

**Exploring the Demographic and Mental Health Predictors of the Constructs of the  
Interpersonal-Psychological Theory of Suicidal Behaviour**

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## DECLARATION

I, Alexa Scher, declare that:

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## ABSTRACT

Suicidal behaviour is an increasingly serious public health concern across the world. There is limited research on suicidal behaviour in South Africa, particularly around theoretical models, which is required to improve our understanding of suicidal behaviour. Joiner's (2005) Interpersonal-Psychological Theory of Suicidal Behaviour (IPTS) is a comprehensive theory that focuses on intra- and interpersonal influences in the development of suicidal behaviour whilst acknowledging neurobiological correlates. The aim of this study was to explore the demographic and mental health predictors of the constructs and outcomes of the IPTS. Using a purposive sampling method, a sample of 239 psychiatric outpatients was recruited into the study. Standard multiple linear regression and binary logistic regression analyses were performed to establish which demographic variables and mental illnesses were predictors of the constructs and outcomes of the theory. The results indicated that thwarted belongingness and interpersonal hopelessness were not significantly associated with demographic variables, whilst being a female, being unemployed and having a lower level of education were significantly associated with perceived burdensomeness, and younger age, being male and being employed were significantly associated with acquired capability for suicide. Being diagnosed with an anxiety disorder, borderline personality disorder and substance use disorder were significantly associated with lower levels of TB, whilst all of the mental illnesses (except impulse control disorder) were significantly associated with PB. None of the mental illnesses were significantly associated with IH or AC for suicide. Low levels of education were significantly associated with all three outcomes, whilst being unemployed was significantly associated with death ideation, being Black or Coloured was significantly associated with suicidal ideation and being of a younger age was significantly associated with suicide risk. Lastly, borderline personality disorder and substance use disorder were significantly associated with all three outcomes, whilst bipolar mood disorder, major depressive disorder, schizophrenia and bereavement were also significantly associated with death ideation and bipolar mood disorder was also significantly associated with suicide risk. These findings further our understanding of the role that demographic variables and mental disorders play in the development of suicidal behaviour in the unique South African context, with the study having the potential to inform both the assessment of suicide risk and the development of prevention and intervention initiatives to minimise suicide risk in practice.

## TABLE OF CONTENTS

Title Page .....	1
Declaration .....	2
Acknowledgements .....	3
Abstract .....	4
Table of Contents .....	5
List of Tables .....	6
List of Abbreviations .....	6
<b>CHAPTER ONE – INTRODUCTION .....</b>	<b>7</b>
1.1. Background .....	7
1.2. Research Aim .....	9
1.3. Outline of the Dissertation .....	9
<b>CHAPTER TWO – REVIEW OF THE LITERATURE .....</b>	<b>11</b>
2.1. Introduction .....	11
2.2. Global Picture .....	11
2.3. Suicide in South Africa .....	11
2.4. Definition of Suicide .....	12
2.5. Demographic Variables .....	13
2.6. Risk and Protective Factors .....	19
2.7. Theoretical Framework .....	26
2.8. Rationale for the Present Study .....	32
<b>CHAPTER THREE – METHODOLOGY .....</b>	<b>33</b>
3.1. Introduction .....	33
3.2. Research Aim .....	33
3.3. Research Objectives .....	33
3.4. Research Questions .....	33
3.5. Research Paradigm .....	33
3.6. Setting, Participants & Sampling Method .....	34
3.7. Procedure .....	34
3.8. Measures Used .....	35
3.9. Description of Measures .....	37
3.10. Data Processing & Analysis .....	37
3.11. Ethical Considerations .....	38
<b>CHAPTER FOUR – RESULTS .....</b>	<b>39</b>
<b>CHAPTER FIVE – DISCUSSION .....</b>	<b>52</b>
5.1. Introduction .....	52
5.2. Demographic Variables Associated with the IPTS Constructs .....	52
5.3. Mental Illnesses Associated with the IPTS Constructs .....	57
5.4. Demographic Variables Associated with Death Ideation, Suicidal Ideation and Suicide Risk .....	63
5.5. Mental Illnesses Associated with Death Ideation, Suicidal Ideation and Suicide Risk .....	65
5.6. Clinical Implications of the Study Findings .....	69

5.7. Limitations and Strengths of the Study .....	70
<b>CHAPTER SIX – SUMMARY, RECOMMENDATIONS &amp; CONCLUSION .....</b>	<b>72</b>
6.1. Summary of Findings .....	72
6.2. Recommendations for Future Research .....	73
6.3. Conclusion .....	75
<b>REFERENCE LIST .....</b>	<b>76</b>
<b>APPENDICES .....</b>	<b>94</b>
Appendix 1. DoH Permission .....	94
Appendix 2. BREC Approval .....	95
Appendix 3. BREC Recertification Approval .....	96
Appendix 4. Amendment Approval .....	97
Appendix 5. Information Sheet and Informed Consent Form .....	98
Appendix 6. Questionnaires .....	100

## LIST OF TABLES

Table 1. Participants' Demographic and Mental Health Characteristics ...	40
Table 2. Descriptive Statistics of the Measures of IPTS Constructs .....	41
Table 3. Distribution of Scores for the Measures of the IPTS Constructs .	41
Table 4. Descriptive Statistics of the IPTS Outcomes .....	41
Table 5. Distribution of Scores for the Measures of the IPTS Outcomes ..	42
Table 6. Bivariate Correlations of the IPTS Constructs and Outcomes ....	43
Table 7. Demographic and Mental Illness Predictors of Thwarted Belongingness .....	45
Table 8. Demographic and Mental Illness Predictors of Perceived Burdensomeness .....	46
Table 9. Demographic and Mental Illness Predictors of Interpersonal Hopelessness .....	47
Table 10. Demographic and Mental Illness Predictors of Acquired Capability for Suicide .....	48
Table 11. Demographic and Mental Illness Predictors of Death Ideation ..	49
Table 12. Demographic and Mental Illness Predictors of Suicidal Ideation .....	50
Table 13. Demographic and Mental Illness Predictors of Suicide Risk ....	51

## LIST OF ABBREVIATIONS

IPTS – The Interpersonal-Psychological Theory of Suicidal Behaviour
TB – Thwarted Belongingness
PB – Perceived Burdensomeness
IH – Interpersonal Hopelessness
AC – Acquired Capability

## CHAPTER ONE

### INTRODUCTION

#### 1.1. Background

Suicidal behaviour is becoming an increasingly important public health concern globally, with suicide rates increasing by 60% in the last few decades (WHO, 2016; Khasakhala et al., 2011; Schlebusch, 2012a). Suicidal ideations and behaviours affect millions of individuals and it is believed that the available statistics are only the tip of the iceberg (Pitman, Osborn, King & Erlangsen, 2014; WHO, 2016; Schlebusch, 2012a). Both developed and developing countries are affected by suicide, with China and India being the biggest contributors to the number of suicides worldwide (Bertolote, Fleischmann, De Leo & Wasserman, 2009; Varnik, 2012) and South Africa having one of the highest suicide rates in the world (van der Merwe, 2015).

Suicide rates in South Africa have been found to be inordinately high in all age groups, with suicide being the cause of roughly 11% of all non-natural deaths in adults and 9.5% of non-natural deaths in young people (Schlebusch, 2005; 2012a). Consistent with the global trend of a shift in suicidal behaviour from the elderly to younger people; the highest rate of suicide is amongst individuals in the 15-19 year age group (Schlebusch, 2012a).

Suicide is evidently cause for major concern within South Africa and globally, however whilst there is a wealth of epidemiological research on suicidal behaviour in developed countries, limited data exists in less developed countries such as South Africa (Khasakhala et al., 2011; Joe, Stein, Seedat, Herman & Williams, 2008). Moreover, it is believed that even when epidemiological data are available, the full extent of the burden caused by suicide and non-fatal suicidal behaviours is often underestimated (Vijayakumar, John, Pirkis & Whiteford, 2005). It is therefore critical that there is more extensive and reliable literature on suicide in less developed countries; as such data could be used to inform and improve suicide prevention efforts (Vijayakumar et al., 2005).

Despite the fact that there is vastly more research on suicidal behaviours in more developed countries, there have still been relatively small empirical advances in understanding the causes and correlates of suicide (Van Orden et al., 2010). A possible explanation for this may be the absence of theoretical models that can comprehensively explain what is known about suicide, in addition to being able to reliably and precisely

identify risk for future incidents of suicidal behaviour (Prinstein, 2008; Van Orden et al., 2010). Whilst there are some theories of suicidal behaviour that have been proposed (i.e. psychodynamic, sociological and biological theories), few studies have looked at models that are more integrative, which attend to the interaction between the dynamic systems that exist intrapersonally *and* interpersonally (Prinstein, 2008; Van Orden et al., 2010).

Joiner's (2005) Interpersonal-Psychological Theory of Suicidal Behaviour (IPTS), on the other hand, is a relatively new theory that *does* encompass the intrapersonal and interpersonal factors at play in order to predict suicidal behaviour in an individual, accounting for both ideation and attempts (Bender et al., 2008). It is essential that a theory of suicidal behaviour differentiate between suicidal ideation, suicide attempts and fatal suicide, instead of just addressing suicidal behaviour as a unitary construct, as firstly, this is consistent with the taxonomy of suicidal behaviour, and secondly, it is consistent with the fact that suicidal ideations and attempts are far more common than fatal suicides (Van Orden et al., 2010). The IPTS is therefore far more comprehensive than previous theories of suicidal behaviour, as it is both sensitive in the prediction of suicidal behaviour, being able to detect a large number of people who are at risk for suicidal desire, *and* specific, as it is also able to identify those who are at risk for suicidal attempts (Bender et al., 2008).

Having a theory that is consistent with, and able to account for, the empirically documented risk factors for suicide (and how they are related to suicidal behaviour) is essential in advancing our understanding of suicidal behaviour and in improving prevention strategies (Van Orden et al., 2010; Bender et al., 2008). The risk factors for suicide, which have been indicated to be the most consistent and robust within the existing literature, include mental and physical illness, past suicide attempts, family conflict, social isolation and unemployment (Silva, Ribeiro & Joiner, 2015; Fleischmann & De Leo, 2014; Bastia & Kar, 2009; Goodwin & Jamison, 2007). Moreover, a comprehensive theory of suicidal behaviour has to be able to account for the demographic differences in suicidal behaviour that are well documented, such as the gender differences in suicide rates and behaviour, as well as the variation of suicide rates by age and race (Van Orden et al., 2010).

The IPTS is purported to provide such a framework for understanding the universal, but distinct, relationships between the risk factors (such as mental illnesses), demographic variables and suicidal behaviour, however the extant literature is inconsistent in this regard (Silva et al., 2015). Thus it is necessary to research the relationships between the demographic variables and mental illnesses in relation to the IPTS. This is especially



important within a South African context; as the relationship between demographic variables, mental disorders and suicide have predominantly been studied in the developed world (Kessler, Borges & Walters, 1999), yet it is possible that within low and middle-income countries, such as South Africa, there may be different predictors of suicidal behaviour (Ndotsi, Mbonde & Lyamuya, 2004). Gaining in-depth insight into the mechanisms by which demographic variables and mental illnesses act as risk factors for suicidal behaviours can assist in the development of effective screening, prevention and intervention strategies (Khasakhala et al., 2011) in the country.

## **1.2. Research Aim**

The central aim of this study is to explore the demographic and mental health predictors of the constructs of the IPTS (i.e., thwarted belongingness, perceived burdensomeness, interpersonal hopelessness and acquired capability for suicide) as well as of the outcomes of the theory (i.e., death ideation, suicidal ideation and suicide risk).

## **1.3. Outline of the Dissertation**

The dissertation is organised as follows:

Chapter one serves as an orientation to the study, outlining the background context, rationale for the study and the aims of the study, as well as an outline of the dissertation.

Chapter two presents a review of the literature that is relevant to this study, looking at the global picture of suicide, suicide within South Africa and the definition of suicide. The demographic variables in relation to suicide are then covered, followed by risk and protective factors of suicide. Lastly, the theoretical framework is discussed, where theories of suicide are discussed prior to a description of the Interpersonal-Psychological Theory of Suicidal Behaviour (IPTS) (Joiner, 2005).

Chapter three outlines the study's research methodology. This chapter includes the research objectives, questions and the research paradigm. The setting, participants and sampling method are described, in addition to the procedure, measures used and a description of the measures. The data analysis process is then outlined, and lastly the ethical issues considered in the study are explained.

Chapter four presents the results.

Chapter five presents a discussion of the results in relation to the extant literature, and considers the implications of the findings, as well as the limitations and strengths of the study.

Chapter six presents a summary of the findings, recommendations for future research and a brief conclusion.

## CHAPTER TWO

### REVIEW OF THE LITERATURE

#### 2.1. Introduction

This chapter presents existing literature regarding suicidal behaviour, focusing on the global picture, suicide in South Africa and the definition of suicide. The chapter then explores demographic variables in relation to suicide, including suicide and age, gender and race, after which it looks at the interplay between race, age, gender and method, in relation to suicide. The risk and protective factors of suicide are then covered, focusing on the individual factors (such as interpersonal needs and mental illness), societal and contextual factors. Lastly, this chapter presents the theoretical framework, where theories of suicide are discussed prior to a description of the Interpersonal-Psychological Theory of Suicidal Behaviour (IPTs).

#### 2.2. Global Picture

Suicide has become an increasingly serious global mental health issue, with the World Health Organisation (WHO) (2016) estimating that over 800 000 people worldwide die by suicide annually, with far more attempting suicide each year. Translating these numbers into an estimated global daily suicide rate, there is approximately one death by suicide every 40 seconds (WHO, 2014a). It is important to note that suicide not only affects the victims, but also their loved ones, individuals within their communities and country, and thus each year millions are affected (Pitman et al., 2014; WHO, 2016). Whereas suicidal behaviour was the domain of older individuals in the past, it has slowly become a phenomenon amongst younger individuals, what Schlebusch (2005) refers to as the *ungreying phenomenon*.

#### 2.3. Suicide in South Africa

The incidence rates of suicide in South Africa are exceptionally high, with the country reporting one of the highest rates in the world (van der Merwe, 2015). Suicide rates in South Africa range from 11.5 per 100 000 to a high of 25 per 100 000 of the population (depending on the research method and sampling procedures used in the study), with roughly 11% of all non-natural deaths in South Africa being related to suicide, which translates into approximately one to two suicides per hour (Schlebusch, 2012a; 2012b). Moreover, it is estimated that the ratio of fatal to non-fatal suicides is 1:20, translating into approximately 20 or more suicide attempts per hour (Schlebusch, 2012a). Suicide is therefore a major concern

for the mental health and wellbeing of the country's population.

There are, however, unreliable statistics with regards to the specific incidence rates and nature of suicide for all population groups in South Africa. This is largely due to poor-quality data as a result of the socio-political history of South Africa, where Black people were not adequately represented in research around suicide. Although death registrations have improved, since the change in legislation in 1992 of the Births and Deaths Registration Act, the specification of the manner of injury deaths has been hindered (Burrows & Laflamme, 2008), and thus it is very difficult to obtain accurate suicide mortality data. The knowledge that *does* exist is based on three major research-based efforts - the National Injury Mortality Surveillance System (NIMSS), the Durban Parasuicide Study (DPS) and the South African Stress and Health Study (SASH) - which have provided a broader picture of suicidal behaviour in South Africa (Schlebusch, 2012a, 2012b; Bantjes & Kagee, 2013; Joe et al., 2008).

#### **2.4. Definitions of Suicidal Behaviour**

When dealing with a phenomenon such as suicide it is essential to have distinct and consistent definitions. Although most people have an inherent understanding of what suicide is, i.e. "killing oneself", the actual definition is fundamentally more complex (Bertolote, Bille-Brahe, Burgis, De Leo & Kerkhof, 2006) and differs depending on different theoretical stances. These include Emile Durkheim's (1897) definition that suicide is applied to "all cases of death resulting directly or indirectly from a positive or negative act of the victim himself, which he knows will produce this result" (p. 44), with the former referring to acts such as shooting oneself and the latter to acts such as refusing to eat (Jones, 1986).

According to Shneidman (1985), "suicide is a conscious act of self-induced annihilation, best understood as a multidimensional malaise in a needful individual who defines an issue for which suicide is perceived as the best solution" (p. 203). The Center for Disease Control and Prevention (CDC) (2015a) in the United States, states that suicide is death caused by self-directed injurious behaviour, with intent to die as a result of the behaviour. This definition, however, does not account for other related behaviours and definitions (Apter & Gvion, 2012), and in order to study and understand the multidimensional nature of suicide, it is necessary to delineate between different suicidal behaviours and terms given to these (Andriessen, 2006).

A nomenclature for suicidal behaviours that does not necessarily have fatal outcomes is therefore needed, including suicide attempts and suicidal ideation. A suicide attempt is

defined as self-initiated, potentially injurious behaviour where there is intent to die but there is a non-fatal outcome (Apter, 2010; CDC, 2015a). Suicidal ideation is defined as thinking about, considering or planning suicide (CDC, 2015a). Moreover, it is necessary to distinguish suicidal ideation from death ideation, whereby the former is comprised of thoughts of wanting to kill oneself and the desire to engage in suicidal behaviours, whilst the latter is comprised of general thoughts of death in the absence of suicidal desire, both of which are associated with different risk factors (Gallo, Hwang, & Joo, 2016). It is clear then that suicidal behaviour cannot be treated as a unitary construct. It is essential to specify the abovementioned aspects to attain a deeper understanding of the phenomenology, risk and etiological factors behind suicidal behaviours (Van Orden et al., 2010).

## **2.5. Demographic Variables**

### **2.5.1. Suicide and age**

Traditionally, suicide has been more common amongst the elderly, with the highest suicide rates occurring in people aged 70 years or over worldwide (Fleischmann & De Leo, 2014). However, the population group that is currently regarded as most at risk for engaging in suicidal behaviour are those in the 15-29 year age group (WHO, 2014b). Suicide is the second leading cause of death in this age group, and the first leading cause of death globally for young girls between the ages of 15 and 19 (WHO, 2014c).

With regards to the age distribution of suicide in South Africa, there is an unequal distribution, yet overall it was found in the NIMSS Annual Report for 2008 (Medical Research Council (MRC, 2010) that 69.2% of individuals who committed suicide were between the ages of 15-44 years, with the highest rates amongst individuals between 15-29 years, followed by adults aged 30-44 years (Bantjes & Kagee, 2013). Fatal suicides occur in age groups as young as 10-14 years (MRC, 2010), with rates of suicide for this age group nearly doubling in the past 15 years (van der Merwe, 2015). This shift in suicides from the elderly towards younger people in South Africa is consistent with global trends, and highlights the fact that suicidal behaviour, especially among the youth of South Africa, cannot be ignored (Meehan, Peirson, & Fridihon, 2007).

Adolescence is a very complex stage in one's development where one is confronted with challenging transitions and adjustments, involving major life changes both internally (physically) and externally (socially and academically), which may result in feelings of being overwhelmed (Pauw, 2011; van der Merwe, 2015). It is also a stage of development when one is forming a separate identity to one's primary family group, commonly resulting in self-

doubt and low self-esteem (Pauw, 2011), adding to the stress experienced in adolescence, possibly causing depression, feelings of hopelessness and helplessness and subsequently suicidal ideation (Meehan, et al., 2007). The way in which one copes with stressful events has a significant impact on one's health and wellbeing, and suicidal behaviours are often a result of adolescents' inability to deal with stressors (Lewis & Frydenburg, 2002).

In the South African context there are many reasons why the number of younger individuals committing suicide is increasing, some attributed to South Africa's history of apartheid. The repercussions of this regime are still apparent today; with a lack of social infrastructure, inadequate housing, poor education and transport facilities, not to mention a breakdown in family life, resulting in a lack of positive role models (Meehan et al., 2007). Adolescents growing up in such circumstances could be seen as being at increased risk for developing feelings of not belonging, or thoughts that they are a burden to others, which could increase the likelihood of them experiencing suicidal ideations (Van Orden et al., 2010).

There are also cultural factors at play, whereby adolescents may be experiencing a lack of emotional security and a sense of not belonging, due to social and cultural transition, as well as being placed under increasing demands due to more materialistic values (Meehan, et al., 2007).

Additional factors also include extreme poverty, high levels of violence and family problems, living in child-headed households, alcohol and substance abuse, teenage pregnancy, and mental illness (as the early signs and symptoms of many psychological disorders emerge in late adolescence) (Netshiombo & Mashambe, 2012). These factors could all be seen as increasing an individual's risk for developing social isolation, feelings of loneliness and being unwanted or expendable, which in turn increases their risk for suicidal ideations (Van Orden et al., 2010).

Thus the increase in suicidal behaviour among the younger generation can be attributed to the interplay of individual, biological, social, political, cultural and economic factors (Meehan, et al., 2007).

### **2.5.2. Suicide and gender**

According to the World Health Organisation's report on suicide (2014a), the suicide rate in males is three times that of females in high-income countries, with a much lower ratio of 1.5:1 in low and middle-income countries (WHO, 2014a). The gender distribution of suicide in South Africa is generally consistent with the global picture, whereby suicide is four

times more prevalent in males than females (Bantjes & Kagee, 2013). However, women have increased levels of suicidal ideation and attempt suicide more often (Meehan, et al., 2007), and it has been estimated that female suicide attempt rates are roughly three to four times higher than males, globally (CDC, 2009). This phenomenon is known as the gender paradox (Canetto & Sakinofsky, 1998).

