related; lack of familial support; intrapersonal; learning and development; and parental related. The empirical results showed that post-educational opportunities, external pressure, and academic-related stress were the major experiences of stress identified by both groups. However, one additional high stress factor was raised by each group which differed from the other group: the learners in township schools, for example, highlighted family as the fourth-highest rated factor, whilst learners in suburban schools indicated learning and development as the fourth-highest rated experience of stress. Peer pressure and parental-related stress were identified by both groups as the two lowest-rated experience of stress. The third lowest-rated experience of stress identified by the two groups differed, however: for suburban learners, this was socio-economic factors, whilst for their counterparts, it was the school environment.

To establish reliability, Cronbach's alpha was employed. The data were found to be reliable, ranging between 0.60 and 0.83. Assumptions of normality and homogeneity of variance were assessed: normality was assessed by establishing skewness and kurtosis, and Levene's test was employed to establish homogeneity of variance.

The results of the study showed that the data for all the factors were normally distributed, except for one (i.e., uncertainty about the future). An independent T-test had to be conducted on the data that were normally distributed to establish the difference between the experiences of stress among learners in the two groups (suburban and township school learners). The differences between the causes of stress were also established statistically using the Wilcoxon rank-sum test on the data that were not normally distributed.

The findings also helped to test the null hypotheses. The null hypotheses for the following were accepted: school environment; external pressure; learning and development; and familial. Also, the null hypotheses for the following stress factors were rejected: socio-economic factors; peer pressure; familial support; and academic pressure.

In the next chapter, the results of the study are discussed. Also, a synopsis of the study is presented, and intervention guidelines are outlined for the different stakeholders.

CHAPTER 5: SUMMARY, DISCUSSION, RECOMMENDATIONS, AND CONCLUSION

5.1 Introduction

The aim of this research was to identify and compare the experiences of stress among Grade 12 learners in suburban and township schools. The findings of the study are discussed in this chapter. An overview and synopsis of the study are also provided to answer the main research question: “What are the experiences of stress among Grade 12 learners and how do suburban and township schools differ in the experience of stress?”

Furthermore, recommendations are made, the limitations of the study are outlined, and recommendations are made for future research. Lastly, the significance of this research is discussed.

5.2 Summary of the research methodology

In order to meet the main aim of the study – namely, to compare the experiences of stress among Grade 12 learners in suburban and township schools – the research was guided by the research question, secondary research questions, and hypotheses. First, as already mentioned above, the main research question was, “what are the experiences of stress among Grade 12 learners and how do suburban and township schools differ in the experience of stress?” This question was supported by the following secondary research questions:

i) What are the main causes of stress according to literature?
ii) What do Grade 12 learners in suburban and township schools identify as experiences of stress?
iii) What are the differences and similarities in experiences of stress among Grade 12 learners in suburban and township schools?
iv) What recommendations can be made to stakeholders to minimise and manage stress among Grade 12 learners?

As mentioned above, that research was also guided by hypotheses. The following null hypotheses guided the study:

$H_0$1 *T*here is no difference in academic-related stress between Grade 12 learners attending township schools and their counterparts in suburban schools.

$H_0$2 There is no difference in the school environment between Grade 12 learners attending township schools and their counterparts in suburban schools.

$H_0$3 There is no difference in intrapersonal factors affecting Grade 12 learners attending township schools and their counterparts in suburban schools.

$H_0$4 There is no difference in socio-economic status between Grade 12 learners attending township schools and their counterparts in suburban schools.

$H_0$5 *T*here is no difference in uncertainty about the future between Grade 12 learners attending township schools and their counterparts in suburban schools.

$H_0$6 *T*here is no difference in peer pressure between Grade 12 learners attending township schools and their counterparts in suburban schools.

$H_0$7 There is no difference in family-related stress between Grade 12 learners attending township schools and their counterparts in suburban schools.

The following alternative hypotheses guided the study:

H_a1 *T*here is a difference in academic-related stress between Grade 12 learners attending township schools and their counterparts in suburban schools.

H_a2 There is a difference in the school environment between Grade 12 learners attending township schools and their counterparts in suburban schools.

H_a3 There is a difference in intrapersonal factors affecting Grade 12 learners attending township schools and their counterparts in suburban schools.

H_a4 There is a difference in socio-economic status between Grade 12 learners attending township schools and their counterparts in suburban schools.

H_a5 *T*here is a difference in uncertainty about the future between Grade 12 learners attending township schools and their counterparts in suburban schools.

H_a6 *T*here is a difference in peer pressure between Grade 12 learners attending township schools and their counterparts in suburban schools.

H_a7 There is a difference in family-related stress between Grade 12 learners attending township schools and their counterparts in suburban schools.

In the literature review, several causes of stress among adolescents were identified:

i) family-related stress – for example, stress caused by parents and other family members and also events in the family, for example, death of a close family member;
ii) worry about the future – for example, unemployment after studies, and placement in tertiary institutions;
iii) socio-economic stress – for example, alcohol and drug abuse, finances, globalisation, and violence;

iv) school environment – for example, stress caused by the school environment, such as depleted classrooms, too many learners in a classroom, and noisy classrooms;
v) peer pressure – for example, the relationship between peer pressure and other factors;
vi) intrapersonal – for example, suicide and body image;
vii) academic-related stress – for example, academic workload.

A detailed discussion on the approaches to stress – i.e., stimulus-oriented approach, response-oriented approach, transactional approach, and the COR approach – were also provided.

The conceptual framework for the study (transactional approach to stress) was discussed (§ 2.4). The transactional approach to stress presents stress as a product of transactions between persons and their environment (Sildo 2006). It also recognises individuals' ability to think and evaluate and interact with their environment (Silinda 2018). The conceptual framework for this study was based on the understanding that Grade 12 learners' experiences of stress – as indicated by their responses to the survey questionnaire – are informed by their perceptions of their interactions with their environment.

The sample consisted of 360 Grade 12 learners – 190 in township schools and 170 learners in suburban schools. Ultimately, learners in five township schools and four suburban schools in Gauteng province participated in the study. Purposive sampling was used to sample participants, as the researcher was confident that the participants were most representative of the characteristics of the population of interest to her.

The data were collected through a survey questionnaire which consisted of closed-ended questions as well as an open-ended question where the respondents were required to state three stress factors that were not covered by the closed ended-questions. Descriptive and inferential statistics were employed to analyse the data that emerged from the responses to the closed-ended questions. Content analysis was used to analyse data obtained from the open-ended question.

Moreover, Cronbach's alpha was used to establish reliability. In order to establish validity, EFA was used. The assumptions of normality and homogeneity of variance were also assessed. Normality was assessed by establishing skewness and kurtosis. Levene's test was employed to establish homogeneity of variance. After the assumptions of normality and homogeneity of variance were assessed, an independent T-test was conducted on the data for stress factors of which the data were found to be normally distributed. The T-test was conducted to establish the difference between the experiences of stress among Grade 12 learners in suburban and

township schools respectively. Also, concerning the data that were not normally distributed, the differences between the experiences of stress among Grade 12 learners in both groups were determined statistically using the Wilcoxon rank-sum test. Content analysis was employed to analyse the responses that emerged from the open-ended question. In addition, Grade 12 learners' responses were informed by their distinct backgrounds (suburban and township).

The researcher argued that learners would be able to point out what stressed them as informed by their relationships with their environments. As a result, their experiences of stress would differ from one environment to the next. In this study, learners' environment comprised the school environment and family environment.

5.3 Discussion of the empirical results

In the following sections, the empirical results are discussed in relation to the main research question, secondary questions, hypotheses, and literature.

The main research question was as follows: "What are the experiences of stress among Grade 12 learners and how do suburban and township schools differ in the experience of stress?" (§ 1.3.1). To elaborate on the main research question, the following secondary questions are discussed.

5.3.1 Secondary research question 1

What are the main causes of stress according to literature?

According to literature, the main causes of stress among adolescents are academic-related stress; family-related stress (under which the sub-factors were parent-related stress and death of close family member); worry about the future (unemployment after studies and placement in tertiary institutions); socio-economic factors (alcohol and drug abuse, finances, globalisation and violence); uncertainty about the future; peer pressure; and school environment.

The above causes of stress (see § 2.4.1–2.4.5) were the results of studies conducted internationally and in South Africa and other developing countries like India and Malaysia. The main results of the current study mostly confirmed the results of previous studies. There are slight differences. The results of the current study showed that the experiences of stress among Grade 12 learners are family related, uncertainty about the future, socio-economic factors, peer pressure, school environment, academic related, which are in line with findings

of studies. In the current study, external pressure and learning and development (§ 5.2) were also reported as causes of stress among Grade 12 learners. Stress factors related to external pressure and learning and development were, however, part of other stressors in the literature. Stress factors categorised under "external pressure" were "pressure from school", "pressure from educators", and "pressure from parents". These were discussed under academic-related stress and family-related stress in the literature.

Moreover, in this study (EFA), family-related stress and parent-related stress emerged as two independent stress factors, whereas in the literature, parent-related stress is often discussed by researchers under family-related stress; hence it was mentioned as such in the literature review chapter.

Furthermore, the results of the open-ended question revealed a stress factor that was not determined as a stress factor in the results of EFA but was determined as one from the literature review, namely physical-related stressors (see chapter 4). The above-mentioned stress factors are discussed further in § 5.3.2.

5.3.2 Secondary research question 2

What do Grade 12 learners in suburban and township schools identify as experiences of stress?

To answer the above-mentioned question, exploratory factor analysis (EFA) was employed in this study to identify the stressors. The results (§ 4.2.3.5) of EFA revealed the following stressors among Grade 12 learners in suburban and township schools: socio-economic; peer pressure; school environment; external pressure; uncertainty about the future; academic; familial; learning and development; and parent-related stress. The results obtained from EFA were also supported by the data that emerged from the open-ended question. The following stressors from the results of EFA were also indicated by the research participants: socio-economic; peer pressure; uncertainty about the future; academic; familial; learning and development; and parenting. "School environment" and "external pressure" were not supported by the results obtained from the open-ended question.

According to the results that emerged from the closed-ended questions, the highest-rated experience of stress among Grade 12 learners in suburban schools were as follows: uncertainty about the future; academic related; external pressure; and learning and development. The highest-rated experiences of stress among those learners in township schools were as follows: uncertainty about the future; external pressure; academic related;

familial; and learning and development (§ 4.2.3). Concerning the results that emerged from the open-ended question, the highest-rated stress factor, as pointed out by learners in both suburban and township schools, was academic related (§ 4.3). The latter result is supported by findings reported in the literature (e.g., Essel et al 2017; Hubbard et al 2018; Pascoe et al 2019).

Although an academic-related stress factor did not emerge from EFA (closed-ended questions) as the top stress factor, it still emerged as one of the top stress factors mentioned in § 4.3. The lowest-rated experiences of stress among Grade 12 learners in suburban schools were: peer pressure; socio-economic factors; parental related; intrapersonal; and school environment (§ 4.4). The lowest-rated experiences of stress among Grade 12 learners in township schools were: peer pressure; school environment; parental related; and socio-economic factors. It must be noted that both groups rated peer pressure as the lowest.

In the following paragraphs, the research findings are discussed in terms of how they either confirm or deviate from what is currently conveyed in the literature.

In the main, the results that emerged from both the closed-ended questions and the open-ended question are supported by the literature (§ 5.3.1). The stress factors mentioned above were ranked from highest (mean average of 4.08) to lowest (mean average of 2.33). In discussing the experiences of stress, the highest-rated stress factors by learners in both suburban and township schools are discussed first and the lowest-rated causes of stress are discussed second.

According to the EFA results, “uncertainty about the future” emerged as a top stress factor among Grade 12 learners in both suburban and township schools. The items under this stress factor were “finding a good university or college” and “university tertiary acceptance”. The responses that emerged from the open-ended question were “finding a good university”, “scared about paying school fees”, and “getting scholarship to further my studies”.

The stress factor “uncertainty about the future” is supported by the literature (Grupe & Nitschke 2013). This is also supported by Seiffge-Krenke et al (2012:258) in their study on adolescents across 18 countries: they found that adolescents experienced more future-related stress than school-related stress. Also, in South Africa, Strydom et al (2012:86) found that adolescents and youth worry about being unemployed in the future.

In addition, statistics by Trading Economics (2019) revealed that the youth unemployment rate in South Africa was 58.10% in the fourth quarter of 2019 from 58.20% in the third quarter of 2019. These high statistics may indicate uncertainty about the future.

In addition, the sub-stress factor “finding a good university” is supported by the literature (Muhumad 2010; Yusoff 2010). In both cited studies, it was revealed that getting placement in university caused stress among adolescents. The research participants in the study conducted by Yusoff (2010), for example, rated getting admission to a tertiary institution as the second-highest rated stress factor. Such a rating could be ascribed to media reports that state how difficult it is to get admission to institutes of higher learning in South Africa, especially universities, due to a lack of space at universities (BusinessTech, Jan 2017; City Press 2017). The constant reminder about lack of space at universities could be one of the reasons why this factor was rated as high by learners in both settings.

It was interesting to note, though, that unemployment as a cause of stress was not mentioned by either group of learners in the open-ended question. This is contrary to what was expected; one would have expected that it would be ranked as high due to the high youth unemployment rate in South Africa (Grossen et al 2017) and also because it has been reported in other countries as well (Inge & Seiffge-Kenke 2012; Katyal 2014).

The second-highest rated stress factor, according to both groups, was "external pressure". Specific items included "pressure from school", "pressure from educators", and "pressure from parents". Also, the following emerged from the open-ended question: "school pressure"; "exam mark not good enough"; "emotional", "physical abuse by teachers"; "pressure from family"; and "emotional abuse from family members". These results are also confirmed in the literature, for example, family was ranked as high in research conducted by Seiffge- Krenke and Persike (2013) in Costa Rica, Korea, and Turkey. Respondents in their research rated parent-related stress higher than peer-related stress. Also, as regards *pressure from school*, findings of the current study are in line with a study conducted by Deb, Strodl and Sun (2015) with 190 Grades 11 and 12 learners.

They found that two thirds of their research participants reported stress due to pressure from parents pertaining to academic performance. Academic-related stress was also rated as one of the top three stressors among Grade 12 learners in suburban and township schools (§ 4.2.1).

According to the results of the closed-ended questions, "academic-related stress" was the third-highest rated stress factor, whilst in the open-ended question, it was the second-highest

rated cause of stress. These findings are in line with research that was conducted internationally by Akande et al (2014), Essel and Owusu (2017), Hubbard et al (2018) and Pascoe et al (2019) – they confirmed that academic stress is one of the top causes of stress. A study by Timmermans and Rubie-Davies (2018) in New Zealand, for instance, found that some teachers had higher expectations for students in terms of understanding, being capable or knowledgeable in terms of studies, which resulted in higher stress in some students. These results are also supported by research conducted in developing countries (e.g., Prabu 2015; Sibnath et al 2015; Yusoff 2010). In Sibnath et al's (2015) study with Indian Grades 11 and 12 learners, two-thirds (63.5 %) of the learners ascribed stress to academic pressure. Furthermore, the results of this study are also supported in the South African context by Strydom et al (2012), who revealed schoolwork (81.4%) as the top cause of stress. It was also interesting to note that, although academic stress did not emerge as a top stress factor in the EFA results, it did in the open-ended question. This is also in line with other studies that highlight academic stress as a top stressor (e.g., Hubbard et al 2018; Pascoe et al 2019).

The fourth-highest rated stress factor reported in this current study is "family-related" stress. The sub-stress factors under "family-related" stress were "pressure from siblings"; "pressure from family members"; and "lack of financial support". The responses from the open-ended questions were “pressure from parents” and “I am stressed by making my parents happy”. Literature also supports the fact that lack of family-related stress could lead to stress (Bayat et al 2014; Kai-Wen 2010; Shin et al 2016). The results of a study conducted in South Africa with high school students, for example, found that lack of support from parents was one contributor to underperformance.

Also, Shin et al (2016) argued that excessive interference from parents could lead to adolescents experiencing stress at some level. It should be noted that the results of this study and the literature are more specific with regard to pressure from parents than pressure from family members. Also, in the literature, there seemed to be lack of research on pressure from siblings. This source of stress could be investigated further in the future.

Regarding the sub-stress factor "lack of financial support", the open-ended question provided support – “lack of finances” and “financial stress”. In the literature, this result is also supported by Kempf (2011), who listed the following as family stressors: “the failing economy, parents losing their jobs, receiving pay cuts, or losing benefits”.

The last highest-rated stress factor, according to the results of this empirical study, was learning and development (§ 4.2.3). Sub-stress factors that fell "under learning and

development" included "difficulty in understanding"; "having trouble understanding"; and "depleted classroom". Responses that emerged from the open-ended question in this regard were "not knowing answers to questions", "not writing all my subjects", and "not understanding with matric syllabus". Previous research does not report these findings per se but mostly refers to academic workload (Essel & Owusu 2017), which include extra homework and extra classes.

Regarding the sub-stress factor *depleted classroom*, some of the respondents raised the issue of dirty bathrooms as a cause of stress and not necessarily depleted classrooms. Although a dirty bathroom and a depleted classroom might not refer to the same thing, they both, however, refer to the issue of poor school environment, which has a negative impact on learning, consequently leading to stress among learners. The findings are supported by literature, which reports that poor school infrastructure and vandalised classrooms could be a source of stress (Ang'alika et al 2016; Motseke 2013; Najafi et al 2018).

The following stress factors were low-rated experiences of stress by respondents in both suburban and township schools, since their mean averages were below 3: peer pressure with a mean average of 2.33; parental factors with a mean average of 2.84; socio-economic factors with a mean average of 2.75; and school environment with a mean average of 2.88. Each of these are subsequently discussed.

First, the results of the closed-ended questions revealed that peer pressure was a stressor among Grade 12 students, and these findings were supported by the results that emerged from the open-ended question. The components of this stress factor in the closed-ended questions included "race", "exclusion from peers", "pressure to take alcohol and/or drugs", "ethnicity", "fashion", and "bullying". The following emerged from the open-ended question: "fitting with other people"; "influence from friends"; "bad influence from friends"; "bullying by peers"; and "pretty girls". Previous studies on the causes of stress also report that peer pressure could cause stress in adolescents (Bester 2019; Lal 2014; Mogobye 2011; Simuforosa 2013; Tlale 2016). Also, unlike this study, there is evidence that peer pressure is a top-rated stressor (Camara et al 2017).

Literature also shows that there is a relationship between drug abuse by adolescents and peer pressure because of the need of adolescents to conform to the values of peers (Mokoena 2002; Nova Recort Centre 2016). This was confirmed by statements made by the respondents, for example, "fitting with other people" and "bad influence from friends". In addition, parental factors were rated the second-lowest stress factor by Grade 12 learners.

The sub-stress factors under "parental factors" were as follows: "responsibilities/chores"; "parents and/or guardian relationship"; "not spending time as you would like with parents/guardian"; and "having hard time talking with parents/guardian". Responses to the open-ended question were “mom”, “relative sick”, “housework”, and “neglect”. These results are also confirmed by literature (Akande et al 2014; Seiffge-Krenke 2012; Seiffge-Krenke & Persike 2017; Simuforosa 2013) which shows that stress in adolescence is also parent related. Contrary to the findings of this study, the results of the studies conducted by Akande et al (2014), Inge and Simuforosa (2013), Seiffge-Krenke and Persike (2017), and Sibnath et al (2015) reveal that parent-related stress is rated as one of the top stressors.

The findings of this study may be explained by the fact that, in South Africa, the culture of respecting parents and obeying what parents say are still upheld, unlike in countries where the above-mentioned research was conducted where the respondents did not rate this stress factor as high.

The results of this study show that Grade 12 learners also experience socio-economic factors as stressful. Sub-stress factors in this regard include "transport"," food", "clothing", "school material", "personal hygiene", "uniform", "fees", and "socio-economic status". Socio-economic factors as a stressor were affirmed in research by Van Rooyen et al (2014), who concluded that young South Africans are constantly faced with socio-economic stressors and the ripple effects might have a negative effect on their mental health. Also, other researchers (Huli 2014; Mampane & Bouwer 2011; Ponnet 2016) report that alcohol and drug abuse, financial problems and violence could cause stress, thus supporting the results of the current study. However, as indicated earlier, "socio-economic" factors were a low-rated stress factor. This is contrary to the results in the literature that consider socio-economic factors one of the most important stressors (Hjerpe & Glass 2012; Ponnet 2016). Socio-economic stress factors as a cause of stress are also supported by the results that emerged from the open-ended question (§ 4.1.1). In their responses to the open-ended question, new aspects were raised by the respondents (§ 4.6), for example, strikes, government, religion, and crime. These should be researched further, seeing that, in the open-ended question, socio-economic stress factors were rated as high, which contradicts the results that emerged from the closed-ended questions, which show that the respondents rated socio-economic factors as low.

"School environment" was also rated as low by learners in both suburban and township schools. Sub-stress factors included "sanitation facilities"; "class size – too many learners"; "ventilation; poor lighting"; and "noisy classroom". The literature does not necessarily highlight this stressor as high- or low-rated. Literature does, however, indicate that issues in the school

environment such as poor ventilation, too many learners, etcetera, are challenges in South African schools, especially in township schools (Lewis 2011; Motseke 2013; Thompson & Haskins 2014). The researcher thus expected that the school environment would be rated as high by the research participants, especially those in township schools.

5.3.3 Secondary research question 3

> What are the differences and similarities in experiences of stress among Grade 12 learners in suburban and township schools?

In order to determine the differences and similarities among Grade 12 learners in suburban and township schools, the independent T-test was used for all stress factors of which the data were normally distributed and the variances were homogeneous. These were socio-economic, peer pressure, parent- and academic-related, school environment, external pressure, learning and development, and family-related stress (§ 4.2.2).

Also, the Wilcoxon rank-sum test was used for the "uncertainty about the future" stress factor, since the data were not normally distributed, and the variances were not homogeneous (§ 4.2.2).

The results of the independent T-test (§ 4.4) showed that there was a significant difference between learners in suburban and township schools as regards *socio-economic* factors, *peer pressure*, and *parent- and academic-related stress.* The results of the independent T-test also showed that there was no significant difference between the two groups as regards *school environment*, *external pressure*, *learning and development*, and *family-related stress*. The Wilcoxon rank-sum test also revealed that there was a significant difference between the two groups as regards *uncertainty about the future*.

The above-mentioned results therefore helped to test the hypotheses in this study. Table 5.1 is a schematic presentation of the hypotheses and whether they were accepted or rejected as per the results of the independent T-test and Wilcoxon rank-sum test.

Hypothesis No	Null hypothesis	Results
H_0**1**	There is no difference in socio-economic status between	Rejected

	Grade 12 learners attending township schools and their counterparts in suburban schools.	
$H_0$2	There is no difference in the school environment between Grade 12 learners attending township schools and their counterparts in suburban schools.	Rejected
$H_0$3	There is no difference in the intrapersonal factors between Grade 12 learners attending township schools and their counterparts in suburban schools.	Eliminated as its reliability status was low (§ 4.3.4).
$H_0$4	There is no difference in socio-economic status between Grade 12	

	learners attending township schools and their counterparts in suburban schools.	
$H_0$5	There is no difference in uncertainty about the future between Grade 12 learners attending township schools and their counterparts in suburban schools.	Accepted
$H_0$6	*T*here is no difference in peer pressure between Grade 12 learners attending township schools and their counterparts in suburban schools.	Rejected
$H_0$7	There is no difference in family-related stress between Grade 12 learners attending township schools	Rejected

	and their counterparts in suburban schools.

Table 5.1: Testing of the null hypotheses

Next, the null hypotheses that were rejected are discussed, followed by a discussion of the null hypotheses that were accepted.

Null hypothesis 1 was “there is no difference in academic-related stress between Grade 12 learners attending township schools and their counterparts in suburban schools”, and the *alternative hypothesis* was “there is a difference in academic-related stress between Grade 12 learners attending township schools and their counterparts in suburban schools”. The results of the survey showed that the null hypothesis was rejected, meaning that there was difference between suburban schools and township schools as far as academic-related stress as a cause of stress is concerned. In addition, in § 4.4, it was revealed that learners in suburban schools perceived academic-related factors as a greater cause of stress in comparison to learners in township schools.

The results of the current study concur with literature that learners from more affluent backgrounds may experience more academic pressure than learners from non-affluent backgrounds. Deb et al (2015) and Ganesh and Magdalin (2007), for instance, investigated academic stress in and the mental health of Indian high school students from both non-disrupted families and disrupted families. They found that learners from disrupted families were more likely to experience less academic stress than children from non-disrupted families. Deb et al (2015:26) and Ganesh and Magdalin (2007) added that learners from disrupted families get “less attention and guidance from their parents” than learners from non-disruptive families. Consequently, this reduces their academic stress, thus highlighting the negative impact of parental vigilance and persuasion on the academic lives of their children. In addition, learners in suburban schools were expected to perform better academically than their counterparts in township schools as suburban schools are better resourced and more disciplined than township school (Msila 2009). Grossen et al (2017) and Msila (2009) argue that parents of learners in township schools migrate their children to suburban schools as a result.

