

PREDICTORS OF LONELINESS AMONGST UNIVERSITY STUDENTS

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Submitted in accordance with the requirements for the degree of

**MASTER OF ARTS WITH SPECIALISATION IN PSYCHOLOGY
PSMD 8900**

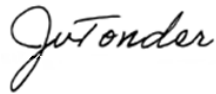
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at the University of the Free State
Bloemfontein

January 2020

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STUDENT DECLARATION

I, Johanna Isabella van Tonder, hereby assert that the dissertation I submit for the degree Master of Arts with specialisation in Psychology at the University of the Free State is my personal, autonomous work and that this dissertation has not been submitted previously at/in another university or faculty. Furthermore, I cede copyright of this dissertation in favour of the University of the Free State.



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I hereby provide permission that this dissertation be submitted for examination – in fulfilment of the requirements for a Master's in Psychology, in the Department of Psychology, Faculty of the Humanities, at the University of the Free State.

I approve the submission for assessment and that the submitted work has not previously, either in part or in its entirety, been submitted to the examiners or moderators.

Kind regards.

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DECLARATION

I, Anneke Denobili, hereby declare that I did the language and APA editing of the thesis of Johanna Isabella van Tonder titled, *Predictors of Loneliness amongst University Students*, for submission purposes in fulfilment of the requirements for the degree Master of Arts with Specialisation in Psychology in the Department of Psychology, Faculty of the Humanities at the University of the Free State. All the suggested changes, including the implementation thereof, were left to the discretion of the student.

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Chapter One

Introduction and Orientation to the Study

1.1. Introduction

This research study focuses on loneliness amongst undergraduate university students enrolled at the University of the Free State, Bloemfontein, South Africa. More specifically, this study aims to identify which predictor variable(s) account for a substantial percentage of the variance in loneliness amongst university students. Therefore, the desired outcome of this investigation is to obtain a better understanding of loneliness in South Africa, with a special focus on university students. This chapter provides an overview and introduction of the proposed research, including the problem statement and background that informed the study. Furthermore, the research goals and questions are included in order to highlight the aims of the study. Also, a brief discussion of the research methodology is included to provide a general overview of how the study was conducted. The research methodology includes the research design, data collection procedures and instruments, as well as the statistical procedures followed within the study. It also introduces the research participants, sampling methods and the ethical considerations of the study. A brief discussion concerning the significance of the study, as well as definitions and clarifications of all the important terms used within the research, are provided. The chapter concludes with an overview of the chapters included in the dissertation, as well as a summary of the current chapter.

1.2. Background of the Study

Research has shown that humans have always been social creatures who have an evolutionary need to feel socially included and to belong to a group, thus preferring the company of others over time spent alone (Axelrod & Hamilton, 1981; Baumeister & Leary, 1995; Cacioppo, Fowler, & Christakis, 2009; Hendrick, 2004; Rokach, 2011). The average person spends about 80% of their waking hours in the company of others and it is, therefore, no surprise that when something lacks within these relationships, people tend to experience feelings of loneliness (Cacioppo et al., 2015; Emler, 1994; Kahneman, Krueger, Schkade, Schwarz, & Stone, 2004). Loneliness can be defined as the painful emotional state which an individual experiences when a social relationship does not fulfil an individual's subjective social needs (Le Roux, 1998). Although research has indicated that all people experience loneliness at some point during their lives (Cacioppo, Crawford, Burlison, & Kowalewski, 2002; Holt-Lunstad, Smith, Baker, Harris, & Stephenson, 2015; Luhmann & Hawkley, 2016), recent findings are indicating that loneliness is becoming all the more common in especially young adults attending university (Jordaan & Le Roux, 2004; Knox, Vail-Smith, & Zusman, 2007; Peltzer & Pengpid, 2017).

Possible reasons for increased levels in loneliness amongst university students may be because this population group experiences many of the risk factors associated with loneliness; thus being more susceptible to developing feelings of loneliness (Doman & Le Roux, 2012; Le Roux & Connors, 2001; Schiau, 2016; Seepersad, 2005; Stankovska, Angelkovska, & Grncarovska, 2016). For example, technology is a crucial part of university students' existence, as it influences how this population communicates with others and how they view themselves in light of others (Jia, Wang, Yang, & Yang, 2018; Rahman et al., 2017). Also, students who are less competent in terms of interpersonal communication often have a lower self-esteem (Joinson, 2004), which has been shown to predict loneliness (Al Khatib, 2012;

Cacioppo, Fowler, & Christakis, 2009). These factors have been identified as being possible predictors of loneliness in specifically the population of university students.

This is also reiterated by research indicating that loneliness is inclined to be higher in matriculants heading for university due to separating from strong peer groups and relationships with relatives (Cacioppo et al., 2009; Cutrona, 1982), and venturing out in search of other intimate relationships (e.g., close friendships or romantic relationships) (Rahman, Bairagi, Dey, & Nahar, 2017; Stankovska et al., 2016). This is especially true in the case of individuals who move out of their family home in order to attend university. This period in an individual's life is often classified by separation and periods of isolation which need to be navigated successfully; it is during these periods of isolation and change in intimate relationships that students often feel extremely lonely (Doman & Le Roux, 2012; Lin & Huang, 2012; Rahman et al., 2017; Schiau, 2016; Victor & Yang, 2012). Loneliness itself entails a subjective experience of a lack of quality intimate relationships (Lauder, Siobhan, & Kerry, 2004; Russell, Cutrona, Rose, & Yurko, 1984). This also links to Erikson's psychosocial stages of development and, more specifically, the sixth stage of intimacy versus isolation, in which these university students have to successfully navigate the conflict of this stage by establishing and maintaining quality intimate relationships in order to avoid feelings of loneliness and isolation (Erikson, 1950/1993).

This experience of loneliness leads to numerous consequences pertaining to, for example, a student's mental health and academic performance (Rahman et al., 2017; Victor & Yang, 2012). These consequences include negative self-evaluations and depression, which in turn leads to impaired concentration and a decline in academic motivation (Lin & Huang, 2012; Rahman et al., 2017). Students experiencing these consequences as a result of loneliness are also less likely to complete their degree and more likely to withdraw from their studies (Barry, Woods, Warnecke, Stirling, & Martin, 2018; Flisher, De Beer, & Bokhorst, 2002).

1.3. Problem Statement and Purpose of the Study

The experience of loneliness has been compared to worldwide social epidemics such as obesity and substance abuse, and has also been referred to as ‘the plague of the 21st century’ (Rönkä, Rautio, Koironen, Sunnari, & Taanila, 2014). Research has identified a gap in loneliness literature, where loneliness is often only studied as part of other psychological issues such as anxiety and depression, thus encouraging the study of loneliness as a concept on its own rather than merely a symptom of a specific pathology (Mund, Lüdtkke, & Neyer, 2019; Rahman et al., 2017). Furthermore, the general problem of the experience of loneliness also takes on a specific nature when considering the population of university students, mainly due to researchers advocating that loneliness should be labelled as a public health problem, especially in university populations, in order to investigate causes of and find solutions for this phenomenon (Cacioppo & Cacioppo, 2018; Feng, Wang, Li, & Xu, 2019; Holt-Lunstad et al., 2017).

In South Africa, it was estimated that approximately 1 060 312 students would be enrolled in the 26 public universities in South Africa in 2018, with more or less 208 308 of these students being first-generation students (Africa Check, 2016). It has also been found that these university students (in a South African context, as well as on an international level) are at a higher risk of experiencing loneliness when entering university (Doman & Le Roux, 2012; Schiau, 2016; Seepersad, 2005; Stankovska et al., 2016). For example, in international statistics, 25.9% of male students and 16.7% of female American students reported feelings of loneliness (Knox et al., 2007), while 60.2% of Turkish students reported feeling lonely (Özdemir & Tuncay, 2008), with 14.7% of university students in Portugal also experiencing similar feelings of loneliness (Soares, Lucas, Oliveira, Roque, & Cadima, 2012). The specific problem of loneliness in university populations is also echoed in South African statistics (Doman & Le Roux, 2012; Pretorius, 1993), with 56.4% of South African students

experiencing some level of loneliness, ranging from somewhat lonely (28.7%) to high levels of loneliness (16.2%) and ‘mostly’(11.5%) feeling lonely (Peltzer & Pengpid, 2017).

Although literature regarding loneliness in South Africa exists, the content on university students specifically is limited, except for studies conducted by Le Roux (Doman & Le Roux, 2012; Le Roux, 1998; Le Roux & Connors, 2001; Jordaan & Le Roux, 2004). An opportunity, therefore, exists to contribute to loneliness literature in the specific context of South African university students.

Furthermore, clarity is needed in terms of demographic variables such as gender, age, ethnicity, generation, religious affiliation and religious practice, which possibly contribute to the development and maintaining of loneliness. This is due to research focusing on loneliness indicating very different results with regards to these demographic factors, not only in terms of whether they predict loneliness, but also in terms of the possible manner in which, as well as the extent to which, they contribute to the experience of loneliness. There is also limited research pertaining specifically to these demographic variables in student populations, and South African student populations specifically, as indicated by a search conducted on 19 October 2019 on the EBSCO Host database. Moreover, no South African research and very limited international research on the generation of university students exist in terms of its contribution to loneliness.

Due to the often debilitating effects of loneliness on a student’s self-esteem, mental health and academic performance, loneliness is an important concept to study in the university populations, as the tertiary education of a country also affects the future labour force of that country (Spaull, 2013). If loneliness, therefore, contributes in some way to students not being able to thrive at university or complete their degree, these students will not be able to successfully join the workforce and contribute to South Africa’s economy (Spaull, 2013; Yorke & Longden, 2005). Thus, this study aims to address the specific problem of loneliness

amongst South African university students, as well as to address the problem of which predictors are responsible for the largest percentage variance in the loneliness scores amongst undergraduate university students at the University of the Free State.

1.4. Research Goals

The overarching aims of this research study were to identify the predictor (independent) variable(s) or combination of variables that explain a significant percentage of the variance in loneliness amongst undergraduate university students, as well as to investigate whether differences exist in loneliness with regards to gender, ethnicity and student generation.

1.5. Research Questions

In order to address the aim of the study, the following research questions were investigated:

- Can the combination of media and technology use, self-esteem, interpersonal communication competence, gender, age, ethnicity, generation, religious affiliation and practice explain a significant percentage of variance in the loneliness of university students?
- Do any of the individual predictor variables being studied significantly contribute to the variance of loneliness amongst university students?
- Is there a significant difference in loneliness between male and female students?
- Is there a significant difference in loneliness between Black and White students?
- Is there a significant difference in loneliness between first-generation students and non-first-generation students?

1.6. Research Design and Methods

This study followed a quantitative methodology within a non-experimental research type and utilised a correlational research design (Stangor, 2011, 2015). This type of research design investigates the possible statistically significant correlations between selected measurable variables, which for this study included loneliness, self-esteem, interpersonal communication competence and media and technology use. It also investigated the correlations between loneliness and biographical factors such as gender, age, religious affiliation, religious practice, ethnicity and generation of students.

1.7. Research Participants and Sampling

In order to answer the research questions posed in this study, a non-probability, convenience sampling technique was employed to recruit participants. The sample consisted of 1191 undergraduate university students between the ages of 18 and 30, enrolled under the Faculty of the Humanities at the University of The Free State, Bloemfontein, South Africa. Individuals from any gender, culture, language, ethnic group or religion were allowed to participate in the study, as well as individuals from any enrolled degree at the University of the Free State.

The study made use of convenience sampling, as the participants were easily accessible to the researcher, as well as the fact that no participants were specifically selected to partake in the research (Maree, 2014; Stangor, 2015). The convenience sampling technique relies on factors such as participants being willing to partake in the research at a specific time, being available and in proximity to the research and researcher at the given time and having access to the research material at the time of the study (Etikan, Mussa, & Alkasim, 2016; Stangor,

2015). Therefore, participants were exposed to the research in a class setting, where the research was advertised during undergraduate lectures. Participants who showed interest in the research were invited to voluntarily participate in the research based on their willingness to participate, as well as their accessibility to the research and its online questionnaires via the online student support platform, Blackboard. As a result of using easily accessible, online procedures to conduct the research, a large sample size of $N = 1191$ was obtained.

1.8. Data Collection Procedure/Measuring Instruments

As previously mentioned, the research study was advertised during undergraduate lectures, inviting students to participate in the study voluntarily. The data was collected by requiring the interested participants to complete five questionnaires that tested different variables, namely loneliness, media and technology usage, interpersonal communication competence, self-esteem, as well as biographical variables. The questionnaires (measuring instruments) were administered in English, and made easily accessible to the participants through Blackboard, the online student support platform, on which they could complete the five different questionnaires at their own leisure. Following the collection of the data, a coding system was used in order to ensure the anonymity of the participants. The five measuring instruments employed to gather the data through this system included:

- The *Le Roux Loneliness Questionnaire* (Le Roux, 1992) was used to measure varying dimensions of loneliness. The questionnaire consists of 30 items, with 15 positive and 15 reverse-scored items. Participants are required to respond in terms of the extent to which they agree with the question, which may range from “*always*” (4) to “*never*” (1). The reliability of the questionnaire has been calculated in previous studies by means of Cronbach’s alpha coefficient ranging

between 0.87 and 0.88 (Le Roux, 1992, 1998, 2002; Scholtz, 1995) and also used successfully in various research projects pertaining to loneliness in student populations (Le Roux, 1992, 1998, 2002; Le Roux & Connors, 2001). A high score on the Le Roux Loneliness Questionnaire would indicate higher levels of loneliness, while a lower score would indicate lower levels of loneliness present in the respondent.

- The *Media and Technology Usage and Attitudes Scale* (MTUAS) (Rosen, Whaling, Carrier, Cheever, & Rokkum, 2013) was used to measure an individual's interaction with various media platforms, such as online networking, cell phones and computers (Rosen et al., 2013). It is a 60-item measuring instrument which includes 15 subscales. For this study, the attitudes subscales were excluded from the questionnaire, as media and technology usage were the aspects that were specifically focused on. The usage scale, therefore, includes 44 items comprising of 11 subscales. However, for this study, the MTUAS was grouped into three dimensions, namely (i) Media usage for social engagement (ii) Media usage for communication, and (iii) Media usage for leisure. Cronbach's alpha values for the sub-factors of the scales in previous studies varied between 0.515 and 0.89 (Özgür, 2016; Van Tonder, 2017). Media and technology usage to a substantial and consistent degree would be indicated by a high score, while individuals who do not engage with media and technology in a consistent and substantial manner would, therefore, be indicated by a low score (Rosen et al., 2013).
- The *Rosenberg Self-esteem Scale* (RSES) (Rosenberg, 1965) was used to measure both positive and negative feelings that individuals experience about themselves in order to obtain an idea of their global self-worth. The scale consists of 10 items on a four-point Likert-type scale that range from “*strongly agree*” (4) to “*strongly*

- disagree*” (1), while items 2, 5, 6, 8, 9 are reverse scored. A high score would indicate higher levels of self-esteem, while a low score would indicate the opposite. The *Rosenberg Self-esteem Scale* presented with an internal consistency of 0.77, while the alpha coefficients varied between 0.72 to 0.87 in independent studies with varying samples, such as parents and high school students (Byrne & Shavelson, 1996; Dobson, Goudy, Keith, & Powers, 1979). In student population studies, the RSES presented with test-retest correlations ranging between 0.82 and 0.88, and alpha coefficients ranging between 0.77 and 0.88 within these studies (Arshad, Zaidi, & Mahmood, 2015; Robins, Hendin, & Trzesniewski, 2001).
- The *Interpersonal Communication Competence Scale (ICCS)* (Rubin & Martin, 1994) was used to investigate interpersonal communication competence in the respondents. The scale consists of 30 items on a six-point Likert-type scale that range from “*almost always*” (5) to “*almost never*” (0), with 24 positive and six reverse-coded items. When applied to students, the scale demonstrated an alpha coefficient of 0.86 (Rubin & Martin, 1994) and 0.755 (Van Tonder, 2017), respectively. A high global score would indicate a high interpersonal communication competence, while a low score would indicate the opposite (Rubin & Martin, 1994).
 - A self-compiled biographical questionnaire was included in the main questionnaire in order to obtain demographic information for further predictors of loneliness (such as gender, age, language, ethnicity, generation, religious affiliation, religious practice and generation of the student).

1.9. Statistical Procedures

In order to analyse the data collected from participants, the Statistical Package for the Social Sciences (SPSS) version 25, was used (IBM Corporation, 2017). This system was also used to calculate descriptive statistics for all scales in order to investigate the statistical properties of the scales within the study, as well as the biographical characteristics of the sample of university students. Furthermore, Cronbach's alpha coefficient was also calculated for the various scales (Aron, Aron, & Coups, 2014; Tavakol & Dennick, 2011). A hierarchical regression analyses was also used to investigate the contribution of the different sets of independent (predictor) variables (biographical, self-esteem, interpersonal communication competence and media and technology usage) to the percentage of variance in the dependent (criterion) variable, loneliness, as well as the contribution of each of the individual independent variables (Stangor, 2011, 2015; Van der Westhuizen, Monteith, De K, & Steyn, 1989).

In addition, the combined effect on the variance in loneliness could be measured when all the variables were removed (Stangor, 2015; Van der Westhuizen et al., 1989). A hierarchical *F*-test was used to define whether variables that contributed significantly to loneliness in university students also contributed practically to loneliness in university students (Van der Westhuizen et al., 1989). Lastly, a factorial analysis of variance (ANOVA) was also conducted to investigate whether there are any differences regarding loneliness when it comes to gender (male vs. female), ethnicity (Black vs. White) and generation (first-generation students vs. non-first-generation students).

1.10. Ethical Considerations

This study formed part of a larger research project, titled “Predictors of psychological well-being amongst undergraduate university students” (Ethics number: UFS-HSD2017/1313) and ethical clearance has been obtained from the Research Ethics Committee of the Faculty of the Humanities at the University of the Free State, as well as permission from the Dean of Students. In order to avoid harming participants, the principles of confidentiality, beneficence and non-maleficence (to not inflict harm) were adhered to (Allan, 2016). Informed consent documents were obtained from all the participants and the voluntary and anonymous nature of participation was discussed with participants before the onset of the research. Following the data collection procedure, the anonymity of the participants was ensured using a coding system and all data was kept safe and secure by using a password-protected computer to which only the researcher had access. Although the measure was not made use of, a further precautionary and protective measure was implemented where participants were allowed to withdraw their participation at any given time, and were referred to Student Counselling and Development Services at the University of the Free State in order to offset any complications (if any) that were to arise, or if participants experience any form of distress as a result of participating in the research study.

1.11. Significance of the Study

The present study is significant in the South African context, as it will expectantly aid in advancing theory specifically pertaining to the concept of loneliness and to the concept of loneliness within a South African context, in particular. These results may be of value in an age where loneliness is influenced by numerous possible factors and may aid in informing future research with regards to loneliness. As previously mentioned, there is a need to study

loneliness as a concept on its own (Mund et al., 2019; Rahman et al., 2017) and this research study could, therefore, contribute to the knowledge of loneliness as a separate concept rather than a symptom of a specific pathology. Since the research focused on university students – a population often struggling with loneliness – the research will provide benefits in terms of adding to the pool of knowledge regarding the specific factors contributing to their loneliness. Knowledge of the factors contributing to this phenomenon may provide knowledge which can be employed to potentially lessen the impact of loneliness on people's mental health, as well as benefitting the psychology profession by adding to this particular pool of knowledge. The results can also aid in identifying where resources employed to curb loneliness amongst university students should be utilised and, further, potentially inform the development of prevention programmes and rehabilitation programmes to address loneliness amongst university students. In terms of developing future therapeutic interventions with regards to loneliness, the significant predictor variables identified within this study could also inform these evidence-based programmes in order to curb loneliness, specifically within university contexts. Lastly, this study may also aid in reporting on the validity of the measuring instruments used in order to support and encourage further use of these instruments in a South African context.

1.12. Clarification of Terminology

1.12.1. Loneliness

Loneliness may be defined as negative feelings attributable to insufficient amounts of social contact, as well as a lack of maintaining quality social relationships (Lauder et al., 2004; Russell et al., 1984). However, it is important to note that loneliness is not synonymous with the act of being alone or being physically socially isolated (Le Roux,

1992). Rather, loneliness can be defined as the painful emotional state which an individual experiences when a social group does not fulfil an individual's subjective social needs (Le Roux, 1998). Thus, it can be derived that an individual can feel lonely even among other people, because loneliness is not dependent on the size of an individual's social group, but rather the subjective perception of feeling alone (Cacioppo & Cacioppo, 2018; Segrin, 1996; Weiss, 1973). Therefore, loneliness is an individual's subjective experience – and may be referred to as perceived or subjective social isolation (Child & Lawton, 2019). To summarise, loneliness refers to how individuals assess their global level of social interaction and whether there is an inconsistency between what one desires (perceives) from social relationships and what the (objective) reality of one's social relationships is (Bhagchandani, 2017; Cornwell & Waite, 2009; Doman & Le Roux, 2012; Le Roux & Connors, 2001; Weiss, 1981).

1.12.2. Emerging Adulthood

Emerging adulthood is a distinct developmental phase within the lifespan starting from age 18 and ending at the age of 29 (Arnett, 2000; Cote, 2000, 2006; Konstam, 2007; Nelson & Barry, 2005; Zorotovich & Johnson, 2019). Therefore, for this study, emerging adulthood will be defined within these margins.

1.12.3. Media and Technology Usage

Although modern technology use mostly includes technology pertaining to computers and cellphones, the concept of “media and technology usage”, however, can also include a range

of activities performed not only on cell phones and computers (such as texting, social media and calling), but also on television sets, for example (Rosen et al., 2013).

1.12.4. Interpersonal Communication Competence

Interpersonal communication competence can be defined as "an impression or judgement formed about a person's ability to manage interpersonal relationships in communication settings" (Rubin & Martin, 1994, pp. 33).

1.12.5. Self-esteem

Self-esteem is regarded as an important part of mental health (Taylor & Brown, 1988) and can be defined as either a positive or negative mentality an individual holds towards him- or herself (Bandura, 1977; Kohn 1994; Rosenberg, 1965).

1.12.6. Ethnicity

According to García (2019), a person's ethnicity refers to the degree to which an individual feels part of or psychologically identifies with individuals holding the specific characteristics of a certain ethnic group. Ethnicity can, therefore, be defined as a shared identity due to common social and cultural traits within a population (García, 2019). These traits may include skin colour, but the focus is rather on language and religion, as well as shared customs and traditions. In South Africa, there are four main ethnic groups, which include Black, White, Indian and Coloured ethnic groups.

1.13. Outline of Chapters

This dissertation comprises of five chapters, four appendices and five tables. Firstly, **Chapter One** introduces the research and orientates the reader with regards to the background information pertaining to loneliness amongst university students. Furthermore, the chapter outlines the rationale and purpose of the research. The research goals, as well as research questions, were introduced, followed by the research methodology used in order to achieve these research objectives. Moreover, it includes a discussion about the ethical considerations within the study, as well as the value of this specific study. Lastly, definitions of important concepts within the study are clarified in order to orientate the reader to the specific study.

Chapter Two focuses on the critical discussion and review of relevant literature pertaining to the study with regards to loneliness and its specific predictors and consequences in the general population, as well as the specific population of university students. It specifically discusses definitions and types of loneliness and also focuses on the developmental phase of the specific study population, including the relevance of loneliness within the South African university context.

Chapter Three highlights the methodological aspect of the research used in order to meet the research objectives successfully. It, therefore, consists of the research design, including the research objectives and sampling methods, and provides descriptive statistics on the research sample. It also discusses the various measuring instruments and the data gathering procedures. It furthermore reports on the statistical procedures used within the study and concludes with the ethical considerations of the specific study.

Chapter Four includes all the research findings of the study, while **Chapter Five** focuses on discussing these results and findings in light of the relevant literature. This chapter also

concludes this dissertation and presents a final summary of the results and findings, while also highlighting the limitations and providing suggestions and recommendations for future studies.