There are numerous proposed explanations for this paradox. An initial explanation is the difference in suicide methods used by men and women (Callanan & Davis, 2012). The most common methods of suicide globally are the ingestion of pesticides, as well as hanging and firearms (Fleischmann & De Leo, 2014). Men generally use methods that ensure lethality, which explains why the use of firearms (as well as hanging in South Africa) is the most common suicide method amongst males (Stark et al., 2010; Bantjes & Kagee, 2013), whereas female attempts are more likely to include poisoning (Stark et al., 2010; Bantjes & Kagee, 2013; CDC, 2009).

It is widely believed that the reason behind women using less lethal methods is that they do not really wish to kill themselves and these are rather cries for help (Bering, 2014). The second perspective proposes that the gender socialisation and culturally acceptable forms of self-destructive behaviours, influences suicidal behaviours and methods. For example, males are more pressurised to successfully commit suicide as opposed to females, as they would potentially face ridicule as opposed to receiving compassion from others if they do not succeed, thus resulting in them using more lethal means such as firearms (Callanan & Davis, 2012). Moreover, as a result of the prevailing models of hegemonic masculinity, expectations to be more independent, emotionally stronger and to not show emotions are still placed upon men, which can be shown to increase their levels of stress when experiencing emotions, such as depression, which can ultimately lead to an increase in feelings of thwarted belongingness, and in turn an increase in suicidal thoughts (Dryden-Edwards, 2011).

Moreover, whilst many females today are employed, males still generally earn disproportionately higher salaries, and are therefore still the main breadwinners of the family (Netshiombo & Mashambe, 2012). This places many men under extreme pressure as, should they fail to provide adequately (which due to the high unemployment rates in South Africa, for example, is a common occurrence), their ego strength is lowered, and thus in turn their masculinity is diminished (Netshiombo & Mashambe, 2012; Dryden-Edwards, 2011). As a result, they may experience thoughts such as “I am a burden to my family”, “I make things worse for the people in my life”, or “I am useless”, which increases the risk of suicidal ideation (Van Orden et al., 2010).

With regards to women, it is suggested that women do not want their loved ones to find a mutilated corpse, as they are more concerned than males with people's feelings, which then deters them from methods that may disfigure their faces (Callanan & Davis, 2012), which could account for the gender disparity in the choice of methods (Stack & Wasserman, 2009).

Another proposed explanation comes down to the availability of methods, which ultimately suggests that more males than females own and have access to firearms, and furthermore, even if women do gain access to a firearm, they are often less familiar with firearms in comparison to men (Callanan & Davis, 2012). Male's increased exposure to firearms could thus result in habituation to the use of firearms as a method of suicide, resulting in them acquiring more capability than women in the use of firearms, which could account for the increased rate of lethal suicide attempts in males (Bender et al., 2008).

Ultimately, there is no single explanation that accounts for the differences (Lewinsohn, Rohde, Seeley, & Baldwin, 2001), but rather an amalgamation of these factors.

### **2.5.3. Suicide and race**

There are no definitive statistics to illustrate the prevalence of suicide between racial groups globally, as these differ from country to country and vary considerably within different population subgroups (Brown & Johns, 2015). Presenting this data according to race groups can be problematic, as racial and ethnic disparities can be deceptive; they have been shown to have no anthropological or scientific validity (Bourne, 1989; West & Boonzaier, 1989). Factors such as socio-economic status, employment status, geographical location, access to health care, level of education, level of poverty and sexual orientation, on the other hand, are far more useful with regards to understanding differing suicide rates (Brown & Johns, 2015; Bantjes & Kagee, 2013). Although the usefulness of racial data on suicide is debatable, as it is questionable whether race is a determinant of social behaviour in post-apartheid South Africa (Bantjes & Kagee, 2013), there are, however, still important differences that exist between racially defined groups due to South Africa's unique history of racial segregation and oppression, and the historically differential treatment of these groups (Burrows, Vaez, Butchart & Laflamme, 2003; Wasenaar, Pillay, Descoins, Goltman, & Naidoo, 2000). Moreover, the insecurity experienced as a result of the rapid and unpredictable social change due to the transition to a post-apartheid government links the economic, political and social context of the country to the rate of suicide (Meehan & Broom, 2007). Thus, it is still necessary to examine the different suicide rates across racial groups



(Burrows & Laflamme, 2008).

Findings from a study that was conducted in Durban (the site of the present study) from 2006-2007 (Naidoo & Schlebusch, 2014) revealed the highest rate of suicides per year were within the Black population, followed by Indian, White and lastly, Coloured people (Naidoo & Schlebusch, 2014). With regards to the suicide rates of these population groups, it was found that the figures for White people and Coloured people were fairly low, in comparison to the Indian and Black population (Naidoo & Schlebusch, 2014).

Factors that could account for the higher suicide rate amongst Black people are political, socio-economic, cultural and interpersonal. Firstly, as a result of the past inequalities of apartheid being defined along race lines, Black people have been disadvantaged academically, financially and socially with cascading effects into all aspects of their lives. During apartheid, one's social and political rights, educational opportunities and economic status were determined by the race group that one was classified into (Mda, 2010).

Secondly, due to the unequal provision of resources, the quality of education in South Africa has *always* been very uneven among races, having a devastating effect on lives, limiting career choices and diminishing opportunities for success – both financially and socially (Mda, 2010). Such limitations on future opportunities give rise to hopelessness and increase one's risk for suicide (Patel & Kleinman, 2003).

Moreover, access to mental health care resources continue to be limited to disadvantaged population groups in the country. A study by Statistics South Africa (StatsSA, 2013) revealed that households using health facilities in the public sector were mainly within the Black (81,3%) and Coloured (63,1%) populations, whilst households from the White and Indian/Asian population groups mainly used health facilities in the private sector (88% and 64%). This can largely be attributed to the different population groups' access to health facilities, which was explored in this survey, revealing that households within the Black population predominantly had to walk to reach the health facility that they most commonly use (55%), whilst 34,9% used public transport, and only 8,9% had access to their own transport (StatsSA, 2013). There were similar findings within the Coloured population's households. It was, however, the opposite case for the Indian/Asian and White population groups. The majority of households in the Indian/Asian population group (73,7%) used their own transport, with only 10,9% walking to the health facility, whilst 94% of households in the White population group used their own transport, leaving a small proportion of the White population group (3,8%) who walked to the health facility (StatsSA, 2013).

In addition to limited access to resources, discrimination has immense mental health

implications for Black people, as research shows increased levels of depression, anxiety and suicidal behaviour in those enduring racial discrimination (Nittle, 2016). Interpersonal alienation, such as feeling as though one does not belong and feeling as though one is a burden to others, increases one's risk for suicidal ideation (Van Orden, et al., 2010; Nittle, 2016; Gordon, 2015).

In terms of cultural factors, the Black population group has experienced a certain degree of cultural discontinuity, in addition to a loss of tradition, due to the disruption of their traditional roles and lifestyles, as their exposure to Western culture increases (Meehan & Broom, 2007; Bantjes & Kagee, 2013). Such conflicts between traditional social roles and new westernised roles, has resulted in a shift from more collectivist to individualistic lifestyles, and could therefore be seen as increasing the likelihood of stress, whilst decreasing the supportive social infrastructure and, in turn, increasing social isolation (Burrows & Laflamme, 2008), which have been found to be significant risk factors for of suicidal ideation, attempts and suicidal behaviour (Van Orden, et al., 2010).

On an interpersonal level, many Black South Africans have been affected by a breakdown of the family structure. Firstly due to apartheid and the long-term effects of the migrant labour system, where many (mainly men) were forced to leave their homes and families in order to live in the cities and towns where they could work (Eddy & Holborn, 2011). Single-parent households are commonplace in South Africa, and a large proportion of children grow up with only one parent – more often than not, a mother (Eddy & Holborn, 2011). This phenomenon of absent fathers has been labelled a 'crisis of men', and potentially perpetuates patterns of abuse, as well as desertion, that are then likely to continue with future generations (Eddy & Holborn, 2011). Secondly, due to the HIV/AIDS pandemic, the lives of South African families have been profoundly affected, leaving children orphaned and often being the heads of their households (Eddy & Holborn, 2011). Although HIV does affect all racial groups, Black people have been found to have the highest prevalence in South Africa (15%), followed by Coloureds (3,1%), then Indian/Asians (0,8%) and lastly Whites (0,3%) (Shisana et al., 2014).

For such individuals, there is a significantly higher risk of not attending school, living with decreased food security, suffering from depression and anxiety and having an increased risk for exposure to the HIV infection (Eddy & Holborn, 2011). The implications of these breakdowns in the family structure are significant and are associated with an increased risk for interpersonal needs being unmet, depression and suicide (Macrae, 2011).

Important to note is the complexity of these issues, all of which intertwine, increasing

or decreasing the risk for the different racial groups. It is evident that in South Africa, exploring the effects of race on suicide is far more complex than comparing rates of suicide among the different racial groups, as the magnitude, distribution and methods of suicide are influenced by race, gender, age *and* culture (Burrows & Laflamme, 2006; Burrows, Vaez, & Laflamme, 2007).

#### **2.5.4. Race, age, gender and method**

Patterns of suicidal behaviour cannot just be understood *between* racial groups, but rather they also have to be explored *within* the racial groups, for example by taking into consideration the interaction between race, age and gender (Burrows & Laflamme, 2006).

Suicide amongst Black people is generally higher in younger age groups, around 15-34 years (Burrows & Laflamme, 2008), with hanging being the most common method of suicide employed for this age group (Burrows, Bowman, Matzopoulos, & Van Niekerk, 2001; Matzopoulos, 2002). With regards to suicidal patterns in White people, there is a tendency for rates to peak in older people, especially in males (Flisher, Liang, Laubscher & Lombard, 2004), with firearms being the most common method of suicide, and where suicides by gassing are of significance (Burrows, et al., 2001; Matzopoulos, 2002). The trends in suicide among Indians are that it mainly occurs in youth, with the highest rates between 15-24 year old females, and males older than 54 years (Flisher, et al., 2004; Burrows & Laflamme, 2008). Lastly, with regards to Coloured people, hanging is the method of choice more often than any other method of suicide (Burrows, et al., 2001; Matzopoulos, 2002), and the rates of suicide are generally highest in younger to middle aged people, with a substantial decrease after 54 years (Flisher et al., 2004).

Having explored the demographic variables of suicide, it is also important to explore risk and protective factors of suicide.

#### **2.6. Risk Factors**

There are numerous risk factors that act cumulatively to increase one's vulnerability to engaging in suicidal behaviours; these may operate at an individual, community and societal level (WHO, 2014b).

## **2.6.1. Individual factors**

### ***2.6.1.1. Interpersonal needs***

Interpersonal factors play a fundamental role in increasing one's risk for engaging in suicidal behaviour. Such factors include social isolation (Fleischmann & De Leo, 2014), which has been found to be one of the most reliable predictors of suicidal ideation, attempts and lethal suicidal behaviour (Joiner & Van Orden, 2008). Evidence suggests that one's risk for engaging in lethal suicidal behaviour is increased if one lives alone, experiences loneliness, feels like one does not 'belong', is socially withdrawn, has few social supports, has lost a spouse through death or divorce or resides in a single prison cell (Van Orden, et al., 2010). These variables are components of one's social connectedness, widely found to play a key role in suicidal behaviour, as the variable of social connectedness indicates whether or not one's fundamental psychological need to belong has been met (Van Orden, et al., 2010).

Family conflict is an additional interpersonal risk factor and one of the biggest risk factors for lethal suicidal behaviour across the lifespan (Van Orden, et al., 2010). Numerous studies have acknowledged associations among suicide and familial discord, domestic violence, familial stress and perceptions that one is a burden on one's family (Van Orden, et al., 2010; Bastia & Kar, 2009; Duberstein, Conwell, Conner, Eberly, & Caine, 2004; Bhugra, Samaraweera, Siribaddana, Sivayogan, & Sumathipala, 2008). Such feelings have been found to be correlated with suicidal ideation, and are considered to be a strong predictor of suicidal desire (Van Orden, Lynam, Hollar, & Joiner, 2006; Van Orden, et al., 2010).

### ***2.6.1.2. Mental Illness***

An extensive amount of research shows a strong association between suicidal behaviour and psychiatric illness, with data indicating that approximately 95% of those who commit suicide suffer from a mental disorder (Cavanagh, Carson, Sharpe & Lawrie, 2003; Goodwin & Jamison, 2007; Hawton, Sutton, Haw, Sinclair, & Harris, 2005). Whilst the correlation between suicide and psychiatric illness does not necessarily imply a causal relationship, as the majority of individuals with mental disorders do not end up committing suicide (Bantjes & Kagee, 2013), the interpersonal needs of those suffering with such disorders are often unmet, resulting in an elevated likelihood of suicidal ideation and intent (Van Orden et al., 2010). There are certain mental illnesses that confer higher risk for suicidal behaviour than others, the most common of these being major depressive disorder (MDD), with suicide rates of between 2-6% (Bostwick & Pankratz, 2000; Friedman & Leon, 2007). MDD increases one's risk for suicidal ideation, as one of the diagnostic criteria for

MDD is recurrent thoughts of death and suicidal ideation (American Psychiatric Association, 2013; Nock et al., 2009).

People diagnosed with bipolar mood disorder (BPMD) have higher rates of suicide in comparison to those with other mental disorders (Nock et al., 2009; Chen, Chang, Lee & Liao, 2009; Mortensen, Nordentoft & Pedersen, 2011) and research reveals that between 26-51% of people with BPMD will attempt suicide (Arvilommi et al., 2005). In an attempt to understand why they are placed at such a high risk for suicidal behaviour, studies have shown they generally hold negative self-appraisals (regarding their self-worth and efficacy dealing with emotions and problem-solving) and negative 'other' appraisals (regarding their ability to seek help from others and the likelihood that others will be shaming, rejecting or abandoning) which could result in perceptions of defeat and hopelessness (Bargh, Coulston, Das, Kuiper & Malhi, 2013). Such perceptions could be amplified, as affected individuals have a propensity to experience extreme emotions and diminished cognitive capacity for regulating emotion (Bargh et al., 2013; Bentall, Kinderman, & Manson, 2005).

Impulsivity is an additional feature in those with BPMD, which is a trait that has been documented to have a relationship with suicidal behaviour (Ardekani, Burdick, Mahon, Szeszko, & Wu, 2012; Van Orden et al., 2010). Individuals who are impulsive are more likely to engage in risk-taking behaviours, as well as painful or provocative behaviours, such as physical fights or injecting drugs, which increases the individual's acquired capability to engage in suicidal behaviours (Van Orden et al., 2010).

Borderline personality disorder (BPD) is a third example, with a reported suicide rate of 10% amongst affected individuals (Black, Blum, Pfohl, & Hale, 2004). There is an elevated risk for suicide in those with BPD, with three of the main diagnostic criteria being recurrent suicidal behaviour, threats of self-harm and self-mutilating behaviours (APA, 2013). A core feature of BPD is emotional dysregulation, and research shows that affected individuals have very volatile, intense emotions, with inappropriate anger, associated with interpersonal conflict, increasing their sense of being a burden to others, and in turn their risk for suicidal ideation (Joiner & Rogers, 2016). Findings have shown the lethality of suicide attempts in those with BPD is a result of the interaction between impulsivity (another core feature of BPD) and violent-aggressive tendencies associated with cluster B comorbidity (Lesage, McGirr, Paris, Renaud & Turecki, 2007).

The suicide rates for individuals diagnosed with schizophrenia have been estimated at between 1.8%-5.6%, with a lifetime prevalence of 4.9% for those diagnosed with the illness (Palmer, Pankratz, & Bostwick, 2005). Risk factors associated with schizophrenia include

frequent relapses, severity and chronicity of the illness, decreased social and vocational functioning, an awareness of the deteriorating effects of the illness during periods of remission and a fear of mental disintegration (Caldwell & Gottesman, 1990; Balhara, & Verma, 2012). Such factors could be seen as decreasing an individual's self-esteem, whilst increasing their sense of inadequacy, which may impact on their interpersonal functioning; which in turn increases their risk for suicidal ideation (Balhara, & Verma, 2012).

Substance use disorder (SUD) is a known risk factor for suicide and individuals affected by the disorder have a suicide rate 5.7 times higher than that of the general population (Harris & Barraclough, 1997). This association has been reported in South African research, with studies indicating that around 40% of those who die by suicide have positive blood alcohol levels (Scribante, Blumenthal, Saayman, & Roos 2004; Bantjes & Kagee, 2013). The effects of alcohol consumption are increased impulsivity, resulting in disinhibition, as well as impaired judgement and problem-solving abilities, suggesting that intoxicated individuals may view suicide as a solution to their problems and act on these perceptions (Bantjes & Kagee, 2013). Comorbidity between SUDs and mental illness is highly prevalent globally, and people with a SUD generally have higher comorbid rates of mental illnesses than the other way around (Jane-Llopis & Matytsina, 2006). Substance abuse among people with comorbid psychiatric illnesses is thus increasingly common and an association between psychoactive substance abuse with a greater frequency, repetitiveness, and lethality in suicide attempts has been established (Colucciello, 2013).

With regards to anxiety disorders, research has shown that having a pre-existing anxiety disorder is an independent risk factor for the onset of suicidal ideation and attempts (Afifi et al., 2005). Moreover, panic disorder has been found to significantly predict suicide attempts, with approximately 40% of people with panic disorder attempting suicide (Colucciello, 2013; Nock et al., 2009).

Impulse-control disorders (such as conduct disorder, oppositional defiant disorder, intermittent explosive disorder and substance use disorders) have also been found to have a strong association with suicide attempts, with a six-fold increase in risk for suicide in conduct disorder (Nock, et al., 2009; Van Orden et al., 2010). Of note, disorders that are characterised by symptoms of anxiety or impulse-control deficits have been found to be predictive of a transition from suicidal ideation to suicide attempts (Nock et al., 2009).

In addition to mental illnesses, the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) (APA, 2013) includes V codes, which are conditions that may be a focus of clinical attention or affect diagnosis, the course of treatment, prognosis and/or treatment of

a mental disorder. One such V code, which increases one's risk of suicide, is bereavement with males being overrepresented than females in suicide after the loss of a partner (Ajdacic-Gross et al., 2008). Moreover, partner relational problems, which are also included in the DSM-5 as a V code, can significantly increase one's risk for engaging in suicidal behaviour (Bastia & Kar, 2009; Duberstein et al., 2004).

It is important to acknowledge, however, the growing body of literature within the field of critical suicidology, which challenges the widely held belief that people who commit suicide are mentally ill as an unassailable truth, with researchers asserting that this claim is an assumption (Marsh, 2015a; Hjelmeland, & Knizek, 2017). These authors describe how this assumption, which has been implicitly accepted as a truth, dominates research, policy, practice and all current thinking around suicide to such an extent that the field of suicidology has remained, to some degree, defensive, unreflective and uncritical (Marsh, 2010; 2015a).

One of the key issues with this assumption is the implication of causality, as whilst the field of critical suicidology is not refuting the vast evidence of an *association* between mental illness and suicide, it is highlighting the lack of convincing, empirical evidence of an aetiological link between underlying psychopathology and suicidal behaviour (Hjelmeland, Dieserud, Dyregrov, Knizek, and Leenaars, 2012; Marsh, 2015a). Moreover, the literature illustrates the problematic nature of viewing suicide in terms of individual mental illness alone, as this pathologises the individual and reduces one's problems to flaws within one's body or mind (known as psychocentrism) (Rimke, 2010; Rimke & Brock, 2012), without acknowledging the individual's social, cultural and political context (Marsh, 2010; 2015a).

Critical suicidology authors are therefore endorsing the need to be more critical of such assumptions, remaining open to the questioning of the often-assumed aetiological link between mental illness and suicide, so as to avoid limitations within the identification of those at risk for engaging in suicidal behaviours, emphasising that suicide is as much a social, cultural and political issue as it is a mental health one (Marsh, 2015a).

### **2.6.2. Societal factors**

On a community level, factors like political and sexual violence play a role in increasing risk for suicide (WHO, 2014b). Individuals living in politically unequal, violent or abusive environments are often vulnerable and unable to express their distress in a conventional manner, resulting in the increased risk for suicide, as an inappropriate problem-

solving strategy (WHO, 2014b). Victims of crime often become socially isolated, which as discussed previously, is an interpersonal factor that increases their risk for suicide (Conner, Duberstein, & Conwell, 2000; Ilgen & Kleinberg, 2011).

A second explanation, regarding the perpetrator, is that violence is potentially an indicator of increased impulsivity, which has been found to increase one's risk for suicide (Ilgen & Kleinberg, 2011). An individual who engages in violent behaviours may have increased levels of impulsivity, placing that individual at a higher risk for suicide (Ilgen & Kleinberg, 2011). Moreover, research indicates that violence may account, to some extent, for the association between substance abuse and suicide risk (Ilgen & Kleinberg, 2011). Individuals who abuse substances *and* who have prior aggressive or violent behaviours have been found to be far more likely to report suicidal ideations and past suicide attempts (Ilgen & Kleinberg, 2011), which could be explained by all of the above.