Null hypothesis 2 was “there is no difference in the school environment between Grade 12 learners attending township schools and their counterparts in suburban schools”, and the alternative hypothesis was “there is a difference in the school environment between Grade 12 learners attending township schools and their counterparts in suburban schools”. The survey results showed that ***the null hypothesis was accepted, and the alternative hypothesis was rejected***, meaning that there was no difference between learners in suburban schools and those in township schools as regards the school environment as a cause of stress.

The items under "school environment" were as follows: "sanitation facilities"; "class size – too many learners"; "ventilation"; "poor lighting"; and "noisy classroom". The independent T-test results revealed that both suburban and township school learners viewed the school environment as a cause of stress. These findings contradicted those by other researchers (Boqwana 2009; Lewis 2011; Motseke 2013; Thompson et al 2014; West & Meier 2020), who reported that township schools are characterised by poor sanitation facilities, overcrowding, poor lighting and ventilation, and high noise levels. These sub-factors could lead to stress among township learners (Benuto 2013; Skelton 2014).

However, as mentioned earlier, the results of the current study suggest that the above stress factor was viewed similarly by respondents in both groups (suburban and township schools). There could be various reasons why both groups rated this stress factor the same. It is possible that, even though suburban school environmental conditions were rated better than those of township schools, the respondents in suburban schools still viewed them as not ideal.

Overcrowding in South African public schools is underscored by West and Meier (2020), who claim that the current learner-teacher ratio is 33:1 and, in some instances, it could be as high as 50:1. In a statement released by the Minister of Education (2012) on the learner-teacher ratio in the country, the Minister stated that Gauteng and the Western Cape had ratios higher than the set national ratio of 30:1. These two provinces were thus experiencing overcrowding (Motshekga 2012) in schools. Therefore, it does not come as a surprise that learners in both settings regarded overcrowding as an issue, since both groups were situated in Gauteng province where classes were considered overcrowded (Motshekga 2012).

Even though Motseke (2012) characterised the school environments of township schools as untenable, suburban public schools might still view their situation as equally unconducive to learning due to their interactions with and comparison to private schools. The school environment in suburban private schools might be perceived as better than that in suburban

public schools, since private schools are designed to have better infrastructure and environmental conditions than public schools, hence the high school fees.

Null hypothesis 3 was “there is no difference in intrapersonal factors affecting Grade 12 learners attending township schools and their counterparts in suburban schools”, and the alternative hypothesis was “there is a difference in intrapersonal factors affecting Grade 12 learners attending township schools and their counterparts in suburban schools". The EFA results showed that intrapersonal stress was one of the causes of stress (§ 4.2.3). However, the results of the reliability test (Cronbach’s alpha) indicated that the reliability score was 0.41, which was below an acceptable rate. Hence, this stress factor and consequently, this hypothesis, were eliminated.

Null hypothesis 4 was “there is no difference in socio-economic status between Grade 12 learners attending township schools and their counterparts in suburban schools”, and the alternative hypothesis was “there is a difference in socio-economic status between Grade 12 learners attending township schools and their counterparts in suburban schools”.

The survey results showed that ***the null hypothesis was rejected, and the alternative hypothesis was accepted***, meaning that there was a difference between learners in suburban schools and learners in township schools as far as socio-economic status as a cause of stress is concerned.

Also, the independent T-test results (§ 4.1.1) showed that respondents in suburban schools rated socio-economic stress factors lower than respondents in township schools. Thus, learners in suburban schools, in comparison to learners in township schools, did not perceive socio-economic stress factors as a significant cause of stress. The items under "socio-economic" stress factors were "transport", "food", "clothing", "school material", "personal hygiene", "uniform", "fees", and "family economic status". The findings of this study showed that township school learners perceived socio-economic factors as more stressful than their counterparts in suburban schools. Literature supports the finding that learners in low-income socio-economic settings suffer due to lack of financial resources (Conger, Farley & Kim-Spoon 2017; Katyal 2014). The findings are further corroborated by the World Bank report (2014), which confirmed that most low-income groups in South Africa are located in townships.

Null hypothesis 5 was **“**there is no difference in uncertainty about the future between Grade 12 learners attending township schools and their counterparts in suburban schools”, and the alternative hypothesis was “there is a difference in uncertainty about the future between Grade 12 learners attending township schools and their counterparts in suburban schools”.

The survey results showed that the ***null hypothesis was accepted and the alternative hypothesis was rejected***, meaning that there was no difference between suburban and township school learners as regards *uncertainty about the future* and *post-matric educational opportunities*. Concerning "uncertainty about the future", the items under this category, according to EFA, were "finding a good college or university" and "tertiary acceptance". Over the past few years, it has become increasingly difficult for learners to get admission to a good South African university due to lack of space at these institutions.

The above finding was echoed by reports in BusinessTech (2017): reportedly at the time, there was not enough space at South African universities to accommodate even half of the learners who qualified to enrol for a bachelor's degree, and also, getting admission to universities had become more difficult over the previous two years. The researcher is of the view that suburban school learners are more likely to experience more pressure to maintain their family's good standard by finding a good college and getting tertiary acceptance. It is a common assumption that parents who can afford to stay in the suburbs have a good education and good jobs; thus, emphasis on the future is higher than in townships. Children are also more likely to be influenced by their parents, or they want to emulate their successful parents. In suburban schools, therefore, there is more concern about post-matric opportunities than in township schools.

Null hypothesis 6 was “there is no difference in peer pressure between Grade 12 learners attending township schools and their counterparts in suburban schools”, and the alternative hypothesis was “there is a difference in peer pressure between Grade 12 learners attending township schools and their counterparts in suburban schools”. The survey results showed that the alternative hypothesis was accepted, meaning that the learners in suburban schools and their counterparts differed with regard to peer pressure as a cause of stress.

Also, the independent T-test results further showed that the respondents in suburban schools rated *peer pressure* lower than their counterparts. There was a significant difference between the means of *peer pressure* in the two groups. This indicates that learners in township schools perceived peer pressure as a greater cause of stress than learners in suburban schools (§ 4.4.1).

Regarding peer pressure, its components, or sub-stress factors, as per the EFA results, were "race", "exclusion from peers", "pressure to take alcohol and/or drugs", "ethnicity", "fashion", and "bullying". The results of this study (§ 4.5) revealed that respondents in township schools perceived peer pressure as a greater cause of stress than their suburban counterparts. This

is in line with statements by Hendricks (2015:99) and Jack (2013) that, in underprivileged communities, identity is an important element in the formation of groups and safety.

Having a sense of belonging becomes imperative in maintaining group relations for safety, which further contributes to a sense of place, respect, and protection (Hendricks 2015:99; Jack 2013).

In addition, learners in township schools might experience peer pressure to drink alcohol or take drugs more than suburban learners do because of high unemployment rates in townships. Alcohol consumption in public and in the eyes of pupils in townships makes it easier for adolescents to conform, as alcohol consumption is modelled as second nature. The opposite is true for suburban schools. In suburbs, the consumption of alcohol tends to be a matter of closed doors, after hours, or at places outside school. In addition, learners in suburbs have better ways to keep themselves occupied than those in townships, which could restrict their exposure to the normalisation of alcohol consumption.

Linked to peer pressure is the issue of self-identity. In South African townships, especially in Gauteng province, there is a sub-culture called "*izikhothane*" (Langa 2018; Richards 2015). The term "*izikhothane*" means those who "lick" (City Press 2012). *Izikhothane* are teenagers who buy luxurious clothing to trample on them and burn them as a show-off to their friends (Langa, 2018; Richards 2015). Richards (2015) says that this group is also concerned with music and dance and are highly influential to the community. Learners in township schools where *izikhotane* are prominent could be easily influenced to pay a lot of attention to fashion, and when the expectation is not met, it could be a source of stress; hence, this stress factor was indicated by township school learners as a greater source of stress than by suburban school learners.

Null hypothesis 7 was "there is no difference in family-related stress between Grade 12 learners attending township schools and their counterparts in suburban schools", and the alternative hypothesis was "there is a difference in family-related stress between Grade 12 learners attending township schools and their counterparts in suburban schools". The survey results showed that ***the null hypothesis was accepted***, meaning that there was a difference between suburban school learners and township school learners as far as family-related matters as causes of stress are concerned.

It was also mentioned in § 4.4.1 that respondents in suburban schools scored family-related stress lower than their counterparts. This indicates that learners in township schools perceived family-related matters as a greater cause of stress than learners in suburban schools. The

stress items that fell under the "family-related" stress factor were "pressure from siblings", "pressure from family members", and "lack of financial support". As regards finances and family, the literature also supports these results (Friedline, Chen & Morrow 2020; Kahn 2006; Sturgeon, Zautra & Okun 2016). Kahn (2006), for example, argues that financial difficulties can cause difficulties in relationships with family and friends.

Also, the results of this study are also attested by Friedline et al (2020), who conducted review research on families' financial stress and wellbeing published in JFEI between 2010 and 2019. They found that families with inadequate income or wealth were more prone to stress than families with adequate income or wealth. However, although Sturgeon et al 2016 agree with the latter finding to some extent, they also make the argument that families from a high socio-economic background maybe more prone to financial stress than families from low socio-economic backgrounds.

Lastly, as indicated in § 4.4.1, stress factors that were not part of the hypotheses emerged from the EFA results. The similarities and differences between Grade 12 learners in suburban and township schools with regard to these stress factors are discussed in the following paragraphs. These stress factors are "parental" stress factors, "external pressure", and "learning and development".

First, external pressure is discussed. The following were the items under this category: "pressure from school", "pressure from educators", and "pressure from parents". These findings are in line with results reported in previous studies. Studies that have been conducted in different countries, including South Africa, show that adolescents experience pressure from school, educators and parents (Nguyen et al 2013; Strydom et al 2012; Yusoff 2010). Studies conducted in different parts of the world, such North America, Europe, Eastern Europe, and Scandinavian countries, also show that adolescents experience pressure from parents, school and educators (Klinger, Freeman, Bilz, Liiv, Ramelow, Sebok, Samdal, Dür & Rasmussen 2015; Tlale 2016). Furthermore, a study that was conducted in Vietnam (which is regarded as a developing country like South Africa) revealed that the mental health problems experienced by learners can be ascribed to pressure from parents and teachers wanting learners to succeed and pressure from the overloaded curriculum (Nguyen et al 2013).

In addition, a study conducted by Strydom et al (2012) in South Africa confirmed that parents and teachers put pressure on learners by expecting them to perform well academically in order to better their chances for university entry.

The above-cited studies thus confirm that external pressure is a universal phenomenon, hence learners in different settings may view external pressure similarly.

In addition, this study established that external pressure was a common factor in both suburban and township school contexts. This could be ascribed to pressure by the DBE on all schools to perform better at the end of the matric year, whether township or public school. Every year, the Minister of Basic Education in South Africa awards top-performing schools by announcing them and learners who have excelled in the schooling year on live television. These announcements, getting trophies, being recognised by other schools as a “top-performing school” and public recognition are psychological incentives for public schools to perform better. The expectation and pressure to perform well could influence provinces, districts, schools, teachers, and learners to perform better in the schooling year.

Second, parental-related stress factors were highlighted. The items under this category were "responsibilities/chores"; "parents and/or guardian relationship"; "not spending as much time with parents/guardian"; and "having hard time talking with parents/guardians". Both suburban and township school learners perceived or rated parental stress factors the same. Seiffge-Krenke and Persike (2017) argue that adolescents experience conflict with their parents because they strive towards establishing more “mature, egalitarian relationships”.

The drive to seek autonomy often causes a strain in their relationships with their parents. Conflict between parents and adolescents are the same for suburban and township school learners. Pryor and Pattison (2014:72) explain that parent-adolescent conflict is usually centred on “high emotional content, behavioural changes in parents, and lack of resolution”. The sources of conflict, as suggested by Pryor and Pattison (2014), indicate the universality of the parent-adolescent relationship.

Lastly, regarding learning and development stress factors, the items under this category were "difficulty in understanding", "having trouble studying", "depleted classrooms", and "taking a gap year". According to Xio (2013), research does not indicate what learners may have trouble understanding and studying; it does, however, reveal that having trouble understanding is linked to academic-related stress factors.

5.3.4 Secondary research question 4

What recommendations can be made to stakeholders to minimise and manage stress among Grade 12 learners?

The following recommendations are made to minimise and manage stress among Grade 12 learners. These recommendations are made to both internal and external stakeholders responsible for Grade 12 learners in suburban and township schools.

As stated in § 2.2, there is bad stress and good stress. The consequences of a bad stress were discussed extensively in § 2.2. The focus of this study was to investigate Grade 12 learners' experiences of bad stress. The recommendations are aimed at helping Grade 12 learners manage and/or reduce “bad stress”. In the following sub-section, recommendations are made for practice, policy, and future research.

5.3.4.1 Recommendations for practice, policy, and future research

5.3.4.1.1 Recommendations for practice

The first set of recommendations are based on the top five experiences of stress as indicated by the EFA results for both settings.

The second set of recommendations are specific to township schools as informed by the independent T-test and Wilcoxon rank-sum test results. Recommendations that are suburban-focused or -specific are not discussed, since they were covered in the discussion of the top five experiences of stress. Furthermore, a recommendation is made based on the results of the open-ended question. Lastly, general recommendations that may be applicable to all stress factors, whether high or low, in both settings are made.

The following recommendations were informed by the top stress factors identified in both suburban and township schools as mentioned above. The top stress factors were "uncertainty about the future", "external pressure", "family-related stress", "academic-related stress", and "learning and development".

5.3.4.1.1.1 Recommendations addressing uncertainty about the future

The items under this factor were "admission to institutions of higher learning" and "finding a good tertiary institution".

Recommendation 1: Hold information-sharing symposiums. Schools can invite stakeholders that deal with admissions to post-matric educational institutions at an annual information-sharing symposium. Various stakeholders can present education and/or training opportunities available at their respective institutions and can provide learners with information on their various institutions' admissions protocols.

A school or group of schools in close proximity to the school can, for example, organise such a symposium for learners in suburban and township schools, and learners may attend it twice. The first symposium can be held for the learners while they are still in Grade 11, and the second one can be held when they are in Grade 12. The main objective of such a symposium would be to reduce the stress levels in the upcoming Grade 12 class by exposing the learners to information on post-matric opportunities. Also, such a symposium would create an opportunity for teachers, learners, and parents to engage with each other and also to equip them with information. In the following paragraphs, suggestions are made regarding the stakeholders who can participate in such a symposium and the different roles they can play.

First, it is proposed that the main stakeholder (the learner) interacts with all the stakeholders that are attending the symposium in order to gather information on post-matric opportunities. To monitor that the learners interact with as many stakeholders as possible, the stakeholders can, for instance, be asked to give each learner a stamped sticker after attending the session. The learner should be encouraged to paste a sticker received after each station in a booklet specifically created for the symposium which is later shown to the relevant monitors. Other ways to monitor maximum attendance by learners, other than the latter, can be discussed by the organisers of the symposium.

Stakeholders that can also be present in the symposium are educators for both Grades 11 and 12 learners. The role of educators would be to inform learners about how they can help them with the application process to institutions of higher learning so that learners know upfront. Educators can develop a comprehensive system to support learners, for example, by deciding on dedicated times when they can help with the application process and, more importantly, to avail the information to learners. Educators can distribute feedback questionnaires to learners to determine whether their expectations have been met. Such a feedback questionnaire would lay the foundation for preparation for the next symposium.

In addition, another important stakeholder that can be present at the symposium are parents/guardians of learners. They will be encouraged to seek information and ask questions to educate themselves regarding the admission processes of various institutions. They can ask about the opportunities available for their children and how they can help them with the process of acquiring those opportunities without raising stress levels in their children.

Furthermore, higher education institutions – universities, FETs, colleges, specialist training institutions, and Sector Education and Training Authorities (SETAs) – can be stakeholders in the suggested symposium. The purpose of their participation in the symposium would be to exhibit their products to learners and to inform learners, educators, and parents/guardians about their admission criteria, funding process, and related issues. This can be a traditional career exhibition where each exhibitor occupies its specific space and has an interactive dialogue with the client or customer. Also, institutions can also be allocated a slot to present a formal session. The organisers can be encouraged to group those offering the same/similar products, for example, universities, so that the end-user can easily make comparisons.

Also, another critical stakeholder can be institutions advising and coaching on self-employment opportunities, for example:

- National Youth Development Agency
- Youth Employment Agencies
- Industrial Development Zone
- Department of Small Business Development and Enterprise.

The role of these institutions would be to inform learners on self-employment opportunities for youth and how to access funding and other resources. These institutions can be encouraged to bring along people (especial youth) they have assisted in the past so that learners can see that the assistance they offer is real and not theoretical.

Also, institutions that offer funding for tuition fees – for example, the National Student Financial Aid Scheme – can participate in the symposium. The role of such funders would be to inform learners about their funding opportunities.

In addition, representatives of the Department of Employment and Labour would also be crucial to the suggested symposium. The Department of Employment and Labour has registered career counsellors that can offer guidance to learners who are not yet certain about their career choices. These career counsellors are trained registered psychometrics and

registered counsellors – in other words, they would be able to render comprehensive career counselling that entails psychometric assessment. Also, the job of career counsellors is to offer employment counselling, which includes coaching clients on how to draft a curriculum vitae, how to look for a job, and how to conduct oneself during a job interview. The career counsellors can be requested to present such psycho-educational programmes at the symposium.

Lastly, the role of psychosocial and psychoeducational service providers, like registered counsellors and psychologists, would be to make learners, and especially parents/guardians and the school, aware of their counselling services and referral processes.

A second symposium can be held in the following year, preferably in the first semester, since the second semester is generally busier with all focus put on preparation for the final examinations. Such a symposium would be informed by the needs of the learners as indicated in the feedback questionnaires completed by all stakeholders during the previous year's symposium.

Recommendation 2: Information process for student admissions. Parents/guardians can create opportunities for their children to visit institutions of higher learning to obtain information on their admission processes. Also, they can create opportunities for their children to undergo career counselling and job shadowing. In cases where the preferred course requires one to undergo selection procedures, like assessment and interviews, parents/guardians should take the necessary steps to prepare their children beforehand so as to prepare them for the assessments and interviews. Prior preparation would help to reduce stress levels. In addition, parents/guardians must be encouraged to seek outside help like counselling when they feel and think that there seems to be communication breakdown between them and their child when pursuing post-matric educational opportunities. Parents/guardians can also organise themselves into support groups so that they can share information among themselves and for the purposes of creating emotional support.

5.3.4.1.1.2 Recommendations to address external pressure and family-related stressors

These two stress factors are grouped because the recommendations are applicable to both. In this study, external pressure stress factors entailed "pressure from parents", "pressure from school" and "pressure from educators".

Family-related stress entailed "pressure from siblings", "pressure from family members" and "lack of financial support". The following recommendations are made for parents, schools, educators, and learners.

Recommendation 3: Parent-child (learner) relationship building sessions. Parents should be encouraged to attend workshops and/or seminars that can enhance their relationship with their children. They can attend psycho-social workshops, for instance, on topics like parenting skills, effective communication skills with one's child, and dangers of pressuring children. Research shows that the main cause of conflict between parents and their children is pressure exerted by parents on their children to perform academically (Jayanthi, Thirunavukarasu & Rajkumar 2015). It is also proposed that parents help to create a conducive learning environment for their children. Such skills can be acquired through workshops and seminars conducted by psychologists, registered counsellors, and/or social workers.

Recommendation 4: Financial transparency literacy for parents/guardians. Financial literacy should be provided to parents so that they can be transparent with their children regarding their financial wellness. Most banks (e.g., the Johannesburg Stock Exchange) conduct free financial empowerment workshops for both customers and non-customers in order to enhance their financial wellness as their way of giving back to the community.

Parents/guardians can be encouraged to participate in such workshops as they would benefit, in turn, reducing stress. The group can be led by a mental health official, for example, a social worker.

5.3.4.1.1.3 Recommendations to address academic-related and learning and development stress factors

Recommendations to address academic-related and learning and development stress factors are made as both address education-related issues. Items under "academic-related stress" included "increased workload" and "excessive homework" (difficulty in understanding; having trouble understanding; and depleted classrooms). The following recommendations are made to address these stress factors.

Recommendation 5: Manage the Grade 12 syllabus. The school together with educators can arrange that the syllabus for Grade 12 learners be completed at least a month before the examination starts to help the learners focus on revision and preparations for examinations and not to worry about excessive homework that is linked to the syllabus. Where possible, the

Grade 12 syllabus can be started after Grade 11 examinations to reduce the workload in Grade 12.

Recommendation 6: Structured homework classes. To help manage stress due to excessive homework, a school together with educators can arrange to have a structured homework class. In such a class, learners can be allowed to help one another with homework. Such homework classes can be under the supervision of a Grade 12 educator or tutor who would also play a significant role in helping with homework-related questions.

Recommendation 7: Educators' health and wellness should be promoted. The school, working in collaboration with the DBE, can create a conducive environment for educators. Educators can attend workshops focused on assertiveness skills, communication skills, time management skills, etcetera. After being empowered at such workshops, educators can in a positive manner best stretch learners to achieve excellence and success. Also, school principals and staff members should encourage their colleagues to undergo an employee health and wellness programme should the need arise so that they can be healthy to serve their clients (i.e., learners) well.

Recommendation 8: Educators should receive training on identifying learners who need health and wellness intervention. Educators can be trained on how to identify and refer learners to relevant healthcare practitioners, such as psychologists, or medical practitioners, depending on the need.

Recommendation 9: Psychologists should conduct workshops aimed at helping learners deal with excessive workload and excessive homework. An example of such a workshop is time management skills. Psychologists can intervene and aid learners who do not show improvement by providing them with either group or individual counselling.

Recommendation 10: Support group formation. Learners can be encouraged to create study groups to help and coach each other to understand the learning material. They should be able to approach their educators as soon as possible when they have trouble understanding their schoolwork. At the same time, parents/guardians whose children are in Grade 12 should be encouraged to form support groups. These groups can share their concerns about their children, their readiness and/or seriousness with their studies, and what frustrates them. Sharing common experiences may help them cope with concerns and frustrations.

Recommendation 11: Continuously assess schools' physical state/infrastructure. Representatives of the DBE should visit schools continually and assess their physical state to make timeously repairs when needed. All stakeholders involved in the education of learners need to understand that, for learners to be able to produce good results in Grade 12 (something the government aspires), a great environment for learning and development of learners must be created. Learners who are studying in depleted classrooms may have difficulty reaching their optimal potential. Also, school principals can take the lead in preventing classrooms from reaching a depleted state by timeously involving all the stakeholders.

5.3.4.1.1.4 Recommendations specific to township schools

The independent T-test and Wilcoxon rank-sum test results showed that there were significant differences between suburban and township Grade 12 learners as regards their experiences of stress. The following recommendations are made for township schools with specific focus on addressing socio-economic stress factors and peer pressure.

Recommendation 12: **Collaboration between government departments to address socio-economic challenges.** Schools can organise social partners or government departments and relevant stakeholders to address socio-economic challenges. Government departments that can be contacted by schools include the Department of Social Development; Department of Health; the Department of Sports and Recreation; and South African Police Services (SAPS). In the following paragraphs, recommendations are made as to the roles that can be played by said government departments.

First, as mentioned in § 4.2.4.2, in this study, all the child-headed homes were located in the townships. Thus, it would be helpful if the Department of Social Development can help child-headed homes by assessing their social needs, for example, how to access child social grants and other resources. Such proactive help from government would alleviate some pressure experienced by such learners. This may also help to avert related stress.

The Department of Health can play a role by addressing socio-economic challenges experienced by Grade 12 learners in townships which result in them experiencing more stress compared to suburban learners. Mental health officials – for example, psychologists and registered counsellors – conduct counselling and clinical services for learners, whilst medical staff – for example, doctors and nurses – can help by providing information on medical health and testing for various diseases that are most prevalent among Grade 12 learners. If these health practitioners visit schools regularly, it would save learners time and money and contribute to better stress management.

In addition, the Department of Sports and Recreation can also share programmes that assist one to become physically and mentally fit.

Furthermore, the role of SAPS would be to inform learners about their services, especially about procedures of reporting a crime, witness protection, and the rights of children, as it has been established that there is an element of gangs and violence in township schools.