1.14. Summary of Chapter

Chapter One introduced the concept of loneliness, as well as the possible predictors thereof, through the background of the study. It also highlighted the research problem which presented itself in light of relevant literature, namely the concept of loneliness amongst university students, as well as what could possibly predict loneliness in the population group of undergraduate students while attending university. This study, therefore, aims to address the problem of loneliness amongst university students in order to add to the limited pool of existent South African literature concerning this specific problem. In order to show how this research problem would be addressed, the research goals, research questions as well as research methodology was briefly discussed. This included the research design, the selected participants, as well as the measuring instruments and statistical procedures used to conduct the research. The ethical considerations and value of the specific study were also discussed. Lastly, this chapter clarified important terminology used within the study and also provided an outline of the chapters within the dissertation.

Chapter Two

Review of the Literature

2.1. Introduction

This chapter encompasses an overview of the literature pertaining to loneliness as a concept, defined by numerous researchers in the field. The chapter will also explore loneliness amongst university students, as well as the effects of loneliness on university students and on the general population. University students will be discussed in terms of defining the specific age group in which this population falls, as well as certain aspects that are relevant to this population group. This includes a discussion on the developmental phase of emerging adulthood. Literature pertaining to the possible predictors of loneliness amongst university students will also be synthesised. International research relating to the abovementioned aspects, as well as literature pertaining specifically to the South African population will also be discussed in order to provide a broad review of the topic at hand. However, it is worthy to note that South African research concerning loneliness and its contributing factors in the specific context of university students remains limited in the bigger scheme of international research. This is illustrated by an EBSCO Host search in October 2019 using the keywords “South African university students” and “Loneliness”, which returned less than 150 searches and ultimately less than 50 valid/usable texts.

2.2. Loneliness

For decades, loneliness has been widely studied, as it is a common and widespread experience throughout the world (Jordaan & Le Roux, 2004; Luhmann & Hawkley, 2016; Rahman et al., 2017; Rokach & Brock, 1997; Rokach & Neto, 2000; Rubior, 1971). In the modern era, loneliness is becoming ever-more persistent – being referred to as the plague of the 21st century (Rönkä et al., 2014). Furthermore, it is often compared to other social pandemics, such as obesity, sedentary lifestyles, substance abuse and smoking (Cacioppo et al., 2002; Holt-Lunstad et al., 2015). Since the average person spends about 80% of their waking hours in the company of others, it is no surprise that when something lacks within this company, people experience social pain in the form of loneliness (Cacioppo et al., 2015; Emler, 1994; Kahneman et al., 2004). Human beings have always been social creatures with an innate need to be socially included and to belong in a group, and therefore they prefer spending quality time with others above spending time alone in order to achieve these social objectives and avoid experiencing loneliness (Axelrod & Hamilton, 1981; Baumeister & Leary, 1995; Cacioppo et al., 2009; Hendrick, 2004; Rokach, 2011; Rokach, 2018). Although loneliness has often been treated as a symptom of specific psychopathologies, such as depression and anxiety, recent research has revealed that all individuals suffer from loneliness at some point during the course of their lives (Rahman et al., 2017; Rubior, 1971). Therefore, loneliness must be studied as a concept on its own rather than merely a symptom of a specific pathology (Mund et al., 2019; Rahman et al., 2017).

Loneliness, however, is becoming more common amongst young adults (Mental Health Foundation, 2010; Office for National Statistics, 2018; Peltzer & Pengpid, 2017) and specifically young adults attending university (Jordaan & Le Roux, 2004; Knox et al., 2007; Peltzer & Pengpid, 2017). Due to the prevalence and increasing rate of loneliness in general, but also specifically in university populations, researchers have started to advocate for

loneliness to be labelled as a public health problem in order to find solutions for this phenomenon (Cacioppo & Cacioppo, 2018; Feng et al., 2019; Holt-Lunstad et al., 2017).

2.2.1. Definitions of Loneliness

Loneliness may be defined as negative feelings attributable to insufficient amounts of social contact, as well as a lack of maintaining quality social relationships (Lauder et al., 2004; Russell et al., 1984). Loneliness is, however, not synonymous with the act of being alone or being physically socially isolated (Le Roux, 1992). Rather, loneliness can be defined as the painful emotional state which an individual experiences when a social group does not fulfil an individual's subjective social needs (Le Roux, 1998). Thus, it can be derived that an individual can feel lonely even among other people, since loneliness is not dependent on the size of an individual's social group, but rather the subjective perception of feeling alone (Cacioppo & Cacioppo, 2018; Segrin, 1996; Weiss, 1973). Therefore, loneliness is an individual's subjective experience – and may be referred to as perceived or subjective social isolation (Child & Lawton, 2019). This concept refers to an individual's perception of their own isolation or disconnection from others, and therefore cannot be measured numerically (Holt-Lunstad et al., 2015; Primack et al., 2019; Wenger, Davies, Shahtahmasebi, & Scott, 1996). Rather, it is defined as a deep longing for acceptance and intimate connections with others (Le Roux, 1992). This concept, therefore, differs from objective social isolation, as it refers to the physical number of contacts, relationships and social ties an individual has, which can be measured numerically (Holt-Lunstad et al., 2015; Primack et al., 2019; Wenger et al., 1996). To summarise, loneliness refers to how individuals assess their global level of social interaction and whether there is an inconsistency between what one desires (perceives) from social relationships and what the (objective)

reality of one's social relationships is (Bhagchandani, 2017; Cornwell & Waite, 2009; Doman & Le Roux, 2012; Le Roux & Connors, 2001; Reis, 1990; Weiss, 1981). When comparing these two types of social isolation in terms of predicting adverse health effects in individuals, literature has shown that perceived social isolation (i.e. loneliness) is a more significant predictor of adverse health effects than objective social isolation (Cole et al., 2007; Hawkey, Masi, Berry, & Cacioppo, 2006; Penninx et al., 1997; Seeman, 2000; Sugisawa, Liang, & Liu, 1994; Wang, Mann, Lloyd-Evans, Ma, & Johnson, 2018). These adverse health effects will be discussed in more detail later in the chapter.

The definition of loneliness is further complemented by other studies, stating that loneliness is a subjectively experienced cognitive awareness of a lack of fulfilment in intimate and social relationships, which results in aversive emotional states and reactions such as emptiness, sadness and longing (Asher & Paquett, 2003; Hawkey & Cacioppo, 2010; Mund et al., 2019; Peplu & Perlman, 1982). This definition may be accompanied by the proposed characteristics of loneliness, as theorised by Rokach (2011). These characteristics include that loneliness is a subjective, multifaceted, yet universal experience. Loneliness also has the specific characteristics of being severely distressing and painful, although it remains unique to every individual (Al Khatib, 2012; Rokach, 2011). Furthermore, Rokach and Brock's (1997) five-factor model of loneliness elaborates on the complexity of the experience of loneliness, suggesting that loneliness encompasses five main categories of feelings and perceptions experienced by the lonely individual. These five distinctions include: 1) emotional distress, (2) inadequacy and social alienation, (3) growth and discovery, (4) isolation, and (5) self-alienation (Rokach, 2011; Rokach & Brock, 1997). The first dimension, emotional distress, refers to negative feelings experienced due to loneliness, such as hopelessness, inner turmoil, as well as feelings of pain and emptiness (Rokach & Brock, 1997; Zysberg, 2015). Furthermore, inadequacy and alienation refer to

specific skills which the individual lacks during periods of loneliness. This includes aspects such as socially isolating themselves even further due to feelings of loneliness, as well as poor communication and observation skills (Rokach & Brock, 1997; Zysberg, 2015). This social isolation is also a dimension experienced as part of loneliness due to a lack of intimate, fulfilling relationships. This dimension refers to feelings of rejection and abandonment experienced by a lonely individual (Rokach & Brock, 1997; Zysberg, 2015). The lonely individual does not only become socially isolated, but also engages in isolation of the self (or self-alienation), which is the fifth dimension. This dimension refers to feelings such as depersonalisation, numbness and catatonia, as well as feelings of denial (Rokach & Brock, 1997; Zysberg, 2015). Interestingly, it seems that loneliness may also have some positive experiences connected to it, as indicated by the fourth category of discovery and growth. This category entails the positive feelings that an individual may experience as a result of loneliness, such as growing as an individual on an emotional level (Rokach & Brock, 1997; Zysberg, 2015). The combination of these factors, once again, highlights the complex and multi-dimensional nature of loneliness (Rokach, 2007). This five-factor model will also be referred to throughout the study, as it often informs knowledge of loneliness.

2.2.2. Types of Loneliness

The concept of loneliness can be explored by using two different approaches, namely the unidimensional approach and the multidimensional approach (Russell, 1982; Shaver & Brennan, 1991). The unidimensional approach focuses on the definition of loneliness as stated previously, using relevant literature to argue that the construct of loneliness varies in intensity, with some universal aspects linking the experience among individuals, although loneliness is also experienced in different contexts (Al Khatib, 2012; Rokach, 2011; Russell,

1982, 1996). However, it is also important to focus on the multidimensional approach with regards to loneliness in order to obtain a holistic view of the concept (Spithoven, Cacioppo, Goossens, & Cacioppo, 2019). This approach makes use of relevant literature to argue that different types of loneliness are experienced in different contexts, due to the fulfilment of varying needs within each different relationship which an individual experiences (Spithoven et al., 2019; Weiss, 1973). As a result of unfulfilment within a specific context or relationship, different types of loneliness may emerge (DiTommaso & Spinner, 1997; Weiss, 1973). Subsequently, these main types of loneliness will be discussed in light of relevant literature.

Despite literature highlighting the universal characteristics in the experience of loneliness through the unidimensional approach, other literature has also attempted to further categorise loneliness into possible types that an individual might experience through the multidimensional approach, with the most prominent theory being that of Weiss (1973; 1974). This theory divides loneliness into two broad categories, namely emotional loneliness and social loneliness. Emotional loneliness refers to the experience of a lack of trust or confidence in others, as well as a lack of intimacy in relationships with other individuals (Weiss, 1973, 1989; Zysberg, 2015). Thus, the individual does not consider themselves to have relationships with sufficient intimacy to engage in acts such as, for example, self-disclosure (Cruz, 1983; Le Roux, 1998). An individual suffering from this type of loneliness would, as a result, also resist confiding in others, as they may feel they cannot trust or share their experiences with others (Russel et al., 1984; Zysberg, 2015). This experience takes on a vicious cycle because it results in the lonely individual experiencing feelings of rejection, emptiness, desolation and longing for love and acceptance – increasing the already high levels of loneliness within the individual (Cruz, 1983; Le Roux, 1998). Emotional loneliness can also be divided into two sub-categories, namely romantic emotional loneliness and family

emotional loneliness (Rote, Hill, & Ellison, 2012). This refers to the category of individuals in which the lonely individual experiences a lack of trust with either a romantic partner or in a family context (Di Tommaso & Spinner, 1997; Lesch, Casper, & Van der Watt, 2016). Social loneliness refers to loneliness in both a quantitative and qualitative form. An individual experiencing this type of loneliness would experience a lack of interpersonal relationships – both in the number of relationships, as well as the quality of these relationships (Russel et al., 1984; Zysberg, 2015). It is also worth mentioning the concepts of situational and chronic loneliness, which have also often been investigated as distinct types of loneliness over the years. Situational loneliness arises due to a sudden loss or change of circumstances and may, therefore, include the loss of a loved one or close relationship, as well as losing a job or moving to a different city (Demir & Fişiloğlu, 1999; Neto & Barros, 2000). Chronic loneliness could be the most serious form of loneliness, as it encapsulates long periods of all other forms of loneliness, without any change in the loneliness due to situational or dramatic changes (Demir & Fişiloğlu, 1999; Neto & Barros, 2000). The individual may, therefore, experience years of loneliness without any remedial effects (Neto & Barros, 2000). The experience of chronic loneliness is also relevant for this study, as young adults often experience loneliness over long periods of time, which supports the theory of chronic loneliness (Cramer & Barry, 1999; Van Dulmen, 2013; Zysberg, 2015).

However, recent research (Cacioppo et al., 2015) has presented an overarching framework encompassing previous literature to create two main categories of loneliness (Maes, Vanhalst, Van den Noortgate, & Goossens, 2017). These categories include intimate and relational loneliness, which corresponds to Weiss' (1973) distinction between emotional and social loneliness. Intimate loneliness refers to the feeling of lacking an intimate attachment to another individual, whether a friend, romantic partner or family member (Cacioppo et al., 2015). This corresponds to Weiss's emotional loneliness; the type of loneliness which occurs

due to a lack of emotional connection with a significant individual (Weiss, 1973, 1982, 1989). Emotional (or intimate) closeness usually takes place between family members, such as parents or children, as well as friends or romantic relationships (Cacioppo et al., 2015). A lack of emotional proximity with others leads to intimate loneliness and research has shown that this type of loneliness can be combatted through developing a substitute emotional connection with another individual, or reintegration of the lost emotional connection with the original significant other (Cacioppo et al., 2015; Maes et al., 2017; Stroebe, Stroebe, Abakoumkin, & Schut, 1996).

Relational loneliness, on the other hand, refers to the feeling that an individual experiences due to a lack of social networks or peer groups, and relates to Weiss's conceptualisation of social loneliness (Cacioppo et al., 2015). This type of loneliness may occur when an individual experiences a lack of social connections, specifically in the form of social integration, within a certain social group, or integration within the larger community (Cacioppo et al., 2015; Maes et al., 2017). These social connections may pertain to any form of belonging experienced within groups of friends and neighbours, as well as networks of colleagues and community members (Weiss, 1973, 1982, 1989). Social support from within these groups, therefore, curbs social loneliness and also has the potential to remedy existing social loneliness (Cacioppo et al., 2015; Stroebe et al., 1996).

Although no formal measures using these types of loneliness have been developed, numerous existing and reliable measuring instruments can make use of these categories, based on the underlying theoretical research pertaining to these concepts (Maes et al., 2017). These different types of loneliness are worth mentioning, as they include experiences which the population group within this study has the potential to experience during their duration at university. In this study, loneliness as per the previously-stated definition encompasses all of

these types of loneliness at any given time and are all considered as part of the definition of loneliness.

2.3. Loneliness amongst University Students

In a review based on loneliness throughout an individual's lifespan, it was found that between 20% and 71% of young adults experience loneliness (Qualter et al., 2015; Schiau, 2016; Seepersad, 2005), especially those between the ages of 18 and 30. This is a recurring phenomenon among young adults at university in particular, with 25.9% of male students and 16.7% of female American students reporting feeling lonely (Knox et al., 2007). Furthermore, in a study that focused on Turkish students, 60.2% reported feeling lonely (Özdemir & Tuncay, 2008) and in Portugal, 14.7% of university students reported similar experiences (Soares et al., 2012). Evidently, these statistics are echoed in South African populations (Doman & Le Roux, 2012; Pretorius, 1993). For example, it has been found that South African students are less lonely than Iranian students, Puerto Rican students and Australian students (Le Roux & Connors, 2001) but more lonely than North American students (Pretorius, 1993). A more recent study focusing on the loneliness among university students in 25 countries found that 56.4% of South African students experience some level of loneliness, ranging from somewhat lonely (28.7%), to high levels of loneliness (16.2%) and 'mostly' (11.5%) feeling lonely (Peltzer & Pengpid, 2017).

Possible reasons for increased levels in loneliness amongst university students may be due to the fact that this is a population group which inevitably experiences many of the risk factors associated with loneliness and are therefore more susceptible to developing feelings of loneliness (Doman & Le Roux, 2012; Le Roux & Connors, 2001; Schiau, 2016; Seepersad, 2005; Stankovska et al., 2016). Firstly, the period in which a young adult attends university

is often marked by students drawing less on the support of family, but rather venturing out in search of other intimate relationships (whether in the form of close friendships or romantic relationships) (Rahman et al., 2017; Stankovska et al., 2016). This is especially true in the case of individuals who move out of the family home in order to attend university. This adjustment often results in a change in the parent-child relationship in terms of dependence (Nelson & Barry, 2005; Rahman et al., 2017) and leads to stress and confusion on the part of the student, who leaves an established intimate relationship without the comfort of another already-established intimate relationship at university. Research has shown that these experiences are often at the forefront of what leads to higher levels of loneliness (Nelson & Barry, 2005; Rahman et al., 2017), since the definition of loneliness itself entails a subjective experience of a lack of quality intimate relationships (Lauder et al., 2004; Russell et al., 1984). Furthermore, numerous explorations of relationships occur during this period, including both successful and unsuccessful intimate relationships and friendships (Rahman et al., 2017; Stankovska et al., 2016). This period in an individual's life is therefore often classified by separation and periods of isolation which need to be navigated successfully; during these periods of isolation and change in intimate relationships, students often feel extremely lonely (Doman & Le Roux, 2012; Lin & Huang, 2012; Schiau, 2016; Victor & Yang, 2012). This is reiterated, once again, by research indicating that loneliness is inclined to be higher in matriculants heading for university due to separating from strong peer groups and relationships with relatives (Cacioppo et al., 2009; Cutrona, 1982).

This experience of loneliness amongst university students is a cause for concern, as research found that a lack of social and emotional support in terms of intimate relationships at university leads to an array of consequences, including affecting students' mental health and academic performance (Rahman et al., 2017; Victor & Yang, 2012). These consequences include negative self-evaluations and depression, which in turn leads to impaired

concentration and lowered academic motivation (Lin & Huang, 2012; Rahman et al., 2017). These consequences of loneliness at university are discussed in more detail under Section 2.9.

2.4. Emerging Adulthood

The concept of emerging adulthood, although seemingly new, has been established for many years. More specifically, the term emerged as a result of the 1960s demographic trends, which indicated that individuals delayed transitioning into traditional adult roles such as entering into marriage and having children (Arnett, Žukauskienė, & Sugimura, 2014). Researchers, therefore, needed to reconsider the nature of development and establish a separate developmental phase within the lifespan, which in turn gave rise to emerging adulthood (Arnett, 2000; Zorotovich & Johnson, 2019). Over the years, this developmental phase has evolved to include the period of age 18 to 25 years (Arnett, 2000; Cote, 2006; Konstam, 2007; Nelson & Barry, 2005), however, the most recent research has stated that this stage of emerging adulthood now includes all individuals between the ages of 18 and 29 (Arnett, 2015; Murray & Arnett, 2018). Therefore, for this study, emerging adulthood will be defined within these margins. Due to the fact that this study focuses on university students, which often fall into this age group, including all its accompanying characteristics, it is important to illustrate this concept of emerging adulthood, pertaining specifically to university students, in more detail.

Emerging adulthood is a distinct developmental period that comes with its own challenges and specific characteristics. According to Arnett (2000), five defining features accompany the phase or age of emerging adulthood. This includes: 1) exploration of identity, (2) the age of instability, (3) the most self-focused age of life, (4) a state of feeling in-between, and (5) the age of possibilities (Arnett, 2000, 2015; Konstam, 2007; Zorotovich & Johnson, 2019).

Therefore, emerging adulthood is a phase of life in which recurring themes of establishing a relationship with themselves and exploring their own identity often takes place (Arnett, 2000, 2016; Konstam, 2007; Zorotovich & Johnson, 2019). Furthermore, themes of exploring relationships with others, as well as various possibilities in different facets of their lives, such as romantic relationships and occupations, are also evident in this stage of instability (Arnett, 2000, 2016; Konstam, 2007; Zorotovich & Johnson, 2019). Due to this exploration of different opportunities, the stage of emerging adulthood is also labelled as the most self-focused stage of life, as well as the stage in which an individual's potential to transform his/her life, including a zest for life is also very high (Arnett, 2000, 2016; Konstam, 2007; Zorotovich & Johnson, 2019). All of these aspects have to be navigated while these individuals continually experience feeling in-between the phases of being a teenager and being an adult (Arnett, 2000, 2016; Konstam, 2007; Zorotovich & Johnson, 2019). In terms of a psychological approach, the developmental phase of emerging adulthood in which these individuals find themselves links to Erikson's model of Psychosocial Stages (Erikson, 1950/1993; 1968). More specifically, it links to the sixth stage of intimacy versus isolation, which emerging adults have to navigate in order to become well-rounded individuals by the time they reach adulthood (Erikson, 1950/1993; 1968).

2.5. Erikson's Psychosocial Stages of Development

Erik Erikson's Psychosocial Stages of Development is a theory that spans the human life, dividing it into eight specific developmental stages (Erikson, 1950/1993; 1968). Each stage consists of its own conflicts and challenges which an individual has to navigate and successfully resolve in order to become a well-balanced individual (Erikson, 1950/1993, 1968). When relating the developmental stage of emerging adulthood to Erikson's theory of

development, it is evident that emerging adults fall into the sixth category of intimacy versus isolation. This psychosocial stage spans across approximately 19 to 40 years of age (Erikson, 1950/1993).

This psychosocial stage is characterised by individuals exploring their relationships beyond their immediate familial relationship (Erikson, 1950/1993). The focus is, therefore, on forming loving and committed relationships with other individuals, whether in the form of intimate relationships or close friendships. According to Erikson (1950/1993), successful intimate relationships foster a sense of belonging and are characterised by closeness, honesty and love. Individuals have to navigate social and emotional connections successfully in order to resolve the conflict present within this stage and, in turn, experience love and belonging (Erikson, 1950/1993). If, however, an individual is unable to successfully resolve this conflict due to failed relationships or other circumstances standing in the way of creating these bonds, the resulting effect is loneliness and isolation (Erikson, 1950/1993). As a result, this stage is vital in informing the underlying theory behind research in loneliness.

In terms of this study, one can argue that the population of university students fall within the developmental phase of emerging adulthood (18 to 29 years) (Arnett, 2015; Murray & Arnett, 2019), and are therefore at the very start of this new stage within the Psychosocial model of intimacy versus isolation (Erikson, 1950/1993). This developmental stage also relates to the aspect of university students starting to build relationships with other individuals other than their family members with the hopes of obtaining comfort and security when this stage is successfully navigated (Erikson, 1950/1993). The concept of loneliness within university students can also be linked to the psychosocial stage of intimacy versus isolation, as intimate relationships which university students as emerging adults seek, may not be successfully attained (Erikson, 1950/1993). This lack of resolution of the conflict within the sixth stage of intimacy versus isolation will then, according to Erikson

(1950/1993), lead to loneliness and isolation. Thus, it is all the more important to investigate loneliness in this specific age group, as a lack of intimacy and social skills could lead to isolation and negatively impact the lives of these university students.

2.6. General Predictors of Loneliness

When considering variables that may predict loneliness, it is evident that there are a multitude of possible predictor variables ranging between biological, emotional, situational and psychological factors in determining loneliness (Matthews et al., 2019; Perlman, 1987; Wang et al., 2018). A variety of these factors have been researched over the years, however, it is Rokach and Brock's (1997) Five-Factor model of loneliness, which provides an overarching and all-encompassing model to cover the main predictors of loneliness. This model will subsequently be discussed in more detail.

Rokach's and Brock's Five-Factor model of loneliness (1997) conceptualises five common causes of loneliness, which spans all possible factors relating to loneliness, including personal, financial, sociocultural and situational factors. These common causes include 1) personal and social inadequacies, (2) developmental challenges, (3) inability to make use of and unfulfilling intimate relationships, (4) relocation or social separation, and (5) social marginalisation. This model, therefore, provides definitive categories for the predictors of loneliness and can be used to categorise further existing literature pertaining to the causes of loneliness (Rokach & Brock, 1997). As a result, these five factors will be discussed and supplemented by other relevant research, which can also be realistically categorised under each factor.

2.6.1 Personal and Social Inadequacies

According to Rokach and Brock (1997), personal and social inadequacies includes characteristics that an individual may possess, whether due to genetics, personality or psychological factors, which may lead to loneliness. These characteristics would, in turn, induce feelings of low-self-esteem, mistrust of others or fear of intimate relationships as well as feelings of rejection and feeling uneasy in social situations (Le Roux, 1998; Rokach & Brock, 1997). These feelings are also characteristic of the experience of loneliness, as mentioned previously (Rokach & Brock, 1997).