These risks are heightened when the means of committing suicide are easily available, as suicides often occur impulsively, which is why having easy access to the means of suicide is considered to be a strong risk factor (Fleischmann & De Leo, 2014). Societal risk factors also include the unavailability of, or difficulties in accessing health care.

A societal factor, pertinent to the South African context, is poverty. The latest statistics from Statistics South Africa revealed that a startling 21.7% of the population (twelve million people) live in *extreme* poverty, meaning an inability to afford basic nutritional requirements, whilst 37% have to sacrifice buying food to pay other costs such as transport and airtime, and a massive 53.8% survive on under R779 per month (StatsSA, 2014; Nicolson, 2015). Poverty does not refer to income alone, but encapsulates other dimensions such as social exclusion, vulnerability, powerlessness and marginalisation (WHO, 2006). As previously discussed, this can have great effects on one's interpersonal and psychological needs which, if unmet, result in an increase in suicide risk (Van Orden et al., 2010).

### **2.6.3. Protective Factors**

In order to understand a complex phenomenon such as suicidal behaviour, it is important to understand risk factors in combination with protective factors. Protective factors are characteristics, skills or strengths, life experiences and/or meaningful connections, all of which help individuals to cope more effectively when experiencing difficult situations and reduce the likelihood of a person engaging in suicidal behaviours (CAPS, 2014; Rodgers, 2011).



### **2.6.3.1. Individual level**

Individual protective factors include mental and physical health and wellbeing (no substance or alcohol problems or disabilities) or, at the very least, the availability of physical and mental health care (Rodgers, 2011; Brown et al., 2005). An individual's high level of self-esteem, in addition to a sense of control over life circumstances and a sense of self-determination are also protective factors (McAuliffe et al., 2006). Personal resilience is also considered to be an important protective factor, associated with positive coping styles, adaptability and problem-solving skills, including impulse control, conflict resolution skills and anger management (McAuliffe et al., 2006). An individual's ability to manage their emotions, alongside a healthy fear for risky behaviours and pain is another protective factor (McAuliffe et al., 2006). Lastly, having a positive outlook, hopefulness and a sense of meaning and purpose over one's life, in the absence of guilt, is also considered a protective factor for suicide (McAuliffe et al., 2006; Department of Health & Ageing, 2007).

### **2.6.3.2. Social level**

Protective factors on a social level entail being socially connected through strong, positive relationships in one's life, harmony within the family, with no family history of suicide or mental illness (Department of Health & Ageing, 2007). Strong relationships like marriage, as well as connections to friends, workmates, school and community in general, that enhance a sense of belonging, are all considered to be protective factors, in addition to overall physical and emotional security (Department of Health & Ageing, 2007). In addition, having responsibilities and duties to others, as well as good communication skills also play a protective role (CDC, 2015b).

### **2.6.3.3. Contextual level**

In the broader context, social, political, cultural, spiritual and economic factors all contribute to the quality of an individual's life. Thus living in a safe non-violent environment, with affordable housing and no exposure to environmental stressors, all act as protective factors (Department of Health & Ageing, 2007). Other protective factors include being employed, being financially secure, having received good quality education and access to support services (McLean, Maxwell, Platt, Harris & Jepson, 2008). Furthermore, a number of protective factors exist within various religions that inhibit suicidal behaviour (Hanna, Hourri, Klimes-Dougan & Nelson, 2012), for example, the belief that ending one's life will result in the individual going to Hell. Moreover, cultural taboos against suicide are prevalent

in many communities, which whilst helping to reduce suicide rates, may also impact health seeking behaviour for suicidal individuals (Ogbuanu, 2014).

## 2.7. Theoretical Framework

In order to understand and begin to grapple with all of these different patterns in suicidal behaviour so as to identify what places people more at risk for suicide, it is necessary to apply a theory of suicide. There have been a number of theories of suicide that have spanned the course of history, including psychological, sociological and medical theories of suicide.

Shneidman's (1985) psychological theory of suicide proposed that suicide is caused by unbearable psychological pain, called "psychache" (Leenaars, 2010). Shneidman explained that psychache encompasses all affective states (such as rage, guilt, depression, shame, hopelessness, etc.) that one feels when thinking about suicide, and thus these affective states are linked to suicide only as they relate to this unbearable psychological pain (Shneidman, 1985). Shneidman's theory proposed that psychache is caused by the thwarting of an individual's psychological needs, and when that psychache is deemed by the individual to be unbearable, suicide occurs (Shneidman, 1985; Leenaars, 2010). Thus, if certain psychological needs are unmet, causing psychache, the intensity, or "press", of those needs will determine the degree of perturbation that the individual experiences, which if deemed unbearable by the individual, results in suicide (Shneidman, 1985; Leenaars, 2010).

A second psychological theory of suicide is Beck's hopelessness theory (1986), where the construct of hopelessness was identified as a significant risk factor for suicidal behaviour, which could assist in the assessment, understanding and prediction of suicidal behaviour (Beck, Kovacs & Weissman, 1975). Hopelessness was considered by Beck (1986) to be the key factor in connecting depression and suicide, as he had identified three cognitive features of depression – a negative view of the self, of the self in relation to the world, and lastly, of the self in relation to the future – with the latter cognition (i.e. negative cognitions about the future) representing hopelessness (Beck, 1986; Beck et al., 1975). According to Beck, the central role that hopelessness plays in suicide is in the negative cognitions that an individual who is depressed has regarding their future, with suicide being viewed as a way out of unsolvable problems (Beck, 1986).

Durkheim (1897) provided a sociological theory of suicide, focusing on the social environment (including religion, family, marital, political and economic factors), which argued that the stability of suicide rates was a social fact, which could be explained by the

extent to which individuals were integrated and regulated by social context (Jones, 1986). Durkheim (1897) delineated four types of suicide - egoistic, altruistic, anomic and fatalistic, explaining how each is influenced by the individual's context.

*Egoistic* suicide occurs when one's level of social integration is low and one is not well supported by a social group (Crossman, 2017). Durkheim proposed that as one's degree of integration in one's religious, domestic or political group weakened, one became less dependent on the group and more dependent on oneself, and in turn, one's risk for suicide increased (Jones, 1986). *Altruistic* suicide is the counterpart to egoistic suicide, whereby insufficient individuation, where the degree of social integration is too high, can increase one's risk for suicide (Jones, 1986). Altruistic suicide is therefore said to occur when an individual is excessively integrated into a social group to the extent that they will kill themselves if it meant achieving the collective goals of the group (Crossman, 2017).

Durkheim explained that in addition to the effects of one's integration into society on suicide, the way in which one is regulated by society is also associated to suicide rates (Jones, 1986). *Anomic* suicide is therefore related to a degree of regulation, which is considered too low (Crossman, 2017), and it is a type of suicide that occurs in times of crises, where there is a disturbance of equilibrium (Jones, 1986). Lastly, *fatalistic* suicide occurs when one is under conditions of extreme social regulation, where one's sense of agency is denied, resulting in one feeling as though one has lost one's sense of self (Crossman, 2017).

From a biological perspective, research has shown that there are genetic factors which are highly related to suicide and twin studies have supported these findings, revealing a higher concordance rate for suicide among monozygotic twins than dizygotic twins, whereby there is an 11.35-fold increased risk of a monozygotic twin committing suicide, if their co-twin has committed suicide (Dombeck & Reiss, 2007). Whilst there is no definitive evidence as to which genes are specifically related to suicide, researches have suggested that one's genetic makeup can predispose one to developing a specific type of mental illness, for example depression, which increases one's risk for suicide (Dombeck & Reiss, 2007). Furthermore, one's genetic makeup could predispose one to having a dysfunctional hypothalamic-pituitary-adrenal (HPA) axis, which is the body's stress response system (Dombeck & Reiss, 2007).

The HPA axis regulates our ability to adapt to on-going stressors, producing glucose, cortisol and steroids in response to stress, so as to prepare the body for 'fight or flight' (Dombeck & Reiss, 2007; Melhem et al., 2016). Dysregulation of the HPA axis has been found to be associated with an increased risk for suicide among individuals with psychiatric

disorders, most notably, MDD (Melhem et al., 2016; Mann et al., 2006; Jokinen & Nordström, 2009). Exactly how the HPA axis influences suicidal behaviour is unclear, however it has been suggested that increased levels of cortisol impedes serotonin from reaching the brain and nervous system receptors, thus affecting serotonin's ability to regulate the individual's mood and inhibit impulsive behaviours, which in turn increases the individual's risk of engaging in suicidal behaviour (Dombeck & Reiss, 2007).

These different schools of thought regarding suicide are, however, only focused on *either* the interpersonal factors (sociological theories) *or* intrapersonal factors (psychological and biological). Joiner's (2005) Interpersonal-Psychological Theory of Suicidal Behaviour (IPTS) encompasses both the intrapersonal and interpersonal factors at play in the development of suicidal behaviour in an individual, accounting for both ideation and attempts (Bender et al., 2008).

### **2.7.1. The Interpersonal-Psychological Theory of suicidal behaviour (IPTS)**

The IPTS attempts to answer the question of why everyone who experiences suicidal ideation does not go on to make a suicide attempt. According to Ohman and Mineka, (2001), millions of years of evolution have sharpened humans' instincts for self-preservation. An individual must therefore be able to overcome this instinct in order to make a suicide attempt lethal enough to end his/her life, i.e. develop the capability to enact suicide (Bender et al., 2008). The central hypothesis of the IPTS is that when an individual's fundamental interpersonal needs to care for and be cared for by others is not met and this situation is perceived as being stable and unchanging over time, the individual is likely to experience suicidal ideation; in the presence of acquired capability for suicide, suicidal ideation is likely to result in lethal suicidal behaviour (Bender et al., 2008). The IPTS then posits three proximal, causal and interactive risk factors, thwarted belongingness (TB), perceived burdensomeness (PB) and acquired capability (AC) for suicide, all of which have to be present in order for an individual to make a suicide attempt (Van Orden, Merrill, & Joiner, 2005; Ribeiro & Joiner, 2009; Joiner, 2005). This theory of suicidal behaviour therefore accounts for both an individual's desire for committing suicide *and* an individual's capability for committing suicide.

#### **2.7.1.1. Thwarted belongingness**

The first risk construct proposed by the theory to be of significance in causing suicidal ideation is thwarted belongingness (TB) (Joiner, 2005). TB refers to the fundamental human

need to have a sense of belonging (Bender et al., 2008). Being socially isolated, which can be considered as a facet of social connectedness, has been found to be one of the strongest and most reliable predictors of suicidal ideation, attempts and suicidal behaviour (Joiner, 2009).

TB is a multidimensional construct, and is a higher order latent variable, which is made up of two subordinate factors, namely, *loneliness* and the *absence of reciprocal care* (Van Orden et al., 2010). Loneliness is conceptualised as a cognition, which is affectively laden, that one does not have enough frequent or positive social connections or interactions in one's daily life (Van Orden et al., 2010). It is hypothesised that there are six observable risk factors for lethal suicidal behaviour that arise from the loneliness factor, amongst them are self-reported loneliness, lack of intimate relationships and reporting few to no social supports (Van Orden et al., 2010).

The absence of reciprocally caring relationships, which is the second component of TB, is understood as a lack of relationships which are characterised by positive feelings, whereby an individual feels both cared about and demonstrates care for another, thus not meeting the individual's need to belong (Van Orden et al., 2010). There are six observable risk factors that are posited to develop from the absence of reciprocally caring relationships including, social withdrawal, low openness to experience and familial discord (Van Orden et al., 2010). It is important to note that not only are the mere presence of such factors significant, but it is proposed by the theory that if TB is prolonged over a period of time, there is an increased likelihood of suicidal ideation (Van Orden et al., 2010).

It is assumed by the theory that TB is not a stable trait, but rather it is a dynamic cognitive-affective state, which is influenced by interpersonal factors, such as the interpersonal environment of an individual (i.e. the number of people in an individual's social network) (Hawkey et al., 2008). TB is also influenced by intrapersonal factors; including one's current emotional state and internal schemas that one holds about interpersonal interactions (i.e. a predisposition to interpreting other people's behaviours as indicative of rejection) (Van Orden et al., 2010). An individual's degree of belongingness is therefore presumed to vary over time (Van Orden et al., 2010).

### **2.7.1.2. Perceived burdensomeness**

The second risk construct proposed by the theory to be of significance in causing suicidal ideation is perceived burdensomeness (PB) (Joiner, 2005). PB comprises two components, *self-hate* and *feelings of being a liability* (Van Orden et al., 2010). Thus, an

individual who is experiencing PB is likely to have affectively laden cognitions of self-hatred, and hold beliefs that they are so defective, that they are a liability to others (Ribeiro & Joiner, 2009). It is proposed that perceptions of being a burden are particularly deleterious when the individual holds these perceptions for all significant others (especially family) in his or her life, as opposed to one other person (Bender et al., 2008).

There are a number of observable indicators of liability, the first being the distress caused by unemployment (Van Orden et al., 2010). A vast amount of research has pointed to an association between unemployment and suicide, yet according to the IPTS, it is only when the stress of being unemployed results in perceptions of being a liability to oneself and others, that one's risk of suicide is elevated (Joiner, 2005). The other observable indicators include distress experienced as a result of incarceration, homelessness, serious physical illness, in addition to comments that indicate that the individual perceives themselves as being expendable, unwanted and a burden to others (Chochinov et al., 2005; Van Orden et al., 2010).

*Self-hate*, which is the second dimension of PB, has three observable indicators, including low self-esteem, self-blame, shame and a mental state of agitation, all of which have been empirically shown to be associated with lethal suicidal behaviour (Van Orden et al., 2010). PB is understood to be a dynamic cognitive-affective state, in addition to being a dimensional phenomenon (Van Orden et al., 2010). Thus, one's level of PB is likely to fluctuate along a continuum of severity over time and over relationships.

The theory proposes that interpersonal needs are so fundamental, that the thwarting of these needs, as mentioned above, is a proximal cause of passive suicidal ideation (cf. death ideation, Bender et al., 2008). The theory states that in order for a passive ideation to intensify into an active desire for suicide (cf. suicidal ideation), one's mental state must be characterised by the simultaneous presence of TB, PB *and* hopelessness regarding these two painful states - known as interpersonal hopelessness (IH) (Van Orden et al., 2010). Thus, the theory posits that in order for active suicidal desire to develop, one must perceive one's levels of belongingness and burdensomeness to be stable and permanent, without the possibility of positive change, resulting in interpersonal hopelessness (IH) about one's perceived interpersonal states (Van Orden et al., 2010).

TB and PB are not, however, considered as the *only* paths to suicidal ideation, but it is proposed that their joint presence (with a hopelessness about these interpersonal states) is likely to result in a highly pernicious form of suicidal desire (Ribeiro & Joiner, 2009).

According to the theory, the desire to die by suicide is not sufficient for lethal suicidal behaviour to result; an individual must also acquire the capability for suicide (Joiner, 2005).

### ***2.7.1.3. Acquired capability for suicide***

Acquired capability (AC) for suicide is a multidimensional, emergent latent variable and comprises of two subordinate factors - *lowered fear of death* and *increased physical pain tolerance* (Van Orden et al., 2010). The former is conceptualised as a dimensional construct, and so an individual's fear of death can range from very high levels to negligible levels (Van Orden et al., 2010). Thus it is proposed that in order for an individual's desire for suicide to progress to serious suicide risk, their fear of death would have to be reduced to no fear regarding suicidal actions (Van Orden et al., 2010).

The theory proposes that through repeated exposure to physically painful and/or fear-inducing experiences, an individual can habituate to the physically painful and fearful aspects of self-harm, whilst strengthening the opponent processes (relief and analgesia), which therefore makes it possible for that individual to engage in increasingly painful, physically damaging behaviour, to the point of lethal self-harm (Joiner, 2005; 2009). Essentially, an experience like self-injury, which was originally painful and/or fear-inducing, may become less frightening as a result of repeated exposure, in addition to becoming a possible source of emotional relief, thereby rendering an individual capable of engaging in what were previously painful and frightening behaviours (Joiner, 2009).

Physical pain tolerance is also a dimensional phenomenon, and is highly method-specific, due to the fact that gaining pain tolerance from engaging in cutting behaviours is very different to the tolerance gained for jumping or shooting oneself (Van Orden et al., 2010). It is posited that an individual's tolerance for the pain involved in a specific suicide method is determined from the physiological habituation to the sensations of physical pain, in addition to the individual's expectations about the pain-to-be-experienced, and lastly the cognitive appraisals of the tolerability of the expected and/or experienced pain (Van Orden et al., 2010). A non-ambivalent cognitive appraisal, which is held with a strong conviction, must therefore be held in order for a lethal suicide attempt to result (Van Orden et al., 2010).

Previous suicide attempts are considered by the theory to be one of the most potent experiences through which an individual can acquire the capability for suicide (Joiner, 2005; Ribeiro & Joiner, 2009). There are a number of other painful and provocative experiences or behaviours that have been posited to result in AC, as the exposure to them may activate habituation to the fear of self-injury and suicide, as well as increasing the individual's pain

tolerance (Van Orden et al., 2010). These include childhood maltreatment, sexual abuse, self-injecting drug use, non-suicidal self-injury, impulsivity and exposure to physical violence (Bender et al., 2008; Joiner, 2005).

Individuals who are more impulsive and/or aggressive have also been found to have higher levels of AC, as they are more likely to engage in behaviours that are painful and/or provocative (Van Orden et al., 2010). In light of this, it is proposed that whilst acquiring the capability for suicide does occur over time, some individuals are more susceptible to acquiring this capability for suicide than others due to genetic and/or temperamental predisposition to fearlessness, impulsivity, and greater tolerance for physical pain which may drive exposure to painful and provocative experiences. (Van Orden et al., 2010).

## **2.8. Rationale for the Present Study**

The weight of evidence suggests that an aggregation of co-occurring factors may place an individual at increased risk for developing the interpersonal states that lead to suicidal ideation and the acquired capability for suicide. It is therefore evident that it is important to explore what these factors are. It is likely that these factors may contribute differentially to the development of these constructs in different contexts. With South Africa being a multiracial, multicultural context, with large discrepancies in socio-economic status, it is necessary to explore what unique demographic variables place an individual at increased risk for suicidal behaviour in the country. Thus, it is one of the aims of this research to explore which demographic variables are associated with the IPTS constructs (TB, PB, IH and AC) and outcomes (death ideation, suicide ideation and suicide risk) in a South African clinical sample. Furthermore, in light of the elevated risk for suicidal behaviour that is associated with mental illness (Cavanagh et al., 2003), it is also the aim of this study to explore which mental illnesses are associated with the constructs and outcomes of the theory.



## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.1. Introduction**

This chapter presents the research objectives, questions and the research paradigm of the study. The setting, participants and sampling method are then described, in addition to the procedure, measures used and a description of the measures. The data analysis process is then outlined, and lastly the ethical issues considered in the study are explained.

#### **3.2. Research Aim**

The central aim of this study is to explore the demographic and mental health predictors of the IPTS constructs and outcomes.

#### **3.3. Research Objectives**

3.3.1. To explore the demographic and mental health predictors of the IPTS constructs of thwarted belongingness (TB), perceived burdensomeness (PB), interpersonal hopelessness (IH) and acquired capability (AC) for suicide.

3.3.2. To explore the demographic and mental health predictors of the IPTS outcomes of death ideation, suicidal ideation and suicide risk.

#### **3.4. Research Questions**

3.4.1. What are the demographic variables and mental illnesses associated with the constructs of the IPTS?

3.4.2. What are the demographic variables and mental illnesses that are associated with the outcomes of the theory?

#### **3.5. Research Paradigm**

The theoretical framework undertaken in this study falls into the quantitative paradigm, which is a deductive approach to the research process, where the role of the researcher is to remain as detached from the research as possible and to use research methods that maximise objectivity (Muijs, 2011). The purpose of quantitative research is to gather numerical data, analyse it using mathematically based methods, in order to generalise across

groups of people or to explain phenomena (Babbie, 2010; Muijs, 2011). The goal of conducting quantitative research is to determine the relationship between independent variables, such as demographic variables and mental illnesses, and dependent variables, such as the constructs and outcomes of the IPTS, in order to establish whether there are any associations between the variables (Babbie, 2010; McNabb, 2008).

Quantitative research is effective in providing information from a large sample of people and is well suited for the testing of theories (Muijs, 2011), hence the reasoning behind using quantitative research in this study.

### **3.6. Setting, Participants and Sampling Method**

The study was undertaken in Durban, and data were collected from psychiatric outpatients at three State hospitals, a University psychology clinic and four private psychiatric and psychology practices. The total sample was 239 participants, made up of 161 females (67.4%) and 78 males (32.6%). Out of the total sample, 40.2% were Black people, 25.5% were Indian, 21.3% were White and 13% were Coloured. The unequal distribution between the racial population groups is representative of the demographics in Durban, and thus should also not affect the generalisability of the results. With regards to age groups, 24.3% of the total sample were between the ages of 18-26 years, 26.4% were between the ages of 27-34 years, 23.8% were between the ages of 35-44 years, 16.7% were between the ages of 45-54 years and only 8.8% were 54 years and above.