Recommendation 13: Present psycho-educational workshops. Learners can be encouraged to attend workshops that are aimed at resisting peer pressure and attending to issues around self-esteem, assertiveness, relationship building, and diversity management and learner sensitivity. Such workshops can be organised by the school in collaboration with the Department of Social Services (to avail their social workers) and the Department of Health, especially the district office (to avail their psychologists). Also, schools can organise SAPS and the Department of Correctional Services to share with learners the negative aspects of peer pressure. They can bring inmates who ended up at correctional services because of peer pressure.

5.3.4.1.1.5 Recommendation based on the open-ended question

As mentioned in § 5.3.2, the results of the open-ended question presented a stress factor that did not emerge from the results of the closed-ended questions. Under "physical stress", items like "lack of sleep" were mentioned. The researcher deems it suitable to make a recommendation that is aligned with the latter. Various role players can inform Grade 12 learners about either reducing or managing the problem of lack of sleep.

Recommendation 14: Sleeping pattern monitoring approach. The school can play a key role by making it compulsory for learners to attend physical education classes. Schools in close proximity can share costs and arrange a wellness seminar for learners where biokinetics, dieticians, medical doctors, and nutritionists, for example, can share strategies on how one can manage sleep and keep fit.

5.3.4.1.2 Recommendations for policy

Recommendation 15: Learner admission processes should be re-evaluated. Different institutions of higher learning should re-evaluate their learner admission processes. Admission processes need to be evaluated, as incidents of stampedes occur at these institutions. In addition, due to the COVID-19 pandemic in 2020, institutions were forced to suspend their face-to-face learning contacts and resort to online learning. Henceforth, institutions of higher

learning can increase intake of students by enrolling those who choose to enrol in online classes, thus eliminating the admission burden. Also, as a long-term goal, policymakers can lobby for more universities to be built, since research shows that there is a shortage of universities in South Africa (see § 2.4.11.1).

Recommendation 16: Design and implement an inclusive citizenship programme. The DBE and the Department of International Relations and Cooperation should collaborate to introduce an inclusive citizenship programme in schools. This programme can be introduced to learners earlier in their school career. The purpose of such a programme would be to teach learners about values, responsibilities of citizens, how important patriotism is, and that patriotism starts by taking care of property. This recommendation is proposed against the background that, in some instances, the bad state of school property can be ascribed to learners' negligence.

5.3.4.1.3 General recommendations

Lastly, the following general recommendations are made to help any learner in any stressful situation and environment.

Recommendation 17: Psychologists should conduct individual and group counselling sessions that are aimed at boasting psychological strengths with a view to managing stress. Psychological strengths that can be boasted include self-esteem and resilience (Harrison et al 2019:11). Studies show that individuals with low self-esteem are likely to experience higher levels of stress than individuals with high levels of self-esteem (Behnke, Plunkett, Sands & Bámaca-Colbert 2011:1180; Steiger, Allemand, Robins & Fend 2014:325).

Strengthening one's resilience is another psychological strength that psychologists can focus on to help Grade 12 learners. Research suggests that resilience helps adolescents to resist stressors they might face (Skrove, Romundstad & Indredavik 2013:407). Also, a study conducted on Rwandan youth who had experienced trauma showed that resilience was negatively associated with depression. The conclusion was that resilience is instrumental in preventing mental health problems (Scorza, Duarte, Stevenson, Mushashi, Kanyanganzi, Munyana & Betancourt 2017:873).

Recommendation 18: **Schools, teachers and parents/guardians should encourage learners to tap into social support that can be provided by parents and peers.** Studies have shown that social support can be another way of reducing stress in adolescents (Camara et al 2017:12; Gathol 2017:38; Griffiths, Crisp, Barney & Reid 2011). Emotional support is one

way of offering social support. It is offered by friends and family and is critical in the management of stress. According to research conducted by Griffiths et al (2011), emotional support is superior to other support that can be provided to learners when they are experiencing stress.

Recommendation 19: Activate psycho-support networks and close collaboration with psychologists. Psychologists who are based at district level at the DBE can be approached. The role of educational psychologists would be to facilitate psychoeducational and psychosocial workshops. Also, they can regularly assess learners to determine their stress levels. This would help psychologists to implement appropriate therapeutic interventions (e.g., biofeedback sessions) when learners' stress levels are high.

As the psychologists at district level at the DBE are fewer compared to their number of clients, the psychologists can provide psycho-support by themselves. This is therefore necessary to activate and strengthen other psycho-support networks that may be relevant for Grade 12 learners, such as the South African Anxiety and Depression Group, Lifeline South Africa, and SCREMZA (Scream SA).

Recommendation 20: Schools should facilitate the creation of a "stress management buddy system" whereby learners are given a forum to vent their frustrations. Meetings can be held on a weekly basis or as the need arises. A "stress buddy system committee" can also invite people whose careers involve a lot of pressure, for example, athletes and paramedics. Sports coaches and/or players, for example, can share with learners how they cope with pressure when facing big games. Such tactics, being life lessons, are transferable and learners can apply them in their own "pressure situations".

Recommendation 21: Schools should create an emergency pamphlet with all the contact details of mental health professionals (for example, the contact details of a psychologist who is a regular at the school) and mental institutions, for example, contact details of the South African Depression and Anxiety Group. The school in collaboration with the learners can create a funky name for such a pamphlet in order to demystify issues around mental health and to create a sense of ownership for learners. The pamphlet must be easily accessible and readily available. Lastly, the school can create a pleasant environment that is open for learners and parents to contact them whenever the need arises.

In conclusion, all the recommendations are aimed at helping Grade 12 learners in suburban and township schools cope with different stressors they may experience. Various methods

can be employed to cope with and manage stress (as per the recommendations in above paragraphs). There is no one-size-fits-all approach. This fits the transactional approach of coping with stress on which this study was based: successful coping requires one to adjust and change coping strategies (Heffer & Willoughby 2017).

5.3.4.1.4 Recommendations for further research

First, a study that compares experiences of stress among Grade 12 learners in all the nine provinces of South Africa would be more representative of the South African population, thus giving such research more depth.

Also, studies that investigate the following would be beneficial: differences between Grade 12 males and females; rural versus urban; and privately educated versus publicly educated Grade 12 learners.

In addition, there is a need to conduct a comprehensive study where all research participants' stress levels are first assessed. Thereafter, the participants that show high levels of stress, as indicated by the chosen stress test, are allowed to complete a questionnaire on the causes of stress. The researcher contends that findings in such a study may be more truthful than the results of research conducted with participants who show either low or moderate stress levels.

Furthermore, a qualitative study of the experiences of stress among Grade 12 learners can assist in getting more depth and detail, since such a research design creates openness by allowing research participants to elaborate on their responses.

Finally, the results of this study showed that peer pressure was rated the lowest by Grade 12 learners. This contradicts the literature which shows that peer pressure is ranked one of the top stressors among adolescents. A study to investigate the reasons behind these results would be interesting.

5.4 Unexpected results

It was hypothesised that there would be differences between Grade 12 learners in township schools and their counterparts in suburban schools as far the causes of stress are concerned. Although the results of this study showed that there were differences, the results also showed that some stress factors were rated the same by both suburban and township school

respondents, namely school environment, external pressure, learning and development, and family-related stress.

Also, it was unexpected that the highest- and lowest-rated stress factors by Grade 12 learners in both suburban and township schools would be very similar. As stated in § 4.3, "uncertainty about the future" was rated the highest stress factor by respondents in both settings.

Furthermore, another unexpected result was that the lowest-rated cause of stress among Grade 12 learners in suburban and township school was the same, namely, peer pressure § 4.3. That outcome was contrary to the hypothesis that "*there is difference in peer pressure between Grade 12 learners attending township schools and their counterparts in suburban schools*" (§ 5.2.1).

The finding that peer pressure was not rated as a top experience of stress by Grade 12 learners in both settings contradicted previous research which show that peer pressure is ranked among the top causes of stress (Camara et al 2017; Gathol 2017:40; Lal 2014).

It was also unexpected that a new stress factor would emerge from the open-ended question, namely physical stress. This stress factor proved to be important, as it was identified by learners in both suburban and township schools.

It was not expected that the results produced by the closed-ended questions would differ from the results obtained from the open-ended question. The results of the closed-ended questions, for example, revealed post-matric opportunities to be the top source of stress for learners in both settings. The results of the open-ended question, however, revealed that the top stress factor for suburban school learners was academic-related stress, whilst the top stress factor for township school learners was socio-economic related.

5.5 Limitations of the study

- The results of the study cannot be generalised, since purposive sampling was used.
- Although this quantitative study also included an open-ended question, it would have been more beneficial if interviews were conducted as well so as to get deeper insights into the causes of stress among Grade 12 learners.
- It can be argued that the closed-ended questions could have been formulated better so that all the stress factors could have had higher reliability.

5.6 Contributions to the study

At the time of this study, the researcher was not aware of a study of this nature that had been conducted in South Africa. This study is thus important, as it provides information on the experiences of stress specific to Grade 12 learners and, more importantly, the different settings in which they found themselves (i.e., suburban and township schools). Studies that have been conducted in South Africa focus on the experiences of stress among educators, not Grade 12 learners.

The researcher hopes that this study will contribute to the awareness of stakeholders responsible for Grade 12 learners of the experiences of stress among these learners. Stakeholders should be aware of the stressors these learners experience during this important period of their educational lives which could have negative consequences if they go unchecked. It is hoped that the recommendations provided in this study will be received with an open mind by stakeholders. It is also hoped that the study will pick their minds so that they can suggest solutions to the problem. For the primary stakeholders (Grade 12 learners), the recommendations may help them to reach their optimal health and wellness by managing stressful situations better.

5.7 Final conclusion

The main research question of the study was as follows: “What are the experiences of stress among Grade 12 learners and how do suburban and township schools differ in the experience of stress?” The EFA results revealed that stress experienced by Grade 12 learners were socio-economic factors; peer pressure; school environment; external pressure; uncertainty about the future; academic; familial; learning and development; and parent-related stress. The findings also showed that the top three stressors experienced by both groups (Grade 12 learners in suburban and township schools) were similar; the ranking of and emphasis placed on the stressors differed, however.

Moreover, the top stress factor identified by learners in both settings was "uncertainty about the future", specifically regarding admissions to institutions of higher learning. This implied that Grade 12 learners in township schools worried as much as learners in suburban schools about their future prospects. Media may have a role to play in creating this stressor, as they always report on admission problems to universities in the country.

In addition, the independent T-test and the Wilcoxon rank-sum test were employed to establish the differences in the experiences of stress between Grade 12 learners in suburban schools and their counterparts in township schools. The independent T-test was used on the stress factors of which the data were found to be normally distributed and showed homogeneity of variance, whilst the Wilcoxon rank-sum test was used on one stress factor (uncertainty about the future) of which the data were not normally distributed. The results of both tests led to some null hypotheses being accepted and to other null hypotheses being rejected. Some stress factors were more prominent in a specific setting than the other; for example, socio-economic stressors, lack of family-related stress, and peer pressure were more prominent among the learners in township schools than those in suburban schools.

This may be indicative of our history of apartheid where townships were neglected by the government as compared to the suburbs. It seems that this situation – i.e., learners in townships experiencing more socio-economic challenges than learners in suburbs – is prevailing, even after 26 years of democracy.

Uncertainty about the future and academic-related stressors were more prominent among learners in suburban schools. This may be indicative of the pressure that children from the middle class are experiencing from the parents about the future.

In light of the findings of this study, recommendations were made for relevant learning and development of internal and external stakeholders. The proposed recommendations are aimed at managing and reducing stress levels of Grade 12 learners in each setting. As indicated in chapter 2, stress is both good and bad, and it is hoped that good stress will continue to propel Grade 12 learners to perform better and that the recommended strategies to either reduce or manage stress assist in improving their health and wellness.

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Annexure A: Survey questionnaire

A PSYCHO-EDUCATIONAL COMPARISON OF STRESS AMONG GRADE 12 LEARNERS IN SUBURBAN AND TOWNSHIP SCHOOLS – SURVEY

INSTRUCTIONS

- Kindly respond to the questions below by circling on the appropriate number or answer.
- You need not to write your name, your information will be kept strictly confidential.
- There is no right or wrong answer.

Please Note: Although you have already handed in your assent form you may withdraw from participating in this study if you so wish.

SECTION A Kindly respond to the questions by encircling an appropriate number, for example		
(1) Setting	(1) = Township	2 = Suburb
SECTION B BIOGRAPHICAL INFORMATION Kindly respond to the questions by encircling an appropriate number, for example		
(2) Gender	1 = Female	(2) = Male
(3) Age category	1 = under 18 years	(2) = 18 years and older

(4) Care Taking	(1) = Staying with Parents/Guardians	2 = Child Headed Homes

SECTION C **STRESSORS**

Please consider the factors below and state by encircling the appropriate number the extent to which each of them causes stress to you.

Indicate by circling the measure in which **you experience** each of the following factors. There is no right or wrong answers, this is how **you** feel. The indication is on a scale of:

1. Meaning Strongly disagree
2. Meaning Disagree
3. Meaning Neutral
4. Meaning Agree
5. Meaning Strongly Agree

CATEGORY A **ACADEMIC/SCHOOL**

Consider the factors below and state by encircling the appropriate number the extent to which each of them **causes stress to you**, for example (1) **2 3 4 5**

ITEM		**Strongly Disagree**	**Disagree**	**Neutral**	**Agreed**	**Strongly Agreed**
01	Excessive Homework	**1**	**2**	**3**	**4**	**5**
02	Increased Workload	**1**	**2**	**3**	**4**	**5**

03	Preparation for Examinations	**1**	**2**	**3**	**4**	**5**
04	Educators' work ethics	**1**	**2**	**3**	**4**	**5**
05	Educator Absenteeism	**1**	**2**	**3**	**4**	**5**
06	Pressure from Educators	**1**	**2**	**3**	**4**	**5**
07	Pressure from School	**1**	**2**	**3**	**4**	**5**
08	Difficulty in understanding lessons	**1**	**2**	**3**	**4**	**5**
09	Having trouble studying	**1**	**2**	**3**	**4**	**5**

CATEGORY B **SCHOOL ENVIRONMENT**

Consider the factors below and state by encircling the appropriate number the extent to which each of them **causes stress to you**, for example **1** (**2**) **3 4 5**

ITEM		**Strongly Disagree**	**Disagree**	**Neutral**	**Agreed**	**Strongly Agreed**
10	Extreme Hot & Cold Classrooms	**1**	**2**	**3**	**4**	**5**

11	Dilapidated classrooms	**1**	**2**	**3**	**4**	**5**
12	Noisy Classroom	**1**	**2**	**3**	**4**	**5**
13	Poor lighting (poor lighting - too dark or too bright)	**1**	**2**	**3**	**4**	**5**
14	Class Size: Too many Learners	**1**	**2**	**3**	**4**	**5**
15	Sanitation Facilities	**1**	**2**	**3**	**4**	**5**
16	Ventilation	**1**	**2**	**3**	**4**	**5**
17	Lack of Academic Resources	**1**	**2**	**3**	**4**	**5**
18	Crime at School	**1**	**2**	**3**	**4**	**5**

CATEGORY C **INTRAPERSONAL**

Consider the factors below and state by encircling the appropriate number the extent to which each of them **causes stress to you**, for example **1 2 (3) 4 5**

ITEM		**Strongly Disagree**	**Disagree**	**Neutral**	**Agreed**	**Strongly Agreed**
19	Getting good grades	**1**	**2**	**3**	**4**	**5**
20	Preparation for Matric Farewell	**1**	**2**	**3**	**4**	**5**

21	Getting a Date for Matric Farewell	**1**	**2**	**3**	**4**	**5**
22	Worry about making my Family Proud	**1**	**2**	**3**	**4**	**5**
23	Finding work	**1**	**2**	**3**	**4**	**5**

CATEGORY D **PEERS**

Consider the factors below and state by encircling the appropriate number the extent to which each of them **causes stress to you**, for example **1 2 3 (4) 5**

ITEM		**Strongly Disagree**	**Disagree**	**Agreed**	**Neutral**	**Strongly Agreed**
24	Pressure to take alcohol and/or drugs	**1**	**2**	**3**	**4**	**5**
25	Exclusion from peers	**1**	**2**	**3**	**4**	**5**
26	Ethnicity	**1**	**2**	**3**	**4**	**5**
27	Race	**1**	**2**	**3**	**4**	**5**
28	Fashion	**1**	**2**	**3**	**4**	**5**
29	Finances	**1**	**2**	**3**	**4**	**5**

30	Bullying	**1**	**2**	**3**	**4**	**5**
31	Gossip / Drama	**1**	**2**	**3**	**4**	**5**
32	Love Life	**1**	**2**	**3**	**4**	**5**

CATEGORY E **FAMILY**

Consider the factors below and state by encircling the appropriate number the extent to which each of them **causes stress to you**, for example **1 2 3 4 (5)**

ITEM		**Strongly Disagree**	**Disagree**	**Neutral**	**Agreed**	**Strongly Agreed**
33	Parenting Styles	**1**	**2**	**3**	**4**	**5**
34	Pressure from Parents	**1**	**2**	**3**	**4**	**5**
35	Pressure from Siblings	**1**	**2**	**3**	**4**	**5**
36	Pressure from Family Members	**1**	**2**	**3**	**4**	**5**
37	Lack of Financial Support	**1**	**2**	**3**	**4**	**5**
38	Family Income / Status	**1**	**2**	**3**	**4**	**5**
39	Parent and/or Guardian Relationship	**1**	**2**	**3**	**4**	**5**
40	Responsibilities – Chores	**1**	**2**	**3**	**4**	**5**

41	Having a hard time talking with your parents/guardian	**1**	**2**	**3**	**4**	**5**
42	Not spending as much time as you would like to with your parents/guardian	**1**	**2**	**3**	**4**	**5**

CATEGORY F **SOCIO ECONOMIC FACTORS**

Consider the factors below and state by encircling the appropriate number the extent to which each of them **causes stress to you**, for example (**1**) **2 3 4 5**

ITEM		**Strongly Disagree**	**Disagree**	**Neutral**	**Agreed**	**Strongly Agreed**
43	Assets	**1**	**2**	**3**	**4**	**5**
44	Fees	**1**	**2**	**3**	**4**	**5**
45	Uniform	**1**	**2**	**3**	**4**	**5**
46	Transport	**1**	**2**	**3**	**4**	**5**
47	Clothing	**1**	**2**	**3**	**4**	**5**
48	School Material	**1**	**2**	**3**	**4**	**5**
49	Food	**1**	**2**	**3**	**4**	**5**

50	Personal Hygiene	**1**	**2**	**3**	**4**	**5**
	CATEGORY F **FUTURE** Consider the factors below and state by encircling the appropriate number the extent to which each of them **causes stress to you**, for example **1 (2) 3 4 5**					
	ITEM	**Strongly Disagree**	**Disagree**	**Neutral**	**Agreed**	**Strongly Agreed**
51	Finding a good college or university	**1**	**2**	**3**	**4**	**5**
52	Tertiary acceptance	**1**	**2**	**3**	**4**	**5**
53	Taking a gap year	**1**	**2**	**3**	**4**	**5**

SECTION D **OWN STRESSORS**

Please write down at least three stressors in **your life world,** which have not been included in the questions above.

_____

_____

_____

THANK YOU FOR PARTICIPATING IN THIS SURVEY!

Annexure B: University of South Africa's College of Education Research Ethic Committee permission letter

UNISA university of south africa

COLLEGE OF EDUCATION RESEARCH ETHICS REVIEW COMMITTEE

17 February 2016

Ref : **2016/02/17/36745987/39/MC**
Student : Mrs SN Yawa
Student Number : 36745987

Dear Mrs Yawa

Decision: Ethics Approval

Researcher
Mrs SN Yawa
Tel: 012 337 1883
Email: mvano80@gmail.com

Supervisor
Prof HE Roets
College of Education
Department of Psychology of Education
Tel: 012 429 4588
Email: roetshe@unisa.ac.za

Proposal: A psycho-educational comparison of stress among Grade 12 learners in suburban and township schools.

Qualification: D Ed in Psychology of Education

Thank you for the application for research ethics clearance by the College of Education Research Ethics Review Committee for the above mentioned research. Final approval is granted for the duration of the research.

The application was reviewed in compliance with the Unisa Policy on Research Ethics by the College of Education Research Ethics Review Committee on 17 February 2016.

The proposed research may now commence with the proviso that:

1) *The researcher/s will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.*
2) *Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study, as well as changes in the methodology, should be communicated in writing to the College of Education Ethics Review Committee. An amended application could be requested if there are substantial changes from the*

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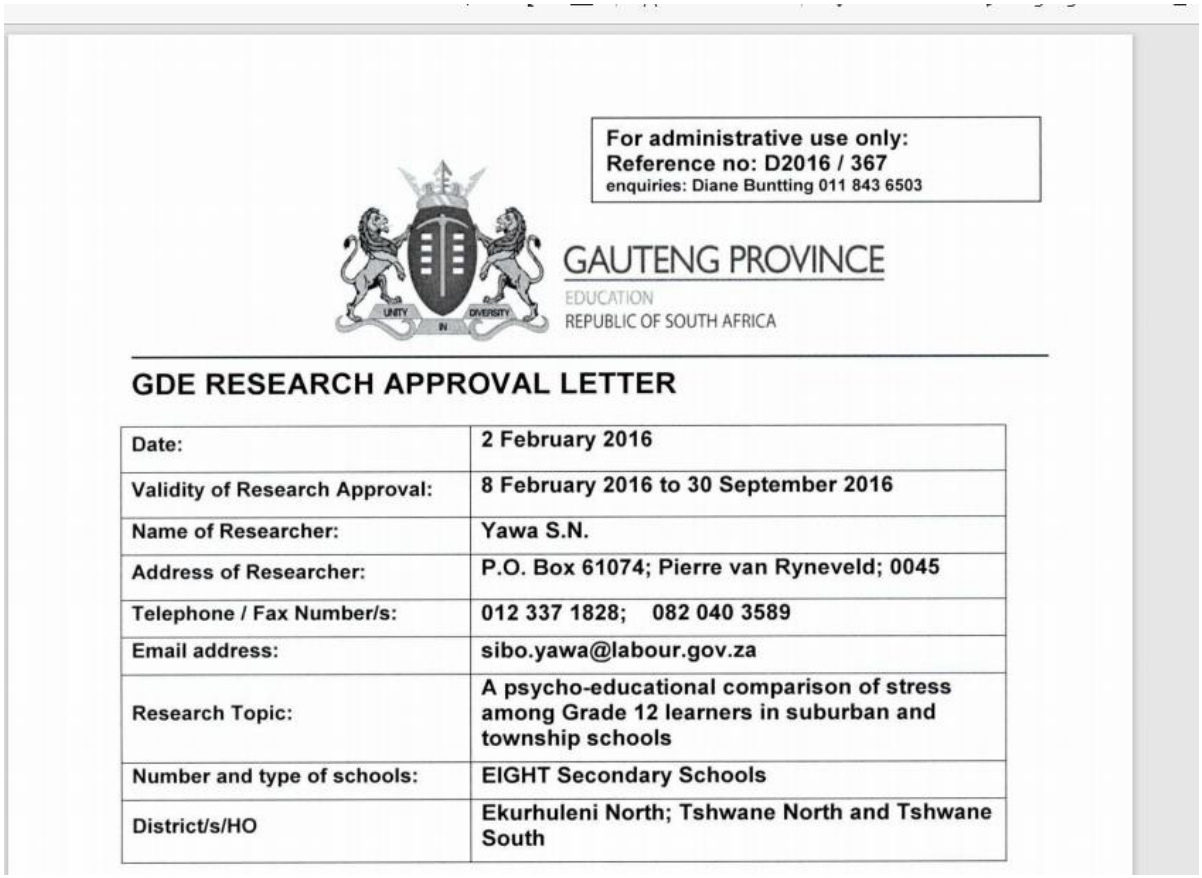
Annexure C: Letter from Gauteng Depart of Education granting permission for the research



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enquiries: Diane Buntting 011 843 6503

GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

GDE RESEARCH APPROVAL LETTER

Date:	2 February 2016
Validity of Research Approval:	8 February 2016 to 30 September 2016
Name of Researcher:	Yawa S.N.
Address of Researcher:	P.O. Box 61074; Pierre van Ryneveld; 0045
Telephone / Fax Number/s:	012 337 1828; 082 040 3589
Email address:	sibo.yawa@labour.gov.za
Research Topic:	A psycho-educational comparison of stress among Grade 12 learners in suburban and township schools
Number and type of schools:	EIGHT Secondary Schools
District/s/HO	Ekurhuleni North; Tshwane North and Tshwane South

Re: Approval in Respect of Request to Conduct Research

This letter serves to indicate that approval is hereby granted to the above-mentioned researcher to proceed with research in respect of the study indicated above. The onus rests with the researcher to negotiate appropriate and relevant time schedules with the school/s and/or offices involved. A separate copy of this letter must be presented to the Principal, SGB and the relevant District/Head Office Senior Manager confirming that permission has been granted for the research to be conducted. However participation is VOLUNTARY.

