

UNIVERSITY OF KWAZULU-NATAL

**TESTING THE INTERPERSONAL-PSYCHOLOGICAL THEORY OF SUICIDAL
BEHAVIOUR (IPTS) IN THE SOUTH AFRICAN CONTEXT**

BY

SAROJINI NAIDOO

A dissertation submitted in fulfilment of the requirements for the degree of

Doctor of Philosophy (Psychology)

Discipline of Psychology

School of Applied Human Sciences

College of Humanities

December 2016

Supervisor: Professor Steven J. Collings

DECLARATION

I, Sarojini Naidoo, declare that:

- (i) The research reported in this dissertation, except where otherwise indicated, is my original work.
- (ii) This dissertation has not been submitted for any degree or examination at any another university.
- (iii) This dissertation does not contain other persons' data, pictures, graphs or other information, unless specifically acknowledged as being sourced from said persons.
- (iv) This dissertation does not contain other persons' writing, unless specifically acknowledged as being sourced from other researchers. Where other written resources have been quoted, then:
 - a. their words have been rewritten but the general information attributed to them has been referenced
 - b. where their exact words have been used, their writing has been placed inside quotation marks, and referenced.
- (v) This dissertation does not contain text, graphics or tables copied and pasted from the Internet, unless specifically acknowledged, and the source being detailed in the dissertation and in the references section.

Signed:

Date :

ACKNOWLEDGEMENTS

I would like to express my gratitude to the following persons/organisation:

1. My supervisor, Professor Steven Collings, whose passion for research and amazing statistical brain kept me motivated and inspired throughout this process. I owe you a debt of gratitude.
2. My family, especially my sister and brother in law, Vasie and Leon Pillay, for their constant support and encouragement. Thank you for always being there for me.
3. My friends, Cynthia Patel and Zubi Paruk, who ignited my interest in academic writing and readily assisted me in numerous ways through this process. Thank you for your friendship and support through the years.
4. My friend Sachet Valjee, who walked on this journey with me and shared the highs and lows that completing a dissertation entails. This journey has sealed our friendship.
5. My amazing Kris, Kerushan and Sachin whose boundless love, patience and belief in me have sustained me through this period. I could not have done this without your presence in my life.
6. The National Research Foundation for their awarding of a Doctoral Sabbatical grant to me that enabled me to complete this dissertation.
7. The gatekeepers of all the sites included in this research for facilitating my access to the participants of this study.
8. Finally, the participants of the study, whose contributions to the generation of knowledge in this field are acknowledged with gratitude.

ABSTRACT

In spite of suicidality being a global mental health care problem, there has been relatively little empirical advancement in the conceptualization of suicide in recent years. Joiner's (2005) Interpersonal-Psychological theory of suicidal behaviour (IPTS) attempts to answer the question of why people die by suicide. Joiner contends that people die by suicide because *they can* and because *they want to*. He proposes that the confluence of the interpersonal states of perceived burdensomeness and thwarted belongingness is the condition under which death ideation transforms into suicidal ideation, and in the presence of a third construct, an acquired capability for suicide, leads to a lethal suicide attempt. The theory has been lauded as an empirical advancement in our understanding of suicidality, as it provides testable hypotheses that translate into practical interventions. However, tests of the theory have provided inconsistent support for its hypotheses. Using a sample of 239 psychiatric outpatients from nine sites, the main hypotheses of Joiner's theory were tested in the present study. Study findings provide unqualified support for all key IPTS hypotheses: Perceived burdensomeness and thwarted belongingness independently predicted death ideation; the confluence of these interpersonal states, in the presence of hopelessness regarding these states, predicted suicidal ideation and finally, the joint presence of acquired capability for suicide and suicidal ideation was associated with moderate to high risk for a suicide attempt. In addition, two new measures were developed for the present study: (a) the Death Inurement Scale and (b) the Interpersonal Hopelessness Scale, to address the limitations of available measures. Demographic and mental health predictors of IPTS constructs were also explored using regression analyses. The study findings suggest that the IPTS is a valid theory for understanding suicidal behaviour in the South African context. The findings are discussed with respect to their implications for theory, practice, and future research.

TABLE OF CONTENTS

	Page No.
DECLARATION.....	ii
ACKNOWLEDGEMENTS.....	iii
ABSTRACT.....	iv
LIST OF TABLES.....	xiv
LIST OF FIGURES.....	xvi
LIST OF ABBREVIATIONS.....	xvii
CHAPTER ONE: INTRODUCTION.....	1
1.1 Background to the research problem.....	1
1.2 The Interpersonal-Psychological Theory of suicidal behaviour (IPTs).....	3
1.3 Objectives of the present study.....	5
1.4 Contributions of the present study to the existing body of knowledge.....	5
1.5 Organization of the dissertation.....	6
CHAPTER TWO: REVIEW OF THE LITERATURE.....	8
2.1 Introduction.....	8
2.2 The nature of the problem.....	8
2.2.1 Changing social perspectives on suicide.....	8
2.2.2 Nomenclature.....	10
2.2.3 Nosology.....	15
2.2.3.1 Suicidal behaviour.....	15
2.2.3.2 Distinguishing suicidal and nonsuicidal self-injury.....	18

2.3	The epidemiology of suicide.....	21
2.3.1	The extent of the problem.....	21
2.3.1.1	International perspectives.....	21
2.3.1.2	South African perspectives.....	23
2.4	Risk and protective factors for suicide.....	26
2.4.1	Demographic characteristics.....	27
2.4.1.1	Age.....	27
2.4.1.2	Gender.....	28
2.4.1.3	Race/ethnicity.....	30
2.4.2	Biopsychosocial risk factors.....	32
2.4.2.1	Interpersonal conflict.....	32
2.4.2.2	Mental disorders.....	34
2.4.2.3	Previous suicide attempts.....	36
2.4.2.4	Physical illness.....	38
2.4.2.5	Poverty and unemployment.....	39
2.4.2.6	Social isolation.....	40
2.4.2.7	Religion and suicide.....	42
2.4.2.8	Coping styles.....	43
2.5	Conceptualising suicidal thoughts and behaviours.....	45
2.5.1	Sociological theories.....	45
2.5.2	Bio-physical theories.....	47
2.5.3	Psychoanalytic theories.....	49
2.5.4	Shneidman’s psychological theory.....	51