The sample was collected using a purposive sampling method, which is a non-probability sampling method that is characterised by the deliberate effort to gain representative samples. The reason behind using this sampling method was due to the fact that there were a number of selection requirements for participation in the study. First of all, the attending clinician had to assess the participant's suitability for the study, evaluating whether or not they were psychologically stable to provide informed consent. Once their ability to provide informed consent was established, the study then further required that the participants were willing to participate, were older than 18 years, were currently psychiatric outpatients, and lastly, were able to read and understand English.

### **3.7. Procedure**

Due to this study being a sub-study of a PhD that had already received gatekeeper permission to collect data from the various sites (permission letters available on request), after obtaining approval from the Biomedical Research and Ethics Committee to continue

with the study, the process of data collecting began. The data collecting procedure ran over the course of 5 months, with the researcher (or a fellow student also attached to the supervisor's project) spending a number of hours at the different sites each day.

Once the attending clinician had assessed a patient's suitability for the study and permission had been granted for that patient to be a participant in the study, the participant was approached. The purpose and nature of the study was first explained, making them aware that all of the individual data would be treated confidentially and coded to ensure anonymity, and that they were allowed to refuse to participate, or cease participation, at any time in the research. Once informed consent was provided by the participant, they were given a set of self-report questionnaires to complete, which were administered either by the researcher or fellow student, both of whom were trained to administer them and deal with possible distress that participants may experience, or qualified psychologists in private practice. The completion of the questionnaires took approximately 30 minutes to 45 minutes and was completed in a private space. The researcher was readily available to assist participants during the completion of the questionnaires and to answer any questions, in addition to monitoring potential distress in the participant, to ensure that if they did become distressed, the researcher was in place to debrief them and inform the attending psychologist or psychiatrist of the heightened distress or risk.

Mental illnesses of the participants were operationalised using the DSM-5 (APA, 2013) and the diagnoses of the participants were provided by the attending psychologist or psychiatrist.

### **3.8. Measures Used**

- 3.8.1 A short demographic questionnaire tapping into the demographic variables studied.
- 3.8.2 The Diagnostic and Statistical Manual 5 (DSM-5) used to diagnose mental illnesses.

#### **3.8.2. Measures for constructs**

- The Interpersonal Needs Questionnaire (INQ). The INQ is a scale derived from the IPTS to measure the extent to which an individual feels as though they belong or not (e.g. TB) and the extent to which they feel as though they are a burden to those around them (e.g. PB) (Cukrowicz, Joiner, Van Orden, & Witte, 2012). There are twelve items, five

measuring belongingness, and seven measuring burdensomeness. Higher scores reflect higher levels of TB and PB and some items are reverse scored. Bender et al., (2008) found internal consistency coefficients of 0.85 for TB and 0.89 for PB.

- The Death Inurement Scale (DIS). The DIS (Naidoo, 2016) is a scale that was formulated by Naidoo and Collings (2016) in order to comprehensively capture the construct of acquired capability for suicide. The DIS is comprised of 11 items in total; 4 items from the Acquired Capability for Suicide Scale (ACSS: 1, 3, 4 & 5) (Bender, Gordon & Joiner, 2007), 4 items from the Impulsive Behaviour Scale (IBS: 6, 8, 21 & 24) (Rosotto, Yager, & Rorty, 1994) and 3 items from the Painful and Provocative Events Scale (PPES: 2, 7 & 8) (Bender et al., 2007). Naidoo and Collings (2016) reported high internal consistency in their use of the instrument, with a coefficient alpha of 0.82.
- The Interpersonal Hopelessness Scale (IHS). The IHS (Naidoo, 2016) is a scale that was also formulated by Naidoo and Collings (2016) in order to comprehensively capture the construct of interpersonal hopelessness (IH). The IHS is comprised of items from the INQ (items 1-12) which measures hopelessness in relation to TB and PB. The items on the HIS were reverse scored such that higher scores reflected higher interpersonal hopelessness (Naidoo, 2016).

### **3.8.2. Measures for outcomes**

- The Beck Suicide Ideation Scale (BSS). The BSS (Beck & Steer, 1991) measures suicidal behaviours, with 21 items in total, 19 of which measure suicidal ideation, and two that measure past suicide attempts. The last two items are not included in the total score, and the rest of the items are scored between 0-2, with a higher score indicating a higher level in suicidal desire and possible intent to commit suicide (Bender et al., 2008). An alpha coefficient of 0.90 was recorded by Bender et al. (2008), illustrating a high internal consistency. In the present study, items 1, 2, 3 and 5 from the BSS were used to measure death ideation, as they only encapsulate one's wish to die, and items 4, 6, 7, 8 and 9 were used to measure suicidal ideation, which are related to one's wish to kill oneself.
- The Clinician Protocol for Rating and Managing Suicide Risk (CPRMSR: adapted from Van Orden et al., 2008) measures the risk for suicidal behaviour, whereby individuals are rated on a 3-point scale: 1 (low risk), 2 (moderate risk), or 3 (high risk) by their attending practitioner. Inter-rater reliability for suicide risk level has been found to be adequate

(Kappa coefficient = .71,  $p = .000$ ) with the CPRMSR correlating with scores from the BSS in the expected direction ( $r = .64$ ,  $p = .000$ ), which provided evidence for the validity of the scale (Bender et al., 2008).

### **3.9. Description of Measures**

The constructs of TB and PB were therefore measured by the INQ, AC was measured by the DIS and IH was measured by the IHS, which measured hopelessness in relation to TB and PB (Naidoo, 2016). The entire BSS scale measures more than just death and suicidal ideation, consequently, in order to measure the outcomes of death ideation and suicidal ideation, specific items were selected from the BSS, so as to ensure that what was being measured was specifically related to each outcome, and not encapsulating more than death or suicidal ideation. Lastly, the outcome of suicide risk was measured using the CPRMSR.

### **3.10. Data Processing and Analysis**

Once the data collection was complete, each set of questionnaires was given a number, to ensure the anonymity of the participant. Each questionnaire was then coded and the data were captured on an Excel spreadsheet.

The data that were captured were then analysed using SPSS 24. The statistical analyses that were performed included frequency analyses, as well as descriptive statistical analyses, to attain the means, standard deviations and distribution of scores on the continuous variables (TB, PB, IH and AC).

Pearson-moment correlations were also performed to analyse the relationship between the demographic variables and mental illnesses and the constructs of the theory and to show the relationship between the demographic variables and mental illnesses and the outcomes of the theory.

Lastly, standard multiple linear regression and binary logistic regression analyses were performed. Standard multiple linear regression analyses were performed in order to establish how well the demographic variables and mental illnesses were able to predict the constructs and the outcomes of the IPTS, in addition to indicating how much unique variance each of the demographic variables and mental illnesses explains in the constructs and outcomes of the theory over and above the other independent variables included in the set (i.e. it will establish which demographic variable or mental illness is the best predictor of the constructs and outcomes of the theory). A binary logistic regression analysis was also

performed in order to assess the impact of a number of factors (demographic variables and mental illnesses) on the outcome of suicide risk. Binary regression analysis was used as suicide risk was dichotomised into two categories (low and moderate-high risk).

### **3.11. Ethical Considerations**

The first ethical issue considered was the screening of appropriate participants. Henceforth, the inclusion criteria was any outpatient, from either a State hospital, private psychiatrist or psychologist's rooms or the UKZN psychology clinic, who was 18 years or older, capable of speaking, reading and understanding English, and who had been informed about the research and was able to provide informed consent. Conversely, the exclusion criteria was someone who was deemed unfit to fill out the questionnaires either due to psychosis at the time, or due to any kind of cognitive impairment or intellectual difficulty that would hinder their understanding of the instructions.

Secondly, the sites in which the research was undertaken were approached prior to the start of data collection in order to establish a collaborative partnership through trust and approval of the way in which the patients would be approached and how they would be assisted, should they experience any distress as a result of participation. A third ethical consideration had to do with the sensitive nature of the research and the steps that were taken in order to minimise any possible distress. When completing the questionnaires the participants were observed in order to assess their level of distress as well as their suicide risk. If the participant expressed or revealed any additional distress or if it was felt that they were a high suicide risk, then they were debriefed by the researcher (a masters Clinical Psychology student), who subsequently informed the attending practitioner of the distress and/or risk. In the case of private psychology practices, the questionnaires were administered by the attending psychologist.

A fourth consideration had to do with the social value of the research, and whether or not it would add value to society. It is hoped that gaining a deeper understanding of what places someone at risk for committing suicide will add value to society, especially amongst the outpatient community, as it will be informative in future preventative interventions, hopefully decreasing the number of suicides that occur.

## **CHAPTER FOUR**

### **RESULTS**

#### **4.1. Introduction**

The results from the analyses of the data are presented in this chapter. As previously mentioned, the aims of this study were to explore what the demographic and mental health predictors are of the constructs and outcomes of the IPTS. The demographic and mental health characteristics of the sample are initially provided, followed by descriptive statistics of the constructs and outcomes of the theory and the distribution of scores and reliability coefficients of the different measures (using Cronbach's coefficient alpha) to highlight the integrity and appropriateness of the measures used. Results from the Pearson-moment correlation are then presented to show the relationship between the constructs and outcomes of the theory. Lastly, the regression analyses are presented, establishing which demographic variables or mental illnesses best predict the constructs and outcomes of the theory in addition to indicating how much unique variance each of the demographic variables and mental illnesses explained in the constructs and outcomes of the theory.

#### **4.2. Descriptive Statistics of General Demographic and Mental Health Characteristics**

The participants' demographic and mental health characteristics are presented in Table 1.

Table 1.  
Participants' Demographic and Mental Health Characteristics

	Total (n = 239)	Male (n = 78)	Female (n = 161)
	n (%)	n (%)	n (%)
<b>Age</b>			
<30 years	80 (33.5)	25 (32.1)	55 (34.2)
30-40 years	73 (30.5)	25 (32.1)	48 (29.8)
> 40 years	86 (36.0)	28 (35.8)	58 (36.0)
<b>Race</b>			
Black	96 (40.2)	20 (25.6)	76 (47.2)
Indian	61 (25.5)	24 (30.8)	37 (23.0)
White	51 (21.3)	24 (30.8)	27 (16.8)
Coloured	31 (13.0)	10 (12.8)	21 (13.0)
<b>Partnership status</b>			
No partner	169 (70.7)	62 (79.5)	107 (66.5)
Married/domestic partner	70 (29.3)	16 (20.5)	54 (33.5)
<b>Educational level</b>			
High school or less	159 (66.5)	52 (66.7)	107 (66.5)
Post graduate education	80 (33.5)	26 (33.3)	54 (33.5)
<b>Living arrangements</b>			
Lives alone	152 (63.6)	50 (64.1)	102 (63.4)
Lives with others	87 (36.4)	28 (35.9)	59 (36.6)
<b>Employment status</b>			
Not employed	117 (49.0)	39 (50.0)	78 (48.4)
Employed	122 (51.0)	39 (50.0)	83 (51.6)
<b>Primary DSM-5 diagnosis</b>			
Major depressive disorder	79 (33.1)	18 (23.1)	61 (37.9)
Bipolar mood disorder	44 (18.4)	21 (26.9)	23 (14.3)
An anxiety disorder	17 (7.1)	2 (2.6)	15 (9.3)
Partner relational difficulties	17 (7.1)	5 (6.4)	12 (7.5)
Substance use disorder	15 (6.3)	10 (12.8)	5 (3.1)
Borderline personality disorder	14 (5.9)	1 (1.2)	13 (8.0)
Bereavement	14 (5.9)	2 (2.6)	12 (7.5)
Schizophrenia	9 (3.8)	8 (10.3)	1 (0.6)
Impulse control disorder	8 (3.3)	3 (3.8)	5 (3.1)
A trauma related disorder	5 (2.1)	2 (2.6)	3 (1.9)
An adjustment disorder	5 (2.1)	0 (0.0)	5 (3.1)
Non-specific personality disorder	5 (2.1)	0 (0.0)	5 (3.1)
Not specified	7 (2.8)	6 (7.7)	1 (0.6)
<b>Clinician rated suicide risk</b>			
Low	153 (64.0)	51 (65.4)	102 (63.4)
Moderate	54 (22.6)	14 (18.0)	40 (24.8)
High	32 (13.4)	13 (16.6)	19 (11.8)

### 4.3. Descriptive Statistics of the Constructs and Outcomes of the Theory

The means, standard deviations, ranges of scores and reliability (using Cronbach's coefficient alpha) of the measures of the constructs of the IPTS are presented in Table 2. As



can be seen, all of the measures of the IPTS constructs had Cronbach's coefficient alpha scores of .80 or above, which indicated strong internal consistency (Pallant, 2011).

Table 2.

Descriptive Statistics of the Measures of IPTS Constructs (N=239)

	Cronbach's Alpha	M	SD	Score Range
Thwarted belongingness	.85	17.53	8.34	5.00 – 35.00
Perceived burdensomeness	.80	22.59	12.50	7.00 – 49.00
Interpersonal hopelessness	.95	41.54	12.75	12.00 – 60.00
Acquired capability for suicide	.80	21.92	7.57	9.00 – 41.00

The distribution of scores for the measures of the IPTS constructs are summarised in Table 3. The scores for all of the measures were found to be normally distributed ( $p < .05$ ;  $z < 3.29$ ) (Kim, 2013).

Table 3.

Distribution of Scores for the Measures of the Constructs of the IPTS

Measure	Skewness			Kurtosis		
	Statistic	Std. Error	z-value	Statistic	Std. Error	z-value
Thwarted belongingness	.263	.157	1.67	-.895	.314	2.85
Perceived burdensomeness	.452	.157	2.88	-1.011	.314	3.22
Interpersonal hopelessness	-.431	.157	2.75	-.370	.314	1.18
Acquired capability for suicide	.503	.157	3.20	-.766	.314	2.44

The means, standard deviations, ranges of scores and reliability (using Cronbach's coefficient alpha) of the IPTS outcomes are presented in Table 4. The Clinician Protocol for Rating and Managing Suicide Risk (CPRMSR: adapted from Bender et al., 2008) was used to assess the risk for suicidal behaviour. In this study, participants were rated as having either a low ( $n = 153$ , 64.0%), moderate ( $n = 54$ , 22.6%) or high ( $n = 32$ , 13.4%) suicide risk. The outcome of suicide risk is therefore a categorical variable in this study (low or medium-high), and thus obtaining a Cronbach's coefficient alpha was not possible.

Table 4.

Descriptive Statistics of IPTS Outcomes (N=239)

	Cronbach's			Score Range
	Alpha	M	SD	
Death ideation	.916	1.00	1.02	.00 – 2.83
Suicidal ideation	.937	.91	1.18	.00 – 3.16
Suicide risk	--	1.19	.27	1.00 – 1.73

An analysis of the distribution of scores on the outcome variables indicated that the distribution for the raw, obtained scores differed significantly from what would be expected under the normal curve ( $p < .05$ ). Consequently, the scores were transformed using square root transformation. As can be seen in Table 5, the distribution of transformed scores for death and suicidal ideation are not different from what could be expected under a normal curve. However for suicide risk, the distribution of scores were still not normal after the square root transformation. In light of this, subsequent analyses of factors predicting suicide risk employed binary logistic regression analysis, in which suicide risk scores were dichotomised: 1 (low risk,  $n = 153$ ) or 2 (moderate to high risk,  $n = 86$ ).

Table 5.

Distribution of Scores for the Measures of the Outcomes of the IPTS

Measure	Skewness			Kurtosis		
	Statistic	Std. Error	z-value	Statistic	Std. Error	z-value
Death Ideation						
Obtained scores	1.026	.157	6.54*	-.257	.314	0.82
Transformed (square root) scores	.374	.157	2.38	1.007	.314	3.21
Suicidal Ideation						
Obtained scores	1.137	.157	7.24*	-.129	.314	0.41
Transformed (square root) scores	.515	.157	3.26	-1.024	.314	3.26
Suicide Risk						
Obtained scores	1.107	.157	7.05*	-.211	.314	0.67
Transformed (square root) scores	.960	.157	6.11*	.631	.314	2.01

\* Differs significantly from what would be expected under the normal curve ( $p < .05$ )

#### 4.4. Inferential Statistics

##### 4.4.1. Correlations amongst IPTS constructs and outcomes

Correlations between the constructs and outcomes of the theory are presented in Table 6. Pearson's product-moment correlation coefficient was used to measure the relationships between the variables. The strength of the relationships was determined according to Cohen's (1988) guidelines (weak,  $r = .10$  to  $.29$ ; moderate,  $r = .30$  to  $.49$ ; strong,  $r = .50$  to  $1.0$ ). It is important to note, in the interpretation of the observed findings, that the IH was reverse scored.

Table 6.

Bivariate Correlations between the Constructs and Outcomes of the IPTS (N = 239)

Variable	1	2	3	4	5	6	7
1. Thwarted belongingness (TB)	-						
2. Perceived burdensomeness (PB)	.722**	-					
3. Interpersonal hopelessness (IH)	-.513**	-.515**	-				
4. Acquired capability (AC)	.198**	.313**	-.164*	-			
5. Death ideation	.631**	.772**	-.490**	.278**	-		
6. Suicidal ideation	.630**	.724**	-.528**	.305**	.866**	-	
7. Suicide risk	.574**	.682**	-.433**	.246**	.731**	.789**	-

\*\* Correlation is significant at the 0.01 level (2-tailed)

\* Correlation is significant at the 0.05 level (2-tailed)

A significant positive correlation was found between thwarted belongingness (TB) and perceived burdensomeness (PB). TB was found to have a strong, negative correlation with interpersonal hopelessness (IH) and a weak, positive correlation with acquired capability (AC) for suicide. There were also strong, positive correlations between TB and death ideation, suicidal ideation and suicide risk. A strong, negative correlation was found between PB and IH and a moderate, positive correlation was found between PB and AC. PB was strongly and positively correlated with death ideation, suicidal ideation and suicide risk. IH was negatively correlated to all of the constructs and outcomes. There was a weak correlation between IH and AC, a moderate correlation between IH and death ideation and suicide risk and a strong correlation with suicidal ideation. Weak, positive correlations were established between AC and death ideation and suicide risk, with a moderate, positive correlation between AC and suicidal ideation. Death ideation was positively and strongly correlated to both suicidal ideation and suicide risk and lastly, suicidal ideation was strongly and positively correlated to suicide risk.

#### 4.5. Predictors of IPTS constructs and outcomes

##### 4.5.1 Predictors of IPTS constructs

In order to establish which of the demographic variables and mental illnesses were able to predict the IPTS constructs for this sample, standard multiple linear regression analyses were conducted in which each of the IPTS constructs were regressed on

demographic variables and mental illnesses. Four of the DSM diagnoses (a trauma related disorder, adjustment disorder, non-specified personality disorder and not specified) were excluded from the regression analyses, as their sample sizes were too small ( $n < 8$ ). For the race demographic variable, only the Black and Coloured race groups were included in the regression analyses, as preliminary analyses indicated that the Black and Coloured race groups were most significantly associated with the constructs of the theory. The results are presented below.

#### ***4.5.1.1. Demographic and mental illness predictors of thwarted belongingness***

Findings from the regression analysis in which TB was entered as the criterion variable are presented in Table 7. The model significantly predicted TB,  $F(3,235) = 95.57, p < .001$ , when the control variables were entered into step 1, explaining 55% of the variance in TB. In step 2, when the independent variables were added, there were no significant main effects of the demographic variables. The primary DSM diagnoses of an anxiety disorder, BPD and SUD were associated with significantly lower scores on the measure of TB. However, the variables that were entered in step 2 only produced a small effect size<sup>1</sup> ( $f^2 = 0.04$ ) and did not account for a significant increase in explained variance ( $\Delta R^2 = 0.44, p = .118$ ).

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<sup>1</sup> According to Cohen (1988),  $f^2$  effect sizes for regression models can be classified as being: small ( $f^2 = .02-.14$ ), medium ( $f^2 = .15-.34$ ), or large ( $f^2 = \geq .35$ ).

Table 7.

## Demographic and Mental Illness Predictors of Thwarted Belongingness

Step	Variable	$\beta$	$t$	$P$	Test of Model coefficients						
					Model			Change			
					$R^2$	$F$ for model	$P$	$F^2$ effect size	$\Delta R^2$	$P$	$F^2$ effect size
1	(constant)		6.53	<.001	.550	95.57	<.001	1.22	.550	<.001	1.22
	Perceived burdensomeness	.633	11.93	<.001							
	Interpersonal hopelessness	-.192	-3.76	<.001							
	Acquired capability	-.032	-.68	.495							
2	(constant)		3.13	.002	.594	17.85	<.001	1.46	.044	.118	0.04
	Perceived burdensomeness	.667	11.23	<.001							
	Interpersonal hopelessness	-.197	-3.78	<.001							
	Acquired capability	-.076	-1.49	.139							
	Younger age	.091	1.84	.067							
	Female sex	-.070	-1.34	.182							
	Race (Black or Coloured)	-.024	-.51	.611							
	Living with partner	-.059	-1.23	.220							
	Employed	.026	.55	.581							
	Level of education	.038	.81	.420							
	Major depressive disorder	-.157	-1.73	.086							
	Bipolar mood disorder	-.094	-1.16	.248							
	Anxiety disorder	-.164	-2.59	<b>.010</b>							
	Borderline personality	-.125	-2.07	<b>.039</b>							
	Substance use disorder	-.167	-2.7	<b>.008</b>							
	Bereavement	-.082	-1.39	.166							
	Partner relational diff	-.109	-1.77	.078							
	Schizophrenia	-.061	-1.10	.270							
	Impulse control disorder	-.034	-.65	.516							

Note. Significant findings presented in **bold**,  $p < 0.05$ .