The following conditions apply to GDE research. The researcher has agreed to and may proceed with the above study subject to the conditions listed below being met. Approval may be withdrawn should any of the conditions listed below be flouted:

CONDITIONS FOR CONDUCTING RESEARCH IN GDE

1. *The District/Head Office Senior Manager/s concerned, the Principal/s and the chairperson/s of the School Governing Body (SGB.) must be presented with a copy of this letter.*
2. *The Researcher will make every effort to obtain the goodwill and co-operation of the GDE District officials, principals, SGBs, teachers, parents and learners involved. Participation is voluntary and additional remuneration will not be paid;*

2016/02/03

Making education a societal priority

Office of the Director: Education Research and Knowledge Management ER&KM)
9th Floor, 111 Commissioner Street, Johannesburg, 2001
P.O. Box 7710, Johannesburg, 2000 Tel: (011) 355 0506
Email: David.Makhado@gauteng.gov.za
Website: www.education.gpg.gov.za

researcher/s may carry out their research at the sites that they manage.

4. *Research may only commence from the second week of February and must be concluded by the end of the THIRD quarter of the academic year. If incomplete, an amended Research Approval letter may be requested to conduct research in the following year.*
5. *Items 6 and 7 will not apply to any research effort being undertaken on behalf of the GDE. Such research will have been commissioned and be paid for by the Gauteng Department of Education.*
6. *It is the researcher's responsibility to obtain written consent from the SGB/s; principal/s, educator/s, parents and learners, as applicable, before commencing with research.*
7. *The researcher is responsible for supplying and utilizing his/her own research resources, such as stationery, photocopies, transport, faxes and telephones and should not depend on the goodwill of the institution/s, staff and/or the office/s visited for supplying such resources.*
8. *The names of the GDE officials, schools, principals, parents, teachers and learners that participate in the study may not appear in the research title, report or summary.*
9. *On completion of the study the researcher must supply the Director: Education Research and Knowledge Management, with electronic copies of the Research Report, Thesis, Dissertation as well as a Research Summary (on the GDE Summary template).*
10. *The researcher may be expected to provide short presentations on the purpose, findings and recommendations of his/her research to both GDE officials and the schools concerned;*
11. *Should the researcher have been involved with research at a school and/or a district/head office level, the Director/s and school/s concerned must also be supplied with a brief summary of the purpose, findings and recommendations of the research study.*

The Gauteng Department of Education wishes you well in this important undertaking and looks forward to examining the findings of your research study.

Kind regards

.....

Dr David Makhado

Director: Education Research and Knowledge Management

Annexure D: Sample letter requesting permission from principals of selected schools to conduct research.

55 Yellowwood Drive

Irene Farm Villages

IRENE

The Principal

REQUEST FOR PERMISSION TO CONDUCT RESEARCH ON GRADE 12 LEARNERS AT YOUR SCHOOL

I am Sibongile Yawa, a Doctor of Education (DEd) student in Psychology of Education at the University of South Africa (UNISA). I am conducting research under the supervision of Prof HE Roets, a Professor in the Department of Educational Psychology. The title of my study is **"A psycho – educational comparison of stress among Grade 12 learners in suburban and township schools".**

As part of this research, I am administering questionnaires to Grade 12 learners in order to determine the causes of stress in their environment and I would like at least 30 learners from your school to participate.

The Purpose of the Research

This research seeks to identify the main experiences of stress among Grade 12 learners from township and suburban schools and to provide recommendations for interventions to minimize stress among Grade 12 learners.

Selection of your School

Your school was selected because of its close proximity to where I live.

Anticipated outcomes

It is expected that this study will lead to a better understanding of the main experiences of stress among Grade 12 learners and provide insight on whether there are significant differences in the experiences of stress among learners from suburban schools when compared to their counterparts in township schools,

Proposed Procedure

- It is proposed that Grade 12 Learners at your school are told about the study during a Life Orientation class.
- Learners will be given an opportunity to register their interest in participating in the study by filling their names in a register specially designed by the researcher for this purpose. Those learners who have registered their interest and want to become volunteers will be given letters to take to their parents or guardians so that the parents can give their consent. Learners will also be given assent forms to fill in.
- Contact details of the researcher will be provided in the consent forms so that should parents or guardians of the learners will be able to contact the researcher if they have questions before or after the study.
- Learners who bring back consent letters from either parents or guardians will be included in the study. The duration of completing the questionnaire including administration is estimated to be 50 minutes. During the administration of the questionnaire the researcher will be available to hand in and collect questionnaires. The researcher will require assistance from an educator during the administration of the questionnaire.

Risks

There are no foreseeable risks during the administration of the questionnaire except for psychological distress. Should any learner experience distress, the researcher will refer that learner or learners for debriefing to a qualified psychologist with whom an arrangement has been made. Referrals will be done within three months of the administration of the questionnaire.

Confidentiality

This research will be conducted in accordance with UNISA's Policy on Research Ethics. As such, privacy and confidentiality of learners will be ensured. Learners' names will not be required in order to ensure anonymity.

Participation in the study is voluntary and data collected will to be kept confidential. After completing the questionnaire, each participant will be instructed to put his or her questionnaire in a sealed unmarked envelope.

The benefits for your school resulting from participating in the study

Your school will receive no direct benefit from participating in the study as neither the school nor participating learners will receive any type of payment for participating in this study. However, the possible benefit to education is a body of knowledge about causes of stress among Grade 12 learners in township and suburban schools.

Sharing of Research Findings

The findings of this study will be reported on in the form of a dissertation. After the study, the completed dissertation will be available to the public to read, however your school's name or other identifying particulars of the participating learners will not be provided.

Lastly, should you want clarity regarding issues raised in this correspondence, please do not hesitate to contact me. I hope to hear from you soon.

Thanking you in advance for allowing your Grade 12 learners to participate in this research.

Kind Regards

…….

Sibongile Yawa

DEd (Psychology of Education) Student

……

. **Reply Slip**

Principal Name: ---------- Name of the School:----------

I (Put Name and Surname) principal of (put name of the school and location) hereby grant Sibongile Yawa, DEd student from UNISA to conduct research at my school on the date we shall both have agreed upon.

……

Signature of the Principal

Tel Number:

Date:……..

Name of the Researcher: Sibongile Yawa

Cell Number: 082 0403 580

Date:…….

Annexure E: Consent form

55 Yellowwood Drive

Irene Farm Villages

IRENE

LETTER REQUESTING CONSENT FROM GRADE 12 LEARNERS AT (Name of the School) TO PARTICIPATE IN A RESEARCH PROJECT.

Dear Learner,

I am Sibongile Yawa a Doctor of Education student from the University of South Africa. I am doing a study titled **"A psycho – educational comparison of stress among Grade 12 learners in suburban and township schools."** Your Principal has given me permission to do this study in your school. I would like to invite you to be part of my study.

I am conducting this study so that I may know whether there are differences in the experiences of stress between Grade 12 learners who go to township schools and Grade 12 learners who go to the suburban schools.

This letter explains what I would like you to do. There may be some words you do not know in this letter. However, you may ask me or any other adult to explain any of these words. You may take a copy of this letter home to think about my invitation and talk to your parent(s) or guardian(s) about this before you decide if you want to be in this study or not. I will also ask your parent(s) or guardian(s) to grant me permission to involve you in this study.

If you agree to be part of this study. you will be required to complete a questionnaire about causes of stress in your life as a Grade 12 learner. The questionnaire consists of four sections. **Section A** consists of questions relating to your environment, e.g., you will have to indicate whether you go to a township school or suburban school. **Section B** consists of a biographical information. **Section C** consists of various stressors of which you will be required to rank them according to the extent to which each of them causes stress to you. There will be no

right or wrong answers, you will just indicate how you feel. In **Section D** you will be required to list at least three experiences of your stress which I may not be covered in **Section C**.

You are not required to write your name in the survey and therefore no one will know that you have completed in the survey.

Some of the questions may make you uncomfortable due to stressful situations you might have experienced in your life, should you experience that, and you still want to continue to participate in the survey you can come to me so that I can help you to deal with that discomfort.

Please note that no financial payment or any other form of payment will be made to you as a result of your participation in this study.

After the study has been completed, I will write a report based on the answers you and other learners have provided. I will return to your school to give a short talk about some of the helpful and interesting things I found out in my study. I will invite you to come and listen to my talk.

You do not have to be part of this study if you don't want to take part. If you choose to be in the study, you may stop taking part at any time. You may tell me if you do not wish to answer any of my questions. No one will blame or criticise you.

If you decide to be part of my study, you will be asked to sign the form on the next page. Please first discuss your interest to participate with your parents or guardian. If you have any other questions about this study, you can talk to me or you can have your parent, or another adult call me on 082 0403 589.

Researcher: Sibongile Yawa Cell number: 082 0403 589

Email Address:mvano80@gmail.com

Do not sign this written assent form if you have any questions. Ask your questions first and ensure that someone answers those questions.

****

WRITTEN CONSENT (TO BE COMPLETED ONLY IF YOU WANT TO BECOME PART OF THE STUDY)

I have read this letter which asks me to be part of a study at my school. I understand the information about the study, and I know what I am asked to do. I am willing to participate in the study.

I am also aware of the following aspects regarding my consent that:-

- I am not coerced in any way to participate in the study and I understand that I can withdraw my consent at any time without a penalty.
- I understand that my name (identity) will not be disclosed in the study and the information that I give the researcher will be kept confidential.
- I understand that no financial payment or any other form of payment will be made to me because of my participation in this study.
- I have had an opportunity to ask questions about my participating in the study and any questions that I have had been answered by the researcher.
- I understand that should I feel distressed after completing the questionnaire I may contact the researcher to be referred to a psychologist for debriefing.
- I understand that I must discuss my participation in the study with my parent or guardian before I can sign my consent form
- I understand that my parent or guardian will be given a copy of this consent from.

Learner's Name (print): ……. **Learner's Signature: ……**

Date: …….

Name of the Researcher: …… **Researcher's Signature: ……..**

Date: …….

Annexure F: Credentials of the statistician

Hennie Gerber

Statistician

61 Bathlokur
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www.hrmarc.co.za

Profile

HJ Gerber obtained the BCom-degree (Statistics at the UP in 1996), BCom (Hons) (Statistics at the UP in 1999) and MCom (Statistics at the UP in 2005). The title of his Master's thesis was "A statistical perspective on data mining". This thesis dealt with the use of statistical techniques to detect patterns and trends in masses of data and databases.

He has more than 19 years consulting experience; as a Statistician (2 years Agricultural Research Council(ARC), 6 years UNISA consultation service, 11+ years Statistical Consulting Services & HR Statistics & Unisa CGS) and 2 years Lecturing Statistic subjects at UNISA.

The beginning of 2008 Hennie and his partner Robert, started Statistical Consulting Services(changed to HR Statistics in 2012) where he is still a ***consultant*** conducting analyses for various business and academic clients. Business clients include Nexia SAB&T, SAPS, SASOL, Imperial and RCI. Academic clients include UNISA and Monash SA. He is a statistical consultant to UNISA School of Business Leadership(Midrand) and UNISA, previously a consultant to Wits Business school(2012-2015).

Over the past 10 years he delivered ***workshops*** to Joint Minds consulting(at Botswana University various tertiary institutions in Botswana), the University of South Africa(various departments), Monash SA, Vaaldriehoek University of Technology(VUT) and the University of Pretoria.

The following workshops are delivered: Quantitative research design(questionnaire and sampling etc.) 1 day, Data analysis (application) 1 day, Hands-on data analysis with a statistical package 3 days, Intermediate data analysis 2 days, Introduction to descriptive Statistics 1 day and Interpretation and write-up 1 day.

He is was external examiner for the Honors Statistics course 'Regression Analysis' at the University of Pretoria, as well as external examiner for the course 'Critical Business skills' at Wits Business School.

Education

University of Pretoria, MCom (Statistics), 2005

University of Pretoria, BCom Hons (Statistics), 1999

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www.liminalrc.co.za

University of Pretoria, BCom (Statistics), 1996

Associations

Member of the South African Statistical Association(SASA) from 1996.

Skills

Programming knowledge:

SAS programming 19+ years (did various courses over the years)

SPSS 17+ years

and the R statistical language.

Publications

Marketing Research 3rd edition. 2016 Jan Wiid & Colin Diggines. Juta.
Hennie contributed 3 chapters on data preparation, statistical analysis and interpretation.

Work History:

2019 - Currently:
Liminal Research Consult & University of South Africa - SBL

Statistician at Liminal Research Consult. Statistician on contract for 1 day a week at the the Unisa Business School in Midrand at UNISA. Developing online courses.

Consultant conducting analyses for various business and academic clients. Business clients include SAPS, SASOL, Imperial and RCI. Academic clients include UNISA, University of Pretoria, Monash SA and Wits Business School.

Delivers various workshops on research design, statistical analysis and interpretation at Universities.

External examiner for University of Pretoria and Wits Business School occasionally.

2008 - 2018:
University of South Africa

Statistician on contract for 3 days a week at the Graduate School of UNISA. Statistician on contract for 1 day a week at the Unisa Business School in Midrand at UNISA.

HR Statistics

Consultant conducting analyses for various business and academic clients. Business clients include SAPS, SASOL, Imperial and RCI. Academic clients include UNISA, University of Pretoria, Monash SA and Wits Business School.

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Delivers various workshops on research design, statistical analysis and interpretation at UNISA.

External examiner for University of Pretoria and Wits Business School.

2000 - 2007:
University of South Africa

He was one of the senior Statisticians at the research support section at UNISA. We delivered a consultation service to Masters and PhD students for advice, data analysis and interpretation of data.

Advice was given on questionnaire design, sampling and other research problems.

Statistical analysis was done on data ranging from criminology and psychology data to economical data. Statistical training was also provided to UNISA personnel.

He was also involved with the Buro of Management Information(BMI) of UNISA reporting to senior management. Data manipulation, data analysis and reporting were done on UNISA's databases, mostly the student database which consisted of millions of records over years.

Cleaning and combining UNISA's data for subsidy purposes to report to the minister of Education.

Lecturing experience:

He delivered the following courses at UNISA

2006:

Analysis of variance and regression for 3rd year mathematical statistics students

Forecasting for 3rd year mathematical statistics students

MAKOR a applied statistics course for masters communication students

2007:

Analysis of variance and regression for 3rd year mathematical statistics students

Time Series analysis for 3rd year mathematical statistics students

Nonparametric regression for honors mathematical statistics students

MAKOR a applied statistics course for masters communication students

Both the Time Series analysis and Non-parametric regression courses were developed by himself.

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1997-1998:

Agricultural Research Council (ARC)

He was part of a consultation unit in the ARC that gave advice and did statistical analyses for agricultural researchers.

Researchers were consulted on experimental designs for their agricultural experiments. Analyses were done on a variety of datasets, from crop and bee data to quality control data.

He did a Masters subject in 2000 on experimental design.

Larger Projects:

For a more comprehensive list of projects I was involved in, please refer to the company profile at www.hrstatistics.co.za. Some larger projects are listed here.

Statistician, National Department of Education School Monitoring survey 2017-2018
"SCHOOL MONIORING SURVEY 2017/18" - Sathia Pillay Nexia SAB&T

Statistician, National Department of Education VANA project 2017
"Report on Verification Annual National Assessment 2017" - Sathia Pillay Nexia SAB&T

Statistician, National Department of Education 500 School Project 2013-2014
"Making schools better - A Study in five provinces of South Africa
Eastern Cape, Free State, KwaZulu Natal Limpopo and Mpumalanga" – Dr Mohapi & Prof Veronica Mckay UNISA Department of Education

Statistician, National Department of Education VANA project 2013-2014
"Verification Annual National Assessment 2013-2014" - Sathia Pillay Nexia SAB&T and Deloitte

Statistician, National Department of Education EMIS survey 2012
"EMIS survey and audit of ordinary schools 2012" - Sathia Pillay Nexia SAB&T

Statistician, National Department of Education EMIS survey 2011
"EMIS sample survey of ordinary schools 2011" - Sathia Pillay Nexia SAB&T

Statistician, National Department of Education ABET surveys 2011

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Company: [illegible]
www.hstatistics.co.za
www.liminalrc.co.za

"National Adult learning survey - ABET"– Prof. Veronica Mckay(SAB&T) Comparison of the previous years

Statistician, National Department of Education ABET surveys 2010
"National Adult learning survey - ABET"– Prof. Veronica Mckay(SAB&T)

Statistician, National Department of Education ABET surveys 2009
"National Adult learning survey - ABET"– Prof. Veronica Mckay(SAB&T)

Statistician, National Department of Education ABET surveys 2008
"National Adult learning survey - ABET"– Prof. Veronica Mckay(SAB&T)

Other projects not relating to education.
Consultant, Bluhm Burton Energy (BBEnergy) - 2012
"Development of a model for explaining energy usage with production factors 2011 data" - Engineer Chris Nell

Statistician, South African Police Services - Division training 2010, 2011 and 2012
"Various surveys evaluating training programmes each year". Col Ragimana.

Statistician, Imperial Human Resources - 2011
"Development of a profiling model for Human Resources". Nicholas De Canha and Dr Johan De Beer.

Consultant, SASOL Secunda site - 2008-2009
"Model building to determine drivers influencing gas production at SASOL Secunda site from 2004 to 2008" - Engineer Pieter Slabbert

UNISA projects between 2000 and 2005
"Project: Evaluation of CSET student performance" – *Department of Information and Analysis at UNISA* - Herman Visser

"Project: Presentation of student exam results on the web" – *Department of Information and Analysis at UNISA for approximately 6000 courses* - Herman Visser

"Project: Determining student throughput"

– *Department of Information and Analysis at UNISA* - Herman Visser

AB Costing combining various databases at Unisa to form standardized units for costing – Department of Planning and Quality Assurance - Liana Griesel

Annexure G: Descriptive statistics with frequency counts and percentage analysis of responses to statements (township schools)

Township	**Strongly disagree**		**Disagree**		**Neutral**		**Agree**		**Strongly agree**		**All**	
Stress Statements	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**Total %**	**Total F**
Excessive homework	11.64	22	17.46	33	33	69	25.93	49	8.47	16	100	189
Increased workload	4.76	9	11.64	22	22	31	39.15	74	28.04	53	100	189
Preparation for examinations	3.17	6	8.99	17	17	39	28.57	54	38.62	73	100	189
Educators' work ethics	9.52	18	13.23	25	25	67	25.40	48	16.40	31	100	189

Educator absenteeism	22.46	42	17.11	32	32	45	14.44	27	21.93	41	100	187
Pressure from educators	7.94	15	10.05	19	19	40	28.57	54	32.28	61	100	189
Pressure from School	9.09	17	10.70	20	20	39	31.02	58	28.34	53	100	187
Difficulty in understanding lessons	8.95	17	19.47	37	37	64	20.53	39	17.37	33	100	190
Having trouble studying	8.47	16	19.58	37	37	56	29.10	55	13.23	25	100	189
Extreme hot & cold classrooms	15.87	30	17.99	34	34	61	18.52	35	15.34	29	100	189
Dilapidated classrooms	15.47	28	24.86	45	45	63	14.92	27	9.94	18	100	181
Noisy classroom	10.00	19	13.68	26	26	33	25.26	48	33.68	64	100	190
Poor lighting (poor lighting-too dark or too bright)	22.11	42	28.95	55	55	51	9.47	18	12.63	24	100	190

Class size: too many learners	25.79	49	17.89	34	34	34	22.63	43	15.79	30	100	190
Sanitation facilities	16.04	30	17.65	33	33	62	19.79	37	13.37	25	100	187
Ventilation	16.02	29	16.02	29	29	76	14.92	27	11.05	20	100	181
Lack of academic resources	11.05	21	15.26	29	29	32	25.79	49	31.05	59	100	190
Crime at school	23.28	44	15.34	29	29	28	18.52	35	28.04	53	100	189
Getting good grades	12.90	24	8.60	16	16	59	23.66	44	23.12	43	100	186
Preparation for matric farewell	31.18	58	19.89	37	37	26	21.51	40	13.44	25	100	186
Getting a date for matric farewell	37.77	71	14.36	27	27	36	12.77	24	15.96	30	100	188
Worry about making my family proud	6.01	11	4.37	8	8	24	19.67	36	56.83	104	100	183

Finding work	13.59	25	10.33	19	19	35	20.65	38	36.41	67	100	184
Pressure to take alcohol and/or drugs	57.98	109	17.02	32	32	18	6.91	13	8.51	16	100	188
Exclusion from peers	43.68	83	23.68	45	45	29	13.16	25	4.21	8	100	190
Ethnicity	33.70	62	16.30	30	30	46	20.11	37	4.89	9	100	184
Race	39.57	74	15.51	29	29	36	16.58	31	9.09	17	100	187
Fashion	34.05	63	15.14	28	28	38	12.97	24	17.30	32	100	185
Finances	23.40	44	13.83	26	26	31	20.21	38	26.06	49	100	188
Bullying	43.16	82	17.37	33	33	19	11.05	21	18.42	35	100	190
Gossip / Drama	33.87	63	19.89	37	37	24	16.67	31	16.67	31	100	186

Love life	28.42	54	14.74	28	28	32	18.95	36	21.05	40	100	190
Parenting styles	26.46	50	17.46	33	33	39	17.46	33	17.99	34	100	189
Pressure from parents	17.89	34	12.11	23	23	46	16.32	31	29.47	56	100	190
Pressure from siblings	17.99	34	19.58	37	37	37	16.93	32	25.93	49	100	189
Pressure from family members	12.77	24	15.43	29	29	27	23.94	45	33.51	63	100	188
Lack of financial support	13.23	25	18.52	35	35	51	19.05	36	22.22	42	100	189
Family Income / Status	12.63	24	21.58	41	41	58	19.47	37	15.79	30	100	190
Parent and/or guardian relationship	23.68	45	19.47	37	37	45	18.95	36	14.21	27	100	190
Responsibilities – Chores	20.00	38	18.95	36	36	47	20.00	38	16.32	31	100	190

Having a hard time talking with your parents/guardian	19.15	36	24.47	46	46	40	13.30	25	21.81	41	100	188
Not spending as much time as you would like to with your parents/guardian	24.74	47	25.79	49	49	37	15.26	29	14.74	28	100	190
Assets	20.21	38	22.34	42	42	65	9.57	18	13.30	25	100	188
Fees	21.05	40	18.95	36	36	33	18.42	35	24.21	46	100	190
Uniform	24.60	46	23.53	44	44	41	15.51	29	14.44	27	100	187
Transport	31.22	59	28.57	54	54	33	6.88	13	15.87	30	100	189
Clothing	22.22	42	24.87	47	47	37	14.29	27	19.05	36	100	189
School material	19.05	36	23.28	44	44	39	18.52	35	18.52	35	100	189
Food	21.16	40	21.69	41	41	31	20.11	38	20.63	39	100	189

Personal hygiene	21.05	40	23.16	44	44	35	15.79	30	21.58	41	100	190
Finding a good college or university	4.76	9	8.99	17	17	30	23.81	45	46.56	88	100	189
Tertiary acceptance	5.32	10	10.64	20	20	28	19.68	37	49.47	93	100	188
Taking a gap year	32.98	62	15.43	29	29	31	7.45	14	27.66	52	100	188

Annexure H: Descriptive statistics with frequency counts and percentage analysis of responses to statements (suburban schools)

Suburbs	**Strongly disagree**		**Disagree**		**Neutral**		**Agree**		**Strongly agree**		**All**	
Statements	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**Total %**	**Total F**
Excessive homework	6.47	11	10.59	18	18	69	21.76	37	20.59	35	100	170
Increased workload	2.35	4	7.65	13	13	35	35.29	60	34.12	58	100	170
Preparation for examinations	0.59	1	5.33	9	9	38	27.22	46	44.38	75	100	169

Educators' work ethics	5.36	9	21.43	36	36	72	16.07	27	14.29	24	100	168
Educator absenteeism	16.07	27	20.24	34	34	68	11.90	20	11.31	19	100	168
Pressure from educators	8.88	15	5.33	9	9	52	36.09	61	18.93	32	100	169
Pressure from school	8.43	14	12.65	21	21	42	31.33	52	22.29	37	100	166
Difficulty in understanding lessons	8.82	15	22.35	38	38	45	22.35	38	20.00	34	100	170
Having trouble studying	6.47	11	15.88	27	27	53	20.59	35	25.88	44	100	170
Extreme hot & cold Classrooms	16.67	28	13.69	23	23	68	19.64	33	9.52	16	100	168
Dilapidated classrooms	12.50	21	22.02	37	37	74	14.29	24	7.14	12	100	168
Noisy classroom	7.69	13	24.85	42	42	44	23.67	40	17.75	30	100	169