When considering genetic contributions, research according to the Evolutionary Theory of Loneliness has shown that the environment has an effect on how certain genes that may contribute to loneliness are expressed in an individual (Cacioppo et al., 2009; Peplau & Perlman, 1982; Rokach & Brock, 1997; Spithoven et al., 2019), which makes some individuals more predisposed to experience loneliness according to the differential susceptibility hypothesis (Belsky, Bakermans-Kranenburg, & Van Ijzendoorn, 2007). This hypothesis states that individuals with a higher susceptibility to loneliness are more sensitive to their environments; loneliness develops in adverse environments and positive outcomes such as social connectedness develop in beneficial environments (Belsky et al., 2007; Spithoven et al., 2019). On the other hand, individuals without this susceptibility do not react to their environments in such an extreme manner, indicating that the potential to develop loneliness may, therefore, be inherited by some individuals (Belsky et al., 2007; Cacioppo et al., 2014).

Loneliness may also be caused by psychological factors, with the most widely-studied of these being depression (Anderson, Miller, Riger, Dill, & Sedikides, 1994; Demir & Tarhan, 2001; Rahman et al., 2017). The relationship between loneliness and depression takes on

reciprocal nature, as depression not only causes loneliness but it is also a consequence of loneliness. A reason for this is that individuals who suffer from depression often also reduce their social encounters with others and neglect important social relationships, which, as a result, may lead to loneliness (Weeks, Michela, Peplau, & Bragg, 1980). Furthermore, anxiety (and especially social anxiety), as well as its related feelings such as hopelessness and emptiness, are also considered risk factors for loneliness (Goswick & Jones, 1982; Le Roux, 1996; Rokach & Brock, 1997). Other health-related psychological aspects, such as eating disorders, including anorexia and bulimia nervosa (Nurmi, Toivonen, Salmela_Aro, & Eronen, 1997), as well as a general negative body image are also considered contributing factors (Rokach, 2001). For example, women diagnosed with anorexia nervosa report very high levels of loneliness (Troop & Bifulco, 2002), while individuals also experience high levels of loneliness at the beginning of a binge/purge cycle (Corstorphine, Waller, Ohanian, & Baker, 2006). This may be due to these individuals longing for intimate social connections with other individuals and using eating (or not eating) as a manner of compensating for the comfort they do not find within their social relationships (Levine, 2012; Rokach, 2013).

However, certain personality factors may also contribute to the experience of loneliness (Demir & Tarhan, 2001; Le Roux, 1996; Neto & Barros, 2000). There are numerous reasons explaining personality factors as predictors of loneliness. Firstly, the overarching explanation includes the fact that personality traits directly impact an individual's ability to establish and maintain social relationships. This may be due to the fact that some personality traits, such as pessimism (Solano, 1989), high levels of narcissistic behaviour (Anderson, Mullins, & Johnson, 1989), hostility (Rokach & Brock, 1998) and emotional oversensitivity (Le Roux, 1996), reduce an individual's social attractiveness, resulting in the diminishing of other individuals' desire to socialise with the individual (Peplau & Perlman, 1982). Furthermore, other personality traits such as shyness (Le Roux, 1996), introversion (Kamath & Kanekar,

1993), low self-esteem, low levels of assertiveness (Le Roux, 1996; Neto & Barrows, 2000) and withdrawal from social behaviour (Demir & Tarhan, 2001) are also considered predictors of loneliness. This is because these personality traits influence an individual's interactional behaviour with others, thus keeping them from establishing meaningful and socially-fulfilling relationships with others (Peplau & Perlman, 1982). A further explanation for these personality factors contributing to loneliness lies in the fact that individuals with these personality traits often engage in unrealistic relationships standards or maladaptive coping styles, which also lessens their social attractiveness, causing loneliness when other individuals are hesitant to engage in intimate relationships with them (Dykstra & Fokkema, 2007; Levin & Stokes, 1986). Lastly, due to loneliness being characterised by high levels of negative affect, lonely individuals are predisposed to (Costa & McCrae, 1980; Larsen & Ketelaar, 1991), and also have, higher levels of neuroticism and lower levels of extraversion (Asendorpf & Van Aken, 2003; Cacioppo et al., 2006; Cacioppo, Hawkley, & Thisted, 2010; Vanhalst et al., 2012).

2.6.2. Developmental Challenges

Developmental challenges, according to Rokach and Brock (1997), entail developmental factors as well as factors involving family relationships, which can often cause loneliness. Parent-child relationships (Le Roux, 1998; Rokach, 2001; Weiss, 1989), for example, are greatly factored into the risk of developing loneliness, as studies have found that events affecting this relationship play a big role in the development of loneliness. These events include attachment issues, rejection by parents or growing up in an environment where intimacy, love and stability are hard to come by (Le Roux & De Beer, 1994), including households where various forms of abuse may have taken place (whether social, emotional or

physical) (Le Roux, 1996, 1998; Rokach & Brock, 1997). As a result, individuals who do not have secure relationships with their parents or caregivers were found to have higher levels of loneliness (DiTommaso, Brannen-McNulty, Ross, & Burgess, 2003).

Numerous others studies have reiterated the negatively significant relationship between loneliness and attachment to parents (Bogaerts, Vanheule, & Desmet, 2006; Collins, 2003; De Minzi, 2006; Demirli & Demir, 2014; Deniz, Hamarta, & Arı, 2005; DiTommaso et al., 2003; Erözkan, 2004; Hecht & Baum, 1984; İlhan, 2012; Karakuş, 2012; Kerns & Stevens, 1996; Kurt, Sayıl, & Tepe, 2013; Levi-Belz, Gvion, Horesh, & Apter, 2013; Margalit, 2010; Moller, Fouladi, McCarthy, & Hatch, 2003). Thus, the poorer the parent-child relationship, the higher the chances of loneliness being experienced by the child. This can be explained by the need for familiarity and comfort, which especially university students, require in their active search for other intimate relationships when breaking away from their familiar parental attachment (Margalit, 2010). Lastly, the quality of the parent-child relationship also contributes to the sense of belonging that an individual feels in a new community, which is essential for successfully transitioning into university life (Chen, 2003).

2.6.3. Inability to make use of Relationships and Unfulfilling Intimate Relationships

Since the definition of loneliness entails feeling unfulfilled in socially intimate relationships, the inability to make use of relationships would indirectly indicate that the individual might, as a result, not experience his/her social relationships as fulfilling (Le Roux, 1996, 2002; Rokach & Brock, 1997; Shapiro, 1999). This domain, therefore, includes poor interpersonal relationships within social networks and communities, as well as avoidance of social relationships (Nurmi et al., 1997; Rokach & Brock, 1997), which are strong predictors of loneliness. This may be explained by individuals' need to belong and feel socially

accepted in order to curb feelings of loneliness (Chipuer, 2001) Evidently, it has also been found that individuals who lack a sense of community often experience social alienation and isolation, which leads to feelings of loneliness (Chipuer, 2001). This, therefore, also relates to factors that are encouraged in specific cultures with regards to social interaction, such as the Western culture, which is characterised by low levels of involvement with others, as well as encouragement of high levels of competitiveness and independence (Baumeister & Bushman, 2017; Peplau & Perlman, 1982).

Furthermore, there is a significant negative relationship between loneliness and general belongingness (Malone, Pillow, & Osman, 2012; Mellor, Stokes, Firth, Hayash, & Cummins, 2008; Yıldız, 2013). As individuals' feelings of belongingness decrease, their levels of loneliness increase (Yıldız, 2013). Furthermore, this is reiterated by findings that suggest that participation in social organisations is also associated with less loneliness and isolation (Child & Lawton, 2019; Niedzwiedz et al., 2016). It is therefore of vital importance for university students to feel a sense of belonging in the university context, as studies have indicated that fulfilling relationships with peers foster a sense of belonging (Chen, 2003) and, in turn, reduce loneliness in students (Kurt et al., 2013). This may be explained by university students moving away from their parents as attachment figures and rather directing their attachment towards peers who can provide comfort and security throughout the university experience (Hazan & Shaver, 1994). When considering these factors, it is evident that poor social skills will also inevitably play a role in the development of loneliness (Peplau & Perlman, 1982; Spitzberg & Hurt, 1989). As a result, interpersonal communication competence will be discussed as a predictor of loneliness in Section 2.7.2.

2.6.4. Relocation or Social Separation

Relocation or social separation refers to situational factors that induce social separation from others or changes in important intimate relationships. These events can include physical isolation or the death of a loved one (social separation), as well as moving to a new city or the ending of an intimate relationship (relocation) and are considered possible predictors of loneliness (Le Roux, 1996; Rokach & Brock, 1997). These factors strongly link to the specific study population of university students, as the university experience is often characterised by relocation when moving to university, including social separation in terms of the familiar parent-child relationship, as mentioned earlier (Nelson & Barry, 2005; Rahman et al., 2017). During the university experience, relationships with friends and intimate partners are also explored, and when these relationships end or are unsuccessful, social separation and physical isolation also take place (Nelson & Barry, 2005; Rahman et al., 2017). This can aggravate loneliness experienced by university students. These factors may be explained by a lack of social fulfilment that the individual experiences when a strong intimate relationship is taken away from them, whether by relocation, death or any other factor (Rokach, 2001; Rokach & Brock, 1997).

Furthermore, studies have also indicated that loneliness can be induced in situations where an individual experiences a high level of boredom (Peplau & Perlman, 1982; Shapiro, 1999). This is, therefore, in line with the stated definition of loneliness, which entails that individuals experience loneliness when there is a lack of social fulfilment (Bhagchandani, 2017; Cornwell & Waite, 2009; Doman & Le Roux, 2012). When an individual feels bored, the individual feels socially separated from socially fulfilling relationships, which in turn contributes to feelings of loneliness (Peplau & Perlman, 1982; Shapiro, 1999). Further situational factors that entail being socially separated from others, such as a high use and accessibility of media and technology, may also cause loneliness due to the social separation

it inevitably creates in terms of face-to-face contact with other individuals (Peplau & Perlman, 1982; Shapiro, 1999). The predictor of media and technology use will be discussed in more detail under Section 2.7.1.

2.6.5. Social Marginalisation

The fifth factor in Rokach and Brock's model includes the concept of social marginality. This predictor of loneliness includes feelings of perceived or actual rejection and lack of belonging. Populations that experience this often include individuals who are incarcerated, unemployed or chronically ill (Le Roux, 1998; Rokach & Brock, 1997). This, therefore, links to other sociocultural factors often associated with certain populations, such as communities in which high levels of youth misconduct, poor school attendance and a lack of regard for rules and regulations exist (Demir & Tarhan, 2001; Joubert, 1989). Individuals within these communities are more at risk to develop loneliness due to the social rejection they experience within their communities (Demir & Tarhan, 2001; Rokach & Brock, 1996) and, as a result, the lack of social fulfilment within their relationships with others (Le Roux, 1998; Rokach & Brock, 1997). However, this category of the causes of loneliness is less relevant in this specific study, as the sample used consisted only of university students.

2.7. Predictors of Loneliness

The focus of this study will comprise of specific predictors of loneliness, which can be labelled as main predictor variables of loneliness, namely (i) media and technology usage, (ii) interpersonal communication competence, and (iii) self-esteem. Further sub-predictor variables of loneliness in the form of demographic variables are also included in the focus of

this study; namely (iv) gender, (v) age, (vi) ethnicity, (vii) generation, (viii) religious affiliation and (ix) religious practice.

2.7.1. Media and Technology usage

Media and technology usage is considered to be one of the factors which contribute to loneliness (Doman & Le Roux, 2012). University students are major users of media and technology, with 82% of individuals between the ages of 18 and 29 frequently engaging with social networks, such as Facebook (Duggan, 2015; Quan-Hasse, Wellman, Witte, & Hampton, 2002) in order to connect with others and to seek some form of social support (Jia et al., 2018). Ironically, despite the constant connectedness in today's modern world, research has shown that university students are the biggest users of technology and may be lonelier than other age groups and even be the loneliest generation ever recorded (Pittman & Reich, 2016). When comparing the ages of technology users engaging in social networks in the USA, a study found that 91% of individuals aged 18-29 made use of social networking and their smartphones at least once daily over the study period, while only 55% of individuals who were 50 years and older yielded the same results (Smith, 2015).

In South Africa, these figures are similar, with 32% of the social networking sites' users being university students (The Statistics Portal, 2017). For example, 41% of Facebook users in South Africa are between the ages of 20 and 29 years of age. Furthermore, more than half of the population are active internet users and 92% of South Africans own a mobile phone (Shezi, 2017). Also, the average South African spends just under 5 hours a day engaging with the internet (Shezi, 2017; The Statistics Portal, 2017). In terms of the South African student population, university students engage with numerous technology platforms daily for the sole reason of communicating with others (Parry & Le Roux, 2018). For example, studies

have found that up to 49% of undergraduate students prefer cellphones and messaging applications to converse with and establish relationships with other individuals (Lenhart, Smith, Anderson, Duggan, & Perrin, 2015), thus indicating that at least 46% of these students cannot imagine going a day without their smartphone (Lenhart et al., 2015). Although modern technology use mostly includes technology pertaining to computers and cellphones, the concept of “media and technology usage,” however, can also include a range of activities performed not only on cell phones and computers but also on television sets, for example (Rosen et al., 2013).

The relationship between media and technology usage and loneliness takes on an interesting relationship, as studies have shown that loneliness is often both the cause, as well as the consequence of excessive media and technology engagement, such as internet usage (Bozoglan, Demirer, & Sahin, 2013; Kim, LaRose, & Peng, 2009; Stankovska et al., 2016). Therefore, the relationship between media and technology usage and loneliness takes on a reciprocal nature, as lonely students tend to make more use of social media and technology (Yao & Zhong, 2014), with loneliness often being associated with internet addiction (Beard, 2005; Bozoglan et al., 2013; Gamez-Guadix, Villa-George, & Calvete, 2012; Ha et al., 2007; LaRose, Lin, & Eastin, 2003; Odaci & Kalkan., 2010; Stankovska et al., 2016; Tokunaga & Rains, 2010). In the context of South African university students, it has been shown that students use technology for social engagement, regardless of whether they are descendent from urban or rural areas, with 30.9% of these students being vulnerable to internet addiction (Tshuma, 2016). Reciprocally, these vulnerable students tend to be lonelier than those not identified as vulnerable to internet addiction (Tshuma, 2016). According to Stankovska et al. (2016), internet usage is often used as a defence mechanism to cope with loneliness and other negative feelings such as anger and depression (Morahan-Martin & Schumacher, 2000; Munoz-Rivas, Fernandez, & Gamez-Guadix, 2010). However, lonely individuals still

constantly seek social fulfilment, often being more prevalent internet users than less lonely people in order to create an environment where socialisation with others is possible (Morahan-Martin & Schumacher, 2000; Ozdemir, Kuzucu, & Ak, 2014). This is illustrated by students with higher loneliness levels having more Facebook friends, as well as using social networks to compensate for the social relationships they lack in their day-to-day lives (Skues, Williams, & Wise, 2012). As a result of the high volumes of interaction with these types of media and technology, there is a decline in students' face-to-face interaction (Brignall & Van Valey, 2005) and their levels of internet addiction have increased (Stankovska et al., 2016). This may be a cause for concern, as visual and auditory cues found in face-to-face communication are often limited in online communication, which results in a lack of specific skills (such as cultural, normative communication and civility skills) needed to interact with others successfully (Goffman, 1959, 1967). These skills form an important part of interpersonal communication competence, which is a crucial skill needed for curbing loneliness (Knapp & Daly, 2002). Therefore, due to the vicious cycle that the interaction of loneliness and technology use can often have, where one feeds off of the other, media and technology usage can be considered an important predictor of loneliness.

2.7.2. Interpersonal Communication Competence

Poor interpersonal communication skills, which are often associated with technology usage, are also considered as one of the predictors of loneliness (Schiau, 2016). Humans are inherently social beings and require complex and well-developed interpersonal communication skills in order to maintain social relationships (Cacioppo et al., 2009; Knapp & Daly, 2002). Interpersonal communication competence in people's interactions with

others is, therefore, not only essential for an individual's survival but also a necessity in combatting loneliness (Knapp & Daly, 2002).

Interpersonal communication competence can be defined as "an impression or judgement formed about a person's ability to manage interpersonal relationships in communication settings" (Rubin & Martin, 1994, pp. 33). Furthermore, the concept of interpersonal communication includes a variety of communication-related skills and abilities, such as self-disclosure (Argyris, 1965; Bienvenu, 1971; Bochner & Kelly, 1974), empathy, assertiveness and interaction management among others (Ruben & Martin, 1994; Wiemann & Backlund, 1980). Interpersonal communication, therefore, includes both verbal and non-verbal messages as exchanged through the experience of communication taking place in a face-to-face context with another individual (Ramaraju, 2012).

Interpersonal communication competence has been found to be a predictor of increased levels of social support and relational satisfaction within individuals, compared to those with low interpersonal communication competence (Albrecht & Adelman, 1987; Apker, Ford, & Fox, 2003; Canary & Lakey, 2006; Cupach & Canary, 2000; Query & Wright, 2003). It has also been found to correlate highly with physiological, emotional and physical well-being (Greene & Burleson, 2003). Similarly, university students indicating higher levels of loneliness also indicated a lack of skills to build successful and fulfilling relationships with others; therefore lacking communication competence (Jones, Hobbs, & Hockenbury, 1982; Wright et al., 2013).

Although loneliness has also been related to communication apprehension (Spitzberg, 1980), it has been indicated that interpersonal communication competence is a much stronger predictor of loneliness (Segrin, 2017; Zakahi & Duran, 1982). This may be explained by the fact that poor interpersonal communication competence leads to a lack of belonging, as well

as feelings of a lack of support and intimacy, which in turn leads to loneliness (Doman & Le Roux, 2012). Further reinforcement for this theory lies in lonely people not being considered as popular within a social context and being less emotionally close to the few individuals with whom they have social relationships (Williams & Solano, 1983). This, once again, reiterates that lonely individuals have poorly developed social skills, which keep them from developing strong, fulfilling intimate relationships with others (Doman & Le Roux, 2012). The interaction between loneliness and interpersonal communication competence is, therefore, a reciprocal relationship, as indicated by research suggesting that lonely people are also often less sociable than their less-lonely counterparts (Doman & Le Roux, 2012; Schiau, 2016).

The sub-constructs of interpersonal communication competence, as mentioned earlier, necessitate the exploration of self-disclosure in relation to loneliness (Chelune, Sultan & Williams, 1980). Self-disclosure is a dimension of interpersonal communication competence and is an important aspect in the development of successful relationships (Altman & Taylor, 1973). Research has indicated that lonely individuals engage in self-disclosure significantly less than their less-lonely counterparts (Chelune et al., 1980; King, 2018), even in online contexts (Schmuck, Karsay, Matthes, & Stevic, 2019). This may be due to lonely individuals being less aware of situational norms in terms of self-disclosure or that they experience a lesser degree of social intimacy in terms of trusting and confiding in another person (Chelune et al., 1980).

These findings indicate that interpersonal communication competence is an important factor which needs to be implemented and taught in combatting loneliness in especially university students who are prone to loneliness, as well as in the phase of development where the establishment of intimate relationships is essential (Canary & Lakey, 2006; Wright et al., 2013). Therefore, since interpersonal communication competence is a necessity for

maintaining quality intimate social relationships (Cacioppo et al., 2009; Knapp & Daly, 2002) and poor interpersonal communication competence results in feelings of a lack of intimacy, which results in loneliness (Doman & Le Roux, 2012; Knapp & Daly, 2002), interpersonal communication competence can be considered an important predictor of loneliness.

2.7.3. Self-esteem

Loneliness can also be attributed to and has a reciprocal relationship with low self-esteem (Cacioppo et al., 2009), because individuals with low self-esteem lack the necessary confidence to socialise with others and the ability to consequently curb their loneliness (Al Khatib, 2012; Baumeister & Vohs, 2018). Self-esteem is regarded as an important part of mental health (Taylor & Brown, 1988) and can be defined as either a positive or negative mentality an individual holds towards him- or herself (Bandura, 1977; Kohn, 1994; Rosenberg, 1965). It furthermore relates to aspects of an individual's sense of self-worth, including the degree to which individuals acknowledge, like, value and appreciate themselves on a global level (Baumeister & Bushman, 2017; Blascovich & Tomaka, 1991). Self-esteem may, therefore, be viewed as the component which an individual uses to evaluate the self-concept and includes cognitive, behavioural and evaluative aspects (Blascovich & Tomaka, 1991).

Numerous literature has indicated that self-esteem negatively correlates with loneliness (Davis, Hansen, Edson, & Ziegler, 1992; Lasgaard & Elklit, 2009; Mahon, Yarcheski, Yarcheski, Cannella, & Hanks, 2006; McWhirter, 1997; Ouellet & Joshi, 1986; Roscoe & Skomski, 1989). Thus, as self-esteem decreases, loneliness in individuals increases. The reciprocal relationship between these two variables is due to the effects that low self-esteem

has on an individual – creating feelings of hopelessness and inadequacy (Keane & Loades, 2017; Rahman et al., 2017). Low self-esteem in university students includes negative evaluations of especially their appearance and behaviour (Rahman et al., 2017). As a result, individuals with low self-esteem tend to isolate themselves and avoid social contact (Keane & Loades, 2017). These feelings often keep individuals from building meaningful social relationships, which, in turn, results in these individuals feeling lonely (Keane & Loades, 2017; Mahon et al., 2006).

In a study exploring the relationship between loneliness, self-efficacy, self-esteem and gender, self-esteem accounted for the highest variance (22.9%) in loneliness and was, therefore, the strongest predictor of loneliness within the study (Al Khatib, 2012). Another study (Ouellet & Joshi, 1986) reported a strong negative correlation of $r = -.72$ between loneliness and self-esteem, indicating that higher levels of self-esteem were related to lower levels of loneliness.

Research has also indicated that, in university students, in particular, low self-esteem is considered a risk factor for loneliness. Studies have found that self-esteem serves as a strong predictor of loneliness following the adjustment period from high school to university, especially in an individual's first year at university (Nurmi et al., 1997). Lack of adequate social support for these lonely university students due to their deficiency of interpersonal communication skills and lowered self-esteem often leads to other mental health concerns such as anxiety and depression (Keane & Loades, 2017).

The need to study self-esteem as a predictor of loneliness, is reiterated by limitations in loneliness studies such as those by Corsano, Majorano and Champretavy (2006) and Majorano, Musetti, Brondino and Corsano (2015), where self-esteem was not included as a variable in the studies and consequently, suggested that self-esteem may be used as a

determinant in peer loneliness studies with young adults in future research. Therefore, due to self-esteem and loneliness having a reciprocal relationship and resulting in negative evaluations of students' health, appearance, general functioning as well as academic performance (Rahman et al., 2017), self-esteem is an important variable to study with regards to the prediction of loneliness amongst university students.

2.8. The Interaction of Main Predictor Variables

As illustrated, there are numerous factors that could play a possible role in the development of loneliness. For the purpose of this specific study, the previously-mentioned variables were categorised into main predictor variables, as well as sub-predictor variables of loneliness. In terms of specifically the main predictor variables, namely self-esteem, interpersonal communication competence, and media and technology usage, it is worthy to evaluate how these variables interact with regards to the prediction of loneliness.

Since the current generation of emerging adults also live in a society where technology is crucial to their day to day existence, media and technology usage influences how they communicate with others, as well as their view of themselves. For example, research investigating individuals' responses to the risk of rejection found that individuals with lower self-esteem tend to show a significant preference for online communication (such as e-mailing), while those with higher self-esteem prefer face-to-face methods of communication (Joinson, 2004). Furthermore, individuals with a lower self-esteem tend to have underdeveloped interpersonal communication competence (Joinson, 2004). The communication skill of self-disclosure is a form of interpersonal communication competence and is vital in successfully building relationships with others in order to prevent an individual's personal evaluation of themselves to be negatively affected (Samphirao, 2016).

Since low self-esteem has been shown to predict loneliness, it is clear how an individual could develop loneliness due to the previously-mentioned combination of factors (Joinson, 2004). The relationship between loneliness and the possible predictors thereof, therefore, takes on a complex nature, with each variable influencing the other.