Note. Anxiety disorder refers to any anxiety disorder.

#### 4.5.1.2. Demographic and mental illness predictors of perceived burdensomeness

Findings from the regression analysis in which PB was entered as the criterion variable are presented in Table 8. The model significantly predicted PB,  $F(3,235) = 106.38$ ,  $p < .001$ , when the control variables were entered into step 1, explaining 57.6% of the variance in PB. In step 2, when the independent variables were added, there was a significant increase in explained variance ( $\Delta R^2 = 0.91$ ,  $p < .001$ ) with female sex, being unemployed, having a lower level of education, as well as all of the mental illnesses considered in this study, apart from impulse control disorders being significantly associated with PB. Despite the significant increase in explained variance that was associated with the addition of the independent variables in step 2, the effect size for this increase was small ( $F^2 = 0.10$ ) (Cohen, 1988).

Table 8.  
Demographic and Mental Illness Predictors of Perceived Burdensomeness

Step	Variable	$\beta$	$t$	$P$	Test of Model coefficients						
					Model			Change			
					$R^2$	$F$ for model	$P$	$F^2$ effect size	$\Delta R^2$	$P$	$F^2$ effect size
1	(constant)		2.51	.013	.576	106.38	<.001	1.36	.576	<.001	1.36
	Thwarted belongingness	.596	11.94	<.001							
	Interpersonal hopelessness	-.182	-3.68	<.001							
	Acquired capability	.165	3.80	<.001							
2	(constant)		-3.21	.002	.667	24.46	<.001	2.00	.091	<.001	0.10
	Thwarted belongingness	.547	11.23	<.001							
	Interpersonal hopelessness	-.171	-3.63	<.001							
	Acquired capability	.181	4.01	<.001							
	Younger age	-.054	-1.21	.227							
	Female sex	.130	2.79	.006							
	Race (Black or Coloured)	.059	1.36	.176							
	Living with partner	-.040	-.92	.354							
	Employed	-.123	-2.95	.004							
	Level of education	-.121	-2.86	.005							
	Major depressive disorder	.255	3.15	.002							
	Bipolar mood disorder	.242	3.35	.001							
	Anxiety disorder	.118	2.05	.042							
	Borderline personality	.188	3.51	.001							
	Substance use disorder	.236	4.32	<.001							
	Bereavement	.152	2.87	.005							
	Partner relational diff	.195	3.56	<.001							
	Schizophrenia	.160	3.25	.001							
	Impulse control disorder	.069	1.47	.144							

Note. Significant findings presented in **bold**,  $p < 0.05$ .

Note. Anxiety disorder refers to any anxiety disorder.

#### 4.5.1.3. Demographic and mental illness predictors of Interpersonal hopelessness

Findings from the regression analysis in which IH was entered as the criterion variable are presented in Table 9. The model significantly predicted IH,  $F(3,235) = 34.68$ ,  $p < .001$ , when the control variables were entered into step 1, explaining 30.7% of the variance in IH. In step 2, when the independent variables were added, there were no significant main effects of any of the independent measures and there was not a significant increase in explained variance ( $\Delta R^2 = .051$ ,  $p = .294$ ). Furthermore, there was only a small effect size ( $F^2 = 0.05$ ) (Cohen, 1988).

Table 9.

## Demographic and Mental Illness Predictors of Interpersonal Hopelessness

Step	Variable	$\beta$	$t$	$P$	Test of Model coefficients						
					Model			Change			
					$R^2$	$F$ for model	$P$	$F^2$ effect size	$\Delta R^2$	$P$	$F^2$ effect size
1	(constant)			<.001	.307	34.68	<.001	0.44	.307	<.001	0.44
	Thwarted belongingness	-.296	-3.67	<.001							
	Perceived burdensomeness	-.297	23.81	<.001							
	Acquired capability	-.012	-3.76	.830							
2	(constant)		2.09	.038	.358	6.82	<.001	0.56	.051	.294	0.05
	Thwarted belongingness	-.310	-3.78	<.001							
	Perceived burdensomeness	-.330	-3.63	<.001							
	Acquired capability	.002	.03	.972							
	Younger age	.028	.44	.659							
	Female sex	.077	1.17	.243							
	Race (Black or Coloured)	-.045	-.75	.452							
	Living with partner	-.092	-1.55	.123							
	Employed	-.057	-.98	.332							
	Level of education	-.045	-.75	.455							
	Major depressive disorder	-.072	-.63	.532							
	Bipolar mood disorder	.037	.36	.720							
	Anxiety disorder	-.072	-.89	.373							
	Borderline personality	-.064	-.84	.401							
	Substance use disorder	-.034	-.43	.665							
	Bereavement	.070	.94	.347							
	Partner relational diff	.086	1.11	.268							
	Schizophrenia	.028	.40	.687							
	Impulse control disorder	.010	.15	.880							

Note. Significant findings presented in **bold**,  $p < 0.05$ .

Note. Anxiety disorder refers to any anxiety disorder.

#### 4.5.1.4. Demographic and mental illness predictors of acquired capability for suicide

Findings from the regression analysis in which acquired capability (AC) for suicide was entered as the criterion variable are presented in Table 10. The model significantly predicted AC,  $F(3,235) = 8.70$ ,  $p < .001$ , when the control variables were entered into step 1, explaining 10% of the variance in AC. In step 2, when the independent variables were added, there was a significant increase in explained variance ( $\Delta R^2 = .208$ ,  $p < .001$ ), with a medium effect size ( $F^2 = 0.27$ ) (Cohen, 1988). AC scores were positively associated with a younger age, being a male and being employed.

Table 10.

## Demographic and Mental Illness Predictors of Acquired Capability

Step	Variable	$\beta$	$t$	$P$	Test of Model coefficients						
					Model			Change			
					$R^2$	$F$ for model	$P$	$F^2$ effect size	$\Delta R^2$	$P$	$F^2$ effect size
1	(constant)		6.80	<.001	.100	8.70	<.001	0.11	.100	<.001	0.11
	Thwarted belongingness	-.296	-0.68	.495							
	Perceived burdensomeness	-.297	3.80	<.001							
	Interpersonal hopelessness	-.012	0.22	.830							
2	(constant)		.55	.582	.308	4.40	<.001	0.45	.208	<.001	0.27
	Thwarted belongingness	-.310	-1.49	.139							
	Perceived burdensomeness	-.330	4.02	<.001							
	Interpersonal hopelessness	.002	6.03	.972							
	Younger age	.028	3.04	.003							
	Female sex	.077	-6.06	<.001							
	Race (Black or Coloured)	-.045	1.20	.231							
	Living with partner	-.092	.52	.603							
	Employed	-.057	2.06	.040							
	Level of education	-.045	-1.67	.096							
	Major depressive disorder	-.072	.76	.446							
	Bipolar mood disorder	.037	1.30	.197							
	Anxiety disorder	-.072	-.22	.825							
	Borderline personality	-.064	.90	.370							
	Substance use disorder	-.034	.80	.423							
	Bereavement	.070	1.20	.230							
	Partner relational diff	.086	.20	.842							
	Schizophrenia	.028	-.674	.501							
	Impulse control disorder	.010	.51	.607							

Note. Significant findings presented in **bold**,  $p < 0.05$ .

Note. Anxiety disorder refers to any anxiety disorder.

#### 4.5.2. Demographic and mental illness predictors of IPTS outcomes

In order to establish which of the demographic variables and mental illnesses were able to predict the IPTS outcomes (i.e., death ideation, suicidal ideation and suicide risk) for this sample, standard multiple linear regression analyses (for death ideation and suicidal ideation) and a binary logistic regression (for suicide risk) were conducted in which each of the IPTS outcomes were regressed on demographic variables and mental illnesses. Four of the DSM diagnoses (a trauma related disorder, adjustment disorder, non-specified personality disorder and not specified) were excluded from the regression analyses, as their sample sizes were too small ( $n < 8$ ). For race, only the Black and Coloured race groups were included in the regression analyses, as preliminary analyses indicated that the Black and Coloured race groups were most significantly associated with the outcomes of the theory. The results are presented in Tables 11, 12 and 13.



#### 4.5.2.1 Demographic and mental illness predictors of death ideation

Findings from the regression analysis in which death ideation was entered as the criterion variable are presented in Table 11. The model significantly predicted death ideation,  $F(15,235) = 3.51, p < .001$ , when the control variables were entered into step 1, explaining 19.1% of the variance in death ideation, with a medium effect size ( $F^2 = 0.16$ ) (Cohen, 1988). Death ideation scores were significantly associated with having a low level of education being unemployed and having a DSM diagnosis of a SUD, BPD, BPMD, MDD, schizophrenia or bereavement.

Table 11.

Demographic and Mental Illness Predictors of Death Ideation

Step	Variable	$\beta$	$t$	$P$	Model			
					$R^2$	$F$ for model	$P$	$F^2$ effect size
1	(constant)				.137	3.51	<.001	0.16
	Younger age	.098	1.49	.138				
	Female sex	.064	.95	.341				
	Race (Black or Coloured)	.101	1.52	.131				
	Living with partner	-.098	-1.54	.126				
	Employed	-.171	-2.673	<b>.008</b>				
	Level of education	-.207	-3.27	<b>.001</b>				
	Major depressive disorder	.309	2.53	<b>.012</b>				
	Bipolar mood disorder	.290	2.68	<b>.008</b>				
	Anxiety disorder	.042	.48	.633				
	Borderline personality	.236	2.94	<b>.004</b>				
	Substance use disorder	.273	3.32	<b>.001</b>				
	Bereavement	.160	1.99	<b>.047</b>				
	Partner relational diff	.122	1.45	.141				
	Schizophrenia	.179	2.38	<b>.018</b>				
	Impulse control disorder	.000	.002	.998				

Note.  $R^2 = \text{adjusted } R^2$

Note. Anxiety disorder refers to any anxiety disorder.

#### 4.5.2.2 Demographic and mental illness predictors of suicidal ideation

Findings from the regression analysis in which suicidal ideation was entered as the criterion variable are presented in Table 13. The model significantly predicted suicidal ideation,  $F(15,235) = 2.84, p < .001$ , when the control variables were entered into step 1, with an  $R^2$  of .160, explaining 16% of the variance in suicidal ideation, with a small effect size ( $F^2 = 0.12$ ) (Cohen, 1988). Suicidal ideation scores were most significantly associated with having a low level of education, followed by being Black or Coloured, having a SUD and lastly, having BPD.

Table 12.  
Demographic and Mental Illness Predictors of Suicidal Ideation

Step	Variable	$\beta$	$t$	$P$	Model			
					$R^2$	$F$ for model	$P$	$F^2$ effect size
1	(constant)				.104	2.84	<.001	0.12
	Younger age	.098	1.46	.146				
	Female sex	-.012	-.17	.867				
	Race (Black or Coloured)	.181	2.67	<b>.008</b>				
	Living with partner	-.018	-.28	.781				
	Employed	-.110	-1.69	.093				
	Level of education	-.216	-3.34	<b>.001</b>				
	Major depressive disorder	.234	1.88	.061				
	Bipolar mood disorder	.197	1.79	.075				
	Anxiety disorder	-.028	-.32	.753				
	Borderline personality	.180	2.20	<b>.029</b>				
	Substance use disorder	.192	2.29	<b>.023</b>				
	Bereavement	.136	1.66	.099				
	Partner relational diff	.087	1.03	.306				
	Schizophrenia	.123	1.60	.110				
	Impulse control disorder	-.007	-.09	.929				

Note.  $R^2 = \text{adjusted } R^2$

Note. Anxiety disorder refers to any anxiety disorder.

#### 4.5.2.3. Demographic and mental illness predictors of suicide risk

A binary logistic regression analysis was performed in order to assess the impact of the demographic variables and mental illnesses on the outcome of suicide risk. The model contained 15 independent variables (the demographic variables and mental illnesses). The full model containing all predictors was statistically significant,  $\chi^2(15, N = 239) = 39.27, p = .001$ , indicating that the model was able to distinguish between participants who were and were not at risk for suicide. The model as a whole explained between 15.2% (Cox and Snell R square) and 20.8% (Nagelkerke R squared) of the variance in suicide risk, and correctly classified 70.7% of cases. As shown in Table 13, five of the independent variables made a unique statistically significant contribution to the model (younger age, lower level of education, BPD, SUD and BPMD).

Table 13.  
Demographic and Mental Illness Predictors of Suicide Risk

Variable	B	S.E.	Wald	df	P	Odds	95% CI	
						Ratio	Lower	Upper
Younger age	.709	.337	4.45	1	<b>.035</b>	2.03	1.05	3.93
Female sex	.229	.353	.420	1	.517	1.26	.630	2.51
Race (Black or Coloured)	.469	.327	2.06	1	.151	1.60	.842	3.03
Living with partner	-.100	.322	.097	1	.756	.905	.481	1.70
Employed	-.009	.311	.001	1	.977	.991	.539	1.82
Level of education	-.968	.337	8.23	1	<b>.004</b>	.380	.196	.74
Major depressive disorder	1.34	.719	3.78	1	.052	4.05	.989	16.59
Bipolar mood disorder	2.04	.761	7.18	1	<b>.007</b>	7.70	1.73	34.23
Anxiety disorder	-1.49	1.23	1.47	1	.225	.226	.020	2.50
Borderline personality	1.82	.869	4.40	1	<b>.036</b>	6.19	1.13	33.98
Substance use disorder	1.89	.868	4.74	1	<b>.029</b>	6.62	1.21	36.33
Bereavement	1.53	.879	3.05	1	.081	4.64	.828	25.98
Partner relational diff	.780	.858	.827	1	.363	2.18	.406	11.72
Schizophrenia	1.20	.996	1.46	1	.226	3.34	.474	23.48
Impulse control disorder	.709	.995	.508	1	.476	2.03	.289	14.30
(constant)								

Note. Significant findings presented in **bold**,  $p < 0.05$ .

Note. Anxiety disorder refers to any anxiety disorder.

## CHAPTER FIVE

### DISCUSSION

#### 5.1. Introduction

The central aim of this study was to identify the demographic variables and mental illnesses that are associated with the constructs and outcomes of the IPTS. The demographic variables that were specifically focused on included age, sex, race (being Black or Coloured), living with a partner, employment status and level of education. The mental illnesses that were included in the analyses were major depressive disorder (MDD), bipolar mood disorder (BPMD), anxiety disorder, borderline personality disorder (BPD), substance use disorder (SUD), bereavement, partner relational difficulties, schizophrenia and impulse control disorder.

The results from the regression analyses revealed a number of demographic variables and mental illnesses that were significantly associated with the constructs and outcomes of the theory; these are discussed below, in addition to discussing why some of the demographic variables and mental illnesses *were not* significantly associated with the constructs and outcomes of the theory.

#### 5.2. Demographic Variables Associated with the Constructs of the Theory

##### 5.2.1. Demographic variables associated with thwarted belongingness.

Findings from the regression analysis indicated that none of the demographic variables explored in the study were significantly associated with thwarted belongingness (TB). A number of previous studies have also found no significant associations between demographic variables and TB (D'Amato, Kuhlman, Smith & Wolford-Clevenger, 2016; Gunn, Haines, Lester & Williams, 2012) and previous studies with various samples have suggested that TB may serve a less salient role than perceived burdensomeness (PB) in promoting suicidal ideation (Bryan, Clemans, & Hernandez, 2012; Jahn, Cukrowicz, Linton, & Prabhu, 2011; Poindexter et al., 2015).

One possible explanation for none of the demographic variables being significantly associated with TB could be that TB is an interpersonal state that affects *all* groups of people,

regardless of their demographic profile. It would appear that, regardless of age, gender, race, employment status or living alone or with a partner, one might still experience perceptions of social alienation, despite objective indications of social connectedness (Joiner, 2005).

### **5.2.2. Demographic variables associated with perceived burdensomeness**

The demographic variables that were significantly associated with PB included being female, being unemployed and having a lower level of education. The association between PB and being a female has been corroborated in a number of studies (Gunn et al., 2012; Garza & Pettit, 2010; Lester, 2010). Findings from the study by Gunn et al. (2012) revealed that PB was present significantly more often in the suicide notes of women than men; whilst Garza and Pettit (2010), also found PB to play a stronger role in the suicides of women as compared to those of men. Moreover, results from a more limited study on female suicide bombers in the Middle East indicated a strong presence of PB, predominantly in relation to their families, in women who volunteer to become suicide bombers (Lester, 2010).

Van Orden et al.'s (2010) explanation for higher levels of PB in females is that women place greater focus on their interpersonal relationships and are more altruistic relative to men, which places them at greater risk for PB. Another possible explanation for why PB is more significantly associated with women than men is that women are predominantly the victims of intimate partner violence (IPV) (85% of domestic abuse victims are women) (CDC, 2010; Vagianos, 2015). Women who are victims of IPV are at an elevated risk for suicidal ideation and attempts (Cavanaugh, Messing, Del-Colle, O'Sullivan & Campbell, 2011), and those who seek shelter from it have been found to be particularly vulnerable to experiencing PB, and hopelessness (D'Amato et al., 2016). This is because those experiencing IPV have restricted social and financial freedoms, which reduces their social support and creates a dependency on their partners, which ultimately promotes the perception of burdensomeness (Dutton & Goodman, 2005; Van Orden et al., 2010). Furthermore, it is suggested that women in shelters may develop a sense of burdensomeness, as they may experience themselves to be a burden for seeking help, in addition to experiencing self-loathing (D'Amato et al., 2016). It must be noted however that this study did not specifically explore the influence of intimate partner violence; therefore further research is indicated to explore this possible association.

The significant association between PB and unemployment has also been established in other studies (Christensen, Batterham, Mackinnon, Donker & Soubelet, 2014; Van Orden et al., 2010) and there are a number of explanations for why this is the case. It has been established that unemployment can result in perceptions that one is a liability to oneself and others, causing distress, which is an observable indicator of liability, a dimension of PB (Van Orden et al., 2010). Unemployment is also associated with elevated rates of both mental and physical health problems (Fergusson, Horwood & McLeod, 2014; Wanberg, 2012), both of which can result in feelings of being a burden to others or perceptions of being a liability (as one may require care and support from others) (Van Orden et al., 2010). Unemployment has also been linked to interpersonal problems, financial problems, alcohol and substance use problems, and less marital and family satisfaction, all of which can result in lowered self-esteem, changes in social support and perceptions of being a burden to others (Henkel, 2011; Song, Foo, Uy & Sun, 2011; McKee-Ryan, Song, Wanberg & Kinicki, 2005; McCarthy, 2011).

A low level of education has been found to be a significant risk factor for suicide (Patel & Kleinman, 2003; Cubbin, Leclere & Smith, 2000) and it could be suggested that it is associated with PB because if one has a low level of education, one's opportunities to attain employment or shift one's economic status so as to propel oneself out of an impoverished lifestyle are limited (Mda, 2010), which in a context such as South Africa is very relevant. This can result in feelings of being a burden to others, in addition to high levels of hopelessness (McMillan, Gilbody, Beresford & Neilly, 2007; Smith, Alloy, & Abramson, 2006).

### **5.2.3. Demographic variables associated with interpersonal hopelessness**

Findings from the regression analysis indicated that none of the demographic variables were significantly associated with the construct of interpersonal hopelessness (IH). A reason for this is that, whilst it has been widely established that hopelessness is a risk factor for suicide (Beck, Brown, & Steer, 1989; Huth-Bocks, Kerr, Ivey, Kramer & King, 2007; McMillan et al., 2007; Suominen, Isometsa, Ostamo, & Lönnqvist, 2004), the IPTS posits that it is not just hopelessness in *general* that predicts suicidal ideation, but rather the *content* of the individual's hopeless beliefs (Van Orden et al., 2010). Thus, it is only hopelessness regarding complete and pervasive TB and PB, whereby one does not see any possibility of positive change, that causes active suicidal ideation (Van Orden et al., 2010).

#### **5.2.4. Demographic variables associated with acquired capability for suicide**

Findings from the regression analyses indicated that being of a younger age, male and employed were all significantly associated with acquired capability (AC) for suicide.

A possible explanation for the significant association between younger age and AC is a neurobiological model proposed by Casey, Jones and Somerville (2011). The neurobiological changes referred to by the model involve the subcortical regions (associated with reward responding and emotional reactivity), which mature at an accelerated rate, and the prefrontal cortical regions (responsible for inhibitory control), which mature at a slower rate (Somerville, Jones & Casey, 2010). It is therefore proposed that, due to the maturational imbalance between these regions, adolescents have increased reward-focused behaviour in the absence of the necessary capabilities for inhibitory control (Somerville et al., 2010; Glenn & Nock, 2013). Hence, due to the difficulties that adolescents have with inhibitory control in rewarding situations, it is proposed that they are at an increased risk for engaging in risk-taking or harmful behaviours (Casey et al., 2011; Galvan, Hare, Voss, Glover, & Casey, 2007; Glenn & Nock, 2013).