2.5.5	Cognitive theories of suicide.....	53
2.5.5.1	Beck’s cognitive theory.....	53
2.5.5.2	Baumeister’s escape theory.....	55
2.5.5.3	The Hopelessness theory of suicidality.....	57
2.6	The case for a multidimensional theory of suicide.....	58
2.7	The Interpersonal-Psychological theory of suicidal behaviour (IPTS).....	59
2.8	A brief comparison of the Hopelessness and the Interpersonal-Psychological theories of suicidality.....	64
2.9	Key hypotheses of the IPTS.....	66
2.10	Empirical tests of IPTS hypotheses.....	66
2.10.1	Hypothesis 1: Risk factors for death ideation.....	66
2.10.2	Hypothesis 2: Proximal risk factors for suicide ideation.....	68
2.10.3	Hypothesis 3: Risk factors for potentially lethal suicidal behaviour.....	69
2.11	Methodological issues in research on the IPTS.....	70
2.12	Conclusions and implications.....	73
	CHAPTER THREE : RESEARCH METHODOLOGY.....	75
3.1	Introduction.....	75
3.2	Research approach.....	75
3.3	Research aims.....	76
3.4	Research objectives.....	76
3.5	Research questions.....	77
3.6	Location of the study.....	78
3.7	Sites of the study.....	78

3.8 Sampling strategy.....	79
3.9 Research participants.....	80
3.10 Research procedure.....	82
3.11 Research instruments.....	83
3.11.1 Measures of IPTS risk factors.....	83
3.11.2 Measures of IPTS outcome variables.....	85
3.12 Data preparation.....	86
3.12.1 Data entry.....	86
3.12.2 Dealing with missing values.....	86
3.12.3 Recoding of variables.....	87
3.13 Data analysis.....	87
3.13.1 Psychometric properties of IPTS risk measures.....	87
3.13.2 Psychometric properties of predictors of IPTS risk factors.....	88
3.13.3 Tests of IPTS hypotheses.....	88
3.14 Ethical considerations.....	89
3.14.1 Informed Consent.....	89
3.14.2 Risks and benefits.....	89
3.14.3 Oversight.....	91
3.14.4 Social value.....	91
3.14.5 Post-trial obligations.....	91
3.15 Summary.....	92
CHAPTER FOUR: RESULTS.....	93
4.1. Introduction.....	93

4.2	Section one: Psychometric properties of available measures of IPTS constructs.....	93
4.2.1	Psychometric properties of available measures of IPTS risk factors.....	93
4.2.1.1	Measures of perceived burdensomeness and thwarted belongingness.....	94
4.2.1.2	Measuring hopelessness in relation to perceived burdensomeness and thwarted belongingness.....	96
4.2.1.3	Measures of an acquired capability for suicide.....	96
4.2.2	Psychometric properties of measures of IPTS outcome variables.....	98
4.2.2.1	Measures of death and suicidal ideation.....	98
4.2.2.2	Measuring suicide risk.....	100
4.3	Section two: Development of new measure of IPTS constructs.....	101
4.3.1	Rationale.....	101
4.3.2	Development and preliminary validation of the Interpersonal Hopelessness Scale (IHS).....	102
4.3.3	Development and preliminary validation of the Death Inurement Scale (DIS).....	104
4.3.4	Conclusions.....	106
4.4	Section three: Predictors of IPTS risk factors.....	106
4.4.1	Rationale.....	106
4.4.2	Analysis of demographic and clinical predictors of IPTS risk factors.....	107
4.4.2.1	Demographic and clinical predictors of perceived burdensomeness.....	107
4.4.2.2	Demographic and clinical predictors of thwarted belongingness.....	109
4.4.2.3	Demographic and clinical predictors of hopelessness.....	110
4.4.2.4	Demographic and clinical predictors of an acquired capability for suicide.....	111
4.4.3	Conclusions.....	112

4.5	Section 4: Tests of key IPTS hypotheses.....	112
4.5.1	Preliminary analyses.....	112
4.5.2	Tests of Hypothesis 1.....	115
4.5.2.1	Tests of Hypothesis 1a.....	116
4.5.2.2	Tests of Hypothesis 1b.....	118
4.5.2.3	Conclusion.....	120
4.5.3	Tests of Hypothesis 2.....	120
4.5.3.1	Tests of Hypothesis 2a.....	121
4.5.3.2	Tests of Hypothesis 2b.....	123
4.5.3.3	Tests of Hypothesis 2c.....	129
4.5.3.4	Conclusions.....	131
4.5.4	Tests of Hypothesis 3.....	131
4.5.4.1	Tests of Hypothesis 3a and 3b.....	132
4.5.4.2	Tests of Hypothesis 3c.....	134
4.5.4.3	Conclusions.....	135
4.6	Summary and conclusion to chapter.....	136
	CHAPTER FIVE: DISCUSSION.....	137
5.1	Introduction.....	137
5.2	Psychometric properties of available IPTS measures.....	137
5.2.1	IPTS risk measures.....	137
5.2.1.1	Perceived burdensomeness and thwarted belongingness (INQ scale).....	137
5.2.1.2	Hopelessness.....	138
5.2.1.3	Acquired capability for suicide.....	138

5.2.2 IPTS outcome measures.....	140
5.2.2.1 Death and suicidal ideation.....	140
5.2.2.2 Suicide risk.....	141
5.3 Development of scales for use in the study.....	143
5.3.1 Development of the Interpersonal Hopelessness Scale (IHS).....	143
5.3.2 Development of the Death Inurement Scale (DIS).....	144
5.3.3 Summary.....	144
5.4 Demographic and clinical predictors of IPTS risk factors.....	145
5.4.1 Demographic and clinical predictors of perceived burdensomeness.....	145
5.4.1.1 Sex.....	146
5.4.1.2 Education level and employment status.....	146
5.4.1.3 Mood disorders.....	147
5.4.1.4 Borderline personality disorder.....	148
5.4.1.5 Anxiety disorders.....	148
5.4.1.6 Substance use disorders.....	149
5.4.1.7 Bereavement.....	149
5.4.1.8 Partner relational difficulties.....	150
5.4.1.9 Schizophrenia	151
5.4.2 Clinical predictors of thwarted belongingness.....	152
5.4.2.1 Substance use disorder.....	152
5.4.2.2 Borderline personality disorder.....	153
5.4.2.3 Anxiety disorders.....	153