Thus, since these three main variables of self-esteem, interpersonal communication competence and media and technology usage could be predictor variables of loneliness, it is possible that the interaction of these specific variables may also predict loneliness. However, in order to examine this interaction, further demographic predictor variables were also introduced in this study, namely gender, age, ethnicity, generation, religious affiliation and religious practice. These demographic predictor variables have been, as previously-mentioned, labelled as sub-predictor variables for the purpose of this study, and aim to act as additional predictor variables of loneliness, as these specific demographic variables have been shown to play a role in the individual main variables' prediction of loneliness, as well as the interaction of the main variables with regards to loneliness. Subsequently, these demographic variables will be discussed in further detail.

2.8.1. Gender

Although contrasting findings exist regarding the influence of gender on loneliness, it is nevertheless important to consider its importance as a predictor of loneliness. Some studies indicated that loneliness is often found to be higher in women than in men (Al Khatib, 2012; Cacioppo et al., 2009; Jylhä, 2004; Tilvis, Laitala, Routasalo, & Pitkälä, 2011; Victor, Scambler, Bowling, & Bond, 2005). Similarly, in other studies with student populations, it was found that female students suffer from higher levels of loneliness (Al Khatib, 2007; Anderson, Horowitz, & French, 1983; Page & Cole, 1991). Some South African researchers

have also found that female students are more lonely than male students (Medora & Woodward, 1986; Sundberg, 1988; Woodward & Frank, 1988). A possible reason for this finding may lie in the fact that females often place greater emphasis on achieving and maintaining intimate relationships with other individuals and therefore experience a greater sense of loneliness when these relationship expectations are not met or are deemed unsuccessful (Cross & Madson, 1997; Stewart & McDermott, 2004).

Contrastingly, other studies (Borys & Perlman, 1985; Knox et al., 2007; Wiseman, Gutfreund, & Lurie, 1995) have found that males are lonelier than females, which is also echoed by some studies of university students that found that male students tend to be lonelier than their female counterparts (Deniz et al., 2005; Schultz & Moore, 1986; Yang, 2009). In the South African context, specifically, research focusing on Black as well as White students from varying ages has indicated similar findings regarding gender (Janse van Rensburg, 1991; Pretorius, 1993). A possible reason for this finding is, ironically, similar to the reason that females experience loneliness more often, namely that the average female is generally considered to be well-socialised and possesses better attachment skills than the average male (Deniz et al., 2005).

Although most studies have found some connection between gender and loneliness, there are other studies, which were unable to prove any significant gender differences between loneliness in males versus females (Al-Kfaween, 2010; Archibald, Bartholomew, & Marx, 1995; Knox et al., 2007; Weiss, 1973). For example, in a meta-analytic study comprising of 31 studies (Mahon et al., 2006) with regards to predictors of loneliness during adolescence, 19 of these resulted in no significant gender differences, nine showed loneliness to be higher in males than in females, and two argued for females having higher loneliness levels than males. Furthermore, some South African researchers were also unable to prove any significant differences regarding loneliness in different genders (De Beer, 1992; Ferns, 1991;

Le Roux, 1992; Scholtz, 1995). Despite this, it is evident that gender plays a role in loneliness – albeit this role requires more investigation – which makes gender an important variable to study as a predictor of loneliness.

2.8.2. Age

It is important to consider that loneliness may not remain constant over the lifespan of an individual, and age may, therefore, play a role due to specific environments, resources, roles and responsibilities associated with different ages and stages of life (Hawkley & Cacioppo, 2007; Luhmann & Hawkley, 2016; Qualter et al., 2015). When investigating the variable of age with regards to loneliness, research has often indicated vastly contradictory findings. For example, research indicates that loneliness is highest amongst young adults and the oldest individuals in society (Luhmann & Hawkley, 2016), as it seems that loneliness (in particular, peers) peaks in the first part of young adulthood (Goossens, 2006; Ladd & Ettekal, 2013) and decreases as an individual becomes older (Van Roekel, Scholte, Verhagen, Goossens, & Engels, 2010), rising again near the end of an individual's lifespan. This is substantiated by findings indicating that elderly people also experience higher levels of loneliness (Moore & Schultz, 1983; Natale, 1986) than their younger counterparts. Although past research has indicated conflicting results in terms of loneliness with regards to an individual's specific age and developmental stage, it is becoming clearer that loneliness is on the rise in younger individuals. Not only is adolescence the peak age for experiencing loneliness (Bolea, 1986; Medora & Woodward, 1986; Yang & Victor, 2011), but young adults are also the population group struggling with loneliness the most (Bolea, 1986; Medora & Woodward, 1986; Yang & Victor, 2011). This is reiterated by research indicating that loneliness decreases with age,

with individuals between the ages of 16 and 24 being three to five times more lonelier than individuals who are 65 years and older (Brewer & Gardner, 1996).

Thus, it is important to also consider the trajectory of loneliness and the age of young adulthood, as this study focuses on a sample of individuals between the ages of 18 and 30 years old; covering the entire span of university students within the phase of emerging adulthood. Research has indicated that loneliness (in particular, peer loneliness) peaks in the first part of young adulthood rather than later ages of young adulthood (Goossens, 2006; Ladd & Ettekal, 2013; Mullett, 2002). This decrease in loneliness as a young adult ages may be as a result of more realistic social expectations, as well as increased social and communicative competencies as individuals grow older (Neto & Barros, 2000; Taylor, Peplau, & Sears, 2000).

Although some research indicates that young adults experience insignificant amounts of loneliness in terms of increasing or decreasing as individuals age, other research has shown that loneliness often increases for these emerging adults as they age (Harris, Qualter, & Robinson, 2013; Luyckx et al., 2014; Qualter et al., 2013; Schinka, Van Dulmen, Mata, Bossarte, & Swahn, 2013). A possible explanation for this includes that younger adults have higher levels for social success and are in constant comparison with other individuals of their age (Carstensen, Fung, & Charles, 2003). They, therefore, place greater emphasis on establishing and maintaining social relationships with others while seeking out diverse social relationships with the hopes of establishing intimate relationships (Carstensen, Fung, & Charles, 2003; Weiss, 1973). This high-socially driven nature decreases with age, which may explain why older adults experience higher levels of loneliness (Carstensen et al., 2003).

Regarding South African research, the relationship between age and loneliness has also been investigated. However, of the limited studies exploring these variables, one of these

studies found no significant difference in terms of age when it comes to adolescents (Ferns, 1991). Another study found a low occurrence of loneliness amongst students (Scholtz, 1995) and teenagers (Janse van Rensburg, 1991; Le Roux, 1992). Other studies have found no differences between the number of loneliness experiences in younger adults versus older adults in the emerging adulthood developmental phase (Le Roux & De Beer, 1994). However, it is evident that the variable of age requires further investigation, specifically in the South African context, and can, therefore, be considered an important predictor of loneliness.

2.8.3. Ethnicity

As previously mentioned, age plays a role in the development of loneliness. However, it seems that ethnicity are what separates these ages, as the previously-mentioned study also found that Black students were less lonely than White students; White teenagers seemed to be more lonely than Black adolescents (Le Roux & De Beer, 1994). According to García (2019), a person's ethnicity refers to the degree to which an individual feels part of or psychologically identifies with individuals holding the specific characteristics of a certain ethnic group. Ethnicity can, therefore, be defined as a shared identity due to common social and cultural traits within a population (García, 2019). These traits may include skin colour, but it mainly includes language and religion, as well as shared customs and traditions. In South Africa, there are four main ethnic groups, which include African/Black, Coloured, Indian and White (Statistics South Africa, 2010).

It is important to consider the effect of ethnicity on loneliness, as it has been found that Coloured and Black individuals are more inclined to experience loneliness than their White counterparts (Groenewald, 1998; Jordaan & Le Roux, 2004; Mullett, 2002; Peplau &

Perlman, 1982; Young & Strelitz, 2014), as found in South African studies. It has also been found that Coloured adolescents are potentially less lonely than Black adolescents, although research has been unable to obtain statistically significant results in order to back up this claim. Contrastingly, this is contradicted by studies that relate higher levels of loneliness to individuals being raised in Western (or individualistic) cultures, rather than other collectivistic cultures more prominent in non-Western societies (Lauder, Sharkey, & Mummery, 2004; Le Roux & Connors, 2001). This difference in loneliness within ethnic groups may possibly be due to less emphasis being placed on social relationships in the Western culture, as they focus more on a sense of individualism, while African (or, in this case, Black) cultures are considered to be more collectivistic in nature (Groenewald, 1998). The collectivist cultures, therefore, ensure more socially-intimate and fulfilling relationships, which acts as a protective factor against developing loneliness (Groenewald, 1998; Young & Strelitz, 2014). Thus, it seems as if ethnicity may play a potential role in the expression of loneliness within different ethnic groups (Le Roux & Connors, 2001; Mullett, 2002; Rokach & Brock, 1997), deeming it an important aspect to study as a potential predictor of loneliness.

2.8.4. Religious Affiliation and Practice

In terms of religion, research has also indicated that individuals with religious affiliation and practice are less inclined to be lonely (Le Roux, 2002; Rote et al., 2012), as religious involvement protects against loneliness (Rote et al., 2012). This may be due to the role which religious congregations play in fostering social integration and support, which combats feelings of unfulfilled social relationships and, ultimately, loneliness (Berkman, Glass, Brissette, & Seeman, 2000; House, Landis, & Umberson, 1988).

Furthermore, an individual's strength of faith may also have an influence on the degree of loneliness the individual may experience (Rote et al., 2012). For example, research has suggested that Christian individuals who indicate to have a relationship with God, as well as knowledge of and participation in the Christian religion, have lower degrees of loneliness (Le Roux, 1998). Non-believers, on the other hand, tend to experience a lesser degree of moral support and social integration within communities. In other words, the less religious individuals are, including having less knowledge regarding religion and religious practices, the more lonely these individuals tend to be (Lauder et al., 2006; Le Roux & Connors, 2001; Le Roux, 2002).

Furthermore, individuals who partake in religious activities often have higher levels of social support, as well as social integration, which is associated with lower levels of loneliness (Rote et al., 2012). This is especially true for individuals who make a habit out of attending religious services (Anderson et al., 1989; Gray, 2009; Kobayashi, Cloutier-Fisher, & Roth, 2009; Koenig, McCullough, & Larson, 2001; Schwab & Petersen, 1990) and is also true for young adults who engage in religious activities on a regular basis (Child & Lawton, 2019). This may be because regular religious practice within a community encourages the development of intimate social relationships, as well as the maintenance of fulfilling relationships. Since loneliness is a perceived lack of fulfilling intimate relationships, religious affiliations and practices provide the perception of supportive, satisfying relationships and therefore combats feelings of loneliness (Gallegos & Segrin, 2018). Furthermore, religious affiliation and practice have also shown to enhance the quality, as well as the quantity of an individual's supportive intimate social ties (Bradley, 1995; Ellison & George, 1994; Idler, 1987). This social integration and support indirectly protect against loneliness (Rote et al., 2012). Moreover, apart from being a protective factor against loneliness, religious affiliation and practice are also used as a mental coping mechanism for

those individuals already suffering from loneliness (Rokach & Brock, 1998) due to the social support and integration it can enhance within an individual's life.

Contrastingly, research by Carone and Barone (2001) has shown that religion may have the opposite effect on loneliness, as religious affiliation and practice is often associated with control over individuals, strict rules, as well as submission to a higher organisation or religious body. Therefore, religious individuals may experience higher degrees of loneliness within religious communities (Carone & Barone, 2001). However, due to the clear effects that religion has on preventing the development of loneliness, religious affiliation and practice are important variables to consider in the prediction of loneliness.

2.8.5. First-generation and Non-first-generation Students

Although research regarding loneliness and the population of university students exists both internationally and in a South African context, there is limited research regarding the experience of loneliness in first-generation students versus non-first-generation students. In an American study – one of the only studies focusing on this differentiation between students – it was found that both groups of students experience loneliness and isolation; however, it was found that first-generation students often experience higher levels of stress and depression compared to non-first-generation students (Stebbleton, Soria, & Huesman, 2014). Furthermore, the first-generation students reported these feelings to be a significant barrier to their success at university, whereas non-first-generation students do not share these sentiments (Stebbleton et al., 2014). This could be because many of these first-generation students report the university experience as being isolating (Tinto, 2017), as well as many of them not acquiring the sense of belonging needed to foster fulfilling relationships at university (Stebbleton et al., 2014). The concept of belonging within an academic

environment has been proven to affect an individual's self-image with regards to whether they view themselves as capable students or not (Curtin, Stewart, & Ostrove, 2013). Students acquire a greater sense of self, as well as view themselves to have the potential for success within the academic environment when they experience belonging within the university context (Curtin et al., 2013). Furthermore, a strong positive relationship exists between the degree to which a student feels that he/she belongs, retention of academic work and ultimately, graduating from university (Tovar, Simon, & Lee, 2009). Thus, the greater an individual's sense of belonging within the academic environment, the greater the likelihood of the student achieving academic retention, remaining at university and graduating (Costello, Ballin, Diamond, & Gao, 2018; Hausmann, Schofield, & Woods, 2007). Furthermore, this sense of belonging is also associated with lowered mental health issues such as loneliness among students (Stebbleton et al., 2014).

The previously-mentioned study also indicated that first-generation students often felt that they did not have enough opportunities with which they could get to know their fellow students and felt disconnected from the university experience. This is a cause for concern, as peer-support has been determined as a significant factor in combatting loneliness in university populations (Lee & Goldstein, 2016; Stebleton et al., 2014). Thus, feeling part of and belonging to the university environment is essential for first-generation students to successfully navigate the new experience of attending university (Curtin et al., 2013; Tinto, 2017). An explanation for first-generation students indicating a lack of belonging and opportunities to build friendships may lie in the fact that, compared to non-first-generation students, these students often engage in fewer extracurricular activities that could provide social fulfilment such as volunteer work, clubs, activities and sports (Costello et al., 2018). This may be explained by first-generation students not having the time or financial means to engage in such activities, as they often indicate higher levels of family and work obligations

(Costello et al., 2018). The consequence of this is that first-generation students do not develop peer support and meaningful social relationships, which leads to a lack of belonging and social fulfilment and, ultimately, loneliness (Huerta & Fishman, 2014; Rayle & Chung, 2008). Since this biographical variable affects loneliness, as well as the lack of research regarding first-generation and non-first-generation students in the South African context, this variable is an important predictor of loneliness, which should be further investigated.

2.9. Consequences of Loneliness

Although the different possible predictors of loneliness have been explored, it is also important to highlight the general effects that loneliness may have on an individual. Similar to the risk factors of loneliness being classified into different categories, the potential consequences of loneliness can also be divided into different groupings. These include social consequences, emotional consequences, physical consequences and psychological consequences. These consequences will subsequently be briefly highlighted and discussed.

2.9.1. Social Consequences

The social consequences of loneliness are unique as it further exacerbates loneliness. In general, research has shown that individuals who are lonely are also more inclined to spend their money recklessly (Cheng, 1992) and engage in crime (Demir & Tarhan, 2001; Le Roux, 1996). Furthermore, lonely students tend to have lower academic achievements and higher dropout rates in schools and universities (Rokach, 2001) and are more likely to engage in self-destructive social behaviours, such as substance abuse (Hermann & Betz, 2006; Rudatsikira, Muula, Siziya, & Twa-Twa, 2007). This may be a result of the lack of fulfilling

social relationships a lonely individual possesses in which a social partner can discourage negative behaviours (such as smoking or substance abuse) and instead promote healthy behaviours, as it will be a fulfilling, reciprocal social relationship (Lewis & Rook, 1999). However, one of the biggest social consequences of loneliness is the fact that lonely individuals also have a generally lower level of social functioning (Demir & Tarhan, 2001).

This lowered level of social functioning includes other consequences directly related to loneliness, such as poor interpersonal relationships (Rubenstein & Shaver, 1982), interpersonal hostility (Çivitci & Çivitci, 2009) and social withdrawal (Renshaw & Brown, 1992; Rubenstein & Shaver, 1982). Numerous other social effects, such as poor social adjustment, shyness (Deniz et al., 2005) and low self-esteem (Weiss, 1973) have also been associated with loneliness (Cutrona, 1982; Hansson, Jones, Carpenter, & Remondet, 1986; McWhirter, 1990). These consequences can be explained by the Loneliness Model, as presented by Hawkley and Cacioppo (2010). This model explains that lonely individuals are socially hypervigilant because they feel unsafe as a result of their lack of supportive and fulfilling social relationships (Cacioppo, Hawkley, & Ernst, 2006; Hawkley & Cacioppo, 2010). Thus, lonely individuals are constantly on the lookout for social threats and perceive the world as a threatening place. These individuals, therefore, develop a cognitive bias due to loneliness; constantly remembering negative social information and expecting negative social interactions (Cacioppo, Hawkley, & Ernst, 2006; Hawkley & Cacioppo, 2010). This often also leads to social actions on the part of the lonely individual – such as interpersonal hostility (Çivitci & Çivitci, 2009) – which results in other individuals confirming the lonely individual's negative social expectations. A self-fulfilling prophecy occurs, whereby both the lonely individual as well as potential peers and social relationships withdraw from the social interaction with one another (Newall et al., 2009). This self-reinforcing loneliness loop also results in the lonely individual experiencing further negative emotions, such as anxiety and

stress, as well as pessimism and low self-esteem (Cacioppo, Hawkley, & Ernst, 2006; Hawkley & Cacioppo, 2010). As a result, loneliness reduces participation in social activities, decreasing the size of a person's social network and worsening feelings of loneliness (Bukov, Maas, & Lampert, 2002; Huxhold, Fiori, & Windsor, 2013).

2.9.2. Emotional Consequences

Individuals who experience loneliness are more likely to experience either intense high emotionally expressed effects such as oversensitivity (Le Roux, 1996), hostility (Jones & Moore, 1989) or intense low emotionally expressed effects, such as a lack of concentration, attention deficits and pessimism (Peplau & Perlman, 1982). Furthermore, other emotional aspects such as self-blame, rejection, lack of self-confidence (Peplau & Perlman, 1982) and feelings of passiveness are also considered potential consequences of loneliness (Rubenstein & Shaver, 1982). When experienced over a longer period of time, negative emotions, such as anger and fear, are likely to give rise to further loneliness by fostering interpersonal conflicts and pessimistic views on the quality and usefulness of a person's social resources (Cacioppo et al., 2006). These emotional consequences may be explained by the increase of social hypervigilance, which a lonely individual experiences, as discussed in the previous section.

Furthermore, it may also be explained by the diminished capacity for emotional regulation which accompanies the hypervigilance that a lonely individual experiences (Cacioppo, Hawkley, & Ernst, 2006; Hawkley & Cacioppo, 2010). As a result, the individual is unable to regulate their thoughts, feelings and behaviours, which leads to a diminished ability to comply with social norms and achieve personal goals due to feelings of passiveness, lack of concentration and oversensitivity, which further exacerbates loneliness (Hawkley & Cacioppo, 2010). This is reiterated by the fact that a negative relationship exists between

loneliness and regulation of positive emotions; individuals who applied less effort in optimising and maintaining positive emotions also suffered from higher levels of loneliness (Hawkley & Cacioppo, 2009, 2010).

This inability to regulate emotions, especially negative emotions, further decrease a lonely individual's self-regulatory behaviours (Tice & Bratslavsky, 2000). Without these self-regulatory behaviours, an individual is unable to maintain the will and discipline to engage in health-promoting behaviours, which further results in the physical consequences of loneliness (Tice & Bratslavsky, 2000).

2.9.3. Physical Consequences

Loneliness has also been associated with an elevated susceptibility to physical health issues and related problems (Cornwell & Waite, 2009; Doman & Le Roux, 2012; Jones, Rose, & Russell, 1990; Knox et al., 2007; Rote et al., 2012). For example, loneliness has been associated with cardiovascular risk factors (Caspi, Harrington, Moffitt, Milne, & Poulton, 2006), anxiety (Cacioppo et al., 2002), hypertension, cognitive decline and even the progression of Alzheimer's Disease later in life (Wilson et al., 2007). Furthermore, in student populations, a higher number of these risk factors (such as body mass index, cholesterol and blood pressure) were predicted by higher levels of loneliness in these individuals (Cacioppo et al., 2009; Cacioppo et al., 2002; Hawkley et al., 2006). Other issues, such as insomnia (Hawkley & Cacioppo, 2010) and diminished immunity (Kiecolt-Glaser et al., 1984; Pressman et al., 2005), are also common associations with loneliness.

These physical consequences can be explained by the lack of self-regulation which lonely individuals possess; these individuals are less likely to engage in health-related behaviours

and, therefore, run a greater risk of developing health risks as a result of loneliness (Cacioppo, Hawkley, & Ernst, 2006; Hawkley & Cacioppo, 2010).

As previously mentioned, the lack of emotional regulation in lonely individuals also drives these individuals to engage in physical activity less regularly, which explains why one of the main physical consequences of loneliness is obesity (Lauder, Mummery, Jones, & Caperchione, 2006). This is in line with research stating that activity is a well-known protective factor for physical health, mental health and cognitive functioning, as well as combatting obesity (Lauder et al., 2006; Penedo & Dahn, 2005). Loneliness predicts a decrease in physical activity over time and, together with the resulting diminished support which lonely individuals experience, contributes strongly to the development of obesity (Böger & Huxhold, 2018; Hawkley, Thisted, & Cacioppo, 2009; McAuley, Morris, Motl, Hu, Konopack, & Elavsky, 2007). These physical consequences can also be explained by lonely people being less subject by the influence that strong social relationships can often have on an individual in terms of healthy behaviours (Cacioppo et al., 2003; Cohen, 2004; Lewis & Rook, 1999). For example, friends or partners may encourage an individual to engage in physical activity or eating a balanced diet, while discouraging behaviours that may compromise their loved one's health (Lewis & Rook, 1999).

Furthermore, these increased physical problems can also be explained by the lack of significant social interactions that lonely individuals engage in (Holwerda et al., 2012; Luo, Hawkley, Waite, & Cacioppo, 2012). As a result, lonely people receive less social support to help them deal with stressful events or general stress, which individuals experience on a daily basis (Cacioppo, Hawkley, & Berntson, 2003; Cohen, 2004). This heightened stress is also a result of loneliness, which leads to an increase in these previously-mentioned health impairments (Cacioppo et al., 2003), as well as with a variety of negative emotions (e.g., Holwerda et al., 2012), as mentioned in the previous section.

2.9.4. Psychological Consequences

There are numerous psychological effects associated with loneliness. Some of these effects include separation anxiety (Weiss, 1989), as well as lowered self-esteem (Davis, Hansen, Edson, & Ziegler, 1992; Lasgaard & Elklit, 2009; Mahon et al., 2006; McWhirter, 1997; Ouellet & Joshi, 1986; Roscoe & Skomski, 1989). However, studies focusing on loneliness have indicated that the most prevalent psychological effects thereof include anxiety and stress (Heinrich & Gullone, 2006). Furthermore, in student populations specifically, loneliness is a reliable predictor of suicidal ideation and self-mutilation (Cacioppo et al., 2006; Chang et al., 2015; Hirsch, Chang, & Jeglic, 2012; Lamis, Ballard, & Patel, 2014; Muyan & Chang, 2015; Stravynski & Boyer, 2001), as well as higher suicide rates (Le Roux, 1996).

These psychological effects can be due to lonely individuals engaging in social activities to a lesser degree and tend to have smaller and less-fulfilling (if any) relationships with others (Bukov et al., 2002; Huxhold et al., 2013). As a result, the loneliness ensuing from this triggers a range of negative emotions, as previously discussed, following from the rejection, lack of belonging and lowered self-worth which lonely individuals often experience (Cacioppo et al., 2003). The chronic experience of these negative emotions often leads to the mentioned psychological effects.

Furthermore, depression is a significant psychological effect of loneliness and has often become the focus of research on the effects of loneliness (Cacioppo et al., 2010; Rubenstein & Shaver, 1982; Weiss, 1989). There is also a strong association between loneliness and depression in young adults going to university; a relationship that takes on a reciprocal effect, as lonely students become depressed, which exacerbates the loneliness students are already experiencing (Erol & Cirak, 2019; Harter, 1999). As previously mentioned, the university

experience is characterised by constant social and emotional separation, which has the potential to foster depression and, ultimately, loneliness within these university students (Bowlby, 1973; Wright et al., 2013). Loneliness, therefore, leads to depression and a lack of remediation of these depressed feelings results in more feelings of loneliness (Harter, 1999).