Thus, if being an adolescent is associated with impulsivity and increased risk for engaging in risk-taking behaviours, one can see how being of younger age may be significantly associated with AC; if one is impulsive or engages in risk-taking behaviours, one is more likely to have experiences which are painful or provocative, which has been posited to result in acquired capability for suicide, through the mechanism of habituation (Bender et al., 2008; Van Orden et al., 2010). One such painful and provocative experience is non-suicidal self-injury (NSSI), such as cutting or burning, which has been found to be a robust risk factor for suicide attempts in adolescents (Asarnow et al., 2011).

The significant association between being male and AC found in the present study has been corroborated by a number of previous studies (Bender et al. 2008; Christensen et al., 2014; Anestis, Bender, Selby, Ribeiro & Joiner, 2011a), with several studies indicating that males have lower levels of fear of suicide (Ellis & Lamis, 2007) and higher levels of pain tolerance (Riley, Robinson, Wise, Myers & Fillingim, 1998), both of which are facets of AC (Batterham, Donker, Christensen & Van Orden, 2014). An explanation for this is that men tend to engage in more painful and provocative behaviours and have higher levels of distress tolerance, which have been established as significant predictors of acquired capability for suicide (Bender, Gordon, Bresin & Joiner, 2011; Anestis et al., 2011a). Having higher levels

of distress tolerance may result in an innate insensitivity to affective cues, which would generally motivate one to avoid pain, consequently one is more likely to engage in pain-inducing behaviour, which is theorised to result in an increased risk for AC (Anestis et al., 2011a).

A further explanation for the discrepancy in levels of AC between males and females could be based on personality, in that males tend to exhibit higher levels of stoicism and sensation seeking, which have been found to be positively correlated with acquired capability for suicide (Bender, Anestis, Anestis, Gordon & Joiner, 2012; Witte, Gordon, Smith & Van Orden, 2012; Anestis et al., 2011a). Witte et al. (2012) found that the relationship between gender and pain insensitivity was accounted for by stoicism, as an individual may be more capable of withstanding the emotional and physical pain involved in suicidal behaviour if they deny, suppress or control their displays of emotion. Moreover, sensation seeking was found to account for the relationship between gender and fearlessness about death, as those who habitually seek out risk will be exposed to a greater number of painful and provocative experiences, thus increasing the risk for AC (Witte et al., 2012; Anestis et al., 2011a; Van Orden et al., 2010).

The significant association between acquired capability for suicide and being employed has not been widely established, and thus further research is required in order to explore this finding. It could be purported that people who are employed have more financial resources to engage in high-risk activities (e.g. substance use or drag racing) than those who are unemployed, which are in turn associated with acquiring the capability for suicide (Bender et al., 2008). Furthermore, those who are employed are more likely to have higher levels of self-directedness, which is a quality that also underlies AC (Christensen et al., 2014).

#### **5.2.5. Summary: Demographic variables associated with the constructs of the IPTS**

In summary, it was found that no demographic variables were significantly associated with TB, whilst being a female, being unemployed and having a lower level of education were significantly associated with PB. None of the demographic variables were significantly associated with IH, whilst being of a younger age, being a male and being employed were significantly associated with AC. Overall, from these findings it could be suggested that the significant association between females and PB and males and AC could account for the



gender paradox in suicide (Cannetto & Sakinofsky, 1989), whereby females engage more in suicidal behaviour whilst men are more likely to engage in lethal attempts due to their increased pain tolerance and lower fear of death. In addition, the significant association between younger age and acquired capability for suicide could account for the *ungreying phenomenon* (Schlebusch, 2005).

### **5.3. Mental Illnesses Associated with the Constructs of the Theory**

#### **5.3.1. Mental illnesses associated with thwarted belongingness**

The mental illnesses that were most significantly associated with lower scores of TB were an anxiety disorder, borderline personality disorder (BPD) and a substance use disorder (SUD). These findings are contradictory to what was expected and are predominantly inconsistent with findings from previous studies (Silva et al., 2015; Lamis & Malone, 2011; Conner, Britton, Sworts & Joiner, 2007; You, Van Orden & Conner, 2011).

With regards to anxiety disorders, in light of the fact that there are different types, with varying characteristics and effects, it is expected that some would be significantly associated with TB, whilst others would not. For example, social phobia has been found to be associated with TB in a number of studies (Silva et al., 2015; Davidson, Wingate, Grant, Judah, & Mills, 2011), whilst panic disorder and agoraphobia were found to be negatively associated with TB (Silva et al., 2015). In the present study, no differentiation between the types of anxiety disorders was made (due to small sample size) and this may explain the contradictory findings. Future research thus needs to differentiate between the different anxiety disorders in order to explore the relationship between them and TB more clearly.

Contrary to the findings from this study, it has been widely established that BPD is associated with TB (Silva et al., 2015; Conner et al., 2007). Linehan's (1993) biosocial theory of BPD explains how children who are brought up in family environments that are neglectful, abusive and/or dismissive, whereby the child's thoughts and emotional experiences and expressions are negated, mislabelled, dismissed or criticised, will learn that his or her expressions and experiences are unacceptable. This results in the child eventually adopting a pattern of self-invalidation, which promotes intense feelings of abandonment and beliefs that he or she is unwanted, which in turn gives rise to TB (Kalpakci, Venta, & Sharp, 2014). Whilst the maladaptive interpersonal beliefs that individuals with BPD hold may arise

from family conflict, there is evidence of a bidirectional relationship between family conflict and maladaptive interpersonal beliefs, whereby these maladaptive interpersonal beliefs may also elicit family conflict (Kalpakci et al., 2014). For example, a child who believes he or she does not belong may behave in a way that evokes negative responses from his or her environment, which in turn, reinforces the internalised maladaptive interpersonal beliefs (Kalpakci et al., 2014).

Furthermore, essential diagnostic features of BPD include a pervasive pattern of unstable interpersonal relationships, frantic efforts to avoid abandonment, as well as a reactivity of mood and inappropriate and intense anger, which increase interpersonal conflict, often resulting in rejection by others, which in addition to having a markedly and persistently unstable sense of self, subsequently increases risk of TB (APA, 2013; Kalpakci et al., 2014).

Joiner and Rogers (2016), on the other hand, also found (contrary to their predictions) that TB did not account for the association between affective dysregulation (a diagnostic feature of BPD which is an avenue through which suicide risk is conferred) and suicidal ideation. Their explanation for this finding was that the increased interpersonal conflict that individuals with BPD experience, as a result of their affective dysregulation, does not necessarily contribute to their sense of social disconnection (Joiner & Rogers, 2016). On the contrary, they explain that interpersonal relationships, which are characterised by dysregulated affect, may be particularly significant within individuals who fear abandonment and rejection.

However, due to these inconsistent findings, further research is required in order to gain a clearer understanding of the association between TB and BPD.

With regards to SUD, in the same vein as anxiety disorders, there are different types of substance-related disorders, some of which have been found to be significantly associated with TB and others that have not. For example, Silva et al (2015) found that alcohol use disorder (which is a SUD) was negatively associated with TB. Whilst this finding was also contrary to their predictions, they suggested that, in light of their sample being made up of university students, this association between alcohol use disorders and time spent socialising with other individuals, may potentially decrease one's perception of loneliness and social alienation. However, in contrast to this finding, Silva et al (2015) also found polysubstance dependence to be significantly associated with TB, which was explained by the high degree

of interpersonal impairment and the low social acceptability of illicit drug use, which are associated with drug dependence (Silva et al., 2015; Segrin, 2001; You et al., 2011).

In light of the apparent inconsistencies found in the present study and extant literature in the relationship between anxiety disorder, BPD and a SUD and TB, further research is indicated to clarify and explore these findings.

### **5.3.2. Mental illnesses associated with perceived burdensomeness**

All of the mental illnesses explored, with the exception of impulse control disorder, were found to be significantly associated with PB. It has been widely established that major depressive disorder (MDD) is significantly associated with PB (Taylor et al., 2016; Silva et al., 2015). MDD symptomatology, such as feelings of worthlessness and excessive or inappropriate guilt, can induce self-hate and perceptions of being a liability, which are both facets of PB (APA, 2013; Silva et al., 2015; Anestis, Bagge, Tull, & Joiner, 2011b). Moreover, the impairment that one experiences as a result of MDD, such as psychomotor retardation, fatigue, diminished ability to think or concentrate and general impairment in social, occupational or other important areas of functioning can all result in perceptions that one is a liability and in turn, PB (APA, 2013; Davidson et al., 2011; Anestis et al., 2011a). Additionally, people with MDD tend to employ dysfunctional interpersonal styles, such as excessive reassurance seeking, and whilst these behaviours are intended to keep loved ones close, they often end up pushing others away, resulting in rejection, which diminishes the individual's sense of self-worth, and increases feelings of burdensomeness (Davidson et al., 2011; Potthoff, Holahan & Joiner, 1995; Katz, Beach & Joiner, 1998).

Previous studies have indicated that, in comparison to MDD, bipolar mood disorder (BPMD) is associated with greater psychological and resource-related burden to caregivers (da Silva et al., 2014), which may intensify the perceptions of burdensomeness in an individual with BPMD (Taylor et al., 2016). Furthermore, manic or hypomanic episodes, which entail impulsivity, aggression, risk-taking behaviours and low insight, often result in negative consequences, such as interpersonal alienation and even hospitalisation, which may also induce perceptions of burdensomeness (Taylor et al., 2016; Schuepbach, Goetz, Boeker & Hell, 2006; Silva et al., 2015).

Those who have an anxiety disorder experience significant impairment in social and occupational functioning, have a lower quality of life (Senaratne, Van Ameringen, Mancini & Patterson, 2010; Simon et al., 2002) and, due to the fact that anxiety disorders can be chronic, may experience long-term disability and unemployment (Anseau et al., 2008; Mancebo et al., 2008), all of which can cause perceptions of burdensomeness. Furthermore, results from a study by Senaratne et al. (2010) indicate that family members of individuals with anxiety disorders experience significant negative outcomes themselves, in terms of their physical and mental health, as well as on family functioning, which could subsequently cause perceptions of being a liability within the affected individual (Senaratne et al., 2010).

The diagnostic criteria for BPD, which include affective dysregulation (i.e. inappropriate anger), behavioural dysregulation (i.e. impulsivity in ways which are self-damaging and recurrent suicidal behaviour) and disturbed relatedness (i.e. unstable and intense interpersonal relationships), can give rise to perceptions of being a liability to others, and in turn PB (Silva et al., 2015; Joiner & Rogers, 2016). PB has been established as being positively correlated with affective dysregulation in a number of studies (Anestis et al., 2011a; Joiner & Rogers, 2016), which can be explained by the fact that individuals who are affectively dysregulated have intense and labile emotions and become angry quickly and inappropriately, which are associated with interpersonal conflict and relationship problems (Joiner & Rogers, 2016; Baron et al., 2007). These individuals may end up feeling as though they are a liability to others, given the unpredictable nature of their emotions, which subsequently can lead to feelings of burdensomeness (Joiner & Rogers, 2016).

Substance use disorders (SUDs) are associated with failures to fulfil role obligations, legal penalties, financial difficulties and frequent interpersonal, physical and/or psychological problems, which give rise to perceptions of being a liability to others, and in turn, PB (Silva et al., 2015; Lamis & Malone, 2011). As previously discussed, the high degree of interpersonal impairment that is common in people with a SUD can also give rise to an increased perception of burdensomeness (Silva et al., 2015; You et al., 2011).

The relationship between bereavement and PB has not been extensively researched, however it could be hypothesised that as a result of the individual depending on others for support during the grieving process, he or she may develop a sense that they are a liability on others (especially if the grief is prolonged), resulting in feelings of PB. The intense emotions the individual experiences during times of grief can place strain on their interpersonal

relationships, as grief is primarily an individual experience that cannot always be understood by others, and cannot be taken away by others. In addition, those trying to be supportive often do not know how to approach the individual or what to say, which often results in them avoiding the bereaved individual altogether, all of which can result in the individual feeling like they are a burden on others. Individuals who are grieving may experience affective reactions (i.e. sorrow, anger, loneliness, anxiety and guilt), cognitive reactions (i.e. disbelief and helplessness), somatic symptoms (i.e. decreased appetite, sleep disturbances and fatigue) and behavioural actions (i.e. crying) (Perper, 2013). Such experiences can impact one's performance both socially and occupationally, for example mental lapses, poor concentration, difficulties with decision-making and increased interpersonal conflicts (Perper, 2013), which could in turn result in perceptions of being a burden.

Intimate partner violence (IPV) falls under the heading of partner relational problems and findings do indicate a relationship between IPV and PB, whereby IPV has been found to create and/or increase feelings of self-hate and being a liability to others (Lamis, Leenaars, Jahn, & Lester, 2013). Victims of IPV may develop a sense of burdensomeness because they feel as though others do not understand or care about their situation, or because of the amount of assistance that they require to deal with their relationship difficulties (Lamis et al., 2013). PB can also develop in the aggressors of IPV, as they may feel guilty about the violence they perpetrate, resulting in self-hate, in addition to possibly believing that his or her partner would be better off without them, as the violence would then cease, causing feelings of being a liability, and in turn PB (Lamis et al., 2013). However as stated before, the present study did not focus specifically on IPV and this link needs to be further investigated.

The significant association between schizophrenia and PB has been established in previous studies (Silva et al., 2015) and it could be explained by the fact that there is a high level of impairment (socially, cognitively and occupationally) and, in turn, a large amount of reliance on others for care (financially, for medications, hospitalisations and even personal hygiene), which can lead to an individual feeling as though they are a liability on others (Silva et al., 2015). Families of those with schizophrenia can experience a large amount of distress (physically, emotionally and financially) due to the individual's abnormal behaviour and social and occupational dysfunction, which may result in perceptions of burdensomeness in affected individuals (Kate, Grover, Kulhara, & Nehra, 2013; Silva et al., 2015). One is often left with a fundamental sense of being different and inferior to others and unable to

relate to others, which can result in feelings of guilt, shame, low self-esteem and general feelings of PB (Skodlarska, Tomorica, & Parnas, 2008).

### **5.3.3. Mental illnesses associated with interpersonal hopelessness**

None of the mental illnesses were found to be significantly associated with the construct of IH. As previously discussed, an explanation for this finding is that the construct measured in this study refers to hopelessness about one's interpersonal needs being unmet (i.e. being hopeless about one's TB or PB) and not hopelessness in general.

### **5.3.4. Mental illnesses associated with acquired capability for suicide**

Findings from the regression analyses indicated that none of the mental illnesses were significantly associated with AC. This finding is contrary to the literature (Silva et al., 2015; Nock et al., 2009), which indicates that disorders that are associated with exposure to painful or provocative experiences (i.e. SUD, BPD, schizophrenia and impulse control disorders) are associated with the capability for suicide. This could be due to the low rate of these disorders in the sample – SUD (6.3%), BPD (5.9%), schizophrenia (3.8%) and impulse control disorder (3.3%) – however, future research is required to better understand the relationship between these disorders and AC.

The finding that MDD and anxiety disorders were not significantly associated with AC is however corroborated by some studies (e.g., Christensen et al., 2014). Previous studies have indicated that mood disorders are more predictive of suicidal ideation (Nock et al., 2008; 2009) and Christensen et al. (2014) found MDD to be significantly associated with PB, only, with no significant effect on TB or AC. Their explanation of this finding was that it indicated that the pathway through which MDD operates in increasing one's risk for suicide is via burdensomeness, as opposed to TB or AC (Christensen et al., 2014). Moreover, anxiety disorders, such as generalised anxiety disorder, which are characterised by an avoidance of risky situations, may be associated with less exposure to painful and/or provocative experiences, which could account for why it is not significantly associated with acquired capability for suicide (Silva et al., 2015).

### **5.3.5. Summary: Mental illnesses associated with the constructs of the IPTS.**

In summary, it was found that an anxiety disorder, BPD and SUD were significantly associated with lower levels of TB, whilst all of the mental illnesses included in this study (despite for impulse control disorder) were significantly associated with PB. None of the mental illnesses were significantly associated with IH or AC. Whilst the findings regarding TB were contrary to expectations, it has been suggested that this could be due to the fact that PB may be a more important marker for suicidal ideation than TB (Joiner & Rogers, 2016; Bryan et al., 2012).

### **5.4. Demographic Variables Associated with Death Ideation, Suicidal Ideation and Suicide Risk**

Having a low level of education was significantly associated with all three IPTS outcomes in this study, whilst being unemployed was significantly associated with death ideation, being Black or Coloured was significantly associated with suicidal ideation and being of a younger age was significantly associated with suicide risk.

One's level of education plays a fundamental role in one's life, as education is often used to shape one's social identity; frame one's understanding of oneself and one's relationships with other people (Manstead, 2014). It can therefore become very difficult for people with low levels of education to develop positive social identities in environments that emphasise education and status; this can negatively affect their self-esteem, mental and physical well-being (Manstead, 2014). There are numerous negative effects of having a low self-esteem, one of which is an increased risk for suicidal ideation and attempts (Feinstein, Sabates, Anderson, Sorhaindo, & Hammond, 2006; Emler, 2001).

In a context such as South Africa, having a low level of education limits one's opportunities for access to tertiary education, which in turn decreases one's chances of becoming employed (undermining one's sense of self-worth), subsequently limiting one's opportunity for upward social mobility, often resulting in one being trapped in a cycle of poverty (as the majority of those receiving a low level of education are already impoverished) (Spaull, 2015; Mda, 2010; Patel & Kleinman, 2003). Low levels (or poor quality) of education have thus been described as a poverty trap for the majority of students in South Africa (Spaull, 2015). Such limitations on future opportunities gives rise to hopelessness,

which can increase one's suicide risk (Patel & Kleinman, 2003).

In addition to low levels of education, the outcomes were also significantly associated with other demographic variables. Death ideation was found to be positively associated with being unemployed. Contrary to previous research, which has indicated that unemployment increases one's suicide risk (Abe et al., 2004; Bastia & Kar, 2009; Brown, Beck, Steer & Grisham, 2000), the findings of the present study suggest that there is a significant association between unemployment and death ideation only. A possible explanation for this is that unemployment, itself, does not necessarily confer risk for suicide, but rather being unemployed can result in an individual perceiving themselves to be a burden to others (see Section 5.1.2.; Van Orden et al., 2010; Joiner, 2005). Moreover, as previously discussed, there are a number of additional negative effects associated with unemployment (i.e. mental and physical health, interpersonal, financial and substance use problems) that also give rise to PB (Fergusson et al., 2014; Henkel, 2011; Van Orden et al., 2010).

The second demographic variable that was significantly associated with suicidal ideation was race, specifically being of the Black or Coloured race group. It is very difficult to separate the variables of low levels of education and race in the South African context, as these variables are intertwined. Despite the fact that apartheid policies have been repealed for more than 20 years now, the legacy of this system still remains, resulting in Black children making up the majority of learners who receive low levels/poor quality education (Spaull, 2015). Findings from a 2011 General Household Survey indicated that only 44% of Black and Coloured youth (between the ages of 23-24) attained matric, in comparison to 83% of Indian youth and 88% of White youth, thus illustrating the large racial inequalities in the attainment of higher levels of education (Spaull, 2015). As a result of substandard education (Spaull, 2015), their chances of being accepted into tertiary education are diminished. Affected individuals thus find it difficult to shift their social position, often remaining trapped in poverty, where unemployment is the norm, resulting in an intergenerational cycle of poverty, whereby one's social standing is inherited from one's parents, irrespective of one's own abilities or effort (Spaull, 2015).

Finding oneself trapped in this cycle of poverty could give rise to perceptions that one does not belong, due to the exclusion from good quality education, tertiary education and the upper end of the labour market (Spaull, 2015), in addition to perceptions that one is a burden, due to the inability to improve one's social status or provide for oneself and one's family.



Furthermore, due to the intergenerational nature of the cycle, one can become hopeless about these interpersonal states, thus increasing one's risk for suicidal ideation.

The last outcome, suicide risk, was also significantly associated with the demographic variable of being of younger age, which correlates with the global trend of younger individuals (between ages of 15-29 years) being most at risk for engaging in suicidal behaviour (WHO, 2014b) and the finding that AC was significantly associated with being of younger age (see section 5.1.4.). This finding could therefore explain the significant association between younger people and suicide risk, as according to the IPTS, one has to have acquired the capability for suicide, which in the presence of suicidal ideation (caused by the simultaneous presence of TB, PB and hopelessness about these states) results in lethal suicidal behaviour (Bender et al., 2008; Joiner, 2005).

Younger individuals are faced by a number of overwhelming pressures and it has been proposed that it is the interaction of individual, biological, social, political, cultural and economic factors, in addition to a growing sense of hopelessness and increased access to lethal means of suicide, which gives rise to the increase in suicidal behaviour among younger individuals (Colucciello, 2013; Meehan et al., 2007).