5.4.3 Demographic and clinical predictors of hopelessness.....	154
5.4.4 Demographic and clinical predictors of an acquired capability for suicide.....	154
5.4.4.1 Age.....	154
5.4.4.2 Sex.....	155
5.4.4.3 Employment status.....	156
5.4.5 Summary: Demographic and clinical predictors of IPTS risk factors.....	156
5.5 Demographic and clinical predictors of scores on IPTS outcome measures.....	157
5.5.1 Age, suicidal ideation and suicide risk.....	157
5.5.2 Race, suicidal ideation and suicide risk.....	158
5.5.3 BDI-II scores and death ideation, suicidal ideation and suicide risk.....	159
5.5.4 Summary: Demographic variables and clinical predictors of IPTS outcome measures.....	160
5.6 Hypothesis testing.....	161
5.6.1 Burdensomeness and belongingness are proximal and sufficient causes of death ideation (<i>Hypothesis 1</i>)	161
5.6.2 The joint presence of burdensomeness and belongingness is a proximal and sufficient cause of suicidal ideation (<i>Hypothesis 2</i>).....	164
5.6.3 The relationship between burdensomeness, belongingness, hopelessness and suicidal ideation (<i>Hypothesis 2</i>)	167
5.6.4 The greatest risk for suicide occurs in the context of both suicidal ideation and an acquired capability for suicide.....	170
5.6.5 Conclusions: Hypothesis testing.....	173
5.7 Summary of study findings.....	173

CHAPTER SIX: LIMITATIONS AND STRENGTHS OF THE STUDY AND IMPLICATIONS OF STUDY FINDINGS.....	174
6.1 Limitations and strengths of the study.....	174
6.2 Implications of study findings.....	177
6.2.1 Methodological issues relating to the IPTS.....	177
6.2.2 Development of instruments for the present study.....	178
6.2.3 Prevalence rates and demographic and clinical correlates of suicidal behaviour in South Africa.....	179
6.2.4 Tests of IPTS hypotheses.....	180
6.3 Clinical implications of the validation of IPTS constructs.....	182
6.4 Chapter summary.....	186
CHAPTER SEVEN: SUMMARY, RECOMMENDATIONS AND CONCLUSION.....	187
7.1 Brief summary of the research problem.....	187
7.2 Summary of findings of the present study.....	189
7.3 Recommendations for future research.....	190
7.4 Concluding remarks.....	191
REFERENCES.....	192
APPENDICES.....	243
Appendix A: Ethical Clearance documentation.....	244
Appendix B: Informed Consent form.....	246
Appendix C: CPRMSR.....	248
Appendix D: Research Questionnaire.....	250

LIST OF TABLES

	Page No.
Table 3.1 Participant demographics.....	81
Table 4.1 Descriptive statistics for measures of perceived burdensomeness and thwarted belongingness.....	94
Table 4.2 Distribution of scores for measures of perceived burdensomeness and thwarted belongingness.....	95
Table 4.3 Descriptive statistics for measures of an acquired capability for suicide.....	97
Table 4.4 Distribution of scores for measures of an acquired capability for suicide.....	98
Table 4.5 Descriptive statistics for measures of death and suicidal ideation.....	99
Table 4.6 Distribution of scores for measures of death and suicidal ideation.....	100
Table 4.7 Distribution of scores for the CPRMSR.....	101
Table 4.8 Factor structure and descriptive statistics for the IHS.....	103
Table 4.9 Factor structure and descriptive statistics for the DIS.....	105
Table 4.10 Demographic and clinical predictors of perceived burdensomeness.....	108
Table 4.11 Demographic and clinical predictors of thwarted belongingness.....	109
Table 4.12 Demographic and clinical predictors of hopelessness.....	110
Table 4.13 Demographic and clinical predictors of an acquired capability for suicide.....	111
Table 4.14 Zero-order correlations between IPTS constructs.....	113

Table 4.15 Demographic characteristics and BDI scores as predictors of IPTS outcome measures.....	114
4.16 Regression of death ideation on perceived burdensomeness.....	117
4.17 Regression of death ideation on thwarted belongingness.....	117
4.18 Regression of death ideation on perceived burdensomeness and thwarted belongingness.....	118
4.19 Regression of suicidal ideation on perceived burdensomeness and thwarted belongingness.....	122
Table 4.20 Regression of suicidal ideation on perceived burdensomeness, thwarted belongingness and hopelessness.....	125
Table 4.21 Cross tabulation of frequencies for hopelessness and suicide-related ideations.....	130
Table 4.22 Multinomial logistic regression model of factors associated with suicidal and death ideation.....	131
Table 4.23 Binary logistic regression model predicting suicide risk.....	133
4.24 Binary logistic regression model testing the association between death ideation, suicidal ideation and suicide risk.....	135

LIST OF FIGURES

	Page No.
Figure 2.1 Key hypotheses of the IPTS.....	67
Figure 4.1 Illustration of the additional rating scale added to the INQ.....	102
Figure 4.2 Illustration of <i>Hypothesis 1</i>	115
Figure 4.3 Associations between perceived burdensomeness, thwarted belongingness, and the presence of some degree of death ideation.....	119
Figure 4.4 Illustration of <i>Hypothesis 2</i>	120
Figure 4.5 Analysis of the significant perceived burdensomeness x thwarted belongingness interaction.....	126
Figure 4.6 Analysis of significant perceived burdensomeness x hopelessness interaction.....	126
Figure 4.7 Analysis of significant belongingness x hopelessness interaction.....	127
Figure 4.8 Analysis of the significant 3-way interaction.....	128
Figure 4.9 Illustration of <i>Hypothesis 3</i>	132
Figure 4.10 Analysis of significant suicidal ideation x acquired capability interaction.....	134

LIST OF ABBREVIATIONS

ACSS- Acquired Capability for Suicide Scale

APA- American Psychological Association

BDI- Beck Depression Inventory

BSS- Beck Scale for Suicidal Ideation

CPRMSR- Clinician Protocol for Rating and Managing Suicide Risk

DIS- Death Inurement Scale

DSM- Diagnostic and Statistical Manual

IBS- Impulsive Behaviour Scale

IHS- Interpersonal Hopelessness Scale

INQ- Interpersonal Needs Questionnaire

IPTS- Interpersonal-Psychological Theory of Suicidal Behaviour

NIMSS- National Injury Mortality Surveillance System

NSSI- Nonsuicidal Self-Injury

PPES- Painful and Provocative Events Scale

SADAG- South African Depression and Anxiety Group

WHO- World Health Organization

CHAPTER ONE

INTRODUCTION

Suicidal behaviour has become an increasingly serious mental health problem and contributes 1.8% to the global burden of disease (Joe, Stein, Seedat, Herman, & Williams, 2008). The World Health Organisation (WHO; 2014a) estimates that more than 800 000 people die by suicide every year, with 75% of these deaths occurring in low- and middle-income countries. In addition, approximately 10 to 20 times more individuals attempt suicide each year. Based on these trends, suicide rates are likely to double by the year 2020, with more people dying from suicide than from war, violence, homicide, and traffic accidents combined.

Previously thought to be more prevalent among the elderly, suicidal behaviour is now generally acknowledged to be more prevalent among younger people – a shift that Schlebusch (2005) refers to as the *ungreying phenomenon* – with suicide now constituting the second leading cause of death among 15-29 year-olds globally (WHO, 2014a).