2.10. Summary

To summarise, literature has found that there are numerous possible predictors of loneliness. However, regardless of the possible predictors of and factors influencing loneliness, it is important to assess these various factors in a South African context in order to establish a comparison between the different contexts and variables presented in the literature. This is especially important since loneliness has been labelled a global phenomenon with serious consequences and effects on a range of individuals' functioning. Firstly, the phase of emerging adulthood has a strong link to university students, as this is the age (18 to 29) in which many emerging adults are encountering situations specifically related to university-experiences (e.g., moving away from home, newly-found independence). These specific experiences are closely related to Erikson's psychosocial stage of intimacy versus isolation and loneliness is often a consequence of this stage not being navigated successfully. These experiences also relate to other predictors of loneliness, such as self-esteem, which has shown great promise in terms of being a strong predictor of loneliness. Furthermore, due to this specific population of university students' position in modern society, media and technology usage also plays a significant role in the lives of these individuals and has often also been linked to increased loneliness in these individuals. Interpersonal communication competence is often affected by the use of media and technology and is aggravated due to a lack of self-esteem. Interpersonal communication competence was also shown to be an

important potential predictor of loneliness. Therefore, these chosen main variables seem to relate to loneliness in the university student population. Further, demographic aspects, such as age and gender have also shown to have fluctuating effects on loneliness, and ethnicity and religious affiliation and practice may also be considered due to research often finding that these variables play some sort of role in loneliness amongst university students. In addition, the effect of first-generation students, as opposed to non-first-generation students, is a predictor which has not often been considered, but shows potential as a predictor of loneliness; it is, therefore, worth investigating in a South African context. Lastly, the consequences of loneliness are broad and can be considered reason for concern, as loneliness is often associated with serious consequences such as suicide, obesity, lack of self-esteem and substance abuse. These are important issues to consider, as well as combat, in the specific population of university students who suffer from feelings of loneliness. In the next chapter, the methodology pertaining to this specific study is discussed. However, it is important to keep in mind that there are numerous other possible factors that may predict loneliness, as discussed in this chapter.

Chapter Three

Research Methodology

3.1. Introduction

In this chapter, the research methodology that was used to gain information regarding loneliness and the possible predictors thereof is discussed in order to identify the predictor (independent) variable or combination of variables that best predict the criterion (dependent) variable, namely loneliness, amongst undergraduate university students at the University of the Free State, Bloemfontein, South Africa. The discussion firstly includes an explanation of the research problems, questions and objectives. Secondly, the research design is discussed, as well as the sampling method. Furthermore, the participants employed in this study are also mentioned, as well as the methods followed in order to obtain the data from the participants. Furthermore, this discussion focuses on the measuring instruments used to collect the data. Lastly, the statistical procedures followed in order to analyse the data are also discussed, followed by the ethical considerations relevant to this study.

3.2. Aim of the Study

The overarching aim of this research study is to identify the predictor (independent) variable(s) or combination of variables that explain a significant percentage of the variance in loneliness amongst undergraduate university students, as well as to investigate whether differences exist in loneliness with regards to gender, ethnicity and student generation.

3.3. Research Problem and Objectives

The research problem which presented itself in light of relevant literature was the concept of loneliness amongst university students, as well as what could predict loneliness in the population group of undergraduate university students while attending university. The principal objective of this study, as mentioned in Chapter One, was to determine which predictor variable(s) being investigated, namely media and technology usage, self-esteem, interpersonal communication competence, gender, age, religious affiliation, religious practice, ethnicity and generation of student, are responsible for the largest percentage of the variance in the loneliness scores amongst undergraduate university students at the University of the Free State. Therefore, in this study, loneliness serves as the criterion (dependent) variable, while the university students' self-esteem, interpersonal communication competence, media and technology usage, age, gender, religious affiliation, religious practice, ethnicity and generation of study are classified as the predictor (independent) variables. Furthermore, the difference in loneliness with regards to gender (male versus female), as well as ethnicity (Black versus White) and generation of student (first-generation or non-first-generation) was also investigated.

3.4. Research Questions

In order to address the aim of the study, the following research questions were investigated:

- Can the combination of media and technology usage, self-esteem, interpersonal communication competence, gender, age, ethnicity, generation, religious affiliation

and religious practice explain a significant percentage of variance in the loneliness of university students?

- Do any of the individual predictors being studied significantly contribute to the variance of loneliness amongst university students?
- Is there a significant difference in loneliness between male and female students?
- Is there a significant difference in loneliness between Black and White students?
- Is there a significant difference in loneliness between first-generation students and non-first-generation students?

3.5. Research Design and Methods

A research design and approach may be referred to as the overarching set of guidelines or strategy followed in order to collect data with the ultimate goal of answering pre-determined research questions within a study (Bryman & Bell, 2011; Vogt, Gardner, & Haeffele, 2012). In this study, a quantitative methodology was followed within a non-experimental research type, using a correlational research design (Stangor, 2011, 2015).

A quantitative methodology entails obtaining numerical and measurable data (Clark-Carter, 2009; Ernst, 2003) in an accurate and reliable manner in order to be able to engage in statistical analysis of the gathered data (Nestor & Schutt, 2019; Queirós, Faria, & Almeida, 2017). An advantage of quantitative methodology includes quantitative methodology allowing for the study of large groups of respondents in shorter amounts of time (Flick, 2011), as was also evident in this research project where 1191 students were able to take part in the research within the span of approximately one month.

Furthermore, quantitative methodology can be further divided into experimental, pre-experimental, quasi-experimental and non-experimental approaches (Belli, 2009; Clark-

Carter, 2009). In this research study, non-experimental research was made use of in order to study specific variables in relation to loneliness. Variables may be defined as characteristics that are evident in populations or samples, although these characteristics also often differ or take on different values within these samples or populations (Belli, 2009; Mooney, Knox, & Schacht, 2013). Non-experimental research, therefore, entails drawing conclusions with regards to variables which the researcher cannot control and does not manipulate within the study (Belli, 2009). Non-experimental research was used to predict loneliness amongst university students by investigating variables such as self-esteem, interpersonal communication competence, media and technology usage, age, gender, ethnicity, religious affiliation, religious practice and generation status.

Furthermore, the study aided in exploring the relationship between various variables by utilising a correlational research design (McLeod, 2018; Nestor & Schutt, 2019; Stangor, 2015). This type of research design investigates the possible statistically significant correlations between selected measurable variables. It is important to note that correlation does not allow going beyond or bypassing of the available given data (resulting in misguided and faulty inferences), nor does it imply causation (McLeod, 2018).

3.6. Research Sample

A sample can be defined as a smaller number of people who are expectantly representative of the broader population and whose results may be generalised to the broader population when probability sampling is used (Maree, 2014). In this research study, approval was granted to study undergraduate university students at the University of the Free State. The sample consisted of 1191 undergraduate university students between the ages of 18 and 30, enrolled under the Faculty of the Humanities at the University of The Free State in

Bloemfontein, South Africa. Individuals from any gender, culture, language, ethnic group or religion were allowed to participate in the study, as well as individuals from any enrolled degree at the University of the Free State (see Table 1). Participants who did not pertain to the inclusion criteria and did not fall within the specific age group of emerging adults were excluded from the sample.

In terms of sampling, a non-probability convenience sampling method was employed, as it was considered the most appropriate method for this study, even though probability sampling is considered the most scientific sampling method (Stangor, 2011, 2015). Unfortunately, in the case of non-probability sampling, random selection does not take place and it is not possible to know how well the population is represented within the sample. However, non-probability sampling has the advantage of being cost- and time-effective in comparison to probability sampling (McMillan & Schumacher, 2001; Vehovar, Toepoel, & Steinmetz, 2016). The research, therefore, made use of convenience sampling, as the participants were easily accessible to the researcher and no participants were specifically selected to partake in the research (Maree, 2014; Stangor, 2015). Rather, participants who indicated an interest in the study were invited to voluntarily partake in the research at their own leisure based on their availability at the time, as well as their accessibility to the research material via the online student support platform, Blackboard. This is in line with the definition of convenience sampling, which is a non-probability sampling technique. This technique relies on factors such as participants being willing to partake in the research at a specific time, being available and in proximity to the research and researcher at the given time, and having access to the research material at the time of the study (Etikan et al., 2016; Stangor, 2015).

The frequencies for the research sample, as illustrated in Table 1, are calculated in terms of their gender, age, ethnicity, culture, year of study, main major, living arrangement,

religious affiliation, generation, relationship status, province, education of parents, happiness at university and satisfaction with the university.

Table 1

Frequency distribution of participants according to demographic variables

Biographical variable	N	%
<i>Gender</i>		
Male	268	22.5
Female	923	77.5
<i>Ethnicity</i>		
Black	961	80.7
Coloured	49	4.1
White	153	12.8
Asian	1	0.1
Indian	4	0.3
Other	23	1.9
<i>Culture</i>		
South Sotho	285	23.9
North Sotho	41	3.4
Xhosa	107	9.0
Zulu	339	28.5
Tswana	132	11.1
English	49	4.1
Afrikaans	134	11.3
Other	104	8.7
<i>Year of study</i>		
First year	29	2.4
Second year	596	50.0
Third year	439	36.9
Fourth year	72	6.0
Other	55	4.6
<i>Main major</i>		
Psychology	759	63.7
Criminology	62	5.2

Sociology	35	2.9
Anthropology	2	0.2
Political science	16	1.3
Industrial psychology	91	7.6
Communication science	25	2.1
Education	33	2.8
Languages	30	2.5
Social work	26	2.2
Other	112	9.4
<hr/>		
<i>Living arrangement</i>		
Campus hostel	156	13.1
Hostel off campus	226	19.0
Home with parents	210	17.6
Flat in town	146	12.3
Student house	289	24.3
Other	164	13.8
<hr/>		
<i>Religious affiliation</i>		
No religion	46	3.9
Christianity	1071	89.9
Judaism	2	0.2
Islam	5	0.4
Buddhism	2	0.2
Hindu	1	0.1
Other	64	5.4
<hr/>		
<i>Generation</i>		
First-generation student	539	45.3
Non-first-generation student	652	54.7
<hr/>		
<i>Relationship status</i>		
Single	587	49.3
In a relationship	536	45.0
Married	16	1.3
Divorced	3	0.3
Separated	6	0.5
Other	43	3.6
<hr/>		

<i>Province</i>		
Eastern Cape	75	6.3
Free State	507	42.6
Gauteng	66	5.5
KwaZulu-Natal	291	24.4
Limpopo	41	3.4
Mpumalanga	27	2.3
Northern Cape	67	5.6
North West	36	3.0
Western Cape	24	2.0
Other	57	4.8
<i>Education of parents</i>		
Neither parents	572	48.0
Mother only	209	17.5
Father only	102	8.6
Both parents	252	21.2
Do not know	56	4.7
<i>Happiness at university</i>		
I am enthusiastic about it	342	28.7
I like it	496	41.6
I am more or less neutral about it	317	26.6
I do not like it	36	3.0
<i>Same institution</i>		
Yes, definitely	340	28.5
Probably yes	398	33.4
Probably no	299	25.1
No, definitely not	154	12.9

This sample was primarily female ($N = 923$; 77.5%), with only 22.5% of the sample being males ($N = 268$). Furthermore, the data of the age of the participants was continuous, with the average age of the participants being 22.12 years ($SD = 2.65$).

In terms of ethnicity, 80.7% ($N = 961$) of the sample identified as Black, 12.8% ($N = 153$) identified as White, 4.1% as Coloured ($N = 49$) and 1.3% identified as Indian ($N = 4$).

Furthermore, only 0.1% of the sample identified as Asian ($N = 1$) and 1.9% ($N = 23$) of participants were of other ethnicities. The participants were fairly widely spread pertaining to culture, with the majority of respondents belonging to the Zulu culture ($N = 339$; 28.5%), while 23.9% belonged to the Southern Sotho culture ($N = 285$), 11.3% belonged to the Afrikaans culture ($N = 134$) and 11.1% belonged to the Tswana culture ($N = 132$). Furthermore, 9% of participants belonged to the Xhosa culture ($N = 107$), while only 4.1% ($N = 49$) belonged to the English culture and 3.4% of the participants belonged to the Northern Sotho culture ($N = 41$). Lastly, 8.7% ($N = 104$) of participants indicated that they belong to other cultures.

The most ($N = 1035$; 86.9%) participants were enrolled in either their second or third year of university. More specifically, 50% of the participants were enrolled in their second year of study ($N = 596$) and 36.9% were enrolled in their third year of university ($N = 439$). Only 6% ($N = 72$) were enrolled in their fourth year of study and 2.4% were enrolled in their first year of study ($N = 29$). Lastly, 4.6% ($N = 55$) were enrolled in years other than those mentioned.

When considering the sample in terms of what the majority of respondents study at university, the largest portion of the sample ($N = 759$; 63.7%) study psychology as their main major. It is also interesting to note that almost half ($N = 515$; 43.3%) of the respondents live in close proximity to other students, as most of the respondents either live in a student house ($N = 289$; 24.3%) or in off-campus hostels ($N = 226$; 19%). Furthermore, 17.6% of the students live at home with their parents ($N = 210$), followed by 13.1% ($N = 156$) living in campus hostels and 12.3% ($N = 146$) living in a flat in town. Lastly, 13.8% ($N = 164$) of the sample reside elsewhere. In terms of religious affiliation, the majority of respondents reported being of a Christian religious affiliation ($N = 1071$; 89.9%).

The spread of students between first-generation and non-first-generation seemed to be more or less evenly dispersed, with 54.7% of respondents being non-first-generation students ($N = 652$) and 45.3% of students being first-generation students ($N = 539$). Pertaining to relationship status, the students are also more or less evenly dispersed, with 49.3% of students being involved in a relationship ($N = 587$), while 45% of students identify as being single ($N = 536$). In terms of geographic location, the largest part of the sample originate from the Free State ($N = 507$; 42.6%) and KwaZulu-Natal ($N = 291$; 24.4%). The rest of the sample was divided into the other provinces, with students originating from the Eastern Cape making up the highest percentage ($N = 75$; 6.3%) after the Free State and Kwazulu-Natal. Furthermore, only 4.8% ($N = 57$) of participants originate from elsewhere.

When considering the education of the parents of the participants, almost half ($N=572$; 48%) of the respondents indicated that neither of their parents possesses any form of tertiary education. Contrastingly, 21.2% of participants indicated that both parents hold some form of tertiary education ($N = 252$). Furthermore, 17.5% ($N = 209$) indicated that only their mother has a tertiary education, with 8.6% ($N = 102$) indicating that only their father holds a tertiary education. Lastly, in terms of happiness at university, as well as whether respondents would continue their studies at the same institution, it seemed that the majority of the sample ($N = 838$; 70.3%) felt enthusiastic about university ($N = 342$; 28.7%) or that they like their university experience ($N = 496$; 41.6%). Furthermore, more or less half of respondents would definitely ($N = 340$; 28.5%) or most probably ($N = 398$; 33.4%) continue their studies at the same institution.

3.7. Data Collection Procedures and Measuring Instruments

In order to collect the data, the research study was advertised during undergraduate lectures, inviting students to voluntarily participate in the study. The interested participants were required to complete five questionnaires testing different aspects, namely loneliness, media and technology usage, interpersonal communication competence, self-esteem, as well as a biographical questionnaire. The questionnaires (measuring instruments) were administered in English, and made easily accessible to the participants through Blackboard, the online student support platform, on which they could complete the questionnaires at their own leisure. Following the collection of the data, a coding system was used in order to ensure the anonymity of the participants. The five measuring instruments employed to gather the data through this system, included:

- The Le Roux Loneliness Questionnaire
- The Media and Technology Usage and Attitudes Scale (MTUAS)
- The Rosenberg Self-esteem Scale (RSES)
- The Interpersonal Communication Competence Scale (ICCS)
- A self-compiled biographical questionnaire

3.7.1. Le Roux Loneliness Questionnaire

In order to measure loneliness, the *Le Roux Loneliness Questionnaire* (Le Roux, 1992) was used. This scale operationalises loneliness by focusing on varying dimensions of loneliness. The questionnaire consists of 30 items, with 15 positive and 15 reverse-scored items. Questions included in the questionnaire include negative statements such as “*I feel forgotten*” and “*I am not close to anyone*”, as well as positive statements such as “*I am a very happy person*” and “*I feel part of a group of friends*”. Participants are required to

respond in terms of the extent to which they agree with the statement, ranging from “*always*” (4) to “*never*” (1). A high score on this scale would indicate higher levels of loneliness. A lower score would, therefore, indicate lower levels of loneliness present in the respondent. The reliability of the questionnaire has been calculated in previous studies by means of the Cronbach’s alpha coefficient between 0.87 and 0.88 (Jordaan & Le Roux, 2004; Le Roux, 1992, 1998, 2002; Scholtz, 1995). This scale has also been used successfully in various research projects pertaining to loneliness (Le Roux, 1992, 1998, 2002; Le Roux & Connors, 2001; Mullett, 2002; Scholtz, 1995) and, more specifically, loneliness in student populations (Le Roux, 1992, 1998, 2001, 2002).

3.7.2. Media and Technology Usage and Attitudes Scale

The *Media and Technology Usage and Attitudes Scale* (MTUAS) (Rosen et al., 2013) was used to measure the use of media and technology. The scale concentrates on interaction with various media platforms, such as online networking, cell phones and computers (Rosen et al., 2013). It is a 60-item measuring instrument which includes 15 subscales. For this study, the attitudes subscales were excluded from the questionnaire, as media and technology use was the aspect that was specifically focused on. The usage scale, therefore, includes 44 items comprising of 11 subscales. These subscales include Smartphone Usage (9 items), General Social Media Usage (9 items), Internet Searching (4 items), E-Mailing (4 items), Media Sharing (4 items), Text Messaging (4 items), Video Gaming (3 items), Online Friendships (2 items), Facebook Friendships (2 items), Phone Calling (2 items) and TV Viewing (2 items). However, for this study, the MTUAS subscales were grouped into three dimensions, namely (i) Media usage for social engagement (Online friendships, Facebook friendships), (ii) Media usage for communication (E-mailing, Text messaging, Phone calling, Smartphone usage, Media sharing) and (iii) Media usage for leisure (TV viewing, Internet searching, Video

gaming, General social media usage). A 10-point Likert-type scale for items 1-40 ranging from “*never*” (1) to “*all the time*” (10), was used in order for respondents to indicate how often they use each of the different types of technology included within the scale (Rosen et al., 2013). For items 41-44, a nine-point Likert-type scale is used in order for respondents to quantify their number of friends on social media, as well as how many of these friends are merely online friends versus friends they have met face-to-face. These answers range from “0” (1) to “751 or more” (9). Cronbach's alpha values for the subscales of the scales varied between 0.515 and 0.89 (Özgür, 2016; Van Tonder, 2017). Media and technology usage to a substantial and consistent degree would be indicated by a high score, while individuals who do not engage with media and technology in a consistent and substantial manner would, therefore, be indicated by a low score (Rosen et al., 2013)

3.7.3. Interpersonal Communication Competence Scale

In order to measure interpersonal communication competence, the *Interpersonal Communication Competence Scale* (ICCS) (Rubin & Martin, 1994) was used. The scale consists of 10 distinct subscales relating to interpersonal communication. These subscales include self-disclosure, empathy, social relaxation, assertiveness, altercentrism, interaction management, expressiveness, supportiveness, immediacy and environmental control (Rubin & Martin, 1994). However, for this study, only the global score was considered and the subscales were not utilised. The scale consists of 30 items on a six-point Likert-type scale that range from “*almost always*” (5) to “*almost never*” (0), with 24 positive and six reverse-coded items. Some of the questions include “*I can put myself in others’ shoes*”, “*I reveal how I feel to others*”, as well as questions such as “*I can persuade others to my position*” and “*I express myself well verbally*”. When applied to student populations, the scale demonstrated an alpha coefficient of between 0.755 and 0.86 (Rubin & Martin, 1994; Van

Tonder, 2017). A high score for each subscale, as well as the global score, would indicate a high interpersonal communication competence, while a low score would indicate the opposite (Rubin & Martin, 1994).

3.7.4. Rosenberg Self-Esteem Scale

The *Rosenberg Self-esteem Scale* (RSES) (Rosenberg, 1965) was used to measure self-esteem. The scale measures both positive and negative feelings an individual experiences about themselves in order to obtain an idea of an individual's global self-worth. The scale consists of 10 items on a four-point Likert-type scale that range from “*strongly agree*” (4) to “*strongly disagree*” (1), while items 2, 5, 6, 8, 9 are reverse scored. Questions that participants were required to respond to include “*At times I think I am no good at all*”, as well as “*I feel that I'm a person of worth, at least on an equal plane with others*”. A high score would indicate higher levels of self-esteem, while a low score would indicate the opposite. The RSES presented with an internal consistency of 0.77, while the alpha coefficients varied between 0.72 to 0.87 in independent studies with varying samples, such as parents and high school students (Byrne & Shavelson, 1996; Dobson, Goudy, Keith, & Powers, 1979). This is also echoed in studies focusing on student populations, where the RSES presented high levels of reliability. More specifically, the RSES presented with test-retest correlations ranging between 0.82 and 0.88, and alpha coefficients ranging between 0.77 and 0.88 within these studies (Arshad et al., 2015; Robins et al., 2001).

3.7.5. Biographical Questionnaire

In order to obtain demographic information (e.g., gender, age, language, ethnicity, generation, religious affiliation, religious practice) participants were required to complete a self-compiled biographical questionnaire included in the main questionnaire.

3.8. Statistical Procedures and Data Analysis

The analysis of the data collected from participants was done by means of the Statistical Package for the Social Sciences (SPSS) version 25 (IBM Corporation, 2017). SPSS makes use of univariate and multivariate modelling techniques in order to reach accurate conclusions and gain deeper insight into complex relationships within data as well as between numerous variables (IBM Corporation, 2017). This system was also used to calculate descriptive statistics for all scales within the study, as well as the biographical characteristics of the sample of university students. Furthermore, Cronbach's alpha coefficient, a measure which is often used to evaluate the reliability and internal consistency of a measure, was also calculated for the various scales (Aron et al., 2009; Tavakol & Dennick, 2011) (see Table 2).

In addition, multiple regression analyses in the form of hierarchical regression analyses were used, as this type of analysis is often used to investigate the relationship between one dependent (criterion) variable and many independent variables or predictors (Aron et al., 2009; Petrocelli, 2003). A hierarchical regression analyses was conducted as part of the objectives of the research project; to investigate the contribution of the different sets of independent (predictor) variables (biographical, self-esteem, interpersonal communication competence and media and technology usage) to the percentage of variance in the dependent (criterion) variable, loneliness, amongst university students, as well as the contribution of each of the individual independent variables (Stangor, 2011, 2015; Van der Westhuizen et al.,

1989). By doing this, several variables can be analysed in the context of the relationship between a dependent (criterion) variable (in this case, loneliness) and numerous independent (predictor) variables, while also accounting for the increment of variance of each variable which is entered into the analysis (Bürkner & Vuorre, 2019). Hierarchical regression allows for control of variables in order to analyse the effect of a specific predictor variable by calculating the change in the adjusted R^2 at each step of the analysis (Lewis, 2007; Pedhazur, 1997). Contrastingly, when all the variables are removed, the combined effect on the variance in loneliness could also be measured (Stangor, 2015; Van der Westhuizen et al., 1989).

Furthermore, the variance in the criterion variable was also investigated by evaluating the effect size of the contribution made by a specific predictor or set of predictor variables. Through this, the proportion of residual variance in the full model (all predictor variables included) with regards to the contribution to R^2 can be illustrated. Also, a hierarchical F -test was used to define whether variables that contributed significantly to loneliness in university students contributed practically to loneliness in university students as well (Van der Westhuizen et al., 1989).