Younger individuals may also be more susceptible to perceiving themselves as not belonging and being a burden upon others as adolescence is a transitional period (biologically and psychologically), during which time many young individuals experience low self-esteem and a lack of independence, whilst also being faced with many academic and social challenges, such as succeeding at school, substance use, teenage pregnancy, and mental illness (Pauw, 2011; Netshiombo & Mashambe, 2012). Furthermore, adolescents' difficulties with inhibitory control in rewarding situations and their impulsivity (as explained by the neurobiological model), increases their risk for engaging in risk-taking behaviours (Glenn & Nock, 2013) exposing them to more painful and provocative experiences, which result in AC (Bender et al., 2008). Lastly, due to adolescents' inability to deal with stressors, they often engage in suicidal behaviours as a maladaptive way of coping, which subsequently increases their future suicide risk (Lewis & Frydenburg, 2002).

### **5.5. Mental Illnesses Associated with Death Ideation, Suicidal Ideation and Suicide Risk**

The findings of the present study indicated that, of the mental illnesses explored, SUD and BPD were significantly associated with all three outcomes of the IPTS. An extensive

amount of literature has indicated that both SUD and BPD increase one's risk for suicide (Silva et al., 2015; Nock et al., 2009; Colucciello, 2013; Harris & Barraclough, 1997) and are, in turn, associated with both death and suicidal ideation.

SUD could be seen as increasing one's risk for suicide (and in turn, death and suicidal ideation) in a number of ways. It has been suggested that alcohol abuse, which is reportedly the most common type of substance dependence worldwide (Pompili et al., 2010), may lead to suicidal behaviour due to the effects of increased impulsivity, disinhibition, impaired judgment and problem-solving abilities (Bantjes & Kagee, 2013; Pompili et al., 2010). A strong association between impulsivity, alcohol abuse and suicide risk has been established (Conner & Duberstein, 2004) and it has been hypothesised that a key indicator of risk for impulsive suicide attempts is poor behavioural control, which is often a result of alcohol abuse (Simon et al., 2001).

Furthermore, one is at an increased risk for self-inflicted injuries, not only due to the increased impulsivity, but also due to the increased psychological distress (i.e. feelings of hopelessness and depression) and decreased inhibiting barriers to harming oneself, that occur whilst intoxicated (Hufford, 2001). In addition, it has been suggested that the distress associated with engaging in suicidal behaviours may be eased by the effects of disinhibition whilst intoxicated (Pompili et al., 2010; Kresnow et al., 2001). Moreover, intoxicated individuals tend to experience cognitive constriction (Steele & Josephs, 1990), which can result in them being unable to perceive alternative solutions to their problems, resulting in suicide as a maladaptive way of resolving their problems (Bantjes & Kagee, 2013).

Additionally, social withdrawal or marginalisation, as well as a breakdown of existing social bonds are common outcomes of substance use in general, which can increase one's risk for suicide (Pompili et al., 2010). The significant impact on relationships is common amongst most substance use disorders, as individuals with substance use disorders often behave in destructive ways towards family and friends, in addition to socially isolating themselves (Pompili et al., 2010).

The finding that SUD was significantly associated with suicide risk was consistent with expectations, however it does not correlate with the previous finding that SUD was not significantly associated with AC. It could be suggested that this finding indicates that there may be other factors associated with acquired capability for suicide in this sample and that SUD may constitute a direct pathway to suicide risk rather than via AC.

With regards to BPD, the diagnostic criteria are an avenue through which one's risk for suicide can increase, as firstly, one of the main diagnostic criteria is recurrent suicidal behaviour, gestures and/or threats, as well as self-mutilating behaviours (APA, 2013). Secondly, as previously discussed, affective dysregulation is a core feature of BPD, whereby individuals with BPD experience intense, volatile emotions, that they have difficulty controlling, which can increase both interpersonal conflicts and suicide risk (Mehlum, Friis, Vaglum & Karterud, 1994; Joiner & Rogers, 2016). Impulsivity is another core diagnostic feature of BPD that has been shown to increase the likelihood of an individual acting upon suicidal thoughts, and in conjunction with aggression (another common characteristic of BPD), can result in increased lethality of suicide attempts (Lesage et al., 2007). It has also been proposed that hopelessness (which could arise due to the intensity of emotions and chronicity of the disorder) may impact suicidal behaviour in those with BPD, by increasing the number of attempts and level of intent (Pompili, Girardi, Ruberto & Tatarelli, 2005).

In addition to SUD and BPD, death ideation was also significantly associated with BPMD, MDD, schizophrenia and bereavement. In light of the fact that all of these disorders were also significantly associated with PB (the reasons for which having been previously discussed), and the fact that impulse control disorder was not significantly associated with either PB or TB, it therefore makes sense that the former would be significantly associated with death ideation and the latter would not be, as death ideation is experienced if one experiences either complete TB or complete PB (Van Orden et al., 2010). However, contrary to this are the findings that an anxiety disorder and partner relational difficulties were not significantly associated with death ideation, despite having been significantly associated with PB. As mentioned before, a possible explanation for this inconsistency is that the anxiety disorders were grouped together due to small sample sizes and partner relational difficulties were not specified. Further research is thus required in order to better understand the relationship between these diagnoses and death ideation. A possible explanation for the finding that impulse control disorder was not significantly associated with any of the outcomes could also be due to the low rate of individuals with impulse control disorder (3.3%) in the present sample.

Contrary to expectations, suicidal ideation was only significantly associated with SUD and BPD, and not any of the other mental illnesses. This finding is inconsistent with results from previous studies, which reveal that nearly all of the disorders significantly predicted suicidal ideation (Borges, Angst, Nock, Ruscio & Kessler, 2008; Nock et al., 2009;

Bolton and Robinson, 2010). At the very least it was expected that MDD would be significantly associated with suicidal ideation, given the extensive amount of literature that indicates that mood disorders predict suicidal ideation (Bolton and Robinson, 2010; Nock et al., 2009).

Lastly, in addition to SUD and BPD, suicide risk was also significantly associated with BPMD. This finding corroborates with numerous previous studies, which have indicated that BPMD confers the highest risk for suicide, and is one of the strongest predictors of a suicide attempt (Nock et al., 2009; Mortensen et al., 2011). This finding indicates that BPMD constitutes an important clinical marker for suicide risk.

BPMD is characterised by extreme affective instability and it has been proposed that such affect intensity, poor affect regulation and coping (which are also features of BPMD), in addition to mood symptoms such as low self-esteem and guilt, may lead to feelings of defeat and entrapment, which can result in suicidal behaviour (Bargh et al., 2013). Additional mood symptoms, including distractibility, poor concentration and sleep loss could be seen as affecting one's ability to effectively regulate one's intense affects, leading to suicidal ideation (Stange et al., 2016; Boland & Alloy, 2013).

Impaired cognition is another feature of BPMD which inhibits the successful regulation of affect, in addition to increasing the probability that one would perceive situations as defeating and hopeless, and in turn increasing suicide risk (Bargh et al., 2013). It has been suggested that such impairments in cognitive and emotion regulation can increase one's use of maladaptive coping mechanisms, resulting in increased risk for suicidal ideation even when confronted by moderate stressors (Bargh et al., 2013). A core cognitive deficit in BPMD is impaired memory, which is hypothesised to influence one's self-esteem and can predispose one to recall predominantly negative memories, in addition to biasing one's predictions about the future, which has been found to be associated with decreased problem-solving abilities, increased hopelessness, recurrent depression and suicide attempts (Pollock & Williams, 2001; Kurtz & Gerraty, 2009).

BPMD has been shown to impair both social and occupational functioning, at times severely disrupting relationships and causing difficulties in the workplace (Yatham et al., 2009; Rosa et al., 2009). Moreover, people with BPMD have reported having less autonomy to maintain duties and tend to hold negative self and other appraisals, both of which can give rise to hopelessness (especially due to the chronicity of the illness) and in turn increase one's

risk for suicide (Bargh et al., 2013). Impulsivity and the participation in activities that have a high potential for painful consequences (both of which are central diagnostic features of BPMD) (APA, 2013) often result in increased risk-taking behaviour, which has been established as being strongly associated with suicide risk (Ardekani et al., 2012).

### **5.5.1. Summary: mental illnesses associated with death ideation, suicidal ideation and suicide risk**

Out of the mental illnesses included in the present study, only SUD and BPD were significantly associated with all three of the outcomes of the IPTS. In addition to these disorders, BPMD, MDD, schizophrenia and bereavement were significantly associated with death ideation, whilst none of the other mental illnesses were significantly associated with suicidal ideation (which was contrary to expectations). Lastly, BPMD was also significantly associated with suicide risk.

What these results reveal, and what is important to understand, is that whilst the literature states that virtually all mental illnesses are associated with an increased risk for suicidal behaviour, it is possible that a large amount of the observed associations are actually due to the true effects of only a small number of illnesses (due to the high comorbidity of mental illnesses) (Nock et al., 2008; Kessler, Berglund, Borges, Nock, & Wang, 2005). This could therefore explain why only a small number of the mental illnesses were actually significantly associated with the outcomes of suicidal ideation and suicide risk. However future research is required in order to more carefully examine and control for the effects of comorbidity.

## **5.6. Clinical Implications of the Study Findings**

The findings from this study provide insight into which demographic variables and mental illnesses predict vulnerability for engaging in suicidal behaviour and how or why they predict such vulnerability, according to the IPTS. Such information is essential for the precise identification of those who are at risk of suicide, in addition to providing insight into what course of action to take or what crisis intervention to initiate, that is catered to the specific needs of that individual, for example, increasing the individual's level of interaction

with others, so as to decrease TB. Such information is also vital for the development of customised suicide prevention and intervention strategies and for individual therapy.

For example, the findings have indicated differences between men and women in relation to their suicidal behaviour (i.e. females being significantly associated with PB and males with AC), which firstly accounts for the gender paradox and secondly suggests that future prevention strategies need to take such gender differences into account. For example, interventions for women could focus on building skills or independence, with the aim of reducing their sense of burdensomeness, whilst interventions for males could focus on high risk behaviour and decreasing accessibility to means for suicide. Another example is with regards to the finding that younger age is significantly associated with AC, which emphasises the necessity for clinicians to take this higher acquired capability for suicide into account when assessing for risk in younger individuals.

Whilst an extensive amount of literature already exists which indicates that mental illnesses increases one's risk for suicide, this study provides greater insight into the mechanisms by which they confer risk for suicide. For example, the finding that BPD was significantly associated with PB is extremely informative; as perhaps clinicians working with clients who have BPD could attempt to reduce perceptions of burdensomeness through the use of cognitive restructuring and behavioural techniques in cognitive behavioural therapy (Joiner & Rogers, 2016).

Developing different strategies that take into account and cater to the unique demographic and mental health profiles of individuals could enhance the effectiveness of the assessment of suicide risk, preventative and intervention strategies and therapy (Batterham et al., 2014; Silva et al., 2015).

### **5.7. Limitations and Strengths of the Study**

There are a number of limitations in this study. Firstly, the cross-sectional design of the study limits the drawing of conclusions about the direction of the relationships between the demographic variables and mental illnesses and the IPTS constructs and outcomes. Secondly, the relatively small total sample size meant that there was a low rate of certain mental illnesses, such as anxiety disorder and substance use disorder, in the sample. This precluded more in depth exploration of the association between types of anxiety disorders or

substance use disorders, and the IPTS constructs and outcomes. Small sample sizes may also have affected the power of statistical analyses of the relationships between these disorders and the constructs and outcomes of the IPTS. In addition, the high degree of comorbidity between mental illnesses could mean that a large number of significant associations may be due to a small number of mental illnesses. Future research with larger samples is thus indicated to address these issues.

Thirdly, the study design did not allow the researcher to explore the influence of hereditary or personality characteristics that could also have explained the findings with regards to acquired capability for suicide in this sample.

Fourthly, the study was located in a single geographical area and the findings may therefore not be generalisable to other psychiatric populations in different geographical areas. It is worth noting however, that the sample was demographically representative of the eThekweni region in which the study was located.

Strengths of the study include the use of DSM-5 diagnoses, which were based on clinical assessments as opposed to self-report inventories, as well as the use of a valid suicide risk assessment tool.

Finally, this study provides important insights regarding the demographic and mental health variables that may be implicated in the development of suicidal behaviour in the unique South African context.

## CHAPTER SIX

### SUMMARY, RECOMMENDATIONS AND CONCLUSION

#### 6.1. Summary of Findings

The central aim of the present study was to explore the demographic and mental health predictors of the constructs (thwarted belongingness, perceived burdensomeness, interpersonal hopelessness and acquired capability for suicide) and outcomes (death ideation, suicidal ideation and suicide risk) of the IPTS.

Ultimately, in terms of the relationship between the demographic variables included in the study and the constructs of the IPTS, the results from this study indicated that none of the demographic variables were significantly associated with thwarted belongingness (TB) and interpersonal hopelessness (IH), whilst being a female, being unemployed and having a lower level of education were significantly associated with perceived burdensomeness (PB), and being of a younger age, of the male gender and being employed were significantly associated with acquired capability (AC) for suicide. The significant association between females and PB and males and AC could account for the gender paradox in suicide (Cannetto & Sakinofsky, 1989), whereby females have increased levels of suicidal ideation and attempt suicide more often (Meehan, et al., 2007), whilst men are more likely to engage in lethal attempts due to their increased pain tolerance and lower fear of death. In addition, the significant association between younger age and AC could account for the *ungreying phenomenon* (Schlebusch, 2005).

With regards to the relationship between the mental illnesses included in this study and the constructs of the theory, the findings revealed that an anxiety disorder, borderline personality disorder (BPD) and substance use disorder (SUD) were significantly associated with lower levels of TB, whilst all of the mental illnesses included in the present study, with the exception of impulse control disorder, were significantly associated with PB. It has been suggested that PB may be a more important marker for suicidal ideation than TB (Joiner & Rogers, 2016), which could account for the unexpected findings regarding TB. None of the mental illnesses were significantly associated with IH and AC (which was contrary to expectations). Whilst the finding that none of the mental illnesses were associated with AC was unexpected, it could be due to the low rate of these disorders in this sample, and



therefore requires further research.

In relation to the outcomes of the IPTS (i.e., death ideation, suicidal ideation and suicide risk) and their association with the demographic variables, the findings indicated that having a low level of education was significantly associated with all three outcomes, whilst being unemployed was significantly associated with death ideation, being Black or Coloured was significantly associated with suicidal ideation and being of a younger age was significantly associated with suicide risk. Having a low level of education, in a context such as South Africa, limits one's opportunities for access to tertiary education, which in turn limits one's chances of becoming employed, and often results in one becoming trapped in a cycle of poverty (Spaull, 2015; Mda, 2010). The finding that younger individuals were significantly associated with suicide risk could, once again, account for the *ungreying phenomena* (Schlebusch, 2005).

Lastly, with regards to the relationship between the mental illnesses included in this study and the outcomes of the theory, the results revealed that SUD and BPD were significantly associated with all three outcomes. In addition to these disorders, death ideation was also significantly associated with bipolar mood disorder, major depressive disorder, schizophrenia and bereavement, whilst, contrary to expectations, suicidal ideation was not significantly associated with any additional mental illnesses. Lastly, suicide risk was also significantly associated with bipolar mood disorder. A possible explanation for why only a small number of the mental illnesses were significantly associated with the outcomes of suicidal ideation and suicide risk could be that, due to the high comorbidity of mental illnesses, a large amount of the observed associations are actually only due to the true effects of a small number of disorders (Nock et al., 2008; Kessler et al., 2005).

## **6.2. Recommendations for Future Research**

Whilst this study provided insight into the dynamics between demographic variables, mental illnesses and suicidal behaviours, by exploring the relationship between those variables and the constructs and outcomes of the IPTS, further research is indicated in a number of areas. Firstly, in light of the finding that none of the demographic variables were significantly associated with TB, further research should explore the predictors of TB more comprehensively, so as to gain insight into the nature of one's relationships and interpersonal needs, as opposed to items broadly enquiring whether or not a participant lives alone or is

married or not. Such research is necessary as findings from previous studies have also indicated no significant associations between TB and demographic variables (D'Amato et al., 2016; Gunn et al., 2012), which is in contrast to the IPTS hypothesis that interpersonal alienation leads to perceptions of thwarted belongingness (Van Orden et al., 2010)

Secondly, further research is required in order to understand the relationship between the acquired capability for suicide and being employed, as this finding has not been widely established and was contrary to expectations. Gaining insight into this relationship is necessary, as it could inform our understanding of what factors (outside of the already established self-harming behaviours) place individuals at increased risk for acquiring the capability for suicide and how they function to do so.

Another area that requires further research is the relationship between TB and mental illnesses, as the findings that an anxiety disorder, BPD and SUD were all significantly associated with *lower* levels of TB was unexpected and predominantly inconsistent with findings from previous studies (Silva et al., 2015; Conner et al., 2007; You et al., 2011). It could be suggested that future research differentiates between the anxiety disorders and SUDs when exploring their relationship with TB, as the various disorders differ significantly from each other, which would affect the nature of their relationship with TB. The relationship between BPD and TB needs clarification, as whilst there is extensive literature that reveals a significant association between them (e.g., Silva et al., 2015; Conner et al., 2007), Joiner and Rogers (2016) also found, contrary to their expectations, that TB did not account for the association between affective dysregulation and suicidal ideation.

The findings that none of the mental illnesses were significantly associated with AC were inconsistent with findings from previous studies and contrary to expectations. Studies using larger sample sizes could help to clarify the inconsistency between the study findings and that of extant literature.

The inconsistent findings that an anxiety disorder and partner relational difficulties were *not* significantly associated with death ideation, despite having been significantly associated with PB, also need to be explored in future research. Once again, future research, in which the anxiety disorders are differentiated and the nature of partner relational difficulties are specified, may be able to address these inconsistent findings.

The findings that only two mental illnesses (BPD and SUD) were significantly associated with suicidal ideation was unexpected, and contrary to findings from an extensive

amount of studies which reveal that the majority of mental illnesses significantly predict suicidal ideation (Borges et al., 2008; Nock et al., 2009; Bolton & Robinson, 2010). Whilst it is possible, that the effect of mental illness on suicidal ideation may operate differently in the South African context, further research is required in order to clarify this relationship.

Ultimately, future research that explores the demographic variables in more depth, using larger samples (which will have more statistical power), will help to clarify these inconsistent findings.

### **6.3. Conclusion**

The incidence rates of suicide in South Africa are exceptionally high, with suicidal behaviour among younger generations growing exponentially, and as such, is a major public health concern (Schlebusch, 2012b; van der Merwe, 2015). However, there is a dearth of research on suicide in developing countries, such as South Africa (Vawda, 2013; Schlebusch, 2012b), with a lack of reliable data covering all geographic regions (Bantjes & Kagee, 2013) and a lack of research that utilises a theory of suicidal behaviour to understand risk more comprehensively (Prinstein, 2008). Moreover, according to Schlebusch (2012b), whilst there are national preventative programmes and strategies that combat suicide in other countries, such prevention and intervention initiatives still need to be developed within South Africa.

The aim of the present study was to explore the demographic and mental health predictors of IPTS constructs and outcomes in a South African psychiatric sample. Through the process of exploring suicidal behaviour using the IPTS, a framework has been provided, which assists in understanding the unique relationships between the demographic variables and mental disorders with suicidal behaviour in this context. It is hoped that the findings will inform the assessment of suicide risk, and the development of customised prevention and intervention initiatives based on our unique socio-political and cultural landscape.

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## Appendix 1 – DoH Permission



health

Department:  
Health  
PROVINCE OF KWAZULU-NATAL

Health Research & Knowledge Management sub-component  
10 – 103 Natalia Building, 330 Langalibalele Street  
Private Bag x9051  
Pietermaritzburg  
3200  
Tel.: 033 – 3953189  
Fax.: 033 – 394 3782  
Email.: [hrkm@kznhealth.gov.za](mailto:hrkm@kznhealth.gov.za)  
[www.kznhealth.gov.za](http://www.kznhealth.gov.za)

Reference : HRKM77/15  
NHRD Ref.: KZ\_2015RP\_14\_769  
Enquiries : Ms G Khumalo  
Telephone : 033 – 395 3189

Dear Mrs S Naidoo

**Subject: Approval of a Research Proposal**

1. The research proposal titled ‘Testing the Interpersonal - Psychological theory of suicidal behaviour in the South African context’ was reviewed by the KwaZulu-Natal Department of Health (KZN-DoH).

The proposal is hereby **approved** for research to be undertaken at King Edward VIII, Addington & Prince Mshiyeni Memorial Hospitals.

2. You are requested to take note of the following:
  - a. Make the necessary arrangement with the identified facility before commencing with your research project.
  - b. Provide an interim progress report and final report (electronic and hard copies) when your research is complete.
3. Your final report must be posted to **HEALTH RESEARCH AND KNOWLEDGE MANAGEMENT, 10-102, PRIVATE BAG X9051, PIETERMARITZBURG, 3200** and e-mail an electronic copy to [hrkm@kznhealth.gov.za](mailto:hrkm@kznhealth.gov.za)

For any additional information please contact Ms G Khumalo on 033-395 3189.

Yours Sincerely

**Dr E Lutge**  
**Chairperson, Health Research Committee**

Date: 17/04/15

## Appendix 2 – BREC Approval



31 May 2015

Ms A Scher  
 Discipline of Psychology  
 Centre for Applied Psychology  
[lexi.scher@gmail.com](mailto:lexi.scher@gmail.com)

Dear Ms Scher

**Protocol:** Testing the interpersonal - psychological theory of suicidal behaviour in the South African context.

**Degree:** MSc

**BREC reference number:** BE456/15 sub-study of BE138/14

The Biomedical Research Ethics Committee has considered and noted your application received on 23 October 2015.