1.1 Background to the Research Problem

Globally, suicide remains a relatively under researched phenomenon as compared to other mental health problems, with there being a number of reasons for this lack of empirical attention. First, death by suicide has a relatively low base rate in the general population as compared to other public health concerns (Moscicki, 2001; Van Orden, Witte, Cukrowicz, Braithwaite, Selby, & Joiner, 2010); second, completed acts of suicide are, for obvious reasons, difficult to study, with the psychological autopsy often being the only viable option; and third, the emotional fragility of suicidal individuals makes them high-risk participants (Rudd, Joiner, & Rajab, 2004), thus presenting researchers with a range of ethical dilemmas that they must navigate. As a result, the systematic screening of suicide risk has received

little attention, with researchers having been relatively unsuccessful in predicting and preventing suicide attempts (O'Connor, 2003; O'Connor & Sheehy, 2000; Wenzel & Beck, 2008). Additionally, available research studies have tended to be characterised by ambiguity and a lack of clarity regarding operational definitions of key constructs.

Most research on the epidemiology of suicide has been conducted in developed countries such as the United States and the United Kingdom, and comparative data for the South African context are relatively scarce (Bantjes & Kagee, 2013). The two main sources of data on suicidal behaviour in South Africa are mortuary records and the National Injury Mortality Surveillance System (NIMSS). These sources, while providing useful insights into the demographics of completed suicide and its associated risk factors, cannot adequately address the question of why people die by suicide.

Current research efforts in South Africa have focused mainly on prevalence studies (e.g., Burrows & Laflamme, 2008; Burrows, Vaez, & Laflamme, 2007; Flisher, Liang, Laubscher, & Lombard, 2004; Wassenaar, Pillay, Descoins, Goltman, & Naidoo, 2000), and on risk and protective factors for suicidal behaviour (e.g., Beekrum, Valjee, & Collings, 2011; du Toit et al., 2008; Kazi & Naidoo, 2016; Liversage, 2007; Murray, 2008; Ramgoon, Bachoo, Patel, & Paruk, 2006). While correlational research is important, it is limited in its ability to explore causal relationships due to the use of largely cross-sectional designs (O'Connor, 2003; Wenzel & Beck, 2008).

Suicidality is a multifaceted phenomenon, and is indisputably the outcome of a complex interplay of factors, with the precise inter-relationships between these factors varying from person to person (Rudd, 2000). However, while a number of theories of suicidal behaviour have been proposed since Durkheim's (1897)[1951] seminal work, most of these have provided unidimensional understandings of why people engage in suicidal behaviour. As such, there have been relatively few empirical advances regarding our understanding of

how crucial risk factors for suicide (both distal and proximal) interact in the development of suicidal ideation and in the transformation of suicidal ideation to lethal suicide attempts. Consequently, clinicians face the challenge of not having empirically based interventions that can be used to treat suicidal patients in meaningful ways, “opting instead to use multiple theoretical paradigms to understand, explain, and ultimately treat different aspects of a single patient's presentation” (Rudd, 2000, p. 19).

There is therefore a need for a multidimensional theory of suicidality, which is able to account for the multiple factors implicated in suicidal behaviour, contains clearly articulated hypotheses that can be tested across different contexts and which can be translated into clinical practice. One theory that attempts to address these gaps is the Interpersonal-Psychological theory of suicidal behaviour (IPT; Joiner, 2005).

1.2 The Interpersonal-Psychological Theory of Suicidal behaviour (IPT)

The IPT draws on existing biological, sociological, and psychological understandings of suicidality in an attempt to answer the question of why people die by suicide. Simply stated, Joiner (2005) proposes that people die by suicide because *they want to* and because *they can*. Joiner explains that an individual who experiences suicidal ideation must develop the capability to enact self-injury lethal enough to end his or her life. He contends that this is not easily achieved as millions of years of evolution have ensured that humans have a strong instinct for self-preservation. An individual must thus be able to overcome this instinct as well as become inured to the pain associated with a lethal attempt in order to enact suicide.

The IPT is grounded in the assumption that the presence of *perceived burdensomeness* and *thwarted belongingness* (together with hopelessness regarding these two distressing states) is a proximal and sufficient cause of suicidal ideation, which, in the presence of an

acquired capability for suicide, is likely to increase the risk of a lethal suicide attempt. The theory offers an explanation for suicidality that is testable, is consistent with research, and arguably provides the most comprehensive account of the interplay between intrapersonal and interpersonal risk factors (Barzilay et al., 2015). While other theories have failed to fully explain the trajectory from suicidal ideation to lethal suicidal behaviour, the IPTS is comprehensive in that it proposes a causal pathway of distal and proximal risk factors and mediating variables leading to lethal suicidal behaviour, whilst acknowledging the influence of neurobiological correlates. The theory was designed to address the need for both sensitivity and specificity of prediction, with the IPTS being: (a) sensitive in that it is designed to detect the large number of individuals who are at risk for suicidal ideation; and (b) specific in the sense it is designed to identify the smaller number of individuals who are at risk for lethal suicidal attempts.

The IPTS appears to integrate much of the available empirical evidence regarding the development of suicidal behaviour and has been well received in the United States where it was first developed and validated. However, research testing the main predictions of the theory has not provided unqualified support for its main hypotheses, with a lack of consistency in research findings possibly reflecting inter-study variations in measurement, sampling, and design. Moreover, the IPTS has not been validated in many contexts outside of the United States. As such, there is not enough accumulated evidence to support the theory's main hypotheses across diverse samples and in different socio-political contexts. The central aim of the study was thus to test the validity of the IPTS in a South African sample of psychiatric outpatients.

1.3 Objectives of the Present Study

The four main objectives of the study were:

1.3.1 To evaluate the psychometric properties of available measures that have been developed to assess IPTS constructs;

1.3.2 To adapt or to develop appropriate measures for assessing IPTS risk and outcome variables in cases where available measures are not found to have adequate psychometric properties;

1.3.3 To explore the association between demographic/clinical characteristics and IPTS risk factors; and

1.3.4 To test the four key hypotheses of the IPTS in a clinical sample of South African psychiatric outpatients.

1.4 Contributions of the Present Study to the Existing Body of Knowledge

To the author's knowledge, Joiner's Interpersonal-Psychological theory has not been tested in the South African context to date. Given the unique, post-apartheid, diverse socio-political, ethnic, and cultural landscape of the country and its high rates of suicidal behaviour, it is important to find a theory that: (a) identifies the distal and proximal risk correlates of suicidal behaviour, and (b) predicts which individuals are most at risk for potentially lethal suicide attempts. Validation of the IPTS in the South African context will thus provide the opportunity to screen 'at risk' individuals and to provide theory-driven interventions.