Lastly, a factorial analysis of variance (ANOVA) was conducted to investigate whether there are any differences regarding loneliness when it comes to gender (male vs. female), ethnicity (Black vs. White) and generation (first-generation students vs. non-first-generation students). Since the independent (criterion) variable of loneliness was tested against three different dependent (predictor) variables, a factorial analysis of variance simplifies the process by allowing the researcher to test all the chosen predictor variables against the criterion variable. A factorial ANOVA was therefore conducted, as there was only one dependent variable (loneliness) and three independent variables (gender, ethnicity, generation).

3.9. Ethical Considerations

Since this study forms part of a larger research project titled “Predictors of psychological well-being amongst undergraduate university students” (Ethics number: UFS-HSD2017/1313), ethical clearance from the Research Ethics Committee of the Faculty of the Humanities at the University of the Free State, as well as permission from the Dean of Students was obtained as part of the larger research project. In order to avoid harming participants, the principles of confidentiality, beneficence and non-maleficence (to not inflict harm) were adhered to (Allan, 2016). Informed consent was obtained from all the participants and the voluntary and anonymous nature of participation was discussed with participants before the onset of the research. The primary purpose of this research study was also explained to the participants before they agreed to participate. The participants were thoroughly briefed regarding the research through the use of an informed consent document (see Appendix), which willing participants also signed in order to indicate their voluntary participation within the research. This document also informed participants of the anonymous and voluntary nature of the study and served to obtain permission to report and store their data anonymously. Following the data collection procedure, the anonymity of the participants was ensured by using a coding system and all data were kept safe and secure on a password-protected computer to which only the researcher had access. Although the measure was not made use of, a further precautionary and protective measure was implemented where participants were allowed to withdraw their participation and were referred to Student Counselling and Development Services at the University of the Free State in order to offset any complications (if any) that might arise or if participants experienced any form of distress as a result of participating in the research study. Lastly, this study does not rely on any external factors – whether it includes analysis, views from other researchers – and therefore holds true to the principles of independent research implementation.

3.10. Summary

This chapter included a discussion about the research methodology used in this study. The discussion consisted of an explanation of the research project that forms part of a larger research project, as well as contextualising the research. Furthermore, the research problem and objectives were stated and research questions were formulated against these objectives. The quantitative, non-experimental, correlational research design was also further discussed. This was followed by explaining the non-probability, convenience sampling method, as well as how this method was applied to participants in a manner that respondents could take part in the research in an online manner. The specific research sample pertaining to this study was also discussed, as well as an in-depth discussion of the participants' biographical details as based on the biographical questionnaire which respondents completed. The manner in which data was collected for this research project was also discussed by exploring the five respective questionnaires, which respondents were required to complete. A discussion of the data analysis methods in terms of correlation as well as hierarchical regression and factorial analysis of variance was also discussed in detail and internal consistencies of the measuring instruments were offered. The chapter concluded with a brief discussion of the ethical considerations. In the next chapter, the results obtained from the data analysis will be presented.

Chapter Four

Results

4.1. Introduction

This chapter encompasses a discussion about the results of the statistical analyses. Firstly, the means, standard deviations, skewness, kurtosis and internal consistencies of the various measuring instruments will be reported on as part of the preliminary results of the study. Secondly, the results of the correlation analysis will be reported and only correlations with medium to large effect sizes will be discussed. For correlations, Steyn (2005) has reported that an effect size of 0.1 is small, an effect size of 0.3 is medium and an effect size of 0.5 is large. Secondly, the results of the hierarchical regression analyses conducted independently for the criterion variable (loneliness) will be reported and discussed. Only results that are statistically significant and that show at least a medium effect size will be discussed in the reporting of the results. According to Cohen (1992), for regression, an effect size of 0.02 is small, an effect size of 0.15 is medium and an effect size of 0.35 is large. Thirdly, the results of the factorial analysis of variance will be reported and only results with medium to large effect sizes will be discussed. According to Steyn (2005), for differences, an effect size of 0.1 is small, an effect size of 0.25 is medium and an effect size of 0.4 is large. Both the 1% and 5%-level of significance were used in the analyses of the data.

4.2. Means, Standard Deviations, Skewness, Kurtosis and Internal Consistencies of the

Various Measuring Instruments

The means, standard deviations, skewness, kurtosis, as well as the internal consistencies of the various subscales of the measuring instruments are reported in Table 2 for the total group of participants. Cronbach's alpha coefficient (α) was calculated as an indication of the internal consistency of the subscales.

Table 2

Descriptive statistics and reliability coefficients for the Le Roux Loneliness Questionnaire, RSES, ICCS, MTUAS subscales and MTUAS dimensions

Measures	N	M	SD	α	Skewness	Kurtosis
<i>Le Roux Loneliness Questionnaire</i>	1191	63.3157	13.01316	0.894	-0.098	-0.406
<i>RSES</i>	1191	28.9236	4.81961	0.823	0.004	0.215
<i>ICCS</i>	1191	80.6910	11.56037	0.810	-0.055	0.037
<i>MTUAS</i>						
E-mailing	1191	24.3392	9.43322	0.909	0.432	-0.864
Text messaging	1191	22.2166	6.04535	0.734	-0.376	-0.644
Phone calling	1191	13.8413	4.77397	0.745	-0.213	-0.931
Smartphone usage	1191	58.3703	18.87303	0.896	0.352	-0.795
TV viewing	1191	10.2762	5.84406	0.860	0.477	-0.995
Media sharing	1191	20.5332	11.05990	0.910	0.609	-0.802
Internet searching	1191	23.6423	10.57703	0.905	0.287	-1.089
Video gaming	1191	12.7582	9.38685	0.899	0.768	-0.744
General social media usage	1191	54.2242	21.81876	0.941	0.186	-0.776
Online friendships	1191	8.5743	6.43279	0.878	1.095	-0.048
Facebook friendships	1191	12.6045	5.50345	0.827	0.051	-0.545
<i>Dimensions</i>						
Media usage for social engagement	1191	21.1788	11.02240	0.884	0.886	0.053

Media usage for communication	1191	139.3006	42.71410	0.949	0.642	-0.465
Media usage for leisure	1191	100.9009	41.24948	0.954	0.687	-0.397

It is evident from Table 2 that the Cronbach's alpha coefficients for the Le Roux Loneliness Questionnaire, RSES, ICCS and MTUAS subscales range from 0.734 to 0.941. These scales, therefore, displayed acceptable to exceptional levels of internal consistency (Vogt, 2005) and were all included in the subsequent analyses. The three created dimensions of the MTUAS also displayed acceptable levels of internal consistency. As part of the descriptive statistics in this table, the researcher investigated whether the data is normally distributed by calculating the skewness and kurtosis values of the different subscales. According to Kahane (2008), the cut-off point for skewness is $> |2|$ and kurtosis $> |4|$. From Table 2, it is evident that the scores on all the subscales are within these cut-off points and do not deviate substantially from normality.

4.3. Correlation

Before conducting the regression analyses, the Pearson Product Moment correlation coefficients were calculated for the independent (predictor) and dependent (outcome) variables. In order to use the Ethnicity and Religious affiliation variables, the researcher created two categories per variable, namely Non-designated students (coded 1) versus Designated students (coded 2) for Ethnicity and Not religious (coded 1) versus Religious (coded 2) for Religious Affiliation. In terms of Ethnicity, the two specific descriptions used refer to students of a white ethnicity (referred to as Designated students), while students of ethnicities other than white ethnicities fall under the category of Non-designated students. These categories served to function as dummy variables in order to indicate the effect that these groupings may have had on the outcome of the research data. Point biserial correlations

were used to test any relationships between dichotomous and continuous variables (e.g., resilience and gender) while Phi correlation coefficients were calculated for instances involving two dichotomous variables (e.g., gender and religious affiliation). The correlation coefficients can be viewed in Table 3.

Table 3

Correlations between the Le Roux Loneliness Questionnaire and Gender, Age, Ethnicity, Generation, Religious Affiliation, Religious Practice, RSES scale, ICCS scale and MTUAS dimensions (N=1191)

	1	2	3	4	5	6	7	8	9	10	11	12
1. Loneliness	-	-0.09**	0.12**	0.11**	-0.04	0.07*	-0.18**	-0.63**	0.58**	0.28**	0.23**	0.29**
2. Gender		-	-0.28**	-	0.11**	-0.19**	0.26**	0.05	-0.11**	-0.14**	-0.06	-0.10**
3. Age			-	0.08*	-0.14**	0.25**	-0.18**	-0.08**	0.10**	0.13**	0.12**	0.11**
4. Ethnicity				-	0.03	-0.08**	0.04	0.05	0.16**	-	0.05	0.08**
5. Generational					-	-0.07*	0.09**	0.05	-0.04	-0.08**	-0.10**	-0.10**
6. Religious affiliation						-	-0.21**	-0.06*	0.06	0.14**	0.14**	0.13**
7. Religious practice							-	0.19**	-0.13**	-0.10**	-0.06*	-0.10**
8. Self-esteem								-	-0.46**	-0.22**	-0.22**	-.27**
9. ICC									-	0.27**	0.22**	0.30**
10. M1										-	0.69**	0.74**
11. M2											-	0.86**
12. M3												-

Key: ICC = Interpersonal Communication Competence, M1 = Media usage for social engagement, M2 = Media usage for communication, M3 = Media usage for leisure

** $p \leq 0.01$, * $p \leq 0.05$

Table 3 indicates that the Le Roux Loneliness Questionnaire demonstrates a strong, statistically significant negative correlation with the RSES. This correlation is statistically significant at the 1% level, with a large corresponding effect size of 0.6. This finding seems to suggest that when students have increased levels of self-esteem that they have decreased levels of loneliness. Table 3 also indicates that the Le Roux Loneliness Questionnaire demonstrates a statistically significant positive correlation with the ICCS. This correlation is statistically significant at the 1% level, with a large corresponding effect size of 0.6. This finding seems to suggest that when students have increased levels of interpersonal communication competence that they seem to have increased levels of loneliness. Table 3 further indicates that the Le Roux Loneliness Questionnaire scale demonstrates statistically significant positive correlations with all three dimensions of the MTUAS, namely (i) Media usage for social engagement, (ii) Media usage for communication and (iii) Media usage for leisure. These correlations are statistically significant at the 1% level and the effect sizes of two of these correlations are medium with an effect size of 0.3 for Media usage for social engagement and an effect size of 0.3 for Media usage for leisure. These findings seem to suggest that when students have increased levels of media and technology usage that they have increased levels of loneliness.

Next, the results of the hierarchical regression analyses will be discussed.

4.4. Hierarchical Regression Analyses

The proportion of the variance in Loneliness accounted for by the independent (predictor) variables were investigated. A hierarchical regression analysis was conducted to investigate the contribution of the different sets of variables (biographical, religious affiliation, religious

practice, self-esteem, interpersonal communication competence and media and technology usage) to the percentage of variance in Loneliness, as well as the contribution of each of the individual independent variables.

4.4.1. Hierarchical Regression Analysis with Loneliness as Criterion Variable

The results of the hierarchical regression analysis with Loneliness as the criterion variable are reported in Table 4.

Table 4

Contributions of Gender, Age, Ethnicity, Generational Status, Religious Affiliation, Religious Practice, Self-esteem, MTUAS dimensions and ICCS to R² with Loneliness as Criterion Variable

<i>Variables in equation</i>	<i>R²</i>	<i>Contribution to R²: full minus reduced model</i>	<i>F</i>	<i>f²</i>
1. [Gender + Age + Ethnicity + GS] + [RA + RP] + [SE] + [M1 + M2 + M3] + [ICC]	0.519	1-2=0.077	188.74**	0.16
2. [Gender + Age+ Ethnicity + GS] + [RA + RP] + [SE] + [M1 + M2 + M3]	0.442			
3. [Gender + Age+ Ethnicity + GS] + [RA + RP] + [SE] + [ICC] + [M1 + M2 + M3]	0.519	3-7=0.006	4.90**	0.01
4. [Gender + Age+ Ethnicity + GS] + [RA + RP] + [SE] + [ICC] + M1	0.519	4-7=0.006	14.73**	0.01
5. [Gender + Age+ Ethnicity + GS] + [RA + RP] + [SE] + [ICC] + M2	0.514	5-7=0.001	2.43	-
6. [Gender + Age+ Ethnicity + GS] + [RA + RP] + [SE] + [ICC] + M3	0.515	6-7=0.002	4.87*	-
7. [Gender + Age+ Ethnicity + GS] + [RA + RP] + [SE] + [ICC]	0.513			
8. [Gender + Age+ Ethnicity + GS] + [RA + RP] + [M1 + M2 + M3] + [ICC] + [SE]	0.519	8-9=0.153	375.03**	0.32
9. [Gender + Age+ Ethnicity + GS] + [RA + RP] + [M1 + M2 + M3] + [ICC]	0.366			
10. [SE] + [M1 + M2 + M3] + [ICC] + [Gender + Age+ Ethnicity + GS] + [RA + RP]	0.519	10-13=0.001	0.41	-
11. [SE] + [M1 + M2 + M3] + [ICC] + [Gender + Age+ Ethnicity + GS] + RA	0.518	11-13=0.000	0.00	-

12. [SE] + [M1 + M2 + M3] + [ICC] + [Gender + Age+ Ethnicity + GS] + RP	0.519	12-13=0.001	2.46	-
13. [SE] + [M1 + M2 + M3] + [ICC] + [Gender + Age+ Ethnicity + GS]	0.518			
14. [SE] + [M1 + M2 + M3] + [ICC] + [RA + RP] + [Gender + Age+ Ethnicity + GS]	0.519	14-19=0.006	2.45*	0.01
15. [SE] + [M1 + M2 + M3] + [ICC] + [RA + RP]+ Gender	0.513	15-19=0.000	0.00	-
16. [SE] + [M1 + M2 + M3] + [ICC] + [RA + RP] + Age	0.514	16-19=0.001	2.45	-
17. [SE] + [M1 + M2 + M3] + [ICC] + [RA + RP] + Ethnicity	0.519	17-19=0.006	14.77**	0.01
18. [SE] + [M1 + M2 + M3] + [ICC] + [RA + RP] + GS	0.513	18-19=0.000	0.00	-
19 [SE] + [M1 + M2 + M3] + [ICC] + [RA + RP]	0.513			

Key: GS = Generation status, RA = Religious Affiliation, RP = Religious Practice, SE = Self-esteem, M1 = Media usage for social engagement, M2 = Media usage for communication, M3 = Media usage for leisure, ICC = Interpersonal Communication Competence Scale

**p≤0.01, *p≤0.05

It is evident from Table 4 that the combination of the independent variables accounts for 51.9% ($F_{11;1179} = 115.778; p \leq 0.01$) of the variance in the Loneliness scores of the sample. Interpersonal Communication Competence as a predictor accounts for 7.7% of the variance in the Loneliness scores of the students. This finding is statistically significant at the 1% level and the corresponding effect size ($f^2 = 0.16$) suggests that it is of medium practical significance. It is evident from the relevant correlation coefficients in Table 3 that Interpersonal Communication Competence is statistically significant and positively related to Loneliness amongst the students.

Table 4 further indicates that Self-esteem as a predictor accounts for 15.3% of the variance in the Loneliness scores of the students. This finding is statistically significant at the 1% level and the corresponding effect size ($f^2 = 0.32$) suggests that it is of large practical significance. Table 3 indicates that Self-esteem is statistically significant and negatively related to Loneliness.

Next, the results of the factorial analysis of variance will be discussed.

4.5. Factorial Analysis of Variance

A factorial analysis of variance was conducted to investigate whether there are any differences regarding loneliness when it comes to gender (male vs. female), ethnicity (Black vs. White) and generation (first-generation students vs. non-first-generation students). A factorial ANOVA was conducted as there was only one dependent variable (loneliness) and three independent variables (gender, ethnicity, generation).

4.5.1. Factorial Analysis of Variance with Loneliness as Independent Variable

The results of the factorial ANOVA with Loneliness as the independent variable are reported in Table 5.

Table 5

Differences in loneliness (dependent variable) regarding three dependent variables (gender, ethnicity, generation)

Variable	<i>F</i>	<i>p-value</i>	<i>Eta</i> ²
Gender	12.774**	0.000	0.011
Ethnicity	1.804	0.180	0.002
Generation	5.701*	0.017	0.005

** $p \leq 0.01$, * $p \leq 0.05$

According to Table 5, there is a statistically significant difference in loneliness on the 1%-level when it comes to gender. In comparison with female students ($\bar{X}=62.66$, $SD=13.09$), the male students ($\bar{X}=65.57$, $SD=12.52$) obtained a higher mean score, which is an indication that they feel lonelier than female students do. A statistical significant difference in loneliness on the 5%-level was also found when it comes to generation. In comparison with non-first-generation students ($\bar{X}=62.85$, $SD=12.96$), first-generation students ($\bar{X}=63.88$, $SD=13.07$) obtained a higher mean score, which indicates that they feel lonelier than non-first-generation students do. However, these findings have small corresponding effect sizes and the results will not be discussed in further detail.

4.6. Summary

The results of the statistical analyses were presented in this chapter. The combination of the predictor variables (Gender, Age, Ethnicity, Generation, Religious Affiliation, Religious Practice, Self-esteem, Interpersonal Communication Competence and MTUAS dimensions) significantly predicted Loneliness. Both Self-esteem and Interpersonal Communication Competence significantly predicted Loneliness with large and medium corresponding effect sizes, respectively. Self-esteem was negatively associated with Loneliness, while Interpersonal Communication Competence was positively associated with Loneliness. In the next chapter, the results reported here will be discussed within the context of the relevant literature.

Chapter 5

Discussion of Results, Limitations and Recommendations, and Conclusion

5.1. Introduction

In this chapter, the results obtained from the data as discussed in Chapter 4, will be interpreted in the context of the relevant literature. Furthermore, the measuring instruments used in the study will also be discussed in terms of their internal consistency. Thereafter, the research questions posed in order to guide the research project will be explored by discussing the correlations, hierarchical regression, as well as the factorial analysis of variance in the context of the results obtained. Furthermore, relevant literature will be used in order to substantiate the results obtained. The limitations of the study will also be addressed while providing recommendations for future research. Finally, Chapter Five concludes with the value of the study, as well as the aspects which were valuable within this research process.

5.2. Discussion of the Measuring Instruments used in this Study

Although these results were already discussed in Chapter 3, it is shared once more as exceptional reliability results were obtained on measurement scales that were used for the first time in the South African context. The results of this study were determined by using several measuring instruments. These included the Le Roux Loneliness Questionnaire, the Rosenberg Self-esteem Scale (RSES), the Interpersonal Communication Competence Scale (ICCS), and the Media and Technology Usage and Attitudes Scale (MTUAS). Table 2 (p.

84) displays the Cronbach alpha coefficients for these instruments and indicates that the coefficients of all the scales ranged from 0.734 to 0.941. These scales displayed acceptable to exceptional levels of internal consistency (Vogt, 2005). It is important to note that the researcher simplified the statistical analyses of the MTUAS by grouping the MTUAS subscales into three dimensions, namely (i) Media usage for social engagement (Online friendships, Facebook friendships), (ii) Media usage for communication (E-mailing, Text messaging, Phone calling, Smartphone usage, Media sharing) and (iii) Media usage for leisure (TV viewing, Internet searching, Video gaming, General social media usage). These three dimensions also displayed acceptable levels of internal consistency. These measuring instruments will subsequently be discussed in light of the relevant literature

The measuring instruments used in this study displayed exceptional levels of reliability and internal consistency. For example, the Le Roux Loneliness Questionnaire found a Cronbach alpha's coefficient of 0.894, which may be considered an excellent level of internal consistency. These results are slightly more favourable than those found in previous studies where Cronbach's alpha coefficients ranged between 0.87 and 0.88 (Le Roux, 1992, 1998, 2002; Scholtz, 1995).

Furthermore, the RSES displayed excellent levels of internal consistency, with an alpha coefficient of 0.823. This is in line with previous studies, where internal consistencies of between 0.77 and 0.88 within studies pertaining specifically to university students (Arshad et al., 2015; Robins et al., 2001) were found.

In terms of the ICCS, further excellent levels of internal consistency were displayed, with the Cronbach's alpha for this scale being 0.810. The literature review indicated that this scale had not been employed often in a student-related context, both on an international and South African level. Therefore, this study's internal consistency with regards to the ICCS can only

be compared with one international study, which was applied to 247 students where the scale demonstrated an alpha coefficient of 0.86 (Rubin & Martin, 1994). When comparing this study to the current study, both displayed excellent levels of internal consistency and correlates with previous findings regarding the ICCS.

Lastly, the MTUAS displayed exceptional levels of internal consistency. The three dimensions which made up this scale also displayed exceptional levels of internal consistency, with Media usage for social engagement displaying a Cronbach's alpha of 0.884, while Media usage for communication displayed an alpha coefficient of 0.949, as well as an exceptional Cronbach's alpha of 0.954 for Media usage for leisure. Previous studies that used the MTUAS obtained Cronbach's alpha values for the sub-factors of the scales, which varied between 0.71 and 0.89 (Özgür, 2016). It is also in line with other studies, where the Cronbach's alpha for the various usage sub-scales ranged between 0.61 and 0.97 (Rosen et al., 2013). Therefore, this study displayed exceptional results in terms of internal consistency when compared to previous studies. It is also worthy to note that this is one of the very few studies which utilised the MTUAS in a South African context, and more specifically, among South African university students. In the only other South African study, the Cronbach's alpha for the different subscales in the MTUAS ranged between 0.609 and 0.940 (Swanepoel, 2018). Therefore, even when compared to other studies, this particular study displayed higher levels of internal consistencies for the subscales. These subscales could, therefore, be administered individually in future research.

5.3. Discussion of the Significant Correlations between Variables in this Study

In this study, several correlations were completed in order to determine the relationships between the predictor variables and the outcome variable. This included correlations

between loneliness and self-esteem, interpersonal communication competence, media and technology usage, religious practice, religious affiliation, generation of student, ethnicity, age and gender. In this study, not all of the correlations displayed statistical and practical significance because of the small corresponding effect sizes. As mentioned in Chapter 4, an effect size of 0.1 is seen as small, an effect size of 0.3 as medium and an effect size of 0.5 as large in terms of correlations (Steyn, 2005). Therefore, only the correlations presented with both statistical and practical significance will be discussed.

5.3.1. Correlation between Loneliness and Media and Technology Use

With regards to loneliness and media and technology use, the findings suggested statistically significant results, as well as practical significance of a medium effect between media and technology use and loneliness. For example, the Le Roux Loneliness Questionnaire scale demonstrated statistically significant positive correlations with all three dimensions of the MTUAS, namely (i) Media usage for social engagement, (ii) Media usage for communication and (iii) Media usage for leisure. These correlations are statistically significant at the 1% level and the effect sizes of two of these correlations are medium with an effect size of 0.3 for Media usage for social engagement and an effect size of 0.3 for Media usage for leisure. These findings suggest that when students have increased levels of media and technology usage that they have increased levels of loneliness. Conversely, when students are more lonely, they tend to make more use of media and technology. This is in line with relevant literature, which states that students' engagement with different platforms such as computers, cell phones and social networks has a negative effect on whether a student experiences loneliness (Doman & Le Roux, 2012; Pittman & Reich, 2016).

The relationship between media and technology usage and loneliness takes on an interesting relationship, as studies have shown that loneliness is often both the cause, as well

as the consequence of excessive media and technology engagement, such as internet usage (Bozoglan et al., 2013; Kim et al., 2009; Stankovska et al., 2016). In the context of South African university students, it has been shown that students use technology for social engagement, regardless of whether they are descendent from urban or rural areas and that 30.9% of these students were found to be vulnerable to internet addiction (Tshuma, 2016). Reciprocally, these vulnerable students also indicated significantly higher loneliness scores than those not identified as vulnerable to internet addiction (Tshuma, 2016). This is also in line with studies that have found that the biggest users of technology (young adults) may be lonelier than other age groups, as well as the loneliest generation ever recorded (Pittman & Reich, 2016). It also reiterates studies which have indicated that lonely students tend to use media and technology on a more frequent basis than their less-lonely counterparts (Park et al., 2015). These findings therefore add to the pool of knowledge regarding specifically the use of media and technology in relation to loneliness. Furthermore, these results identify that media and technology can potentially harm progress in terms of reducing or preventing loneliness if media and technology is used in prevention and rehabilitation programmes to address loneliness amongst university students.