The study was provisionally approved pending appropriate responses to queries raised. Your response received on 24 May 2016 to queries raised on 09 May 2016 have been noted and approved by a sub-committee of the Biomedical Research Ethics Committee. The conditions have now been met and the study is given full ethics approval.

This approval is valid for one year from 31 May 2016. To ensure uninterrupted approval of this study beyond the approval expiry date, an application for recertification must be submitted to BREC on the appropriate BREC form 2-3 months before the expiry date.

Any amendments to this study, unless urgently required to ensure safety of participants, must be approved by BREC prior to implementation.

Your acceptance of this approval denotes your compliance with South African National Research Ethics Guidelines (2015), South African National Good Clinical Practice Guidelines (2006) (if applicable) and with UKZN BREC ethics requirements as contained in the UKZN BREC Terms of Reference and Standard Operating Procedures, all available at <http://research.ukzn.ac.za/Research-Ethics/Blomedical-Research-Ethics.aspx>.

BREC is registered with the South African National Health Research Ethics Council (REC-290408-009). BREC has US Office for Human Research Protections (OHRP) Federal-wide Assurance (FWA 678).

The sub-committee's decision will be **RATIFIED** by a full Committee at its meeting taking place on 12 July 2016.

We wish you well with this study. We would appreciate receiving copies of all publications arising out of this study.

Yours sincerely

Professor J Tsoka-Gwegweni  
 Chair: Biomedical Research Ethics Committee

cc: Supervisor: [naldoo15@ukzn.ac.za](mailto:naldoo15@ukzn.ac.za)  
 cc: Postgraduate office: [mpul@ukzn.ac.za](mailto:mpul@ukzn.ac.za)

Biomedical Research Ethics Committee  
 Professor J Tsoka-Gwegweni (Chair)  
 Westville Campus, Govan Mbeki Building  
 Postal Address: Private Bag X54001, Durban 4000

Telephone: +27 (0) 31 260 2496 Facsimile: +27 (0) 31 260 4609 Email: [brec@ukzn.ac.za](mailto:brec@ukzn.ac.za)

Website: <http://www.ukzn.ac.za/Research-Ethics/Blomedical-Research-Ethics.aspx>

### Appendix 3 – BREC Recertification Approval



28 March 2017

Ms A Scher  
Discipline of Psychology  
Centre for Applied Psychology  
[lexl.scher@gmail.com](mailto:lexl.scher@gmail.com)

Dear Ms Scher

Protocol: Testing the interpersonal - psychological theory of suicidal behaviour in the South African context.

Degree: MSc

BREC reference number: BE456/15 *sub-study of BE138/14*

### RECERTIFICATION APPLICATION APPROVAL NOTICE

Approved: 31 May 2017  
Expiration of Ethical Approval: 30 May 2018

I wish to advise you that your application for Recertification dated 16 March 2017 for the above protocol has been noted and approved by a sub-committee of the Biomedical Research Ethics Committee (BREC) for another approval period. The start and end dates of this period are indicated above.

If any modifications or adverse events occur in the project before your next scheduled review, you must submit them to BREC for review. Except in emergency situations, no change to the protocol may be implemented until you have received written BREC approval for the change.

This approval will be ratified at the next BREC meeting to be held on 11 April 2017.

Yours sincerely

Ms A Marimuthu  
Senior Administrator: Biomedical Research Ethics



## Appendix 4 – Amendment Approval



UNIVERSITY OF  
KWAZULU-NATAL

INYUVESI  
YAKWAZULU-NATALI

RESEARCH OFFICE  
BIOMEDICAL RESEARCH ETHICS ADMINISTRATION  
Westville Campus  
Govan Mbeki Building  
Private Bag X 54001  
Durban  
4000

KwaZulu-Natal, SOUTH AFRICA  
Tel: 27 31 2604769 - Fax: 27 31 260 4609  
Email: [BRREC@ukzn.ac.za](mailto:BRREC@ukzn.ac.za)

Website <http://research.ukzn.ac.za/Research-Ethics/Biomedical-Research-Ethics.aspx>

Amended letter  
10 March 2017

Ms A Scher  
Discipline of Psychology  
Centre for Applied Psychology  
[lexi.scher@gmail.com](mailto:lexi.scher@gmail.com)

Dear Ms Scher

Protocol: Testing the interpersonal - psychological theory of suicidal behaviour in the South African context.

Degree: MSc

BREC reference number: BE456/15 sub-study of BE138/14

**New Title:** "Exploring the Demographic and Mental Health Predictors of the Constructs of the Interpersonal-Psychological Theory of Suicidal Behaviour".

We wish to advise you that your application for Amendments dated 28 February 2017 requesting for approval of Amendments for the above study has been noted and approved by a sub-committee of the Biomedical Research Ethics Committee.

The following have been noted and approved:

**Change of Title:**

"Exploring the Demographic and Mental Health Predictors of the Constructs of the Interpersonal-Psychological Theory of Suicidal Behaviour".

This approval will be ratified at the next full BREC meeting to be held on 11 April 2017.

Yours sincerely

Ms A Marimuthu  
Senior Administrator: Biomedical Research Ethics

cc: Supervisor: [najdops15@ukzn.ac.za](mailto:najdops15@ukzn.ac.za)  
cc: postgrad [nbulfa@ukzn.ac.za](mailto:nbulfa@ukzn.ac.za)

## Appendix 5 – Information Sheet and Informed Consent Form

Date: March 13, 2015

Dear Participant,

My name is Alexa Scher, I am a Masters student in the Discipline of Psychology in the School of Applied Human Sciences at the University of KwaZulu Natal.

You are being invited to consider participating in a Masters study that involves research on suicide. The aim and purpose of this study is to explore the relationship between suicidal behaviours, interpersonal needs and acquired capability in a South African context. The study is expected to register 250 participants from hospital outpatient clinics, psychology clinics and private outpatients, all within the Durban area. It will involve the completion of five questionnaires that will tap into various aspects of your emotional wellbeing. If you choose to participate and continue with the study, it should take up to 30 minutes.

Please bear in mind that your participation in the study is completely voluntary, and there will be no negative consequences (e.g. neither your medication and/or counselling will be denied because you have left the study) should you wish to withdraw from the study at any time. If you experience distress whilst participating in the study, the person administering the questionnaires is a counsellor, and will be able to debrief and counsel you, or refer for follow-up counselling.

Please note that there are no financial incentives or costs for participating in this research.

All individual data collected will be treated confidentially and coded to ensure anonymity of participants. Results will be presented as aggregated data only. The raw data will be stored in a locked cabinet at the university for a period of five years, after which it will be destroyed by shredding.

It is hoped that the study will lead to a more comprehensive understanding of suicidal behaviours and who is most at risk for suicidal behaviour. Therefore, while the study may provide no immediate or direct benefit to you, it is hoped that it will assist future efforts to prevent suicidal behaviour.

This study has been ethically approved by the UKZN Biomedical research Ethics Committee.

In the event of any problems or concerns/questions you may contact the researcher at 072 195 3838 or [lexi.scher@gmail.com](mailto:lexi.scher@gmail.com), or the UKZN Humanities and Social Sciences Research Ethics Administration:

HUMANITIES & SOCIAL SCIENCES RESEARCH ETHICS ADMINISTRATION  
Research Office, Westville Campus  
Govan Mbeki Building  
Private Bag X 54001  
Durban  
4000  
KwaZulu-Natal, SOUTH AFRICA  
Tel: 27 31 2604557- Fax: 27 31 2604609  
Email: HSSREC@ukzn.ac.za

PREDICTORS OF THE CONSTRUCTS OF THE IPTS

I (Full Name \_\_\_\_\_) have been informed about the study entitled Exploring the relationship amongst suicidal behaviour, interpersonal needs and acquired capability in a South African sample by Alexa Scher.

I understand the purpose and procedures of the study as have been explained to me.

I have been given an opportunity to ask questions about the study and have had answers to my satisfaction.

I declare that my participation in this study is entirely voluntary and that I may withdraw at any time without affecting my treatment or care that I would usually be entitled to.

I have been informed about counselling available to me in the event that I become distressed as a result of my participation in the research.

If I have any further questions/concerns or queries related to the study I understand that I may contact the researcher at 072 195 3838.

If I have any questions or concerns about my rights as a study participant, or if I am concerned about an aspect of the study or the researcher then I may contact:

**HUMANITIES & SOCIAL SCIENCES RESEARCH ETHICS ADMINISTRATION**

Research Office, Westville Campus

Govan Mbeki Building

Private Bag X 54001

Durban

4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604557- Fax: 27 31 2604609

Email: HSSREC@ukzn.ac.za

\_\_\_\_\_  
Signature of the Participant

\_\_\_\_\_  
Date

## Appendix 6 - Questionnaires

## DEMOGRAPHIC QUESTIONNAIRE

1. Age: 18-25yrs  25-34 yrs  35-44 yrs  45-54 yrs  55-64 yrs   
65-74yrs  75yrs +
2. Sex: Male  Female
3. Marital status: Single (never married)  Married/domestic partnership   
Divorced  Widowed  Separated
4. Race: Black  Indian  White  Coloured  Other
5. Religion: (tick one) Hindu  Christian  Muslim  Buddhist  Shembe   
Other
6. Highest level of education : No formal schooling  Primary school  High school  
 Undergraduate degree  Postgraduate degree
7. Employment status: Employed  Unemployed but looking for work   
Unemployed but not looking for work  Homemaker  Student  Retired
8. Where do you live most of the time? Home  University Residence  Hostel   
Other
9. Who do you live with? Alone  Partner  Parent/s  Sibling  Child   
Other

## INQ

The following questions ask you to think about yourself and other people. Please respond to each question by using your own CURRENT beliefs and experiences, NOT what is true for you in general or what might be true for other people. There are no right or wrong answers: we are interested in what you think and feel.

For each statement, use the rating scales provided to **circle a number** that best matches:

1. How you feel about the statement currently?
2. And whether you feel that things are likely to be any different in the future.

NB. For each item you must circle an answer in **both** scales

- |                      |
|----------------------|
| 1. Completely untrue |
| 2. Mostly untrue     |
| 3. A little untrue   |
| 4. Undecided         |
| 5. A little true     |
| 6. Mostly true       |
| 7. Completely true   |

- |                                    |
|------------------------------------|
| 1. Things will get a lot worse     |
| 2. Things will get a little worse  |
| 3. Things will remain unchanged    |
| 4. Things will get a little better |
| 5. Things will get a lot better    |

	How true is this of how you feel currently?		Do you believe that things will get worse or better or in the future?
1. People in my life would be better off if I were gone.	1 2 3 4 5 6 7		1 2 3 4 5
2. People in my life would be happier without me.	1 2 3 4 5 6 7		1 2 3 4 5
3. I feel I have failed the people in my life.	1 2 3 4 5 6 7		1 2 3 4 5
4. I feel I contribute to the well-being of people in my life.	1 2 3 4 5 6 7		1 2 3 4 5
5. I feel I am a burden to the people in my life.	1 2 3 4 5 6 7		1 2 3 4 5
6. The people in my life wish they could get rid of me.	1 2 3 4 5 6 7		1 2 3 4 5
7. I think I make things worse for the people in my life.	1 2 3 4 5 6 7		1 2 3 4 5
8. Other people care about me.	1 2 3 4 5 6 7		1 2 3 4 5
9. I feel disconnected from other people.	1 2 3 4 5 6 7		1 2 3 4 5
10. I feel there are people I can turn to in times of need.	1 2 3 4 5 6 7		1 2 3 4 5
11. I am close to other People.	1 2 3 4 5 6 7		1 2 3 4 5
12. I have at least one satisfying interaction with people a day.	1 2 3 4 5 6 7		1 2 3 4 5



## IBS

Please answer the following questions for any time in the past. For each question circle ONE answer.

		Never	Once	On occasion (2-3 times)	Sometimes (4-20 times)	Regularly (+ than 20)
1	Have you ever overdosed on prescription or illegal drugs ?	1	2	3	4	5
2	Have you been sexually "promiscuous" ?	1	2	3	4	5
3	Have you had any self-mutilation thoughts and impulses (without taking action)?	1	2	3	4	5
4	Have you had times when you've consumed too much alcohol for your own good?	1	2	3	4	5
5	Have you had sex with someone you didn't necessarily want to have sex with?	1	2	3	4	5
6	Have people told you that you're a daredevil type or that you take too many risks?	1	2	3	4	5
7	Have you had any suicide gestures (non - lethal) ?	1	2	3	4	5
8	Have you been to the doctor or hospital as a result of a self-harm incident?	1	2	3	4	5
9	Have you had abused laxatives, diuretics or diet pills?	1	2	3	4	5
10	Have you stolen personal items or money from acquaintances, friends or family?	1	2	3	4	5
11	Have you driven under the influence of drugs and/or alcohol?	1	2	3	4	5
12	Have you made any suicide attempts?	1	2	3	4	5
13	Have you engaged in unsafe sex?	1	2	3	4	5
14	Have you been accident prone, that is been in accidents regularly?	1	2	3	4	5
15	Have you had any suicidal thoughts and impulses (without taking action)?	1	2	3	4	5
16	Have you eaten food in a grocery market before having the chance to pay for it ?	1	2	3	4	5
17	Have you times when you've taken too many recreational drugs?	1	2	3	4	5
18	Have you been known to put yourself physically to the limit?	1	2	3	4	5
19	Have you driven recklessly?	1	2	3	4	5
20	Have you stolen material goods (such as clothes or jewellery) from a store or vender?	1	2	3	4	5
21	Have you hurt yourself regularly, even if you didn't mean to (e.g. falling, bruising)?	1	2	3	4	5
22	Have you impulsively spent money on clothes, jewellery or other items?	1	2	3	4	5
23	Have you self-mutilated (e.g., cutting, pinching, burning yourself)?	1	2	3	4	5
24	Have you enjoyed taking risks or engaging in somewhat dangerous activity?	1	2	3	4	5
25	Have you stolen food?	1	2	3	4	5



Date: \_\_\_\_\_

Name: \_\_\_\_\_ Marital Status: \_\_\_\_\_ Age: \_\_\_\_\_ Sex: \_\_\_\_\_

Occupation: \_\_\_\_\_ Education: \_\_\_\_\_

**Directions:** Please carefully read each group of statements below. Circle the one statement in each group that best describes how you have been feeling for the past week, including today. Be sure to read all of the statements in each group before making a choice.

**Part 1**

<p><b>1</b> 0 I have a moderate to strong wish to live.              1 I have a weak wish to live.              2 I have no wish to live.</p> <p><b>2</b> 0 I have no wish to die.              1 I have a weak wish to die.              2 I have a moderate to strong wish to die.</p> <p><b>3</b> 0 My reasons for living outweigh my reasons for dying.              1 My reasons for living or dying are about equal.              2 My reasons for dying outweigh my reasons for living.</p>	<p><b>4</b> 0 I have no desire to kill myself.              1 I have a weak desire to kill myself.              2 I have a moderate to strong desire to kill myself.</p> <p><b>5</b> 0 I would try to save my life if I found myself in a life-threatening situation.              1 I would take a chance on life or death if I found myself in a life-threatening situation.              2 I would not take the steps necessary to avoid death if I found myself in a life-threatening situation.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>If you have circled the zero statements in both Groups 4 and 5 above, then skip down to Group 20. If you have marked a 1 or 2 in either Group 4 or 5, then open here and go to Group 6.</p> </div>
--	---

\_\_\_\_\_ Subtotal Part 1

**20** 0 I have never attempted suicide.  
     1 I have attempted suicide once.  
     2 I have attempted suicide two or more times.

---

If you have previously attempted suicide, please continue with the next statement group.

---

**21** 0 My wish to die during the last suicide attempt was low.  
     1 My wish to die during the last suicide attempt was moderate.  
     2 My wish to die during the last suicide attempt was high.

\_\_\_\_\_ Subtotal Part 2

\_\_\_\_\_ Total Score

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 SAN ANTONIO

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**Part 2**

- 6 0** I have brief periods of thinking about killing myself which pass quickly.
- 1 I have periods of thinking about killing myself which last for moderate amounts of time.
  - 2 I have long periods of thinking about killing myself.
- 7 0** I rarely or only occasionally think about killing myself.
- 1 I have frequent thoughts about killing myself.
  - 2 I continuously think about killing myself.
- 8 0** I do not accept the idea of killing myself.
- 1 I neither accept nor reject the idea of killing myself.
  - 2 I accept the idea of killing myself.
- 9 0** I can keep myself from committing suicide.
- 1 I am unsure that I can keep myself from committing suicide.
  - 2 I cannot keep myself from committing suicide.
- 10 0** I would not kill myself because of my family, friends, religion, possible injury from an unsuccessful attempt, etc.
- 1 I am somewhat concerned about killing myself because of my family, friends, religion, possible injury from an unsuccessful attempt, etc.
  - 2 I am not or only a little concerned about killing myself because of my family, friends, religion, possible injury from an unsuccessful attempt, etc.
- 11 0** My reasons for wanting to commit suicide are primarily aimed at influencing other people, such as getting even with people, making people happier, making people pay attention to me, etc.
- 1 My reasons for wanting to commit suicide are not only aimed at influencing other people, but also represent a way of solving my problems.
  - 2 My reasons for wanting to commit suicide are primarily based upon escaping from my problems.
- 12 0** I have no specific plan about how to kill myself.
- 1 I have considered ways of killing myself, but have not worked out the details.
  - 2 I have a specific plan for killing myself.

- 13 0** I do not have access to a method or an opportunity to kill myself.
- 1 The method that I would use for committing suicide takes time, and I really do not have a good opportunity to use this method.
  - 2 I have access or anticipate having access to the method that I would choose for killing myself and also have or shall have the opportunity to use it.
- 14 0** I do not have the courage or the ability to commit suicide.
- 1 I am unsure that I have the courage or the ability to commit suicide.
  - 2 I have the courage and the ability to commit suicide.
- 15 0** I do not expect to make a suicide attempt.
- 1 I am unsure that I shall make a suicide attempt.
  - 2 I am sure that I shall make a suicide attempt.
- 16 0** I have made no preparations for committing suicide.
- 1 I have made some preparations for committing suicide.
  - 2 I have almost finished or completed my preparations for committing suicide.
- 17 0** I have not written a suicide note.
- 1 I have thought about writing a suicide note or have started to write one, but have not completed it.
  - 2 I have completed a suicide note.
- 18 0** I have made no arrangements for what will happen after I have committed suicide.
- 1 I have thought about making some arrangements for what will happen after I have committed suicide.
  - 2 I have made definite arrangements for what will happen after I have committed suicide.
- 19 0** I have not hidden my desire to kill myself from people.
- 1 I have held back telling people about wanting to kill myself.
  - 2 I have attempted to hide, conceal, or lie about wanting to commit suicide.

Go to Group 20.

**20 0** I have never attempted suicide.

Subtotal Part 2

### Clinician protocol for Rating and Managing Suicide Risk

Has the patient ever made a suicide attempt: YES \_\_\_ NO \_\_\_

If yes, how many attempts have been made: \_\_\_

DIAGNOSIS: AXIS I: \_\_\_\_\_

AXIS II: \_\_\_\_\_

AXIS III: \_\_\_\_\_

AXIS IV: \_\_\_\_\_

AXIS IV: \_\_\_\_\_

Risk	Symptomatic presentation	Actions
Low	No current identifiable suicide symptoms Multiple attempter with no other notable risk factors <sup>i</sup> A single attempter with suicide ideation of limited intensity and duration No or mild symptoms of the Resolved Plans and preparation factor <sup>ii</sup>	Give emergency numbers Create a coping card Document and monitor risk
Moderate	A multiple attempter with any other notable risk factor A single attempter with moderate to severe symptoms of the Resolved Plans and Preparation factor A single attempter with moderate to severe symptoms of the Suicidal Desire and Ideation factor <sup>iii</sup> (but mild or no Resolved plans and preparation) and at least TWO notable risk factors	Actions listed above Weekly monitoring of risk
High	A multiple attempter with any two or more other notable findings A single attempter with moderate to severe symptoms of the Resolved Plans and Preparation factor and at least ONE other risk factor. A multiple attempter with severe symptoms of the Resolved Plans and Preparation factor A single attempter with severe symptoms of the Resolved Plans and Preparation factor and TWO or more other risk factors	Actions listed above Consult supervisor before client leaves to consider options Patient to be accompanied and monitored at all times by significant other If hospitalization is not warranted, follow steps from Moderate category

Adapted from Joiner, Walker, Rudd & Jobes (1999).

<sup>i</sup> Notable Risk factors: Axis 1 or 2 pathology, history of physical/sexual abuse, hopelessness, interpersonal problems that involve loss or disruption, serious physical illness.

<sup>ii</sup> Resolved Plan and Preparation factor: courage to make attempt, competence to engage in attempt, specific plan, preparation to engage in plan, availability of means, suicide notes.

<sup>iii</sup> Suicidal desire and Ideation factor: wish to die, frequency of ideation, wish not to live, passive attempt, desire for attempt, talk of suicide.