It is hoped that the study has the potential to make three unique contributions to the body of knowledge on suicidality:

- i. The development of a measure of acquired capability for suicide, the Death Inurement Scale (DIS), to address the limitations of existing measures of the construct.

- ii. The development of a measure of interpersonal hopelessness, the Interpersonal Hopelessness Scale (IHS), to address the lack of such a measure.
- iii. A seminal attempt to test all key IPTS hypotheses using measures of IPTS constructs that have sound psychometric properties.

1.5 Organisation of the dissertation

The dissertation is organised into the following chapters:

Chapter One: Introduction. In this chapter the study is contextualised, provided by a brief overview of the IPTS, and an outline of the study objectives.

Chapter Two: Review of the Literature. In this chapter the author reviews the extant literature in the field of suicidality, addresses issues and controversies regarding definitions and nomenclature, reviews identified risk and protective factors for suicidality and provides an overview of available theoretical approaches to suicidal behaviour. The chapter concludes with an overview of the key assumptions of the IPTS and a discussion of methodological issues that are likely to be relevant in research designed to test IPTS hypotheses.

Chapter Three: Research Methodology. This chapter outlines the research approach used in the present study and describes the aims, objectives, and research questions that informed the study. The study methodology is also outlined (with regard to: the location of the study, participant demographics, the research procedure, and measures employed), and data handling and data reduction strategies are described. The chapter concludes with a discussion of ethical issues relating to research involving high-risk participants.

Chapter Four: Results. The results are presented in this chapter in four sections (with these four sections being aligned to the four research objectives). In Section one the psychometric properties of existing IPTS measures are presented, Section two describes the development and psychometric properties of the two new measures developed for the study,

and in Section three the results of regression analyses exploring the demographic and clinical predictors of IPTS constructs and outcomes are presented. The findings from tests of the key IPTS hypotheses are presented in Section four

Chapter Five: Discussion. In this chapter a summary of the study findings is presented following which, the findings are integrated with the extant literature in the field. The author engages with the inconsistent findings of previous tests of the IPTS hypotheses in relation to the study findings.

Chapter Six: Limitations and Strengths of the study and Implications of study findings. This chapter begins with a discussion of the strengths and limitations of the study, and the implications of these strengths/limitations for future research. The chapter concludes by considering the implications of the study findings for research, practice, and theory.

Chapter Seven: Summary, Recommendations and Conclusions. This chapter begins with a brief summary of the study findings, before recommendations for future research are suggested. The final part of this chapter offers concluding remarks about the study findings in relation to the IPTS.

CHAPTER TWO

REVIEW OF THE LITERATURE

2.1 Introduction

The review of the literature is presented in four parts. First, the nature of suicide is explored with reference to changing social perceptions of the problem, nomenclature, and nosology. Second, epidemiological research, relating to the prevalence/incidence of suicidal behaviour and risk factors for suicidal behaviour, is reviewed. Third, frameworks for conceptualizing suicide are reviewed and evaluated in the light of Joiner's (2005) critique of contemporary theoretical approaches to understanding suicidal behaviour. Fourth, the key assumptions of the IPTS are outlined and evaluated in the light of findings obtained in recent validation studies. The chapter concludes with the author highlighting the strengths and limitations of available research on the IPTS, with identified limitations providing the rationale for the key objectives of the present study.

2.2 The Nature of the Problem

2.2.1 Changing social perspectives on suicide

Historically, the term suicide was introduced in the 17th century by English physician Thomas Browne and comprises two Latin terms: *suic* (of oneself) and *caedere* (to kill) (De Leo, Burgis, Bertolote, Kerkhof, & Bille-Brahe, 2006). In tracing suicidal behaviour through the years, Murray (1999) records the shame and secrecy associated with suicide in Western Europe, particularly amongst the upper echelons of society. From available records, the author observes that suicide amongst noblemen may have been rare because of the opportunity to instead sacrifice one's life in battle and thereby achieve hero status.

Over time, the social acceptability of suicide has changed. For example, the ancient Greeks supported the idea that once people aged and had no useful role to play in society, they should be assisted to end their lives (O'Connell, Chin, Cunningham, & Lawlor, 2004). Similarly, in ancient Roman times *mors voluntaris* was regarded as honourable. However, this did not apply to slaves, who were forbidden from taking their lives, as to do so meant stealing from their masters to whom they belonged, or soldiers for whom such actions were regarded as desertion (Colt, 1991). During the Middle Ages, spurred by both legal and religious influences, suicidal behaviour was criminalized across the spectrum of society. Little attempt was made to understand the motivations of suicidal individuals and harsh penalties were meted out to both survivors and their families. The means of disposal of those who committed suicide reflected the taboo nature of the act. Bodies were taken out of houses in ways that avoided the usual entrance points and, instead of being buried according to local customs and funeral rites, were consigned to rubbish dumps, open fields, or secured in barrels and thrown into rivers (Murray, 1999). There was also a wide discrepancy in social attitudes towards suicidal attempts as compared to completed suicides, with non-fatal attempts attracting sympathy, and completed suicides continuing to be cursed - indicating that what mattered ultimately was not the intention of the act but the act itself and the shame that it implied (Murray, 2000).

A shift away from criminality, stigma and blame in the conception of suicide occurred with progressive thinkers in the 19th century such as Durkheim, who conceptualized suicide from a sociological perspective, placing emphasis on the impact of external influences. Durkheim's theory thus provided the first attempt to understand suicidal behaviour from a systems perspective, and the evolution around conceptualizations of suicide began to take shape.

The 20th century witnessed the first attempts at understanding suicide from a psychological perspective, when the relatives of individuals who ended their lives were interviewed to retrospectively examine their mental states at the time of their deaths (Shneidman, 1981). This process gave birth to the psychological autopsy, as we know it today. The procedure soon became a means of generating research and rapidly became an established method of studying suicide (Beskow, Runeson, & Asgard, 1990; Hawton et al., 1998). As psychological autopsies in the early 20th Century were largely focused on the clinical aspects of suicide, much of the literature at the time focused on the association between mental illness and suicide. This medical discourse appears to have prevailed for much of the 21st century (Owens & Lambert, 2012). Shneidman's work, which began in the 1960s and spanned the 20th and 21st centuries, focused on the concept of the suicidal mind and provided the field of suicidology with the notion of suicide as a multi-faceted, multidisciplinary event that has biological, sociological, psychological, and philosophical underpinnings (Leenars, 2010). Shneidman's work, however, was still largely rooted in the psychological dynamics of suicide with the concept of *psychache* being regarded as the key element of every suicide (Shneidman, 1985). More recently, traditional medical and psychological discourses on suicide are beginning to be challenged by other post-modern discourses, amongst them cultural (Owens & Lambert, 2012) and gendered-political (Hasso, 2005) understandings of why people end their lives.