5.3.2. Correlation between Loneliness and Interpersonal Communication Competence

A statistically significant positive correlation was also found between loneliness and interpersonal communication competence. These results indicated the correlation to be statistically significant at the 1% level, as well as practically significant, with a large corresponding effect size of 0.6. This can be interpreted as students who have higher levels of interpersonal communication competence, also have higher levels of loneliness. This result is in stark contrast with relevant literature. Although literature has often found a

significant correlation between loneliness and interpersonal communication in studies exploring the relationship between loneliness and interpersonal communication competence, this relationship usually takes on a negative correlation (Cupach & Canary, 2000; Query & Kreps, 1996; Query & Wright, 2003), rather than a positive correlation, as was found in this study. For example, past literature has demonstrated that interpersonal communication competence has been found to be a predictor of increased levels of social support and relational satisfaction within individuals, compared to those with low interpersonal communication competence (Albrecht & Adelman, 1987; Apker et al., 2003; Canary & Lakey, 2006; Canary & Spitzberg, 1987; Cupach & Canary, 2000; Query & Wright, 2003). This may be explained by the fact that poor interpersonal communication competence leads to a lack of belonging, as well as feelings of a lack of support and intimacy, which leads to loneliness (Doman & Le Roux, 2012). Further reinforcement for this theory lies in lonely people not being considered popular within a social context and being less emotionally close to the few individuals with whom they have social relationships (Doman & Le Roux, 2012; Williams & Solano, 1983). This, once again, reiterates that lonely individuals have poorly developed social skills, which keep them from developing strong, fulfilling intimate relationships with others (Doman & Le Roux, 2012). The findings explored in past studies, therefore, yielded negative correlations between loneliness and interpersonal communication competence.

This result may, therefore, indicate that other sub-constructs of interpersonal communication competence (e.g., empathy, immediacy and expressiveness) need to be considered in relation to the correlation between loneliness and interpersonal communication competence in order to explain this specific finding. However, for this study, only the global score of the ICCS was considered and the subscales were not included and analysed

individually. This may, therefore, be considered a limitation of this study and should be recommended to be explored in future research endeavours.

5.3.3. Correlation between Loneliness and Self-esteem

Findings in terms of loneliness and self-esteem have indicated a strong statistically significant negative correlation between the Le Roux Loneliness Scale and the Rosenberg Self-esteem Scale. Self-esteem as a predictor variable not only indicated statistically significant results (statistically significant at the 1% level) but also proved to be practically significant, with a large corresponding effect size of 0.6. This indicates that high levels of loneliness in students are often paired with lower levels of self-esteem in these students. Conversely, these results also indicate that increased levels of self-esteem in students leads to decreased levels of loneliness. This finding is in accordance with vast amounts of literature which have also found that self-esteem negatively correlates with loneliness (Davis et al., 1992; Keane & Loades, 2017; Lasgaard & Elklit, 2009; Mahon et al., 2006; McWhirter, 1997; Ouellet & Joshi, 1986; Roscoe & Skomski, 1989). Self-esteem as a strong predictor of loneliness is not only evident in this study but also in other studies where, for example, self-esteem accounted for the highest variance (22.9%) and was, therefore, the strongest predictor of loneliness within the study (Al Khatib, 2012). Another study (Ouellet & Joshi, 1986) reported a strong correlation of $r = -.72$ between loneliness and self-esteem, indicating that higher levels of self-esteem were related to lower levels of loneliness. The findings in this specific study are in line with relevant literature in terms of the correlation between self-esteem and loneliness.

These findings can be explained by the effects that low self-esteem has on an individual, namely feelings of hopelessness and inadequacy (Keane & Loades, 2017; Rahman et al., 2017). Low self-esteem in university students includes negative evaluations of especially

their appearance and behaviour (Rahman et al., 2017). Therefore, individuals with low self-esteem tend to lack the necessary confidence to socialise with others and the ability to consequently curb their loneliness (Al Khatib, 2012; Baumeister & Vohs, 2018). As a result, individuals with low self-esteem tend to isolate themselves and avoid social contact (Keane & Loades, 2017). These negative feelings towards themselves often keep individuals from building meaningful social relationships, which results in these individuals feeling lonely (Keane & Loades, 2017; Mahon et al., 2006).

On the other hand, these findings also substantiate the reasoning behind the concept of self-esteem, namely that an individual who possesses a higher self-esteem is more willing to socialise with others (Keane & Loades, 2017). According to the definition of loneliness, this socialisation would satisfy the individual's needs for quality social engagement and building social relationships, which results in decreased feelings of loneliness (Le Roux, 1998). An individual with higher self-esteem would feel worthy of the company of others and would also take on a positive attitude towards themselves, as well as be less inclined to feel like a failure if they possess higher levels of self-esteem (Al Khatib, 2012; Baumeister & Vohs, 2018). Thus, the strong negative correlation between loneliness and self-esteem correlates with literature indicating that self-esteem is one of the strongest predictors of Loneliness (Cacioppo et al., 2009). This practically indicates that resources employed to curb loneliness amongst university students should be focused on promoting self-esteem, as it has been shown that correcting maladaptive social cognition, and thereby increasing self-esteem, has proven very successful in reducing loneliness (Masi, Chen, Hawkey, & Cacioppo, 2011). This is reiterated by literature stating that enhancing an individual's social image of themselves through self-esteem driven interventions and rehabilitation programmes has also been proven successful in curbing loneliness (De Jong Gierveld & Fokkema, 2015; Rokach, 2018).

5.3.4. Correlation between Loneliness and Religious Affiliation and Practice

Literature with regards to religious practice and affiliation has indicated that a negative correlation exists between religious practice and affiliation and loneliness; research has indicated that individuals who are religiously affiliated and engage in religious practice are less inclined to be lonely (Le Roux, 2002; Rote et al., 2012) due to the fact that religious involvement protects against loneliness (Rote et al., 2012). This may be due to the role which religious congregations play in fostering social integration and support, which combats feelings of unfulfilled social relationships and, ultimately, loneliness (Berkman et al., 2000; House et al., 1988; Rote et al., 2012). These findings were, however, not confirmed by this study. In this study, religious affiliation demonstrated a statistically significant correlation at the 5% level with the Le Roux Loneliness questionnaire. Furthermore, religious practice demonstrated a statistically significant negative correlation at the 1% level with regards to the Le Roux Loneliness questionnaire. These results therefore add to the pool of knowledge regarding loneliness and religious affiliation and practice, and should be considered a statistical element of future research which requires continued research in terms of curbing loneliness. This is due to research indicating that individuals gain a sense of community and belonging (which combats loneliness) through affiliation with and participation in religious groups (Rokach, 2018). However, although both religious practice and religious affiliation demonstrated statistically significant correlations, the effect sizes were small and practical significance could not be substantiated in this research study. Therefore, no further elaboration on the results was included for this demographic variable.

5.3.5. Correlation between Loneliness and Generational Status

In terms of generational status of the students, the limited research on this variable has shown that first-generation students do not develop peers support and meaningful social relationships, which leads to a lack of belonging and social fulfilment and, ultimately, loneliness (Huerta & Fishman, 2014; Rayle & Chung, 2008; Stebleton et al., 2014). This study could not confirm these findings. Generational status demonstrated a statistically significant correlation on the 5% level with regards to loneliness; practical significance could not be substantiated in this research study. Therefore, no elaboration on the results was included for this demographic variable.

5.3.6. Correlation between Loneliness and Ethnicity

In terms of ethnicity, a statistically significant correlation on the 1% level was demonstrated with regards to loneliness in terms of the Le Roux Loneliness questionnaire. However, this variable demonstrated a small effect size, which is in line with other studies that also have been unable to obtain statistically significant results in order to back up claims that ethnicity plays a role in terms of loneliness. However, other studies have found that Coloured and Black individuals are more inclined to experience loneliness than White individuals (Groenewald, 1998; Jordaan & Le Roux, 2004; Mullett, 2002; Peplau & Perlman, 1982; Young & Strelitz, 2014;). Ethnicity, therefore, remains a variable that requires further study in order to obtain a definite outcome, but as this variable did not demonstrate practical significance, it will not be elaborated on any further.

5.3.7. Correlation between Loneliness and Age

The results indicated that age demonstrated a statistically significant correlation on the 1% level with loneliness in terms of the Le Roux Loneliness Questionnaire. However, this variable lacked practical significance and was not discussed in further detail. However, literature confirms this result; other South African research studies have also not been able to obtain significant and practical results with regards to loneliness and age (Ferns, 1988; Le Roux & De Beer, 1994).

5.3.8. Correlation between Loneliness and Gender

The obtained results with regards to gender and loneliness were found to have statistical significance at the 1% level, although it lacked practical significance. These results are in line with the studies of numerous other researchers who also failed to obtain a practically significant result with regards to loneliness and gender (Al-Kfaween, 2010; Archibald et al., 1995; Knox et al., 2007; Weiss, 1973).

However, some studies with student populations have found that female students suffer from higher levels of loneliness than male students (Al Khatib, 2007; Anderson et al., 1983; Medora & Woodward, 1986; Page & Cole, 1991; Sundberg, 1988; Woodward & Frank, 1988). Contrastingly, other studies found that male students tend to be lonelier than their female counterparts (Deniz et al., 2005; Schultz & Moore, 1986; Yang, 2009).

5.4. Discussion of the Predictors of Loneliness

The proportion of the variance in loneliness accounted for by the independent (predictor) variables were investigated. A hierarchical regression analysis was conducted to investigate the contribution of the different sets of variables (biographical, religious affiliation, religious practice, self-esteem, interpersonal communication competence and media and technology usage) to the percentage of variance in loneliness, as well as the contribution of each of the individual independent variables. The results indicated that the combination of the various predictor variables (Gender, Age, Ethnicity, Generational Status, Religious Affiliation, Religious Practice, Self-esteem, Media and Technology Usage and Interpersonal Communication Competence) accounts for 51.9% ($F_{11;1179} = 115.778; p \leq 0.01$) of the variance in the Loneliness scores of the sample. Furthermore, this result is statistically significant on the 1% level. Therefore, the combination of the predictor variables significantly predicted loneliness. In practical terms, 51.9% of the loneliness experienced by university students can be explained by the combination of their age, gender, ethnicity, generational status, religious affiliation and religious practice, as well as their self-esteem, media and technology usage, and interpersonal communication competence.

When exploring the specific individual predictors of loneliness, the results indicated that self-esteem and interpersonal communication competence were the only two variables that independently statistically and practically significantly contributed to loneliness amongst university students. Both self-esteem and interpersonal communication competence significantly predicted loneliness with large and medium corresponding effect sizes, respectively. Self-esteem as a predictor accounts for 15.3% of the variance in the Loneliness scores of the students. This finding is statistically significant at the 1% level and the corresponding effect size ($f^2 = 0.32$) suggests that it is of large practical significance. Self-esteem is statistically significantly and negatively related to loneliness, which indicates that

individuals with low self-esteem would have higher levels of loneliness. This finding is in accordance with vast amounts of literature which have also indicated that self-esteem negatively correlates with loneliness (Davis et al., 1992; Lasgaard & Elklit, 2009; Mahon et al., 2006; McWhirter, 1997; Ouellet & Joshi, 1986; Roscoe & Skomski, 1989). As previously mentioned, self-esteem as a strong predictor of loneliness is not only evident in this study, but also in other studies where, for example, self-esteem accounted for the highest variance (22.9%) and was the strongest predictor of loneliness within the study (Al Khatib, 20120). Another study (Ouellet & Joshi, 1986) reported a strong correlation of $r = -.72$ between loneliness and self-esteem, indicating that higher levels of self-esteem were related to lower levels of loneliness. The findings in this specific study are in line with relevant literature in terms of the correlation between self-esteem and loneliness.

Interpersonal communication competence, on the other hand, was positively associated with loneliness. This indicates that an individual with higher levels of interpersonal communication competence levels would also have higher levels of loneliness. Interpersonal communication competence as a predictor, accounts for 7.7% of the variance in the loneliness scores of the students. This finding is statistically significant at the 1% level and the corresponding effect size ($f^2 = 0.16$) suggests that it is of medium practical significance. Although previous studies have also identified interpersonal communication competence as a predictor of loneliness, this study differs from previous research due to the fact that previous research has only found a significant negative association between loneliness and interpersonal communication competence (Albrecht & Adelman, 1987; Apker et al., 2003; Canary & Lakey, 2006; Canary & Spitzberg, 1987).

5.5. Discussion of the Results of the Factorial Analysis of Variance

A factorial analysis of variance was conducted to investigate whether there are any differences regarding loneliness when it comes to gender (male vs. female), ethnicity (Black vs. White) and generation (first-generation students vs. non-first-generation students). A factorial ANOVA was conducted due to there being only one dependent variable (loneliness) and three independent variables (gender, ethnicity, generation).

Firstly, a statistically significant difference in loneliness on the 1%-level was demonstrated in terms of gender. In comparison with female students ($\bar{X}=62.66$, $SD=13.09$), the male students ($\bar{X}=65.57$, $SD=12.52$) obtained a higher mean score, which is an indication that they feel lonelier than female students do. This finding demonstrated a small corresponding effect size and was not discussed in more detail. However, previous findings did find that males, in general, are lonelier than females (Borys & Perlman, 1985; Knox et al., 2007; Wiseman et al., 1995). Some studies focusing on university student populations specifically (Deniz et al., 2005; Schultz & Moore, 1986; Yang, 2009), as well as in the South African context (Janse van Rensburg, 1991; Pretorius, 1993) have also yielded similar results. The results from this specific study may aid in informing future research with regards to loneliness, yet also indicates that further research is required in order to come to concise conclusions with regards to the correlation of gender and loneliness.

Furthermore, a statistically significant difference in loneliness on the 5%-level was also found when it comes to generation. In comparison with non-first-generation students ($\bar{X}=62.85$, $SD=12.96$), first-generation students ($\bar{X}=63.88$, $SD=13.07$) obtained a higher mean score, which indicates that they feel lonelier than non-first-generation students do. Due to the small effect size, it was not discussed in further detail. However, there is limited research based on this variable and it is in accordance with the findings of this study, as previous

research has indicated that first-generation students do not develop peer support to establish meaningful social relationships, which leads to a lack of belonging and social fulfilment and, ultimately, loneliness (Huerta & Fishman, 2014; Rayle & Chung, 2008; Stebleton et al., 2014). In terms of developing future therapeutic interventions with regards to loneliness, these results indicate that further research is required in order to address the potential effects of loneliness in different student generations, with the result of possibly informing potential evidence-based programmes to curb loneliness.

5.6. Limitations of the Study

There are limitations present within this study, which may have impacted the results obtained within the study and the results should, therefore, be interpreted against these limitations. Firstly, a practical limitation involves the fact that all information with regards to collecting the data (e.g., information sheets, informed consent documents, measuring instruments) were only available in English. Therefore, the possibility exists that participants may not have fully understood the questions or any other important information. Furthermore, the fact that participants completed these questionnaires on their own without the presence of the researcher also resulted in the researcher not being able to explain important concepts or answer questions with regards to the research or translation of information should participants have required this.

Another limitation of this study is that the University of the Free State is a highly unique and contextualised environment, especially given the fact that the majority of the sample consisted only of students studying under the Faculty of the Humanities. Therefore, the research cannot be generalised to other students studying different majors or studying at different faculties at the University of the Free State. Furthermore, the research only focused on students enrolled at university and did not consider other contexts of tertiary education,

such as FET colleges or private institutions, as students attending these institutions may experience loneliness differently to students attending public universities. Thus, the results of this study cannot be generalised to other student populations at universities or other tertiary institutions in South Africa or internationally (Maree, 2014). The issue of generalisability also links to the limitation of using convenience sampling as a method to collect data, which results in the sample only being representative of the very distinct population of undergraduate students who participated in the study. Therefore, the results cannot be generalised to any other age groups or contexts beyond the specific research sample within this study.

As with any self-reporting measures, the issue of reactivity also exists. Therefore, due to the participants being required to complete self-reporting measures testing the different variables within the study, it may have resulted in intentional distortion by the participants. Despite the anonymous nature of the study, students may have felt that they do not want to admit to their possible levels of loneliness, self-esteem, interpersonal communication competence and media and technology usage and may have neglected to indicate a true reflection of these concepts (Lavrakas, 2008). Furthermore, cognitive biases in the form of self-promotion or reactivity might have taken place due to participants answering questions on the measuring instruments falsely or inaccurately (Lavrakas, 2008; Stangor, 2015).

Lastly, since the choice of variables used within this study was mostly influenced by international literature, the variables chosen have influenced the results, as some variables may not have been as relevant in the multi-cultural context of South African university students as it is with international university students. Also, these specific variables were only measured within a short period of time in a cross-sectional study and did not take into account the possible change over the lifespan, as indicated by the review of the literature. Furthermore, this study employed a quantitative approach, which may have resulted in the

finer nuances of the sample's experiences of loneliness to be lost. This is important to consider for future research, especially since the concept of loneliness is a complex and subjective experience. Undertaking a longitudinal study, as well as a quantitative approach in future studies would, therefore, be beneficial for future research in order to fully develop an understanding of loneliness within the population of university students.

5.7. Recommendations for Future Studies

In terms of research specifically relating to the concept of loneliness and the population of university students, there are several important recommendations to consider for future research endeavours. Firstly, due to the limited literature about university students in a South African context, more studies should be undertaken in order to build on the knowledge of loneliness within South African university populations, especially since the concept of loneliness has been identified as a serious global pandemic. Furthermore, as mentioned previously, it is suggested that it would be beneficial to study loneliness amongst university students in the context of a longitudinal and possible qualitative context in order to obtain a more in-depth understanding of the complex nature of loneliness and its dynamics within this specific population, as well as how these feelings change over time within the lives of these participants.

Moreover, the use of random sampling is recommended for future endeavours, as it would yield a representative sample of the larger population of South African undergraduate students that would be beneficial in being able to generalise future results to contexts outside of the specific sample of university students at the University of the Free State (Maree, 2014). This would result in a better understanding of how the predictors of loneliness interact with this concept in the broader spectrum of the multi-cultural South African landscape.

It is also recommended that similar research studies be conducted in different tertiary contexts, such as at FET colleges or private tertiary institutions within the South African context, in order to obtain a more holistic view of the concept of loneliness within the context of these different populations of students. Similar research could also be conducted (or the same study could be repeated) at the different universities within South Africa with larger groups of students, as this would aid in obtaining samples which are more varied in terms of the specific variables investigated with regards to loneliness, such as age, ethnicity, faculties and study directions, for example. Through the conducting of more research within these contexts, the question of which variables or combinations of variables are the best predictors of loneliness can be addressed, not only in the context of public universities but also in the context of populations enrolled in other tertiary institutions.

Since this study only focused on undergraduate students within the developmental phase of emerging adulthood, future research may consider focusing on postgraduate students in order to evaluate, compare and contrast findings within these two different populations at university. This may also aid in establishing how the experience of loneliness may potentially change as an individual ages and enters another developmental phase within the lifespan.

Due to the results of the study indicating that there are numerous complex contributions to the experience of loneliness amongst university students, it is evident that this population should be supported in terms of alleviating loneliness, as well as being equipped with toolkits in terms of combatting loneliness. Further research about loneliness would also have to be conducted in order to be able to establish practical solutions, programmes and interventions for these issues so that resources can be used in effective manners in order to lessen the impact of loneliness within university student populations. However, it is recommended that workshops, interventions and psycho-education programmes focusing specifically on self-

esteem should be used to decrease loneliness within student populations, as this is a concept which has repeatedly been proven to act as a preventative measure and protective factor in the development of loneliness within these populations (Davis et al., 1992; Lasgaard & Elklit, 2009; Mahon et al., 2006; McWhirter, 1997; Ouellet & Joshi, 1986; Roscoe & Skomski, 1989).

5.8. Conclusion

Despite the abovementioned limitations, this study contributes to the knowledge of self-esteem, interpersonal communication, as well as media and technology use among undergraduate university students in the South African context. It also adds to the limited research regarding loneliness as a separate concept rather than a symptom of a specific pathology in specifically South African university populations and loneliness in the South African context as a whole. Furthermore, the research provided benefits in terms of adding to the pool of knowledge regarding the specific factors contributing to the loneliness of university students – a population often struggling with loneliness. Lastly, this study also aided in reporting on the validity of the measuring instruments used in order to support and encourage further use of these instruments in a South African context. Overall, this study aimed to determine if any of the predictor variables, namely media and technology usage, self-esteem, interpersonal communication competence, gender, age, ethnicity, generation of student, religious affiliation and religious practice predicted loneliness amongst a sample of undergraduate university students at the University of the Free State. In summary, the discussion of the results focused mainly on those variables, which proved to significantly (both practically and statistically) account for the variance in loneliness. These variables included interpersonal communication competence, which demonstrated a negative correlation to loneliness; a finding which was in stark contrast to the reviewed literature.

Furthermore, the concept of self-esteem accounted for statistically significant as well as practically significant results with regards to predicting loneliness amongst university students. This is in accordance with most relevant literature, which has also accounted for a negative relationship with loneliness and has furthermore been labelled as a strong predictor of loneliness.

In conclusion, this research study was able to highlight that the combination of the predictor variables predicted loneliness in the university context to a significant degree. However, numerous variables were only able to yield statistically significant results; failing to also yield significant practical results.

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ABSTRACT

Research has shown that humans have always been social creatures who have an evolutionary need to feel socially included and to belong to a group, and therefore experience feelings of loneliness when something lacks within these social relationships. Although research has indicated that all people experience loneliness at some point during their lives, recent findings are indicating that loneliness is becoming all the more common in especially young adults attending university. The overarching aims of this research study were to identify the predictor (independent) variable(s) or combination of variables that explain a significant percentage of the variance in loneliness amongst undergraduate university students, as well as to investigate whether differences exist in loneliness with regards to gender, ethnicity and student generation. The conceptualisation of this research was informed by existing literature in both a South African and international context. In order to answer the research questions posed in this study, a non-probability, convenience sampling technique was employed to recruit participants who were attending undergraduate classes to participate in the research voluntarily. The sample consisted of 1191 undergraduate university students between the ages of 18 and 30, enrolled under the Faculty of the Humanities at the University of The Free State, Bloemfontein, South Africa. The Le Roux Loneliness Questionnaire was used to measure these students' varying dimensions of loneliness. The Rosenberg Self-esteem Scale (RSES) was also employed and this study was also one of the few South African studies employing the Media and Technology Usage and Attitudes Scale (MTUAS), as well as the first South African research study which made use of the Interpersonal Communication Competence Scale (ICCS). All of the scales used indicated exceptional internal consistencies, which validates the use of these instruments on a sample of undergraduate university students at the University of the Free State, South Africa. The results of this study indicated that loneliness amongst university students was predicted

by a number of variables used in this study, with some findings that were of medium and large practical significance. Firstly, findings indicated that the Le Roux Loneliness Questionnaire demonstrated a strong, statistically significant negative correlation with the RSES, as well as a statistically significant positive correlation with the ICCS. The study also indicated that the Le Roux Loneliness Questionnaire scale demonstrated statistically significant positive correlations with all three dimensions of the MTUAS, namely (i) Media usage for social engagement, (ii) Media usage for communication and (iii) Media usage for leisure. Furthermore, the combination of the independent variables accounted for 51.9% of the variance in the Loneliness scores of the sample. Interpersonal Communication Competence as a predictor accounted for 7.7% of the variance in the Loneliness scores of the students and the results were of medium practical significance. Self-esteem as a predictor accounted for 15.3% of the variance in the Loneliness scores of the students with results that were of large practical significance. Lastly, the identified biographical variables (Gender, Age, Ethnicity, Generational Status, Religious Affiliation, Religious Practice) that predicted the loneliness of the university students were only of small practical significance. More research on loneliness amongst university students in South Africa is required to validate these findings.