Poor lighting (poor lighting-too dark or too bright)	22.62	38	25.60	43	43	64	8.93	15	4.76	8	100	168
Class size: too many learners	17.75	30	17.75	30	30	50	14.79	25	20.12	34	100	169
Sanitation facilities	11.76	20	15.88	27	27	53	21.76	37	19.41	33	100	170
Ventilation	10.00	17	19.41	33	33	58	24.12	41	12.35	21	100	170
Lack of academic resources	17.06	29	17.06	29	29	38	24.12	41	19.41	33	100	170
Crime at school	27.06	46	14.12	24	24	32	18.24	31	21.76	37	100	170
Getting good grades	4.12	7	7.06	12	12	46	26.47	45	35.29	60	100	170
Preparation for matric farewell	24.12	41	15.88	27	27	49	12.94	22	18.24	31	100	170

Getting a date for matric farewell	40.24	68	16.57	28	28	42	8.28	14	10.06	17	100	169
Worry about making my family proud	9.04	15	6.02	10	10	29	23.49	39	43.98	73	100	166
Finding work	15.06	25	3.61	6	6	28	21.08	35	43.37	72	100	166
Pressure to take alcohol and/or drugs	65.29	111	17.65	30	30	14	5.29	9	3.53	6	100	170
Exclusion from peers	42.60	72	27.22	46	46	22	12.43	21	4.73	8	100	169
Ethnicity	40.36	67	22.29	37	37	28	17.47	29	3.01	5	100	166
Race	50.89	86	15.38	26	26	20	15.98	27	5.92	10	100	169
Fashion	41.18	70	14.71	25	25	31	15.88	27	10.00	17	100	170
Finances	23.81	40	13.10	22	22	35	22.62	38	19.64	33	100	168

Bullying	50.00	85	18.24	31	31	22	8.24	14	10.59	18	100	170
Gossip / Drama	38.24	65	20.00	34	34	24	14.71	25	12.94	22	100	170
Love life	31.18	53	16.47	28	28	33	14.12	24	18.82	32	100	170
Parenting styles	21.18	36	17.06	29	29	56	11.18	19	17.65	30	100	170
Pressure from parents	5.88	10	9.41	16	16	43	27.06	46	32.35	55	100	170
Pressure from siblings	31.18	53	18.82	32	32	36	14.12	24	14.71	25	100	170
Pressure from family members	14.12	24	16.47	28	28	42	16.47	28	28.24	48	100	170
Lack of financial support	21.89	37	18.34	31	31	46	15.38	26	17.16	29	100	169
Family Income / Status	22.49	38	17.75	30	30	50	14.20	24	15.98	27	100	169

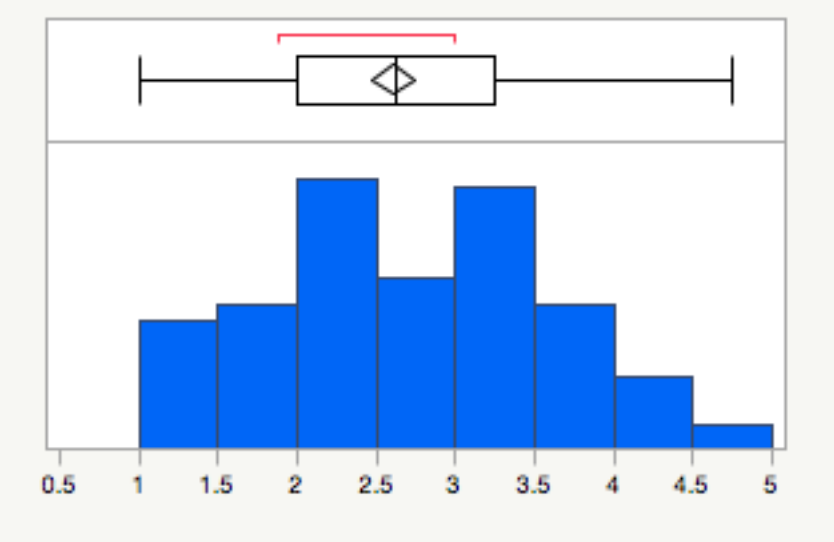
Parent and/or guardian relationship	18.93	32	16.57	28	28	56	13.02	22	18.34	31	100	169
Responsibilities – Chores	21.89	37	14.79	25	25	58	11.83	20	17.16	29	100	169
Having a hard time talking with your parents/guardian	22.35	38	20.00	34	34	42	15.88	27	17.06	29	100	170
Not spending as much time as you would like to with your parents/guardian	25.88	44	15.29	26	26	60	8.82	15	14.71	25	100	170
Assets	26.19	44	20.83	35	35	63	9.52	16	5.95	10	100	168
Fees	20.00	34	17.65	30	30	56	16.47	28	12.94	22	100	170
Uniform	29.59	50	26.04	44	44	55	7.69	13	4.14	7	100	169
Transport	26.63	45	26.63	45	45	49	9.47	16	8.28	14	100	169

Clothing	28.82	49	20.59	35	35	56	9.41	16	8.24	14	100	170
School material	28.40	48	22.49	38	38	49	12.43	21	7.69	13	100	169
Food	27.38	46	20.24	34	34	37	12.50	21	17.86	30	100	168
Personal hygiene	30.18	51	16.57	28	28	34	13.02	22	20.12	34	100	169
Finding a good college or university	5.29	9	4.12	7	7	20	20.59	35	58.24	99	100	170
Tertiary acceptance	2.94	5	7.65	13	13	28	16.47	28	56.47	96	100	170
Taking a gap year	39.05	66	15.98	27	27	32	7.10	21	18.93	32	100	169

Annexure I: Histograms with skewness that illustrate assumptions of normality and an output from Levene's test for homogeneity of variance

Distributions Group – Suburbs

F1 SOCIO-ECONOMIC FACTORS



Quantiles

100.0 %	maximum	4.75
99.5%		4.75

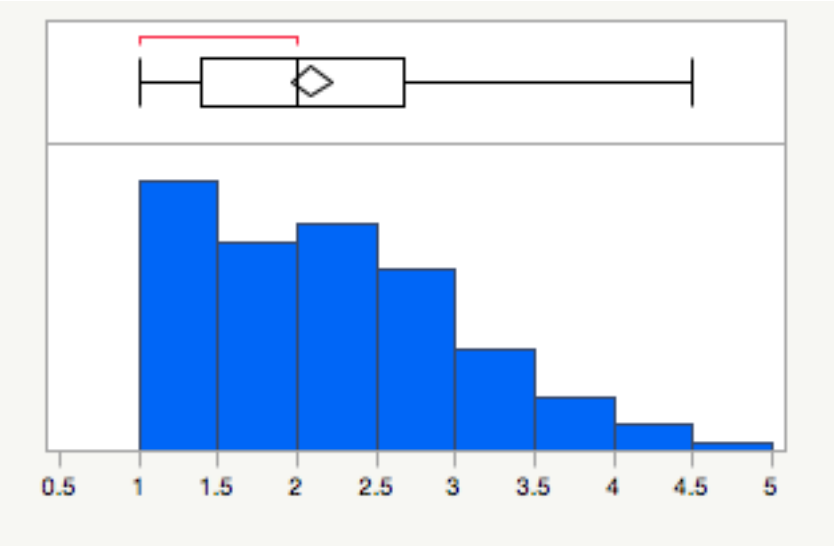
97.5%		4.25
90.0%		3.7375
75.0%	quartile	3.25
50.0%	median	2.625
25.0%	quartile	2
10.0%		1.25
2.5%		1
0.5%		1
0.0%	minimum	1

Summary Statistics

Mean	2.614916
Std Dev	0.8919858

Std Err Mean	0.0684122
Upper 95% Mean	2.7499685
Lower 95% Mean	2.4798634
N	170
Skewness	-0.01406
Kurtosis	-0.644097

F2 PEER PRESSURE



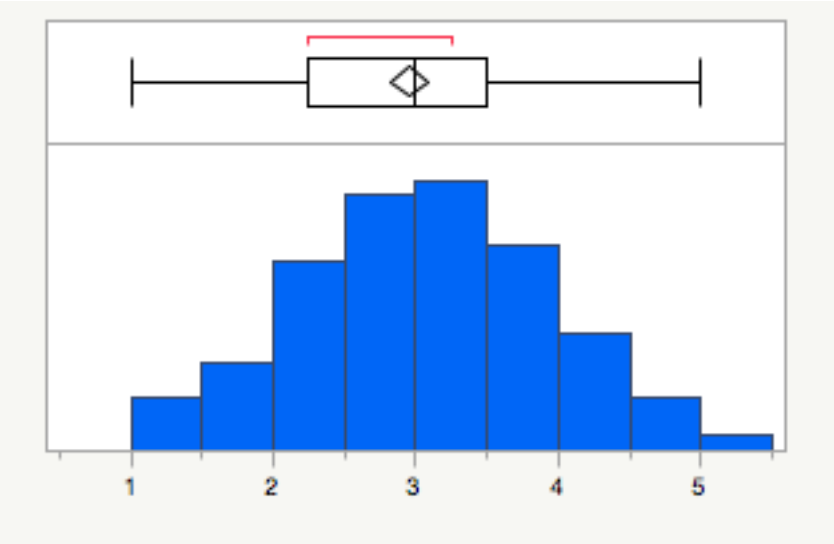
Quantiles

100.0%	maximum	4.5
99.5%		4.5
97.5%		4
90.0%		3.1666666667
75.0%	quartile	2.6666666667
50.0%	median	2
25.0%	quartile	1.4
10.0%		1
2.5%		1
0.5%		1
0.0%	minimum	1

Summary Statistics

Mean	2.0907843
Std Dev	0.8240389
Std Err Mean	0.0632009
Upper 95% Mean	2.2155492
Lower 95% Mean	1.9660194
N	170
Skewness	0.4642508
Kurtosis	-0.40914

F3 SCHOOL ENVIRONMENT



Quantiles

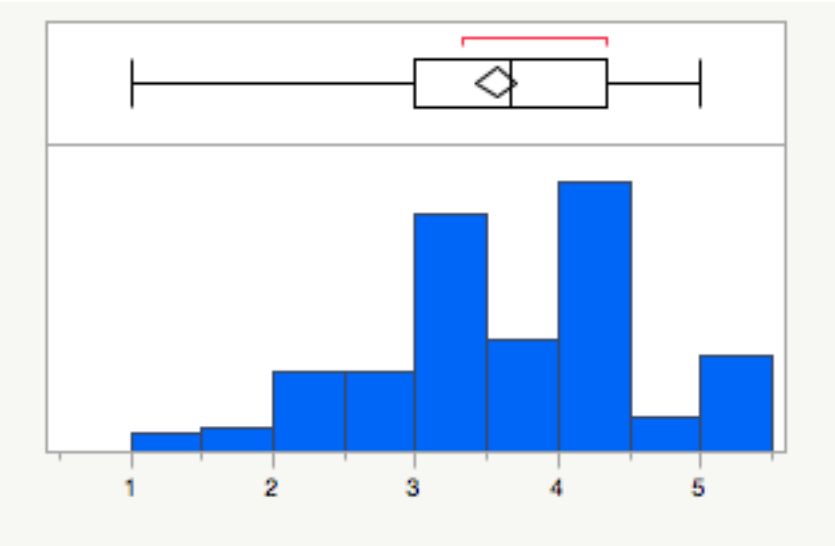
100.0%	maximum	5
99.5%		5
97.5%		4.5
90.0%		4
75.0%	quartile	3.5
50.0%	median	3

25.0%	quartile	2.25
10.0%		1.75
2.5%		1
0.5%		1
0.0%	minimum	1

Summary Statistics

Mean	2.9485294
Std Dev	0.8726934
Std Err Mean	0.0669325
Upper 95% Mean	3.0806609
Lower 95% Mean	2.8163979
N	170
Skewness	-0.111141
Kurtosis	-0.302798

F4 EXTERNAL PRESSURE



Quantiles

100.0%	maximum	5
99.5%		5
97.5%		5
90.0%		4.9666666667
75.0%	quartile	4.3333333333

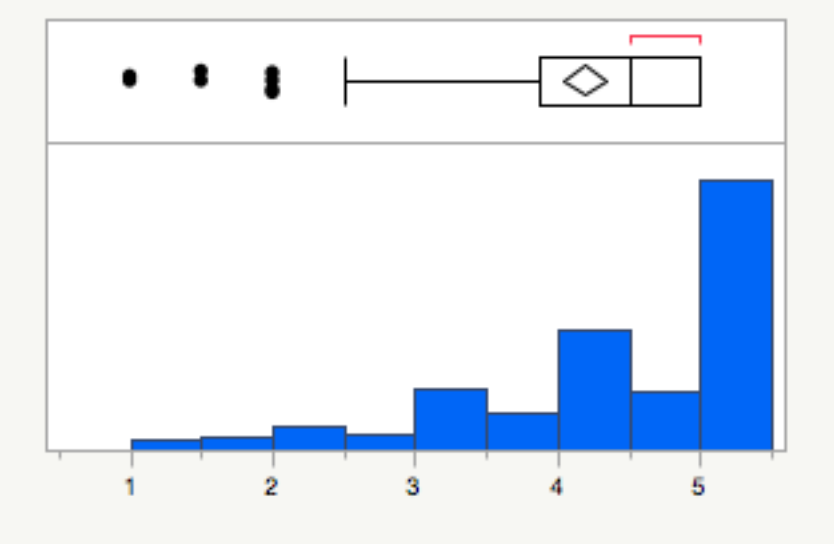
50.0%	median	3.6666666667
25.0%	quartile	3
10.0%		2.3333333333
2.5%		1.6666666667
0.5%		1
0.0%	minimum	1

Summary Statistics

Mean	3.5627451
Std Dev	0.8845137
Std Err Mean	0.0678391
Upper 95% Mean	3.6966663
Lower 95% Mean	3.4288239
N	170
Skewness	-0.342932

Kurtosis	-0.208825

F5 Post-matric educational opportunities



Quantiles

100.0%	maximum	5
99.5%		5
97.5%		5

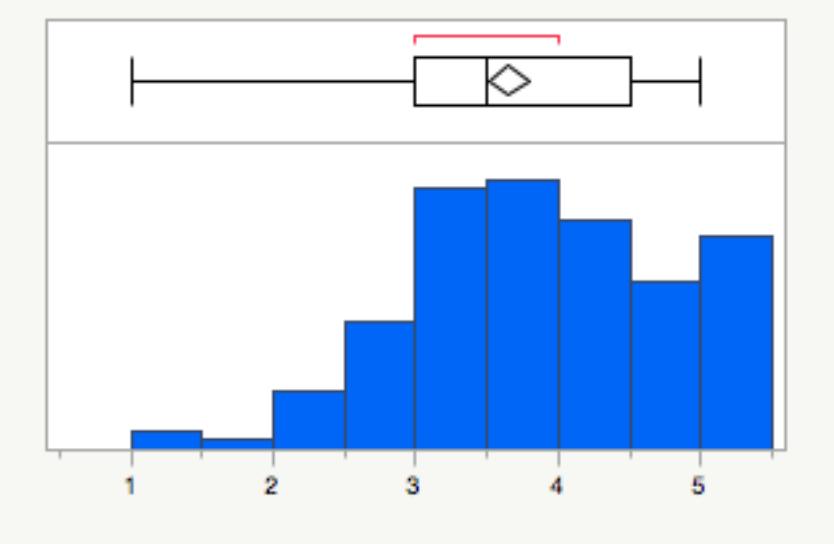
90.0%		5
75.0%	quartile	5
50.0%	median	4.5
25.0%	quartile	3.875
10.0%		3
2.5%		1.5
0.5%		1
0.0%	minimum	1

Summary Statistics

Mean	4.1911765
Std Dev	0.9882049
Std Err Mean	0.0757919
Upper 95% Mean	4.3407972
Lower 95% Mean	4.0415557

N	170
Skewness	-1.218989
Kurtosis	0.841235

F6 ACADEMIC PRESSURE



Quantiles

100.0%	maximum	5
99.5%		5
97.5%		5

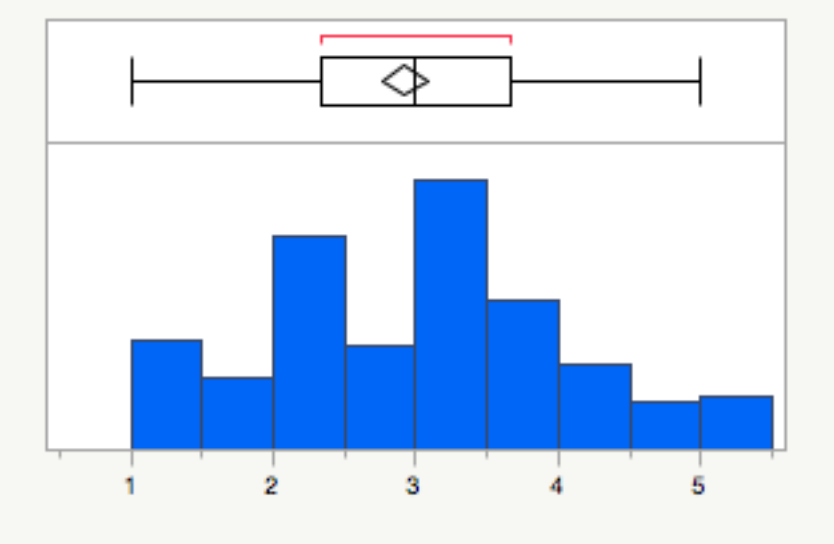
90.0%		5
75.0%	quartile	4.5
50.0%	median	3.5
25.0%	quartile	3
10.0%		2.5
2.5%		2
0.5%		1
0.0%	minimum	1

Summary Statistics

Mean	3.6529412
Std Dev	0.9151051
Std Err Mean	0.0701854
Upper 95% Mean	3.7914941
Lower 95% Mean	3.5143882

N	170
Skewness	-0.256221
Kurtosis	-0.367951

F7 FAMILIAL SUPPORT



Quantiles

100.0%	maximum	5
99.5%		5
97.5%		5

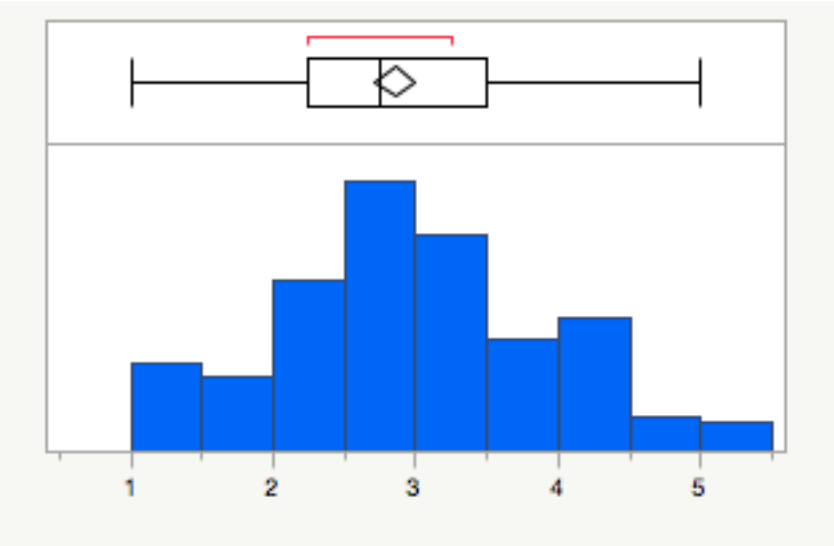
90.0%		4.3333333333
75.0%	quartile	3.6666666667
50.0%	median	3
25.0%	quartile	2.3333333333
10.0%		1.3666666667
2.5%		1
0.5%		1
0.0%	minimum	1

Summary Statistics

Mean	2.9235294
Std Dev	1.0415601
Std Err Mean	0.079884
Upper 95% Mean	3.0812285

Lower 95% Mean	2.7658303
N	170
Skewness	0.0813854
Kurtosis	-0.548427

F8 PARENTAL



Quantiles

100.0%	maximum	5
99.5%		5

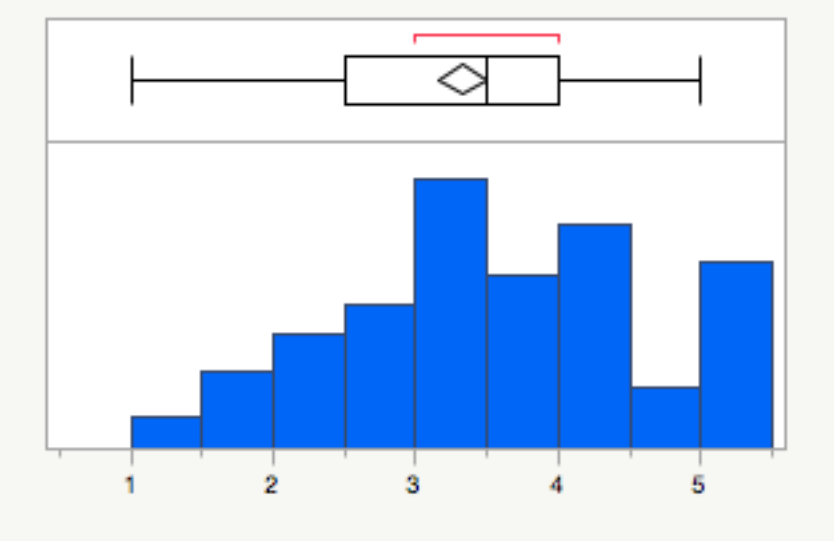
97.5%		4.93125
90.0%		4
75.0%	quartile	3.5
50.0%	median	2.75
25.0%	quartile	2.25
10.0%		1.5
2.5%		1
0.5%		1
0.0%	minimum	1

Summary Statistics

Mean	2.854902
Std Dev	0.9332728
Std Err Mean	0.0715788
Upper 95% Mean	2.9962056

Lower 95% Mean	2.7135983
N	170
Skewness	0.0793819
Kurtosis	-0.386596

F10 LEARNING AND DEVELOPMENT



Quantiles

100.0%	maximum	5

99.5%		5
97.5%		5
90.0%		5
75.0%	quartile	4
50.0%	median	3.5
25.0%	quartile	2.5
10.0%		2
2.5%		1.1375
0.5%		1
0.0%	minimum	1

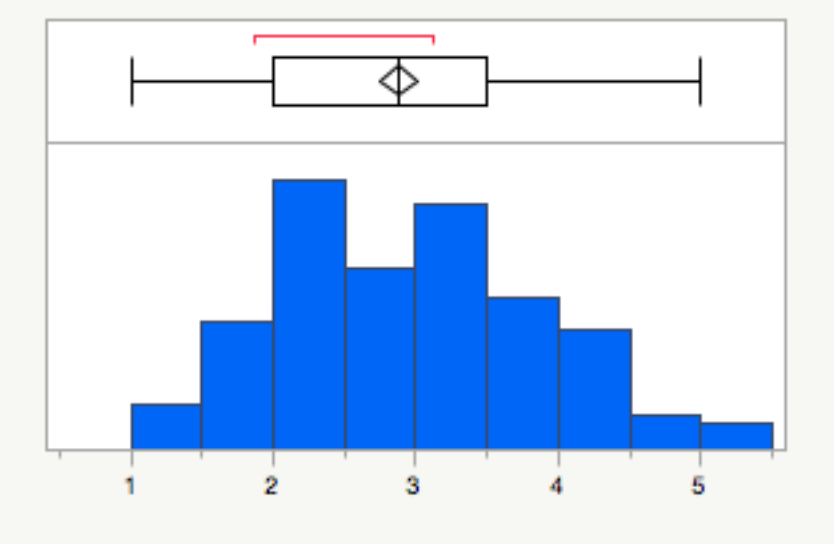
Summary Statistics

Mean	3.3294118
Std Dev	1.0701793
Std Err Mean	0.082079
Upper 95% Mean	3.491444

Lower 95% Mean	3.1673796
N	170
Skewness	-0.100648
Kurtosis	-0.708125

Distributions Group=Township

F1 SOCIO-ECONOMIC FACTORS



Quantiles

100.0%	Maximum	5

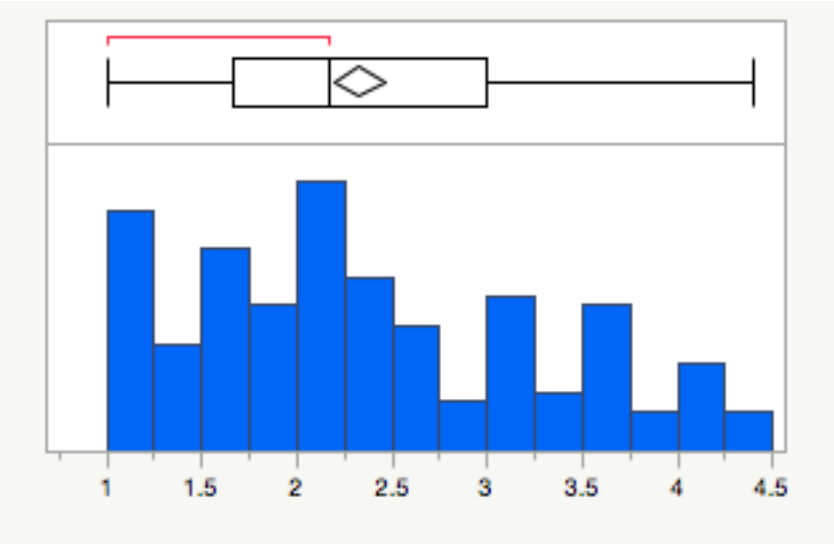
99.5%		5
97.5%		4.80625
90.0%		4.125
75.0%	quartile	3.5
50.0%	median	2.875
25.0%	quartile	2
10.0%		1.75
2.5%		1.25
0.5%		1
0.0%	minimum	1