The following section considers some issues related to nomenclature in suicidology, as such issues have important implications for both research and clinical practice in the field.

2.2.2 Nomenclature

The backbone of any field of study lies in its terminology (De Leo et al., 2004). In the case of mental health concerns such as suicidality, inconsistent definitions and terms have

implications for identifying ‘at risk’ groups, accurately gauging the extent of the problem, and policy-making with regard to screening and prevention (Centers for Disease Control and Prevention, 2015). In Durkheim’s seminal work [1897] (1951), he contends that empirical investigation can be achieved only if it deals with comparable facts, and those facts can be usefully compared. More than a hundred years later and in spite of suicide now being a global mental health concern, there still appears to be a lack of commonly understood, clearly defined terminology for suicidality. This issue has implications for three core areas in the field: “public health (certification of death and calculation of mortality rates), research, and clinical practice” (De Leo et al., 2006, p. 5).

Whilst it is commonly understood that suicide refers to a self-injurious act that leads to death, it is clear that the phenomenon of suicide and related behaviours is inherently far more complex than the simple act of killing oneself (De Leo et al., 2006). Process models of suicide imply that suicidality includes a range of behaviours along a continuum ranging from thoughts about dying (death ideation) to engaging in potentially life-threatening behaviour (Silverman, Berman, Sanddal, O’Carroll, & Joiner, 2007a). Moreover, regarding completed suicide, there appears to be considerable variation in how such deaths are classified (De Leo et al., 2006). Certification of death is often influenced by lack of clarity around intent, the possibility of homicide (O’Carroll, 1989), religious prejudices and societal taboos, and the need to assuage guilt and distress in surviving family members (De Leo, Bertolote, & Lester, 2002). The accuracy of certification is thus influenced by who reports the death and how.

Similarly, for researchers, the ambiguity in nomenclature has implications for how data are collected, results interpreted, and findings compared, extrapolated, and generalized to other populations (O’Carroll et al., 1996, Silverman et al., 2007a; Westefeld, Range, Rogers, Maples, Bromley, & Alcorn, 2000). Moreover, in addition to researchers assuming that respondents are familiar with the terms measured by scales and questionnaires, it is assumed

that participants conceptualize suicide similarly, even when population groups being studied are very different from each other (Silverman et al., 2007a). The implication of differing and sometimes contradictory definitions of suicide terminology, in addition to being a threat to construct validity (Kidd, 2003), constitutes a barrier to effective communication of research results, which in turn affects intervention and prevention efforts that are based on research findings (Kidd, 2003; O'Carroll et al., 1996; Silverman et al., 2007a).

It is therefore apparent that there is a need for a clearly articulated nomenclature that will improve communication among clinicians, facilitate cross-study comparative research in the field by establishing a core set of definitions, and most importantly, be similarly understood by both clinicians and researchers (Silverman et al., 2007a).

In 1994, the National Institute of Mental Health and the American Association of Suicidology, in association with suicidologists, attempted to outline and clarify the nomenclature used in the field (O'Carroll et al., 1996), with this nomenclature subsequently being revised (Silverman et al., 2007a; Silverman, Berman, Sanddal, O'Carroll, & Joiner, 2007b) in an effort to more clearly and unambiguously provide a structure for describing suicidal behaviour, and define a set of basic terms for the field that are not aligned to any specific theory of suicide, but which can be used by clinicians, researchers and laymen alike. Although Silverman and colleagues acknowledge that "it is doubtful that we will ever be able to construct universally unambiguous criteria to comprehensively characterize suicidal behaviours" (2007b, p. 264), their work has highlighted the need for researchers and clinicians to have a shared understanding of terms used to describe suicide related ideations, communications, and behaviours.

The nomenclature for suicide and suicidal behaviours that follows draws heavily on the work of O'Carroll et al. (1996) and Silverman et al. (2007a, 2007b) but also incorporates insights from more recent work on suicidal nomenclature:

- **Suicide**

Although definitions of suicide vary widely, most definitions encompass three essential defining characteristics: (a) a fatal outcome, (b) the behaviour is self-inflicted, (c) act through which the individual intends to kill himself or herself (O'Carroll et al., 1996). This definition encompasses suicidal behaviours initiated by the decedent (or by two or more decedents, in the case of suicide pacts or multiple suicides) as well as incidents of physician assisted suicide (i.e. suicide by a patient facilitated by information or means provided by a physician who is aware of the patient's intent).

However, the definition does not encompass: (a) suicide attempts (no fatal outcome), (b) euthanasia (not self-inflicted), (c) non-suicidal self-injury, even if such behaviour has lethal consequences (no intent to die), or (d) engagement in dangerous sports such as sky diving, even when such engagement has fatal consequences (no intent to die).

- **Attempted suicide**

Attempted suicide refers to self-inflicted, potentially lethal behaviour with a nonfatal outcome for which there is evidence (either explicit or implicit) of intent to die (Silverman et al., 2007b). The outcome is nonfatal due to the method not being of sufficient lethality, or due to the timely intervention of others (Van Orden et al., 2010).

- **Suicide-related ideations**

Suicide-related ideations include suicidal ideation (sometimes referred to as active suicidal ideation) and death ideation (sometimes referred to as passive suicidal ideation).

Suicidal ideation involves an active desire to commit suicide (e.g., "I want to kill myself") and has been found to constitute a significant risk factor for both suicide attempts and completed suicide (Kessler, Borges, & Walters, 1999), with available evidence suggesting

that the conditional probability of ideators going on to engage in potentially lethal suicide is in the region of 30% (Nock, Guilherme, Bromet, Cha, Kessler, & Lee, 2008).

Death ideation is defined as a desire to be dead without reference to suicide (e.g., “I wish I could just go to sleep and never wake up”), with available evidence suggesting that death ideation may constitute an independent risk factor for suicidal behaviour (May, Overholser, Ridley, & Raymond, 2015).

In a recent study, Baca-Garcia and colleagues examined the association between death ideation and suicide attempts in two large nationally representative samples of the adult population of the United States (Baca-Garcia et al., 2011), with data analyses involving a comparison of four mutually exclusive groups: a no ideation group (no death or suicidal ideation reported), a death ideation group (death ideation in the absence of suicidal ideation), a suicidal ideation group (suicidal ideation in the absence of death ideation), and a combined group (death and suicidal ideation both reported). Study findings suggest that death ideation is associated with suicide attempts both independently (the death ideation group being more likely than the no-ideation group to report lifetime suicide attempts: ORs = 37.37 and 46.87 in the two studies) and interactively (the combined group being more likely than any other group to report lifetime suicide attempts). Taken together, these findings suggest that death ideation may constitute an important independent clinical marker for suicide risk.