Keywords: Loneliness, university students, predictors, self-esteem, interpersonal communication competence, media and technology usage, age, gender, ethnicity, generational status, religious affiliation, religious practice

ABSTRAK

Navorsing het getoon dat die mens 'n sosiale wesen is wat 'n evolusionêre behoefte ervaar om sosiaal ingesluit te voel en te behoort aan 'n groep en daarom eensaamheid ervaar wanneer tekortkominge in hierdie sosiale verhoudings bestaan. Hoewel navorsing aangedui het dat alle mense eensaamheid op 'n stadium van hul lewens ervaar, het onlangse bevindinge daarop gedui dat eensaamheid steeds al hoe meer algemeen raak in veral jong volwassenes wat aan universiteite studeer. Die oorkoepelende doel van hierdie navorsingstudie was dus om die voorspeller (onafhanklike) veranderlike(s) of 'n kombinasie van veranderlikes wat 'n beduidende persentasie van die variansie in eensaamheid verduidelik onder voorgraadse universiteitsstudente te identifiseer, asook om vas te stel of daar verskille bestaan in die eensaamheid van universiteitsstudente met betrekking tot geslag, etnisiteit en generasie van student. Die konseptualisering van hierdie navorsing is gebaseer op bestaande literatuur van beide 'n Suid-Afrikaanse en internasionale konteks. Met die oog op die navorsingsvrae wat in hierdie studie gestel is, is 'n nie-waarskynlikheid, gerieflikheidsteekproeftegniek gebruik om deelnemers wat voorgraadse klasse bygewoon het die kans te gee om vrywillig deel te neem aan die navorsingstudie. Die steekproef het bestaan uit 1191 voorgraadse universiteitstudente tussen die ouderdomme van 18 en 30 wat ingeskryf is onder die Fakulteit Geesteswetenskappe aan die Universiteit van die Vrystaat, Bloemfontein, Suid-Afrika. Die Le Roux Eensaamheid vraelys is gebruik om hierdie studente se verskillende dimensies van eensaamheid te meet. Verder is die Rosenberg Selfbeeldskaal (*Rosenberg Self-esteem Scale*) ook gebruik en was hierdie studie ook een van die min Suid-Afrikaanse studies wat gebruik gemaak het van die Media en Tegnologie Gebruik en Houdings Skaal (*Media and Technology Usage and Attitudes Scale*), sowel as die eerste Suid-Afrikaanse navorsingstudie wat gebruik gemaak het van die Interpersoonlike Kommunikasie Bevoegdheid Skaal (*Interpersonal Communication Competence Scale*). Al die bogenoemde skale het

uitsonderlike interne konsekwentheid aangedui, wat die gebruik van hierdie instrumente op 'n steekproef van voorgraadse universiteitsstudente by die Universiteit van die Vrystaat, Suid-Afrika regverdig. Die uitslae van hierdie studie dui daarop dat eensaamheid onder universiteitsstudente voorspel word deur 'n aantal veranderlikes, met 'n paar bevindinge wat van medium en groot praktiese belang was. Eerstens het bevindinge aangedui dat die Le Roux Eensaamheid vraelys op 'n sterk, statisties beduidende negatiewe korrelasie met die RSES dui, sowel as 'n statisties beduidende positiewe korrelasie met die ICCS. Verder het die studie ook bevind dat die Le Roux Eensaamheid vraelys statisties beduidende positiewe korrelasies met al drie dimensies van die MTUAS, naamlik (i) Media gebruik vir sosiale betrokkenheid, (ii) Media gebruik vir kommunikasie en (iii) Media gebruik vir ontspanning getoon het. Verder is die kombinasie van die onafhanklike veranderlikes verantwoordelik vir 51,9% van die variansie in die eensaamheidtellings van die steekproef. Interpersoonlike Kommunikasie Bevoegdheid as 'n voorspeller was verantwoordelik vir 7,7% van die variansie in die eensaamheidtellings van die studente en die resultate was van medium praktiese betekenis. Verder was Selfbeeld as 'n voorspeller verantwoordelik vir 15,3% van die variansie in die eensaamheidtellings van die student, met resultate wat van groot praktiese belang was. Laastens was die geïdentifiseerde biografiese veranderlikes (geslag, ouderdom, etnisiteit, generasie status, godsdienstige affiliasie, godsdienstige praktyk) wat die eensaamheid van die universiteitsstudente voorspel slegs van klein praktiese belang. Meer navorsing oor eensaamheid onder universiteitsstudente in Suid-Afrika word egter vereis om hierdie bevindings te staaf.

Sleuteltermes: Eensaamheid, universiteitsstudente, voorspellers, selfbeeld, interpersoonlike kommunikasie bevoegdheid, media en tegnologie gebruik, ouderdom, geslag, etnisiteit, generasie status, godsdienstige affiliasie, godsdienstige praktyk

Appendix A:

Faculty of the Humanities Research Ethics Committee Approval Letter

Faculty of the Humanities

11-Oct-2017

Dear **Mr Jordaan**

Ethics Clearance: **Predictors of psychological well-being amongst university students**

Principal Investigator: **Mr Jacques Jordaan**

Department: **Psychology (Bloemfontein Campus)**

APPLICATION APPROVED

With reference to your application for ethical clearance with the Faculty of the Humanities. I am pleased to inform you on behalf of the Research Ethics Committee of the faculty that you have been granted ethical clearance for your research.

Your ethical clearance number, to be used in all correspondence is: **UFS-HSD2017/1313**

This ethical clearance number is valid for research conducted from 11-Oct-2017 to 11-Oct-2018. Should you require more time to complete this research, please apply for an extension.

We request that any changes that may take place during the course of your research project be submitted to the ethics office to ensure we are kept up to date with your progress and any ethical implications that may arise.

Thank you for submitting this proposal for ethical clearance and we wish you every success with your research.

Yours Sincerely



Prof. Robert Peacock
Chair: Research Ethics Committee
Faculty of the Humanities

Appendix B:
Informed Consent

RESEARCH STUDY INFORMATION LEAFLET AND CONSENT FORM**DATE**

2017-08-01

TITLE OF THE RESEARCH PROJECT

Predictors of psychological well-being amongst university students

PRINCIPLE INVESTIGATOR / RESEARCHER(S) NAME(S) AND CONTACT NUMBER(S):

Dr. Jacques Jordaan	0777920	051-4012890
<i>Name of student/researcher</i>	<i>Student number</i>	<i>Contact number</i>
<i>Name of student/researcher</i>	<i>Student number</i>	<i>Contact number</i>
<i>Name of student/researcher</i>	<i>Student number</i>	<i>Contact number</i>

FACULTY AND DEPARTMENT:

Humanities

*Psychology***STUDYLEADER(S) NAME AND CONTACT NUMBER:**

Dr. Jacques Jordaan

051-4012890

WHAT IS RESEARCH?

Research is something we do to find new knowledge about the way things and people work. We use research projects or studies to help us find out more about children and teenagers and the things that affect their lives, their schools, their families and their health. Research also helps us to find better ways of helping or treating children who are sick. We do this to try and make the world a better place!

WHAT IS THE AIM / PURPOSE OF THE STUDY?

University students are unique as they serve as the future for their own families, communities and next generations. However, university students usually experience stress due to the academic and social demands and burdens they face during their studies. Being a university student entails that students need to take responsibility for their lives and to start facing the challenges that emerging adulthood hold for them. The psychological well-being of students is therefore crucial to enable them to deal with these various demands and challenges. Psychological well-being is a concept that is multi-dimensional and that includes special aspects such as optimism, loneliness, self-control, happiness, sense of interests, anxiety, and being free of failures. Seeing that the psychological well-being of university students is so important it is essential to determine what variables are the best predictors of psychological well-being amongst university students. The present study can be valuable in the South African context for several reasons. Firstly, the findings of this study will contribute to the larger body of South African research which aims to understand psychological well-being amongst student populations. This study will also help to determine which variables are the best predictors of psychological well-being and can thus be used to inform future research and decide whether extra resources are needed to assist university students. Thus, the aim of this research study is to determine which variables are the best predictors of psychological well-being amongst university students. The following research questions will be investigated: Can the combination of adjustment, coping strategies, depression, emotional intelligence, life satisfaction, decision-making and self-esteem explain a significant percentage of variance in the psychological well-being of university students? Which set of predictors as well as the individual predictors explain the most significant percentage of variance in the psychological well-being of university students?

WHO IS DOING THE RESEARCH?

I am a lecturer in the Department of Psychology of the University of the Free State. I am conducting this study as I am interested in the psychological well-being of university students.

HAS THE STUDY RECEIVED ETHICAL APPROVAL?

This study has received approval from the Research Ethics Committee of UFS. A copy of the approval letter can be obtained from the researcher.

Approval number: *Insert approval number*

WHY ARE YOU INVITED TO TAKE PART IN THIS RESEARCH PROJECT?

The data will be obtained from a sample of approximately 800 university students (N=800) within the Faculty of the Humanities of the University of the Free State. The students will be approached during Psychology lectures and requested to voluntarily participate in the study. Students of all ages, ethnic groups, study years, languages or otherwise will be included to form part of the sample. Psychology students are chosen as the researcher is a lecturer within the Psychology Department and have easy access to students studying Psychology although these students may have different majors.

WHAT IS THE NATURE OF PARTICIPATION IN THIS STUDY?

The participants will be requested to complete nine self-report questionnaires in their own time. The questionnaires will focus on psychological well-being and variables that have been found to be indicators of psychological well-being such as adjustment, depression, coping, self-esteem, decision-making, etc. The questionnaires should take about an hour and a half to complete, but the participants may complete the questionnaires in their own free time and provide the completed questionnaires back to the researcher.

CAN THE PARTICIPANT WITHDRAW FROM THE STUDY?

Participation in this study is on a voluntary basis and participants may withdraw from the study at any point in time. Participants who are willing to participate will be provided with the information sheet and the relevant questionnaires. All participants will have to provide informed consent before participating in this study.

WHAT ARE THE POTENTIAL BENEFITS OF TAKING PART IN THIS STUDY?

One benefit of participation is that the participants (students) will learn about research and research procedures. Another benefit is that students might learn more about certain concepts as some of the concepts that they study in Psychology will be measured through the self-report questionnaires. The identities of the participants will be kept anonymous and all information and inputs received from the participants will be kept confidential

WHAT IS THE ANTICIPATED INCONVENIENCE OF TAKING PART IN THIS STUDY?

Completing the questionnaires might be time consuming, but the researcher attempts to counter this by allowing the participants to complete the questionnaires in their own free time and to provide the questionnaires back once completed. A possible risk might be that participants might identify that they struggle with a certain aspect linked to psychological well-being and the researcher will ensure that such participants are referred to the necessary and relevant intervention services.

WILL WHAT I SAY BE KEPT CONFIDENTIAL?

All information and inputs received from the participants will be kept confidential. A coding system will be used to keep the identities of the participants anonymous and confidential. The identities of the participants will not be revealed to the public and the study will not be published in any article other than in an academic article for the purpose of this research study. Only the researcher will have access to the data including possible future researchers who might want to use the data. However, these researchers will not be able to identify the participants due to the coding system and these researchers will also sign confidentiality forms.

HOW WILL THE INFORMATION BE STORED AND ULTIMATELY DESTROYED?

The completed questionnaires will be kept within a locked cabinet (to which only the researcher has access) for a period of five years. All digital documents will be password protected. After five years the physical questionnaires will be destroyed by shredding them. The researcher will make use of a coding system to ensure the anonymity of the participants.

WILL I RECEIVE PAYMENT OR ANY INCENTIVES FOR PARTICIPATING IN THIS STUDY?

No financial rewards will be received for participation in this study. Participants will however learn more about research and the research process. This study might be time consuming due to the number of questionnaires involved in the study. Participants might identify from the questionnaires that they struggle with psychological well-being, but the researcher will ensure that these participants are referred for the appropriate interventions.

HOW WILL THE PARTICIPANT BE INFORMED OF THE FINDINGS / RESULTS OF THE STUDY?

If you would like to be informed of the final research findings, you are welcome to contact Dr. Jordaan at 051-4012890 or jordaanj1@ufs.ac.za. If you have any concerns or questions you are welcome to contact Dr. Jordaan. Alternatively, the secretary of the Research Ethics Committee may also be contacted at vercueilcc@ufs.ac.za or 051-4017083.

Thank you for taking time to read this information sheet and for participating in this study.

CONSENT TO PARTICIPATE IN THIS STUDY

I, _____ (participant name), confirm that the person asking my consent to take part in this research has told me about the nature, procedure, potential benefits and anticipated inconvenience of participation.

I have read (or had explained to me) and understood the study as explained in the information sheet. I have had sufficient opportunity to ask questions and am prepared to participate in the study. I understand that my participation is voluntary and that I am free to withdraw at any time without penalty (if applicable). I am aware that the findings of this study will be anonymously processed into a research report, journal publications and/or conference proceedings.

I agree to the recording of the *insert specific data collection method*.

I have received a signed copy of the informed consent agreement.

Full Name of Participant: _____

Signature of Participant: _____ Date: _____

Full Name(s) of Researcher(s): _____

Signature of Researcher: _____ Date: _____

Appendix C:

Questionnaires provided to participants

Le Roux Loneliness Scale

For each of the following statements indicate whether you think it is true or untrue about yourself.

No	Statement	Always true about myself	Sometimes true about myself	Seldom true about myself	Never true about myself
01.	I like being alone	4	3	2	1
02.	I grew up in a loving home	4	3	2	1
03.	My parents were deeply involved in my childhood years	4	3	2	1
04.	I am truly understood by some people	4	3	2	1
05.	I am unhappy because I am a reserved person	4	3	2	1
06.	I am surrounded by people but not involved with them	4	3	2	1
07.	I can communicate with some people	4	3	2	1
08.	There are people who can help me	4	3	2	1
09.	My parents are (were) happily married	4	3	2	1
10.	I haven't got many friends	4	3	2	1
11.	I am a very happy person	4	3	2	1
12.	I am a shy person	4	3	2	1
13.	I feel part of a group of friends	4	3	2	1
14.	I have a lot in common with people around me	4	3	2	1
15.	I am not close to anyone	4	3	2	1
16.	I like myself as I am	4	3	2	1
17.	I come from a broken home	4	3	2	1
18.	I feel forlorn (lonely)	4	3	2	1

19.	I feel forgotten	4	3	2	1
20.	My social relationships are artificial	4	3	2	1
21.	Nobody understands me	4	3	2	1
22.	I feel isolated	4	3	2	1
23.	I can find company if I want to	4	3	2	1
24.	My friends make me happy	4	3	2	1
25.	I like to compliment people	4	3	2	1
26.	I am in harmony with those around me	4	3	2	1
27.	I am in need of company	4	3	2	1
28.	Nobody can help me	4	3	2	1
29.	I reach out to others	4	3	2	1
30.	Nobody shares my interests and ideas	4	3	2	1

Positive items should be reserved scored: Items 2, 3, 4, 7, 8, 9, 11, 13, 14, 16, 23, 24, 25, 26, & 29

FIGURE 2
Interpersonal Communication Competence Scale

INSTRUCTIONS: Here are some statements about how people interact with other people. For each statement, circle the response that best reflects YOUR communication with others. Be honest in your responses and reflect on your communication behavior very carefully.

If you **ALMOST ALWAYS** interact in this way, circle the 5.

If you communicate this way **OFTEN**, circle the 4.

If you behave in this way **SOMETIMES**, circle the 3.

If you act this way only **SELDOM**, circle the 2.

If you **ALMOST NEVER** behave in this way, circle 1.

SELF-DISCLOSURE (alpha = .63)

- * 1. I allow friends to see who I really am.
- 2. Other people know what I'm thinking.
- 3. I reveal how I feel to others.

EMPATHY (alpha = .49)

- * 4. I can put myself in others' shoes.
- 5. I don't know exactly what others are feeling. (R)
- 6. Other people think that I understand them.

SOCIAL RELAXATION (alpha = .63)

- * 7. I am comfortable in social situations.
- 8. I feel relaxed in small group gatherings.
- 9. I feel insecure in groups of strangers. (R)

ASSERTIVENESS (alpha = .72)

- * 10. When I've been wronged, I confront the person who wronged me.
- 11. I have trouble standing up for myself. (R)
- 12. I stand up for my rights.

ALTERCENTRISM (alpha = .49)

- * 13. My conversations are pretty one-sided (R)
- 14. I let others know that I understand what they say.
- 15. My mind wanders during conversations.

INTERACTION MANAGEMENT (alpha = .41)

- * 16. My conversations are characterized by smooth shifts from one topic to the next.
- 17. I take charge of conversations I'm in by negotiating what topics we talk about.
- 18. In conversations with friends, I perceive not only what they say but what they don't say.

EXPRESSIVENESS (alpha = .46)

- * 19. My friends can tell when I'm happy or sad.
- 20. It's difficult to find the right words to express myself. (R)
- 21. I express myself well verbally.

SUPPORTIVENESS (alpha = .43)

- * 22. My communication is usually descriptive, not evaluative.
- 23. I communicate with others as though they're equals.
- 24. Others would describe me as warm.

IMMEDIACY (alpha = .45)

- * 25. My friends truly believe that I care about them.
- 26. I try to look others in the eye when I speak with them.
- 27. I tell people when I feel close to them.

ENVIRONMENTAL CONTROL (alpha = .60)

- * 28. I accomplish my communication goals.
- 29. I can persuade others to my position.
- 30. I have trouble convincing others to do what I want them to do. (R)

Note 1. Items with asterisks are included in the Short-Form (SF) version. All items should be arranged randomly when administered.

Media. and Technology Usage and Attitudes Scale (60 items)

Usage. subscales

This scale includes 44 items which comprise 11 subscales: Smartphone Usage (9 items), General Social Media Usage (9 items), Internet Searching (4 items), E-Mailing (4 items), Media Sharing (4 items), Text Messaging (4 items), Video Gaming (3 items), Online Friendships (2 items), Online Friendships (2 items), Facebook Friendships (2 items), Phone Calling (2 items) and TV Viewing (2 items)

10-point frequency scale for items 1–40 (with scoring in parentheses):

- Never (1)
- Once a month (2)
- Several times a month (3)
- Once a week (4)
- Several times a week (5)
- Once a day (6)
- Several times a day (7)
- Once an hour (8)
- Several times an hour (9)
- All the time (10)

Please indicate how often you do each of the following e-mail activities on any device (mobile phone, laptop, desktop, etc.)

1. (E-mailing subscale) Send, receive and read e-mails (not including spam or junk mail).
2. (E-mailing subscale) Check your personal e-mail.
3. (E-mailing subscale) Check your work or school e-mail.
4. (E-mailing subscale) Send or receive files via e-mail.

Please indicate how often you do each of the following activities on your mobile phone.

5. (Text messaging subscale) Send and receive text messages on a mobile phone.
6. (Phone calling subscale) Make and receive mobile phone calls.
7. (Text messaging subscale) Check for text messages on a mobile phone.
8. (Phone calling subscale) Check for voice calls on a mobile phone.

9. (Smartphone usage subscale) Read e-mail on a mobile phone.
10. (Smartphone usage subscale) Get directions or use GPS on a mobile phone.
11. (Smartphone usage subscale) Browse the web on a mobile phone.
12. (Smartphone usage subscale) Listen to music on a mobile phone.
13. (Smartphone usage subscale) Take pictures using a mobile phone.
14. (Smartphone usage subscale) Check the news on a mobile phone.
15. (Smartphone usage subscale) Record video on a mobile phone.
16. (Smartphone usage subscale) Use apps (for any purpose) on a mobile phone.
17. (Smartphone usage subscale) Search for information with a mobile phone.
18. (Text messaging subscale) Use your mobile phone during class or work time.

How often do you do each of the following activities?

19. (TV viewing subscale) Watch TV shows, movies, etc. on a TV set.
20. (TV viewing subscale) Watch video clips on a TV set.
21. (Media sharing subscale) Watch TV shows, movies, etc. on a computer.
22. (Media sharing subscale) Watch video clips on a computer.
23. (Media sharing subscale) Download media files from other people on a computer.
24. (Media sharing subscale) Share your own media files on a computer.
25. (Internet searching subscale) Search the Internet for news on any device.
26. (Internet searching subscale) Search the Internet for information on any device.
27. (Internet Searching Subscale) Search the Internet for videos on any device.
28. (Internet searching subscale) Search the Internet for images or photos on any device.
29. (Video gaming subscale) Play games on a computer, video game console or smartphone BY YOURSELF.

30. (Video Gaming Subscale) Play games on a computer, video game console or smartphone WITH OTHER PEOPLE IN THE SAME ROOM.
31. (Video gaming subscale) Play games on a computer, video game console or smartphone WITH OTHER PEOPLE ONLINE.

Do you have a Facebook account? If the answer is “yes,” continue with item 32; if “no”, skip to the *Attitudes subscales* below. NOTE: The word “social media” may be substituted for Facebook in the question stem above and in items 32–34.

How often do you do each of the following activities on social networking sites such as Facebook?

32. (General social media usage subscale) Check your Facebook page or other social networks.
33. (General social media usage subscale) Check your Facebook page from your smartphone.
34. (General social media usage subscale) Check Facebook at work or school.
35. (General social media usage subscale) Post status updates.
36. (General social media usage subscale) Post photos.
37. (General social media usage subscale) Browse profiles and photos.
38. (General social media usage subscale) Read postings.
39. (General social media usage subscale) Comment on postings, status updates, photos, etc.
40. (General social media usage subscale) Click “Like” to a posting, photo, etc.

Please answer the following questions about your Facebook and other online friends. NOTE: In items 41 and 42 the words “social media” (or any specific social media site) may be substituted for Facebook.

9-point scale for items 37–40 (with scoring in parentheses:

- 0 (1)
- 1–50 (2)
- 51–100 (3)
- 101–175 (4)
- 176–250 (5)
- 251–375 (6)
- 376–500 (7)

501–750 (8)

751 or more (9)

41. Facebook friendships subscale) How many friends do you have on Facebook?
42. (Facebook friendships subscale) How many of your Facebook friends do you know in person?
43. (Online friendships subscale) How many people have you met online that you have never met in person?
44. (Online friendships subscale) How many people do you regularly interact with online that you have never met in person?

ROSENBERG SELF-ESTEEM SCALE

Instructions

Below is a list of statements dealing with your general feelings about yourself. Please indicate how strongly you agree or disagree with each statement.

1. On the whole, I am satisfied with myself.

Strongly Agree Agree Disagree Strongly Disagree

2. At times I think I am no good at all.

Strongly Agree Agree Disagree Strongly Disagree

3. I feel that I have a number of good qualities.

Strongly Agree Agree Disagree Strongly Disagree

4. I am able to do things as well as most other people.

Strongly Agree Agree Disagree Strongly Disagree

5. I feel I do not have much to be proud of.

Strongly Agree Agree Disagree Strongly Disagree

6. I certainly feel useless at times.

Strongly Agree Agree Disagree Strongly Disagree

7. I feel that I'm a person of worth, at least on an equal plane with others.

Strongly Agree Agree Disagree Strongly Disagree

8. I wish I could have more respect for myself.

Strongly Agree Agree Disagree Strongly Disagree

9. All in all, I am inclined to feel that I am a failure.

Strongly Agree Agree Disagree Strongly Disagree

10. I take a positive attitude toward myself.

Strongly Agree Agree Disagree Strongly Disagree

Scoring:

Items 2, 5, 6, 8, 9 are reverse scored. Give "Strongly Disagree" 1 point, "Disagree" 2 points, "Agree" 3 points, and "Strongly Agree" 4 points. Sum scores for all ten items. Keep scores on a continuous scale. Higher scores indicate higher self-esteem.

Appendix D:
Plagiarism Report

Final submission

ORIGINALITY REPORT

7 %	7 %	11 %	%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	L.D. Rosen, K. Whaling, L.M. Carrier, N.A. Cheever, J. Rokkum. "The Media and Technology Usage and Attitudes Scale: An empirical investigation", Computers in Human Behavior, 2013 Publication	2 %
2	www.academicpublishingplatforms.com Internet Source	2 %
3	files.eric.ed.gov Internet Source	1 %
4	scholar.ufs.ac.za:8080 Internet Source	1 %
5	journals.sagepub.com Internet Source	1 %
6	www.airitilibrary.com Internet Source	1 %

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