Summary Statistics

Mean	2.8738722
Std Dev	0.9252361
Std Err Mean	0.0671237

Upper 95% Mean	3.00628
Lower 95% Mean	2.7414643
N	190
Skewness	0.2320823
Kurtosis	-0.650279

F2 PEER PRESSURE



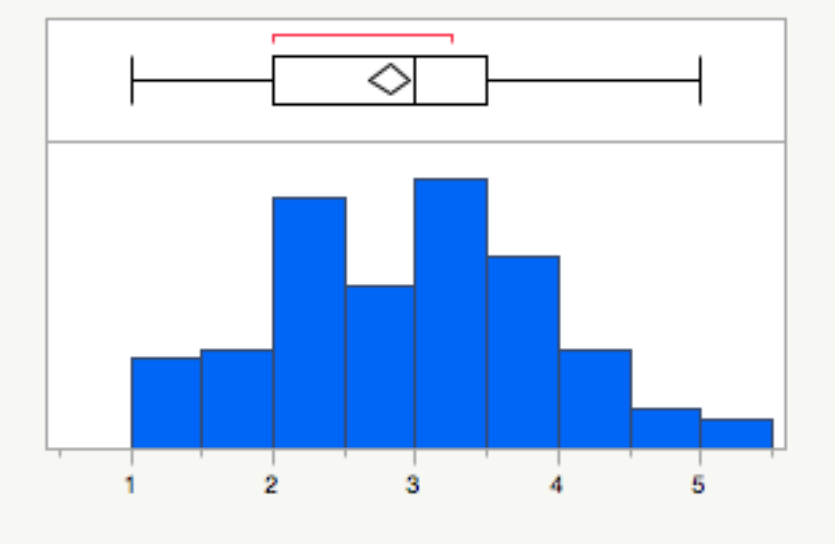
Quantiles

100.0%	maximum	4.4
99.5%		4.4
97.5%		4.2041666667
90.0%		3.6666666667
75.0%	quartile	3
50.0%	median	2.1666666667
25.0%	quartile	1.6666666667
10.0%		1.1666666667
2.5%		1
0.5%		1
0.0%	minimum	1

Summary Statistics

Mean	2.3275439
Std Dev	0.9228731
Std Err Mean	0.0669522
Upper 95% Mean	2.4596135
Lower 95% Mean	2.1954742
N	190
Skewness	0.4523042
Kurtosis	-0.759554

F3 SCHOOL ENVIRONMENT



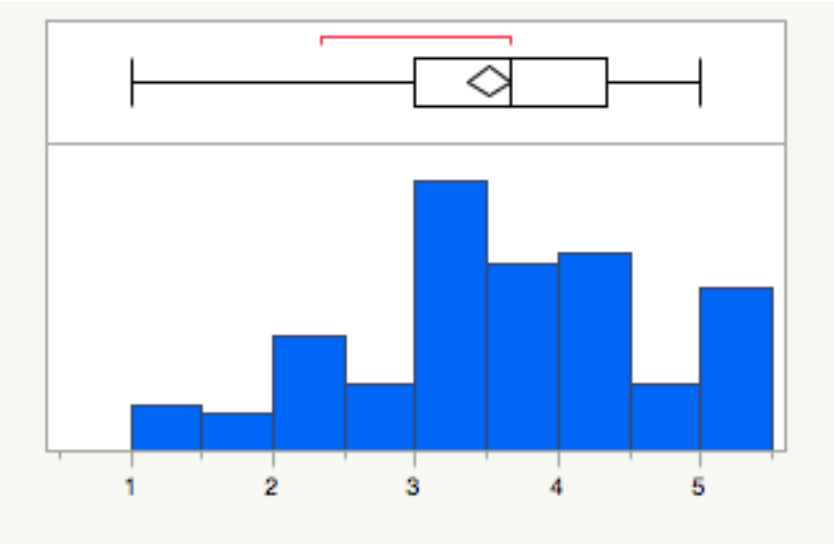
Quantiles

100.0%	maximum	5
99.5%		5
97.5%		4.80625
90.0%		4
75.0%	quartile	3.5
50.0%	median	3
25.0%	quartile	2
10.0%		1.5
2.5%		1
0.5%		1
0.0%	minimum	1

Summary Statistics

Mean	2.8149123
Std Dev	0.9397392
Std Err Mean	0.0681758
Upper 95% Mean	2.9493956
Lower 95% Mean	2.6804289
N	190
Skewness	0.0677405
Kurtosis	-0.517567

F4 EXTERNAL PRESSURE



Quantiles

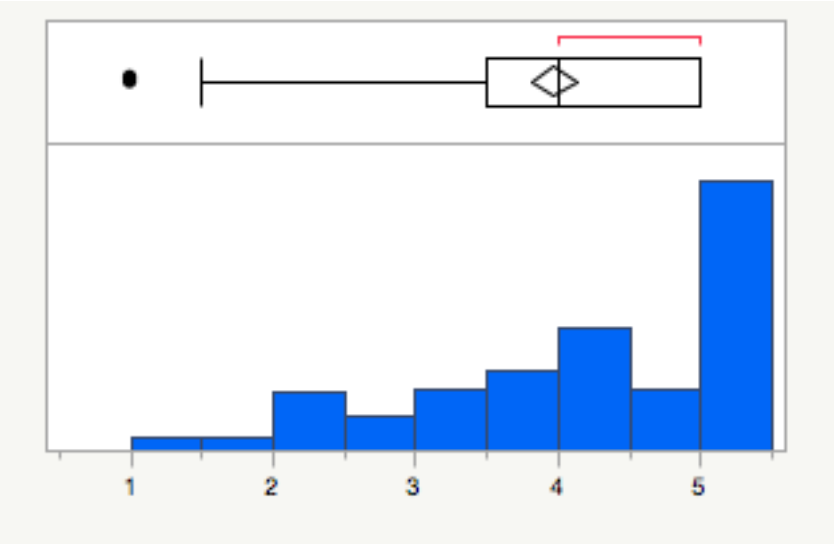
100.0%	maximum	5
99.5%		5
97.5%		5
90.0%		5
75.0%	quartile	4.3333333333
50.0%	median	3.6666666667
25.0%	quartile	3

10.0%		2
2.5%		1
0.5%		1
0.0%	minimum	1

Summary Statistics

Mean	3.5061404
Std Dev	1.0433535
Std Err Mean	0.0756928
Upper 95% Mean	3.6554516
Lower 95% Mean	3.3568291
N	190
Skewness	-0.39368
Kurtosis	-0.417069

F5 Post-matric educational opportunities



Quantiles

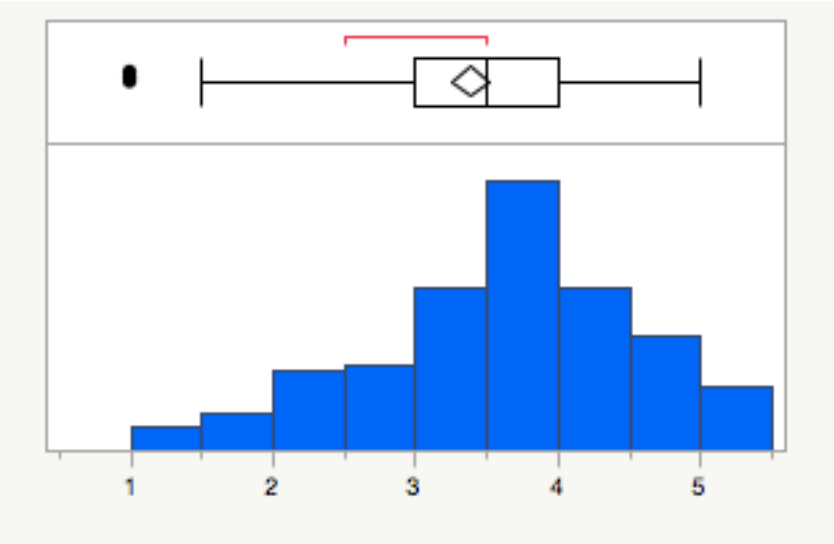
100.0%	maximum	5
99.5%		5
97.5%		5
90.0%		5
75.0%	quartile	5
50.0%	median	4
25.0%	quartile	3.5

10.0%		2
2.5%		1.5
0.5%		1
0.0%	minimum	1

Summary Statistics

Mean	3.9708995
Std Dev	1.0917728
Std Err Mean	0.0794148
Upper 95% Mean	4.1275581
Lower 95% Mean	3.8142409
N	189
Skewness	-0.83575
Kurtosis	-0.29499

F6 ACADEMIC PRESSURE



Quantiles

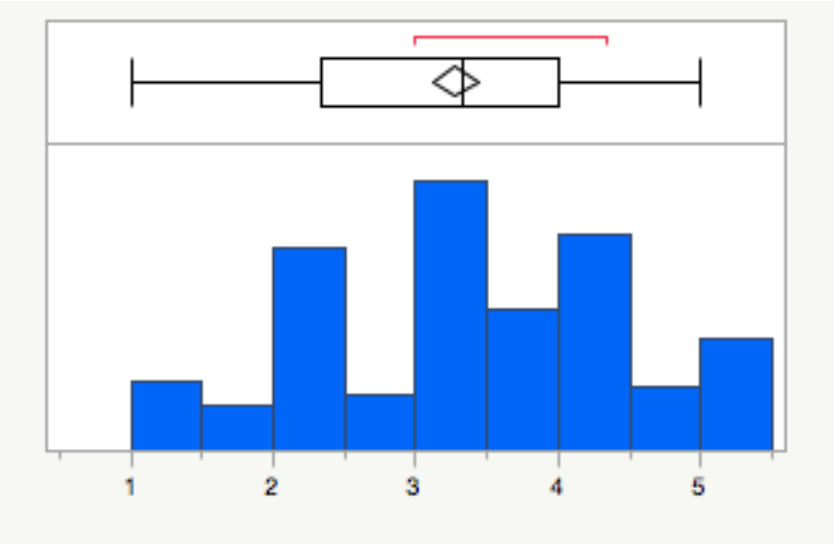
100.0%	maximum	5
99.5%		5
97.5%		5
90.0%		4.5
75.0%	quartile	4
50.0%	median	3.5
25.0%	quartile	3

10.0%		2
2.5%		1.3875
0.5%		1
0.0%	minimum	1

Summary Statistics

Mean	3.3815789
Std Dev	0.9331789
Std Err Mean	0.0676999
Upper 95% Mean	3.5151235
Lower 95% Mean	3.2480344
N	190
Skewness	-0.420069
Kurtosis	-0.147972

F7 LACK OF FAMILIAL SUPPORT



Quantiles

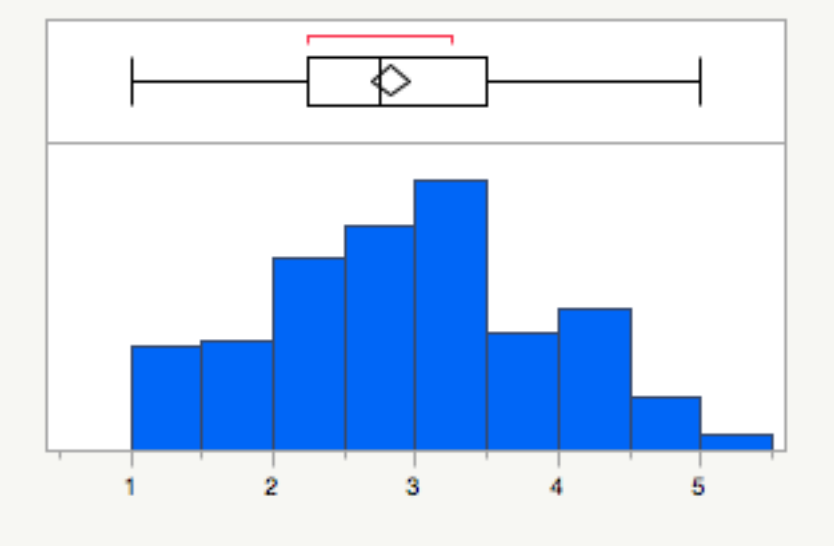
100.0%	maximum	5
99.5%		5
97.5%		5
90.0%		4.6666666667
75.0%	quartile	4
50.0%	median	3.3333333333
25.0%	quartile	2.3333333333

10.0%		2
2.5%		1
0.5%		1
0.0%	minimum	1

Summary Statistics

Mean	3.2754386
Std Dev	1.0884646
Std Err Mean	0.0789655
Upper 95% Mean	3.4312056
Lower 95% Mean	3.1196716
N	190
Skewness	-0.250015
Kurtosis	-0.710833

F8 PARENTAL



Quantiles

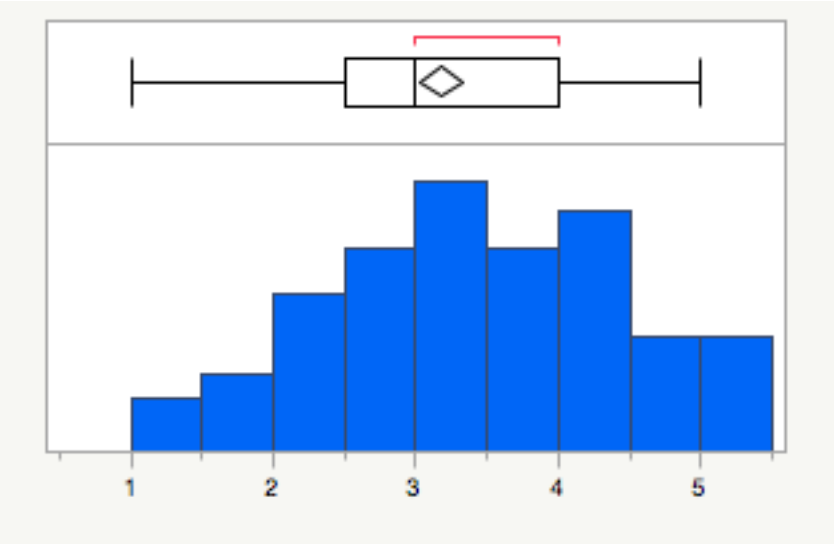
100.0%	maximum	5
99.5%		5
97.5%		4.75
90.0%		4
75.0%	quartile	3.5
50.0%	median	2.75

25.0%	quartile	2.25
10.0%		1.5
2.5%		1
0.5%		1
0.0%	minimum	1

Summary Statistics

Mean	2.8188596
Std Dev	0.9549538
Std Err Mean	0.0692796
Upper 95% Mean	2.9555203
Lower 95% Mean	2.682199
N	190
Skewness	0.0463723
Kurtosis	-0.52765

F10 LEARNING AND DEVELOPMENT



Quantiles

100.0%	maximum	5
99.5%		5
97.5%		5
90.0%		4.5
75.0%	quartile	4

50.0%	median	3
25.0%	quartile	2.5
10.0%		2
2.5%		1
0.5%		1
0.0%	minimum	1

Summary Statistics

Mean	3.1815789
Std Dev	1.0401606
Std Err Mean	0.0754612
Upper 95% Mean	3.3304333
Lower 95% Mean	3.0327246
N	190
Skewness	-0.098135

Kurtosis	-0.672029

Annexure J: Results of the open-ended question (learners in suburban schools)

PEER	ACADEMIC/ SCHOOL	INTRAPERSONAL	FAMILY	PHYSICAL FACTORS	FUTURE	SOCIAL-ECONOMIC FACTORS
Friend's problems	Examinations	Make yourself proud	Wellbeing	Lot of work	Not good enough	Drivers licence
Relationship with friends	School pressure	Disappointing my parents	Housework	Lack of sleep	Deciding what to study	Crime
Love life	Sports	Time Management	Relative sick	Not enough sleep	Acceptance at university residence	Crime
Pretty girls	Grades	Achieving my goals	Parents	Not enough sleep	Bursary application	Safety outside school
Friends	Sport	What people think of me	Parents	Not enough sleep	Bursary	The community I live in
Friends	Exam mark not good enough	Impressing people about my talents	Wellbeing of friends and family		Future – what to do next year	Cost of internet
People	Matric	Public speaking	Mom		Living alone	Social life

Drama between friends	Class work	Being late			New beginnings	Drivers licence
	Teacher	Time management				Internet connection
	Exams	Time management				Social status
	Economics	Increasing responsibilities				Internet connectivity
	Difficult exams	Time management				Getting drivers licence
	Grades	Being sick				Religion
	Sport	Time management				Sabbath
	Sport	Leadership position				Religion with God
	Teachers	Leadership position				Government
	Public Speaking	Fight				BEE
	Succeed in sport	Phobia				Government
	Missing schoolwork	Puberty				Government
	Getting good grades	Personal health				Global warming
	Academic	Time management				Social life
	Academics	Time management				Propaganda

	Sport	My hair				Strikes
	Sport	Licence				Safety
	Sport	Pressure to finish series				Safety
	Sport					Propaganda
	Athletics					Strikes
8	**27**	**25**	**7**	**5**	**8**	**27**

PEER	**ACADEMIC/SCHOOL**	**INTERNAL**	**FAMILY**	**PHYSICAL FACTORS**	**FUTURE**	**SOCIAL-ECONOMIC FACTORS**
Peer pressure	School work	Fear of getting sick	Pressure from parents		Inability to discuss what course to take	Part time job
Socialising	Work overload	What I want to achieve in life	Loss of a family member		University stress	My community
Friends exploiting you	Exams being too close	Inability to complete exam on time	Lack of emotional support		Adulthood stress	Life in general

Pressure to have sex	Distinction	Pressure from me	Emotional and physical abuse by family		University acceptance	Neglect
Boyfriend	Studying Math and Science	Being independent	PARENTS		The outcome of my future	Death
Fear of being dumped	Not having enough time to study		Being controlled by the family		University requirements	Strike that takes place during exam time
Girls	Dirty bathrooms		Not having a say		Applying for admission	Suitable environment
Girls	School stress				Finding a good tertiary institution	Personal health
Relationship	Sports				Getting sophisticated well-paying job	Self-study
Not being accepted by friends	Teacher not completing the syllabus				Finding a job	Destination to school

Peer pressure	Teacher not finishing the syllabus putting pressure on self-study				Finding a job	Being alone
Pressure of having a sexual relationship	Emotional and physical abuse by teachers					Leaving my parents
Finding the right friends	School					Providing for oneself
Pressure from peers	Abuse by teachers					Leaving my parent's home
	Sports					Having to keep up with the latest trends
	Extramural activities					FIFA world cup 2018
	Learner absenteeism					Bafana - Bafana
	Receiving bad results	Making my own income				Abuse
	Not doing well in matric	Overthinking				TV

	Getting bad academic result	Thinking a lot				Having a summer body
	Getting distinctions	Being respected by others				Phone
	Environmental stressor	Being a failure				FIFA world cup 2018
	Dirty Bathrooms	Gaining weight				2018 world cup because Chile is not here
	School stress	Doubt about my abilities				Being raped
	Sport	Health				Gossip
	School	Doubt about my abilities				Lack of technological access
	Abuse from teachers	Intrapersonal conflict				Gossip
	Sports					
14	**29**	**15**	**7**		**11**	**28**

PEER	ACADEMIC	INTERNAL	FAMILY	PHYSICAL FACTOR	FUTURE	SOCIAL LIFE
My relations	Too many assignments	Doubts about my abilities	Compared to other family members who are also in matric		Finding a job	
	Exam timetables given too late	Doubts about my abilities	Pressure from parents		Finding a job	Having 1 year old and going through matric
	Told to study everything, no scope is given	To achieve high marks	Lack of emotional support		Finding a job	Having 1 year old and going through matric
	Teachers give more work and less time to study	Doubts about my abilities	Lack of emotional support		Finding a job	
	To perform well in sports	Feeling discouraged	Lack of emotional support		Finding a job	
		Stagnant	Lack of emotional support		Finding a job	

		What will I do with my life	Enough money to sustain my academic career		Finding a job	
		Doubts about my abilities			Finding a job	
		Enough money to sustain myself			Finding a job	
		Balancing school and other activities			Finding a job	
1	**5**	**10**	**7**	**0**	**10**	**2**

Annexure K: Results of the open-ended question (learners in township schools)

PEER	ACADEMIC/SCHOOL	INTRAPERSONAL	FAMILY	PHYSICAL FACTORS	FUTURE	SOCIAL- ECONOMIC FACTORS
Unable to see friends	Getting good results	Health	Love life at home	Lack of sleep	Getting scholarship to further my studies	Do not have spare time
Bad influence from friends	Good career choice	Meeting goals	Bad relations with parents	No time to relax	Finding good university	Neighbours play loud music, difficult to concentrate
Fitting with other people	Waking up every morning to study	Hard time participating in class	Lack of support from parents	No time to rest	Finding a good college	Financial problems
Influence from friends	Study extra hours	Hard time finishing activities	I am stressed by making my parents happy		Scared about paying school fees	Media
Friends	Failing exams	What to wear	Family members			Technology
Peer pressure	My education	Not competing in soccer	Making my parents happy			Social life
	Exams	Achieving my goals and dreams	Family members			What to eat

	Lack of resources – laboratory not working	The possibility of failing matric	Lack of support from both parents			Lack of support
	Sports	Not taken seriously	Losing my parents			Not getting enough pocket money
	Overcrowded Classroom	Bullying	Growing up without a mother			Environment
	Drug alcohol abuse at school		Growing up without the love of the parent			Always being judge
	Prep for examinations					Being pressured
	Pressure from school					Being absent
	Lack of seriousness from the principal					
	Theft at school					
	They do not help us with after school care programme					
6	**17**	**11**	**12**	**3**	**4**	**14**

PEER	ACADEMIC/SCHOOL	INTRAPERSONAL	FAMILY	PHYSICAL FACTORS	FUTURE	SOCIAL-ECONOMIC FACTORS
Peer pressure from friends	Exam pressure	Weight lose obsession	My parent's health	Having to sleep late and wake up for 2am lessons	Tertiary Fees	Getting financial aid
Unable to see my friends	Getting good marks	Fact that I am single	Moral support from family	physical	Transition from High school to tertiary	Household chores
Bad influence from friends	Not getting distinctions	Emotional stressors	Bad relationship with parents	physical	Tertiary education	Lack of funds
Bullying by peers	Not knowing answers to questions	Emotional stressors	Lack of support from parents	physical	Do not know what to do after matric	Lack of finances
	Not writing all my subjects	Emotional stressors		physical		environmental
	Getting good marks	emotional		Having to wake up in the morning to study		Not being to participate in activities that I am interested in
	Keeping up with my marks			Not having time for anything		environmental
	Not understanding with matric syllabus			Lack of sleep		Not being to participate in

						activities that I am interested in
				Studying extra hours		environmental
				Not having enough time to relax		Social
	Good results					Financial
						Health
						Neighbours playing music very hard, I cannot concentrate
						Tavern next to my home,
						Loud music
						Financial stress
						Media
						Technology
						Financial
4	**9**	**6**	**4**	**10**	**4**	**24**

Annexure L: Frequencies and percentages (suburban schools)

Suburbs	**Strongly disagree**		**Disagree**		**Neutral**		**Agree**		**Strongly agree**		**All**	
Statements	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**Total %**	**Total F**
Excessive homework	6.47	11	10.59	18	18	69	21.76	37	20.59	35	100	170
Increased workload	2.35	4	7.65	13	13	35	35.29	60	34.12	58	100	170
Preparation for examinations	0.59	1	5.33	9	9	38	27.22	46	44.38	75	100	169
Educators' work ethics	5.36	9	21.43	36	36	72	16.07	27	14.29	24	100	168