- **Suicide risk**

Suicide risk involves the presence of any factor that has been empirically shown to correlate with suicidal behaviour, including demographic and psychological variables (Hendin, Maltzberger, Lipschitz, Haas, & Kyle, 2001) as well as prior history of suicidal attempts and current suicidal symptoms (Rudd et al., 2004).

Having considered the nomenclature, the following section reviews some nosological issues, as these issues are central to our conceptualization of suicidal behaviour.

2.2.3 Nosology

2.2.3.1 Suicidal behaviour

Suicidal behaviour has long been regarded as a symptom of various mental disorders (Cavanagh, Carson, Sharpe, & Lawrie, 2003; Harris & Barraclough, 1997), with suicidal ideation and suicide attempts having been found to be associated with a range of mental disorders, including the mood disorders, anxiety disorders, substance use disorders, borderline personality disorder, schizophrenia, and post-traumatic stress disorder (Dhyani, Trivedi, Nischal, Sinha, & Verma, 2013; Oquendo & Baca-Garcia, 2014; Oquendo, Baca-Garcia, Mann, & Giner, 2008). However, suicidal behaviour has also been found to be present in the absence of any mental disorder. In the United States, about 10% of people who take their own lives have no psychiatric diagnosis (Cavanagh et al., 2003) whilst in China, this is the case in 37% of suicides (Phillips, Yang, Zhang, Wang, Ji, & Zhou, 2002). Findings from an Indian study of patients discharged following a suicide attempt found that the majority of suicide attempters had no psychiatric diagnosis at the time of the attempt (Bhattacharya, Bhattacharjee, Chattopadhyay, Roy, Kanji, & Singh, 2011).

The fact that suicidal behaviour can be present in the absence of a diagnosable mental disorder led Oquendo and associates (2008) to propose that suicidal behaviour be included as a sixth axis in the DSM-5, thereby compelling clinicians to include the assessment of suicide risk in the multi-axial diagnosis of every disorder. However, rather than including suicidal behaviour as an additional axis, the American Psychiatric Association (APA, 2013) decided to include Suicidal Behaviour Disorder in the fifth edition of the Diagnostic and Statistical

Manual of Mental Disorders (DSM-5) as *a condition that warrants further investigation* (APA, 2013), with the following diagnostic criteria being proposed:

“A. Within the last 24 months, the individual has made a suicide attempt

Note: A suicide attempt is a self-initiated sequence of behaviours by an individual who, at the time of initiation, expected that the set of actions would lead to his or her own death

B. The act does not meet criteria for non-suicidal self-injury - that is, it does not involve self-injury directed to the surface of the body undertaken to induce relief from a negative feeling/cognitive state or to achieve a positive mood state

C. The diagnosis is not applied to suicidal ideation or to preparatory acts

D. The act was not initiated during a state of delirium or confusion

E. The act was not undertaken solely for a political or religious objective

Specifiers:

Current: Not more than 12 months since the last attempt

Early remission: 12-24 months since the last attempt” (p. 801)

The proposed criteria are based on O’Carroll et al.’s (1996) nomenclature with the essential diagnostic features of this diagnosis being a suicide attempt with intent. Although a number of factors – such as poor planning, lack of knowledge about the lethality of the method chosen, low intention, or intervention by others – may influence the medical sequelae of the attempt, these factors should not influence the diagnosis (APA, 2013). The criteria are also conceptually distinct from self-harm (which is conceptualized as repetitive and non-suicidal) in that the intention of a suicide attempt is to end one’s life. Non-suicidal self-injury is included as a separate condition for further study in the DSM-5 (APA, 2013).

Oquendo and Baca-Garcia (2014) comment on how DSM-5 criteria for suicidal behaviour disorder meet the criteria for diagnostic validity suggested by Robins and Guze

over 50 years ago. Robins and Guze (1970) asserted that suicidal behaviour can be clinically distinguished from other mental disorders, is associated with biological and genetic markers, and is amenable to a differential diagnosis; with follow-up studies indicating that many individuals with a history of suicide attempts meet the criteria for the proposed diagnosis.

The DSM-5 lists the presence of a psychiatric disorder as a risk factor for suicidal behaviour and mentions other potential risk factors including serious illness, bereavement, and socio-economic factors such as unemployment. In addition, the clinician is tasked with considering cultural variations in suicidal behaviour that may apply.

The inclusion of this diagnosis as a consideration for further study has been both welcomed and criticized. Turner (2014) argues that the proposed diagnosis may result in the pathologizing and consequent labelling that having a DSM diagnosis implies, which may have the effect of marginalizing those already stigmatized for having made a suicide attempt. Moreover, Turner expresses concerns that defining suicidal behaviour as a mental disorder may become a self-fulfilling prophecy, locking those affected into a system that perpetuates itself.

In addition, one of the exclusion criteria is that the person must not be in an altered mental state at the time of the attempt (e.g., individuals under the influence of substances). Given that individuals who abuse substances are up to six times more likely to engage in suicidal behaviour (Harris & Barraclough, 1997), and are often under the influence of substances at the time of the act (Berman & Schwartz, 1990), this criterion would appear to defy the purpose of including the diagnosis in the first place, which is to enhance best practice by including those most at risk in clinical and research endeavours.

Other authors, however, contend that the inclusion of the diagnosis will provide clinicians and researchers alike with the tools to treat and study suicidal behaviour in a more uniform way (Oquendo & Baca-Garcia, 2014). Additionally, considering suicidal behaviour

as a separate diagnosis in the DSM may provide clinicians and researchers with the tools to observe its co-occurrence with a range of other mental disorders.

As non-suicidal self-injury is a related concern in suicidality, the following section considers some distinguishing features of the two behaviours.

2.2.3.2 Distinguishing between suicidal and non-suicidal self-injury

Although not a new phenomenon, non-suicidal self-injury (NSSI) has recently become the focus of increased clinical and research attention. Nock (2009) defines NSSI as direct, self-inflicted damage to one's body (excluding socially sanctioned behaviours such as body piercing), without the intention to die. NSSI often includes cutting or carving with a razor or knife, burning, and scratching of body parts, and appears to be equally prevalent across socio-economic statuses and ethnicities (Nock, 2009). The terms *parasuicide* (Ogundipe, 1999) and *deliberate self-harm* (Pattison & Kahan, 1983) are often used as synonyms for this behaviour.