Educator absenteeism	16.07	27	20.24	34	34	68	11.90	20	11.31	19	100	168
Pressure from educators	8.88	15	5.33	9	9	52	36.09	61	18.93	32	100	169
Pressure from school	8.43	14	12.65	21	21	42	31.33	52	22.29	37	100	166
Difficulty in understanding lessons	8.82	15	22.35	38	38	45	22.35	38	20.00	34	100	170
Having trouble studying	6.47	11	15.88	27	27	53	20.59	35	25.88	44	100	170
Extreme hot & cold classrooms	16.67	28	13.69	23	23	68	19.64	33	9.52	16	100	168
Dilapidated classrooms	12.50	21	22.02	37	37	74	14.29	24	7.14	12	100	168
Noisy classroom	7.69	13	24.85	42	42	44	23.67	40	17.75	30	100	169
Poor lighting (poor lighting – too dark or too bright)	22.62	38	25.60	43	43	64	8.93	15	4.76	8	100	168

Class size: Too many learners	17.75	30	17.75	30	30	50	14.79	25	20.12	34	100	169
Sanitation facilities	11.76	20	15.88	27	27	53	21.76	37	19.41	33	100	170
Ventilation	10.00	17	19.41	33	33	58	24.12	41	12.35	21	100	170
Lack of academic resources	17.06	29	17.06	29	29	38	24.12	41	19.41	33	100	170
Crime at school	27.06	46	14.12	24	24	32	18.24	31	21.76	37	100	170
Getting good grades	4.12	7	7.06	12	12	46	26.47	45	35.29	60	100	170
Preparation for matric farewell	24.12	41	15.88	27	27	49	12.94	22	18.24	31	100	170
Getting a date for matric farewell	40.24	68	16.57	28	28	42	8.28	14	10.06	17	100	169

Worry about making my family proud	9.04	15	6.02	10	10	29	23.49	39	43.98	73	100	166
Finding work	15.06	25	3.61	6	6	28	21.08	35	43.37	72	100	166
Pressure to take alcohol and/or drugs	65.29	111	17.65	30	30	14	5.29	9	3.53	6	100	170
Exclusion from peers	42.60	72	27.22	46	46	22	12.43	21	4.73	8	100	169
Ethnicity	40.36	67	22.29	37	37	28	17.47	29	3.01	5	100	166
Race	50.89	86	15.38	26	26	20	15.98	27	5.92	10	100	169
Fashion	41.18	70	14.71	25	25	31	15.88	27	10.00	17	100	170
Finances	23.81	40	13.10	22	22	35	22.62	38	19.64	33	100	168
Bullying	50.00	85	18.24	31	31	22	8.24	14	10.59	18	100	170

Gossip / Drama	38.24	65	20.00	34	34	24	14.71	25	12.94	22	100	170
Love life	31.18	53	16.47	28	28	33	14.12	24	18.82	32	100	170
Parenting styles	21.18	36	17.06	29	29	56	11.18	19	17.65	30	100	170
Pressure from parents	5.88	10	9.41	16	16	43	27.06	46	32.35	55	100	170
Pressure from siblings	31.18	53	18.82	32	32	36	14.12	24	14.71	25	100	170
Pressure from family members	14.12	24	16.47	28	28	42	16.47	28	28.24	48	100	170
Lack of financial support	21.89	37	18.34	31	31	46	15.38	26	17.16	29	100	169
Family Income / Status	22.49	38	17.75	30	30	50	14.20	24	15.98	27	100	169
Parent and/or guardian relationship	18.93	32	16.57	28	28	56	13.02	22	18.34	31	100	169

Responsibilities – Chores	21.89	37	14.79	25	25	58	11.83	20	17.16	29	100	169
Having a hard time talking with your parents/guardian	22.35	38	20.00	34	34	42	15.88	27	17.06	29	100	170
Not spending as much time as you would like to with your parents/guardian	25.88	44	15.29	26	26	60	8.82	15	14.71	25	100	170
Assets	26.19	44	20.83	35	35	63	9.52	16	5.95	10	100	168
Fees	20.00	34	17.65	30	30	56	16.47	28	12.94	22	100	170
Uniform	29.59	50	26.04	44	44	55	7.69	13	4.14	7	100	169
Transport	26.63	45	26.63	45	45	49	9.47	16	8.28	14	100	169
Clothing	28.82	49	20.59	35	35	56	9.41	16	8.24	14	100	170
School material	28.40	48	22.49	38	38	49	12.43	21	7.69	13	100	169

Food	27.38	46	20.24	34	34	37	12.50	21	17.86	30	100	168
Personal hygiene	30.18	51	16.57	28	28	34	13.02	22	20.12	34	100	169
Finding a good college or university	5.29	9	4.12	7	7	20	20.59	35	58.24	99	100	170
Tertiary acceptance	2.94	5	7.65	13	13	28	16.47	28	56.47	96	100	170
Taking a gap year	39.05	66	15.98	27	27	32	7.10	21	18.93	32	100	169

Annexure M: Frequencies and percentages (township schools)

Township	**Strongly disagree**		**Disagree**		**Neutral**		**Agree**		**Strongly agree**		**All**	
Stress Statements	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**Total %**	**Total F**
Excessive homework	11.64	22	17.46	33	33	69	25.93	49	8.47	16	100	189
Increased workload	4.76	9	11.64	22	22	31	39.15	74	28.04	53	100	189
Preparation for examinations	3.17	6	8.99	17	17	39	28.57	54	38.62	73	100	189
Educators' work ethics	9.52	18	13.23	25	25	67	25.40	48	16.40	31	100	189
Educator absenteeism	22.46	42	17.11	32	32	45	14.44	27	21.93	41	100	187

Pressure from educators	7.94	15	10.05	19	19	40	28.57	54	32.28	61	100	189
Pressure from school	9.09	17	10.70	20	20	39	31.02	58	28.34	53	100	187
Difficulty in understanding lessons	8.95	17	19.47	37	37	64	20.53	39	17.37	33	100	190
Having trouble studying	8.47	16	19.58	37	37	56	29.10	55	13.23	25	100	189
Extreme hot & cold classrooms	15.87	30	17.99	34	34	61	18.52	35	15.34	29	100	189
Dilapidated classrooms	15.47	28	24.86	45	45	63	14.92	27	9.94	18	100	181
Noisy classroom	10.00	19	13.68	26	26	33	25.26	48	33.68	64	100	190
Poor lighting (poor lighting – too dark or too bright)	22.11	42	28.95	55	55	51	9.47	18	12.63	24	100	190
Class size: Too many learners	25.79	49	17.89	34	34	34	22.63	43	15.79	30	100	190

Sanitation facilities	16.04	30	17.65	33	33	62	19.79	37	13.37	25	100	187
Ventilation	16.02	29	16.02	29	29	76	14.92	27	11.05	20	100	181
Lack of academic resources	11.05	21	15.26	29	29	32	25.79	49	31.05	59	100	190
Crime at school	23.28	44	15.34	29	29	28	18.52	35	28.04	53	100	189
Getting good grades	12.90	24	8.60	16	16	59	23.66	44	23.12	43	100	186
Preparation for matric farewell	31.18	58	19.89	37	37	26	21.51	40	13.44	25	100	186
Getting a date for matric farewell	37.77	71	14.36	27	27	36	12.77	24	15.96	30	100	188
Worry about making my family proud	6.01	11	4.37	8	8	24	19.67	36	56.83	104	100	183
Finding work	13.59	25	10.33	19	19	35	20.65	38	36.41	67	100	184

Pressure to take alcohol and/or drugs	57.98	109	17.02	32	32	18	6.91	13	8.51	16	100	188
Exclusion from peers	43.68	83	23.68	45	45	29	13.16	25	4.21	8	100	190
Ethnicity	33.70	62	16.30	30	30	46	20.11	37	4.89	9	100	184
Race	39.57	74	15.51	29	29	36	16.58	31	9.09	17	100	187
Fashion	34.05	63	15.14	28	28	38	12.97	24	17.30	32	100	185
Finances	23.40	44	13.83	26	26	31	20.21	38	26.06	49	100	188
Bullying	43.16	82	17.37	33	33	19	11.05	21	18.42	35	100	190
Gossip / Drama	33.87	63	19.89	37	37	24	16.67	31	16.67	31	100	186
Love life	28.42	54	14.74	28	28	32	18.95	36	21.05	40	100	190

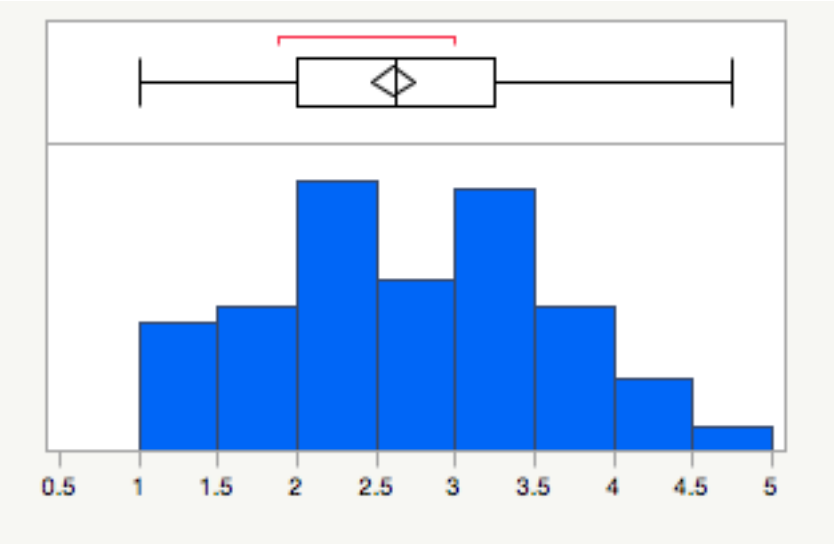
Parenting styles	26.46	50	17.46	33	33	39	17.46	33	17.99	34	100	189
Pressure from parents	17.89	34	12.11	23	23	46	16.32	31	29.47	56	100	190
Pressure from siblings	17.99	34	19.58	37	37	37	16.93	32	25.93	49	100	189
Pressure from family members	12.77	24	15.43	29	29	27	23.94	45	33.51	63	100	188
Lack of financial support	13.23	25	18.52	35	35	51	19.05	36	22.22	42	100	189
Family Income / Status	12.63	24	21.58	41	41	58	19.47	37	15.79	30	100	190
Parent and/or guardian relationship	23.68	45	19.47	37	37	45	18.95	36	14.21	27	100	190
Responsibilities – Chores	20.00	38	18.95	36	36	47	20.00	38	16.32	31	100	190
Having a hard time talking with your parents/guardian	19.15	36	24.47	46	46	40	13.30	25	21.81	41	100	188

Not spending as much time as you would like to with your parents/guardian	24.74	47	25.79	49	49	37	15.26	29	14.74	28	100	190
Assets	20.21	38	22.34	42	42	65	9.57	18	13.30	25	100	188
Fees	21.05	40	18.95	36	36	33	18.42	35	24.21	46	100	190
Uniform	24.60	46	23.53	44	44	41	15.51	29	14.44	27	100	187
Transport	31.22	59	28.57	54	54	33	6.88	13	15.87	30	100	189
Clothing	22.22	42	24.87	47	47	37	14.29	27	19.05	36	100	189
School material	19.05	36	23.28	44	44	39	18.52	35	18.52	35	100	189
Food	21.16	40	21.69	41	41	31	20.11	38	20.63	39	100	189
Personal hygiene	21.05	40	23.16	44	44	35	15.79	30	21.58	41	100	190

Finding a good college or university	4.76	9	8.99	17	17	30	23.81	45	46.56	88	100	189
Tertiary acceptance	5.32	10	10.64	20	20	28	19.68	37	49.47	93	100	188
Taking a gap year	32.98	62	15.43	29	29	31	7.45	14	27.66	52	100	188

Annexure N: Distributions (suburbs)

F1 SOCIO-ECONOMIC FACTORS



Quantiles

100.0%	maximum	4.75
99.5%		4.75
97.5%		4.25
90.0%		3.7375

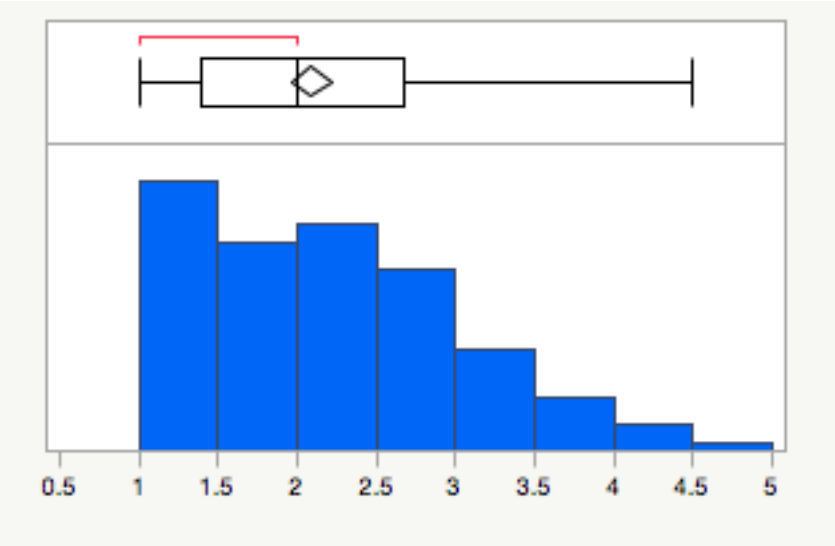
75.0%	quartile	3.25
50.0%	median	2.625
25.0%	quartile	2
10.0%		1.25
2.5%		1
0.5%		1
0.0%	minimum	1

Summary Statistics

Mean	2.614916
Std Dev	0.8919858
Std Err Mean	0.0684122
Upper 95% Mean	2.7499685
Lower 95% Mean	2.4798634
N	170

Skewness	-0.01406
Kurtosis	-0.644097

F2 PEER PRESSURE



Quantiles

100.0%	maximum	4.5
99.5%		4.5
97.5%		4
90.0%		3.1666666667

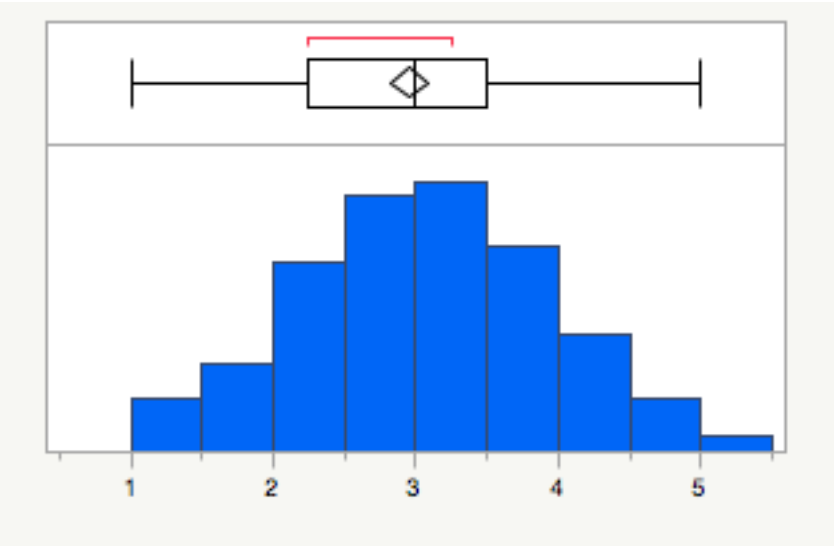
75.0%	quartile	2.6666666667
50.0%	median	2
25.0%	quartile	1.4
10.0%		1
2.5%		1
0.5%		1
0.0%	minimum	1

Summary Statistics

Mean	2.0907843
Std Dev	0.8240389
Std Err Mean	0.0632009
Upper 95% Mean	2.2155492
Lower 95% Mean	1.9660194
N	170

Skewness	0.4642508
Kurtosis	-0.40914

F3 SCHOOL ENVIRONMENT



Quantiles

100.0%	maximum	5
99.5%		5
97.5%		4.5

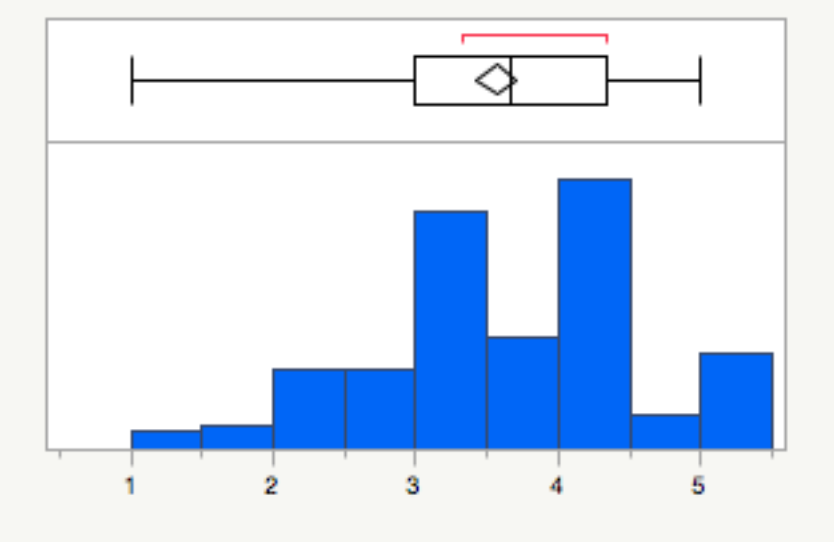
90.0%		4
75.0%	quartile	3.5
50.0%	median	3
25.0%	quartile	2.25
10.0%		1.75
2.5%		1
0.5%		1
0.0%	minimum	1

Summary Statistics

Mean	2.9485294
Std Dev	0.8726934
Std Err Mean	0.0669325
Upper 95% Mean	3.0806609
Lower 95% Mean	2.8163979

N	170
Skewness	-0.111141
Kurtosis	-0.302798

F4 EXTERNAL PRESSURE



Quantiles

100.0%	maximum	5
99.5%		5

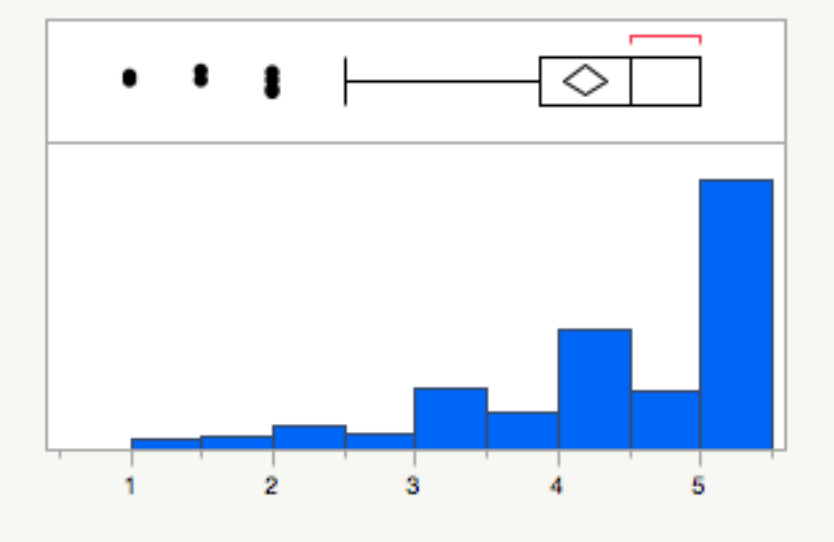
97.5%		5
90.0%		4.9666666667
75.0%	quartile	4.3333333333
50.0%	median	3.6666666667
25.0%	quartile	3
10.0%		2.3333333333
2.5%		1.6666666667
0.5%		1
0.0%	minimum	1

Summary Statistics

Mean	3.5627451
Std Dev	0.8845137
Std Err Mean	0.0678391
Upper 95% Mean	3.6966663

Lower 95% Mean	3.4288239
N	170
Skewness	-0.342932
Kurtosis	-0.208825

F5 Post-matric educational opportunities



Quantiles

100.0%	maximum	5
99.5%		5

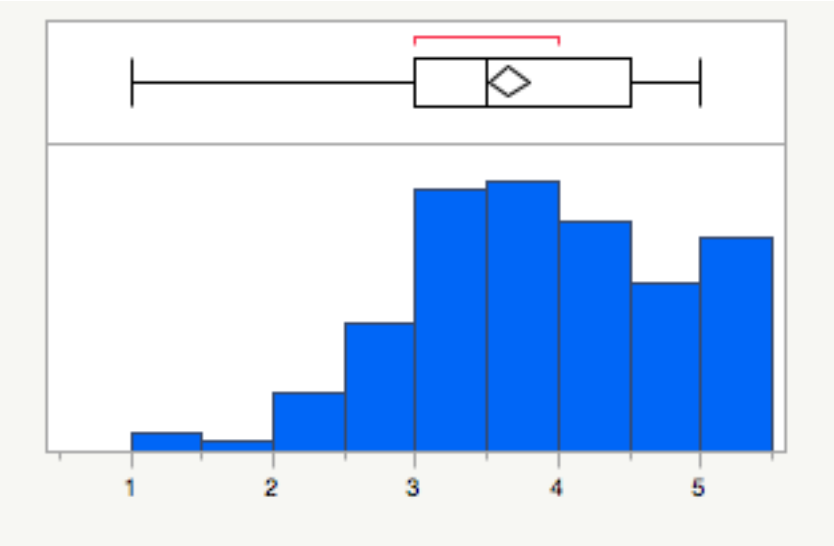
97.5%		5
90.0%		5
75.0%	quartile	5
50.0%	median	4.5
25.0%	quartile	3.875
10.0%		3
2.5%		1.5
0.5%		1
0.0%	minimum	1

Summary Statistics

Mean	4.1911765
Std Dev	0.9882049
Std Err Mean	0.0757919
Upper 95% Mean	4.3407972

Lower 95% Mean	4.0415557
N	170
Skewness	-1.218989
Kurtosis	0.841235

F6 ACADEMIC PRESSURE



Quantiles

100.0%	maximum	5
99.5%		5

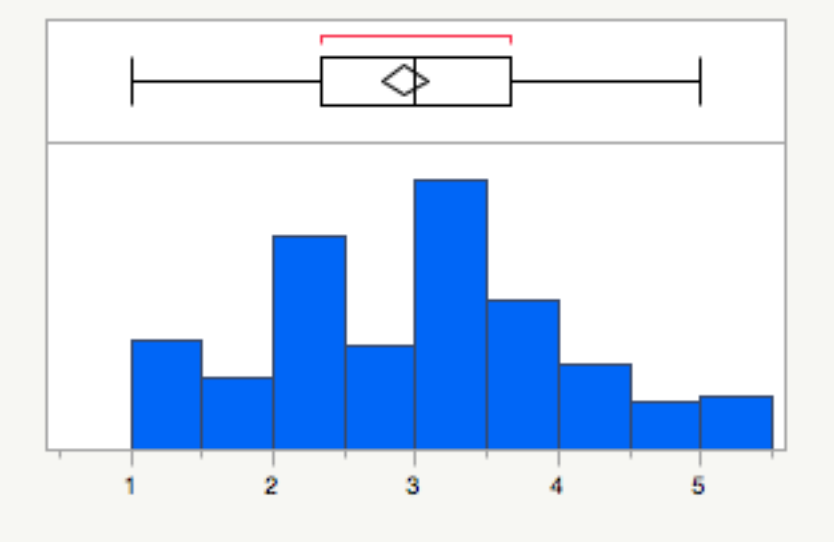
97.5%		5
90.0%		5
75.0%	quartile	4.5
50.0%	median	3.5
25.0%	quartile	3
10.0%		2.5
2.5%		2
0.5%		1
0.0%	minimum	1

Summary Statistics

Mean	3.6529412
Std Dev	0.9151051
Std Err Mean	0.0701854
Upper 95% Mean	3.7914941

Lower 95% Mean	3.5143882
N	170
Skewness	-0.256221
Kurtosis	-0.367951

F7 FAMILIAL SUPPORT



Quantiles

100.0%	maximum	5

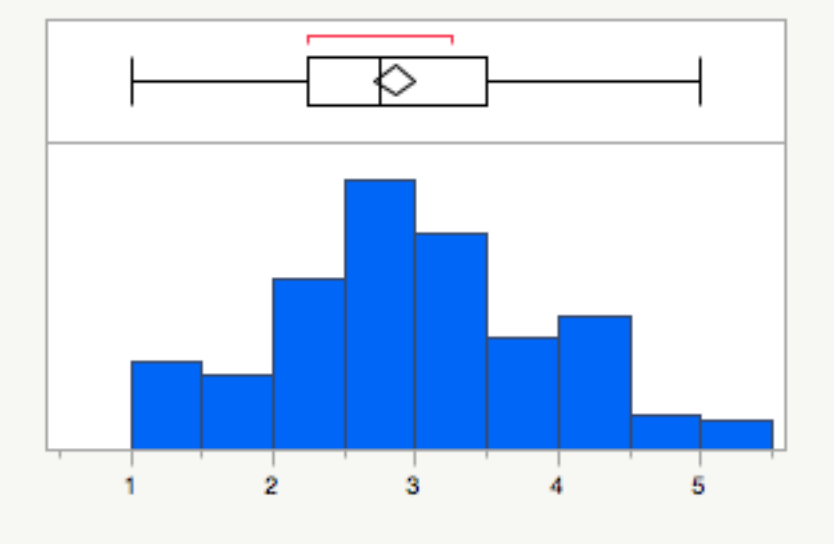
99.5%		5
97.5%		5
90.0%		4.3333333333
75.0%	quartile	3.6666666667
50.0%	median	3
25.0%	quartile	2.3333333333
10.0%		1.3666666667
2.5%		1
0.5%		1
0.0%	minimum	1

Summary Statistics

Mean	2.9235294
Std Dev	1.0415601
Std Err Mean	0.079884

Upper 95% Mean	3.0812285
Lower 95% Mean	2.7658303
N	170
Skewness	0.0813854
Kurtosis	-0.548427

F8 PARENTAL



Quantiles

100.0%	maximum	5

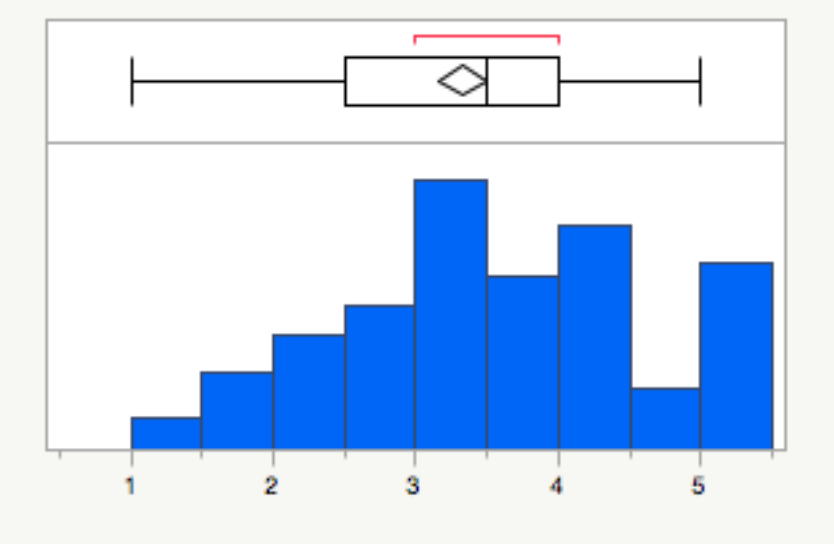
99.5%		5
97.5%		4.93125
90.0%		4
75.0%	quartile	3.5
50.0%	median	2.75
25.0%	quartile	2.25
10.0%		1.5
2.5%		1
0.5%		1
0.0%	minimum	1

Summary Statistics

Mean	2.854902
Std Dev	0.9332728
Std Err Mean	0.0715788

Upper 95% Mean	2.9962056
Lower 95% Mean	2.7135983
N	170
Skewness	0.0793819
Kurtosis	-0.386596

F10 LEARNING AND DEVELOPMENT



Quantiles

100.0%	maximum	5

99.5%		5
97.5%		5
90.0%		5
75.0%	quartile	4
50.0%	median	3.5
25.0%	quartile	2.5
10.0%		2
2.5%		1.1375
0.5%		1
0.0%	minimum	1

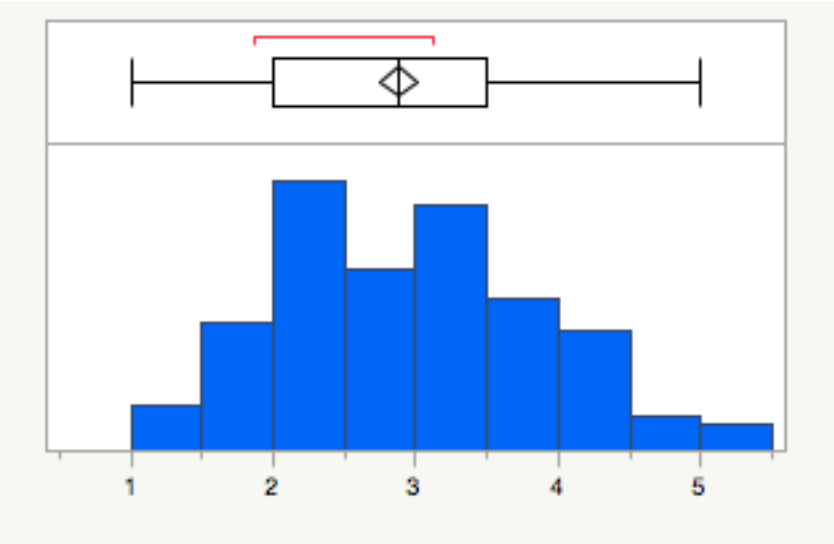
Summary Statistics

Mean	3.3294118
Std Dev	1.0701793
Std Err Mean	0.082079

Upper 95% Mean	3.491444
Lower 95% Mean	3.1673796
N	170
Skewness	-0.100648
Kurtosis	-0.708125

Annexure O: Distributions (townships)

F1 SOCIO-ECONOMIC FACTORS



Quantiles

100.0%	maximum	5
99.5%		5
97.5%		4.80625
90.0%		4.125

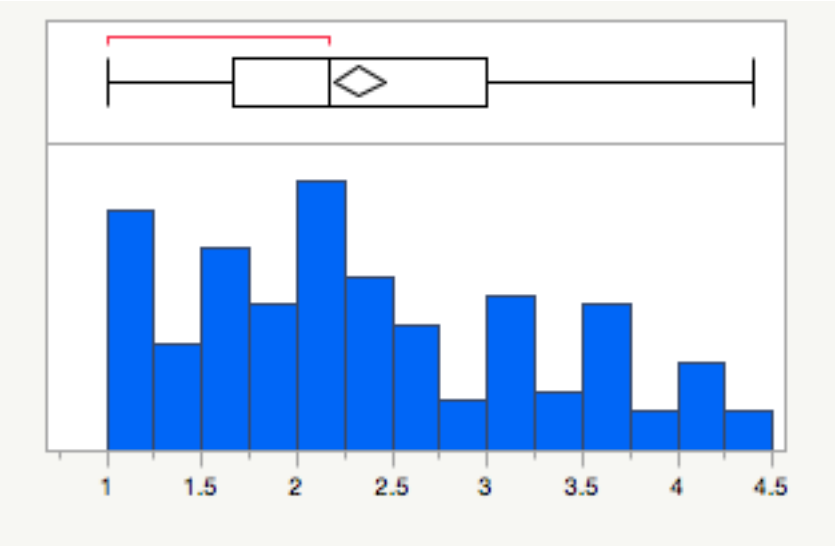
75.0%	quartile	3.5
50.0%	median	2.875
25.0%	quartile	2
10.0%		1.75
2.5%		1.25
0.5%		1
0.0%	minimum	1

Summary Statistics

Mean	2.8738722
Std Dev	0.9252361
Std Err Mean	0.0671237
Upper 95% Mean	3.00628
Lower 95% Mean	2.7414643
N	190

Skewness	0.2320823
Kurtosis	-0.650279

F2 PEER PRESSURE



Quantiles

100.0%	maximum	4.4
99.5%		4.4
97.5%		4.2041666667
90.0%		3.6666666667

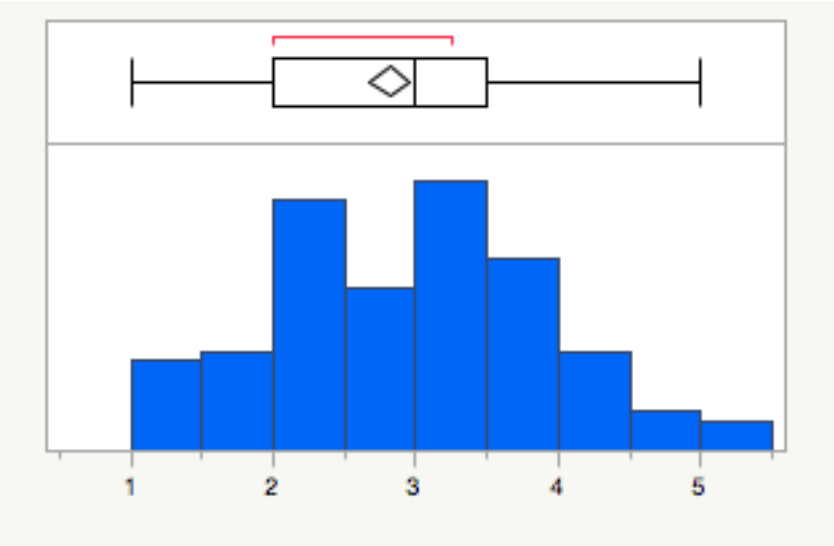
75.0%	quartile	3
50.0%	median	2.1666666667
25.0%	quartile	1.6666666667
10.0%		1.1666666667
2.5%		1
0.5%		1
0.0%	minimum	1

Summary Statistics

Mean	2.3275439
Std Dev	0.9228731
Std Err Mean	0.0669522
Upper 95% Mean	2.4596135
Lower 95% Mean	2.1954742
N	190

Skewness	0.4523042
Kurtosis	-0.759554

F3 SCHOOL ENVIRONMENT



Quantiles

100.0%	maximum	5
99.5%		5
97.5%		4.80625
90.0%		4

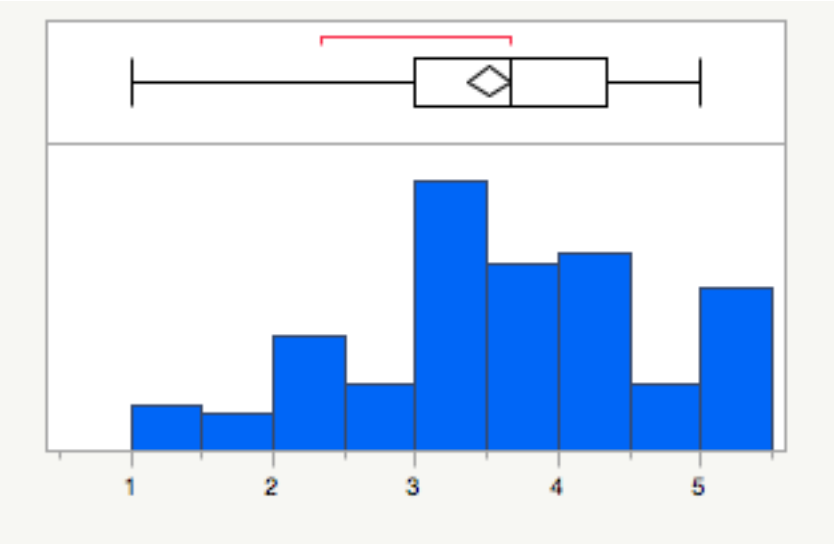
75.0%	quartile	3.5
50.0%	median	3
25.0%	quartile	2
10.0%		1.5
2.5%		1
0.5%		1
0.0%	minimum	1

Summary Statistics

Mean	2.8149123
Std Dev	0.9397392
Std Err Mean	0.0681758
Upper 95% Mean	2.9493956
Lower 95% Mean	2.6804289
N	190

Skewness	0.0677405
Kurtosis	-0.517567

F4 EXTERNAL PRESSURE



Quantiles

100.0%	maximum	5

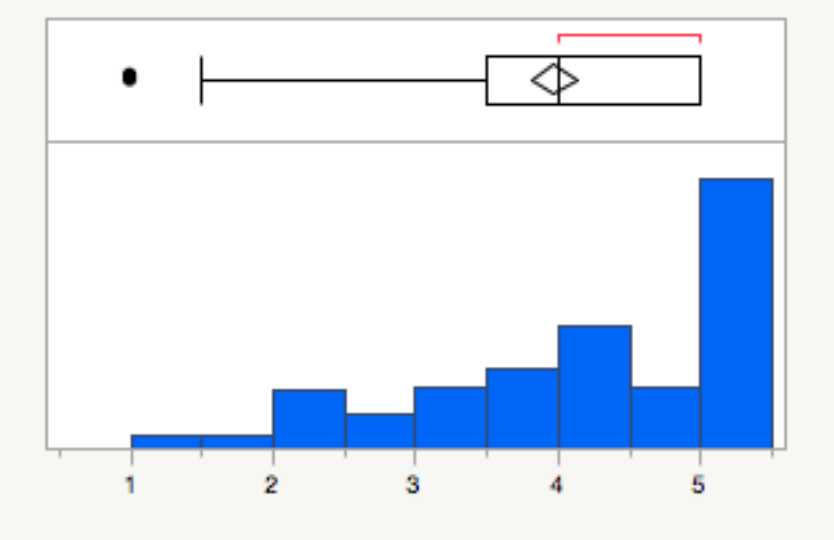
99.5%		5
97.5%		5
90.0%		5
75.0%	quartile	4.3333333333
50.0%	median	3.6666666667
25.0%	quartile	3
10.0%		2
2.5%		1
0.5%		1
0.0%	minimum	1

Summary Statistics

Mean	3.5061404
Std Dev	1.0433535
Std Err Mean	0.0756928

Upper 95% Mean	3.6554516
Lower 95% Mean	3.3568291
N	190
Skewness	-0.39368
Kurtosis	-0.417069

F5 Post-matric educational opportunities



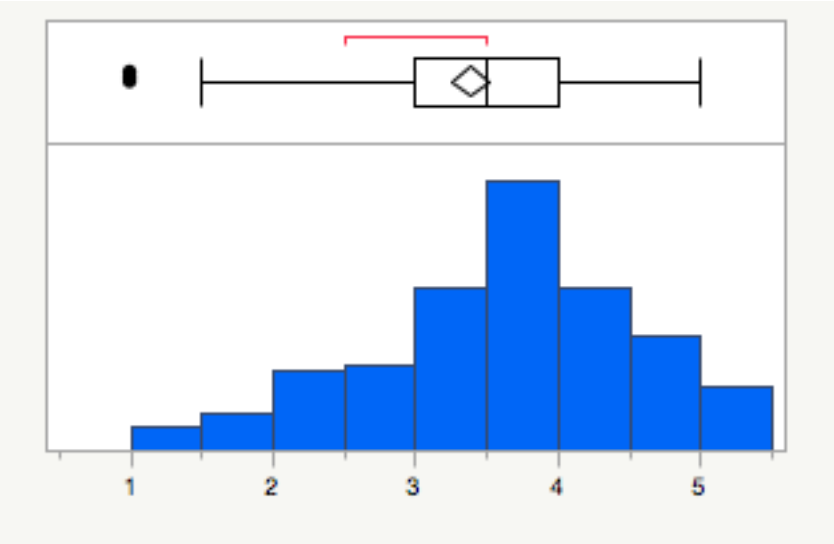
Quantiles

100.0%	maximum	5
99.5%		5
97.5%		5
90.0%		5
75.0%	quartile	5
50.0%	median	4
25.0%	quartile	3.5
10.0%		2
2.5%		1.5
0.5%		1
0.0%	minimum	1

Summary Statistics

Mean	3.9708995
Std Dev	1.0917728
Std Err Mean	0.0794148
Upper 95% Mean	4.1275581
Lower 95% Mean	3.8142409
N	189
Skewness	-0.83575
Kurtosis	-0.29499

F6 ACADEMIC PRESSURE



Quantiles

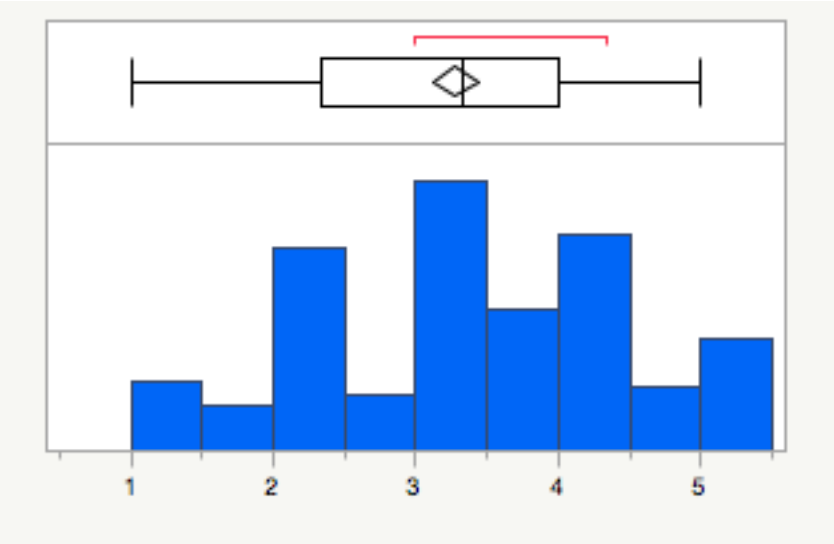
100.0%	maximum	5
99.5%		5
97.5%		5
90.0%		4.5
75.0%	quartile	4
50.0%	median	3.5
25.0%	quartile	3

10.0%		2
2.5%		1.3875
0.5%		1
0.0%	minimum	1

Summary Statistics

Mean	3.3815789
Std Dev	0.9331789
Std Err Mean	0.0676999
Upper 95% Mean	3.5151235
Lower 95% Mean	3.2480344
N	190
Skewness	-0.420069
Kurtosis	-0.147972

F7 LACK OF FAMILIAL SUPPORT



Quantiles

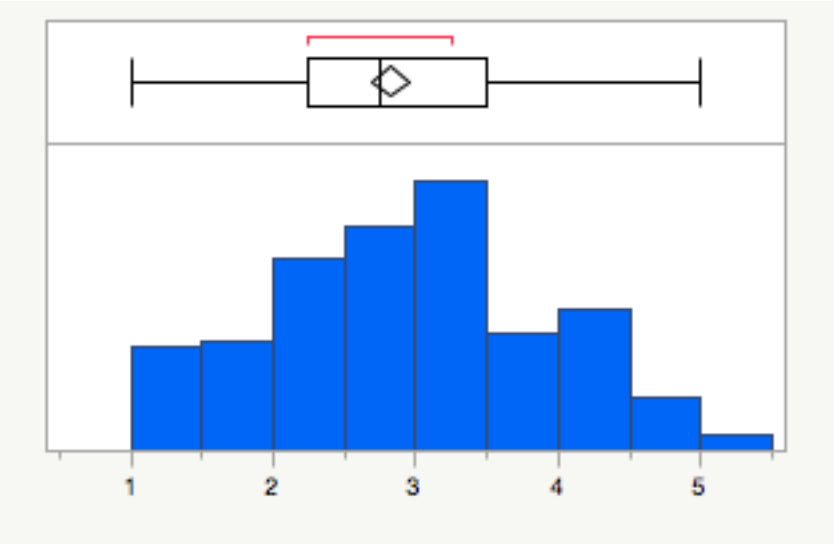
100.0%	maximum	5
99.5%		5
97.5%		5
90.0%		4.6666666667
75.0%	quartile	4
50.0%	median	3.3333333333

25.0%	quartile	2.3333333333
10.0%		2
2.5%		1
0.5%		1
0.0%	minimum	1

Summary Statistics

Mean	3.2754386
Std Dev	1.0884646
Std Err Mean	0.0789655
Upper 95% Mean	3.4312056
Lower 95% Mean	3.1196716
N	190
Skewness	-0.250015
Kurtosis	-0.710833

F8 PARENTAL



Quantiles

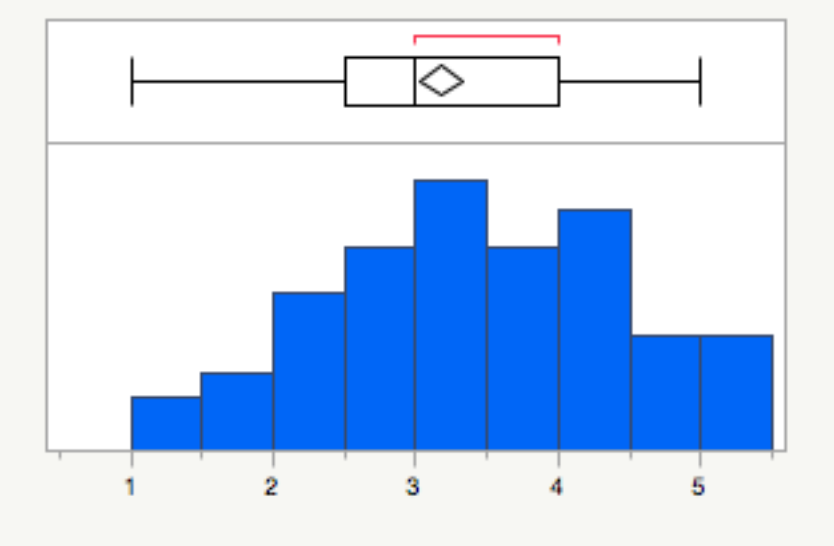
100.0%	maximum	5
99.5%		5
97.5%		4.75
90.0%		4
75.0%	quartile	3.5
50.0%	median	2.75

25.0%	quartile	2.25
10.0%		1.5
2.5%		1
0.5%		1
0.0%	minimum	1

Summary Statistics

Mean	2.8188596
Std Dev	0.9549538
Std Err Mean	0.0692796
Upper 95% Mean	2.9555203
Lower 95% Mean	2.682199
N	190
Skewness	0.0463723
Kurtosis	-0.52765

F10 LEARNING AND DEVELOPMENT



Quantiles

100.0%	maximum	5
99.5%		5
97.5%		5
90.0%		4.5
75.0%	quartile	4

50.0%	median	3
25.0%	quartile	2.5
10.0%		2
2.5%		1
0.5%		1
0.0%	minimum	1

Summary Statistics

Mean	3.1815789
Std Dev	1.0401606
Std Err Mean	0.0754612
Upper 95% Mean	3.3304333
Lower 95% Mean	3.0327246
N	190
Skewness	-0.098135

Kurtosis	-0.672029

Annexure P: Total variance explained

Total variance explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	8.934	16.857	16.857	8.369	15.790	15.790	5.621
2	3.777	7.127	23.984	3.225	6.085	21.874	3.866
3	2.498	4.714	28.697	1.923	3.628	25.502	3.074
4	2.161	4.077	32.774	1.643	3.101	28.603	2.242
5	1.958	3.695	36.469	1.384	2.612	31.215	1.985
6	1.780	3.358	39.827	1.224	2.310	33.525	1.775

7	1.696	3.201	43.028	1.118	2.109	35.635	3.577
8	1.668	3.147	46.175	1.077	2.031	37.666	3.267
9	1.528	2.883	49.058	.964	1.819	39.485	2.409
10	1.437	2.712	51.769	.864	1.629	41.115	2.830
11	1.341	2.531	54.300				
12	1.203	2.270	56.571				
13	1.188	2.242	58.812				
14	1.148	2.166	60.978				
15	1.099	2.074	63.052				
16	.998	1.883	64.935				

17	.990	1.869	66.804				
18	.924	1.744	68.548				
19	.867	1.635	70.183				
20	.857	1.618	71.801				
21	.827	1.561	73.362				
22	.809	1.526	74.887				
23	.777	1.465	76.353				
24	.739	1.395	77.747				
25	.693	1.308	79.056				
26	.669	1.263	80.319				

27	.646	1.218	81.537				
28	.631	1.191	82.728				
29	.587	1.108	83.835				
30	.576	1.086	84.922				
31	.567	1.070	85.992				
32	.548	1.033	87.025				
33	.534	1.007	88.033				
34	.510	.962	88.995				
35	.479	.904	89.899				
36	.465	.878	90.777				

37	.419	.790	91.567				
38	.394	.743	92.310				
39	.370	.698	93.008				
40	.360	.679	93.686				
41	.344	.649	94.335				
42	.338	.637	94.972				
43	.335	.633	95.605				
44	.303	.573	96.178				
45	.288	.543	96.721				
46	.275	.518	97.239				

47	.246	.465	97.703				
48	.243	.458	98.162				
49	.233	.439	98.601				
50	.209	.394	98.994				
51	.186	.350	99.345				
52	.185	.348	99.693				
53	.163	.307	100.000				