NSSI is characterized by the repetitive nature of the behaviour, with the intention being: (a) to obtain emotional relief from an affective or cognitive state; (b) to resolve an interpersonal difficulty; and/or c) to induce a positive feeling state (APA, 2013). Other reasons for NSSI include: to relieve anxiety, to provide distraction from painful emotions, to punish the self, to reduce dissociative symptoms, to block painful memories, and/or to communicate intrapersonal and interpersonal distress (Briere & Gil, 1998). The self-injury in NSSI is usually of low lethality and generally includes surface injuries that involve cutting, burning, or other forms of self-injury. Empirical studies suggest that the behaviour is common amongst approximately 13% to 23% of adolescents (Jacobson & Gould, 2007; Ross & Heath, 2002), with a recent study reporting an NSSI incidence rate of 36% in a community sample of adolescents (Zetterqvist, Lundh, Dahlström, & Svedin, 2013). NSSI has been found to affect between 14% and 17% of young adults (Whitlock, Eckenrode, & Silverman,

2006), reaching a peak at 20-29 years of age before declining (APA, 2013), with prevalence rates reported to be higher among females (Yates, Luthar, & Tracy, 2008; Zetterqvist et al., 2013).

NSSI is regarded as being more impulsive than behaviour with suicidal intent (Skegg, 2005), with the former tending to be associated with thoughts of relief from painful and depressive states that do not involve escape from living. In addition, NSSI behaviours often include frequent, multiple, low lethality methods, whereas suicidal behaviour with intent often involves higher lethality attempts that may not be as frequent (Joiner, Ribeiro, & Silva, 2012).

Although clinically distinct in terms of chronicity, method, and intent, it would appear that similar processes underlie both NSSI and suicidal behaviours (APA, 2013). There is evidence that both may be motivated by the same perception of hopelessness, need to influence others, and desire to escape from intolerable distress that characterizes suicidal behaviour (Hawton, Cole, O'Grady, & Osborn, 1982, Yates et al., 2008).

Previously regarded as symptoms of other Axis 1 and 2¹ disorders such as mood disorders, substance use disorders, and borderline personality disorder (Nock, Joiner, Gordon, Lloyd-Richardson, Mitchell, & Prinstein, 2006), suicidal behaviour and NSSI are clearly distinct enough in nomenclature and amenability to classification for both to warrant separate diagnoses. The importance of both as psychiatric classifications has been underscored by their separate inclusions in the DSM-5 (APA, 2013) as conditions that warrant further study.

The relationship between NSSI and suicidality is complex. Firstly, NSSI is often misdiagnosed as suicidal behaviour and vice versa, which has huge implications for the clinical management of the affected individual. Clinicians are often more sympathetic if the

¹ Multiaxial system introduced in the DSM III- now replaced by a nonaxial documentation approach in the DSM-5

behaviour is viewed as a suicide attempt rather than as self-harm with low intent (Ramon, 1980), with the latter tending to be seen as a waste of the clinician's time.

Secondly, epidemiological research often does not explicitly differentiate NSSI and suicide attempts, which has the effect of conflating prevalence rates for suicidal behaviour (Glenn & Klonsky, 2013). Importantly, research indicates that self-harm without expressed suicidal intent might be a risk factor for later suicide attempts (Whitlock & Knox, 2007; Wilkinson, Kelvin, Roberts, Dubicka, & Goodyer, 2011). Wilkinson et al. (2011) followed 1,466 young adults over a three-year period and found that subsequent suicidal behaviour is predicted by a greater number of NSSI events. Joiner et al. (2016) question the seeming paradox of why NSSI, which is assumed to regulate affect and should thereby make the individual feel better, often leads to later suicidal behaviour. Joiner and colleagues (2016) propose that NSSI may be a gateway to later suicidal behaviour through the mechanism of habituation.

Joiner (2005) contends that since suicide is such a frightening, painful, and extreme action, and human beings have an instinct for self-preservation, most people initially lack the ability to engage in a serious suicide attempt. As they habituate to the pain and fear of dying that engagement in multiple painful and provocative events involves, they become more courageous about increasingly lethal behaviour, especially since the pain-inducing behaviour often provides desperately needed emotional relief. Joiner (2005) contends that this habituation process leads to elevated pain tolerance and lowered fear of death – a confluent state the author refers to as an *acquired capability for suicide*. However, Van Orden, Witte, Gordon, Bender, and Joiner (2008) emphasise that an acquired capability for suicide is not sufficient for a suicide attempt to occur – an individual must also want to die by suicide (i.e., suicidal ideation must also be present).

Having considered important issues related to nomenclature, nosology and related behaviour in suicidality, the following section focuses on the epidemiology of suicide from both an international and a South African perspective.

2.3 The Epidemiology of Suicide

2.3.1 The extent of the problem

2.3.1.1 International perspectives

Suicide has become an increasingly concerning mental health problem and accounted for 1.4% of all deaths in 2012, making it the 15th leading cause of death worldwide (WHO, 2016). The WHO declared a global war on suicide for the first time in the year 2000 (De Leo, 2002), spurring its member organisations to initiate prevention efforts to stem the tide of suicidality.

Worldwide, a suicide occurs every 40 seconds and an attempt is made every 3 seconds (WHO, 2014a). In 2012, there were an estimated 804,000 deaths by suicide worldwide, which corresponds to an annual global age-standardized suicide rate of 11.4 per 100,000 population (WHO, 2016). When calculated by region, suicide rates are highest in the South East Asian region at 15.6 per 100,000 population and lowest in the Eastern Mediterranean region at 5.6 per 100,000 population (Värnik, 2012).

Comparing rates across countries, the WHO (2014a) reports that Guyana had the highest estimated suicide rate for 2012, followed by China. The South-East Asia Region (mainly China) together with India were the biggest contributors to the total estimated number of suicides in 2012, with Eastern European countries, such as Lithuania and Kazakhstan, also recording high prevalence rates. Värnik (2012) comments that these

statistics indicate that the phenomenon has shifted from Western to Eastern Europe, and now seems to be moving to the Asian continent. Worryingly, whilst suicide has now become an internationally recognized mental health concern, the WHO (2014a) reports that only 28 countries in the world are known to have national suicide prevention strategies.

Globally, suicide statistics are based on suicides that are reported to health care facilities or to designated authorities. When one considers that 75% of suicides occur in low- and middle-income countries (LMICs) (WHO, 2014a), which typically have less sophisticated monitoring systems, it is clear that available estimates of suicide rates are likely to underestimate the true incidence of this mental health concern. The WHO's (2014b) report on suicide prevention details that only 60 member states have suitably robust data that can be readily used to estimate suicide rates. Whilst it is generally recognized that electronic health records are ideal for the systematic collection and analysis of health care data, the second global survey on eHealth (WHO, 2012a) revealed that only 42% of responding countries within the African region (made up of 47 countries, including South Africa) make use of electronic systems to store and transmit patient information. In addition to the problem of poor-quality mortality data in many LMICs, additional factors, such as under-reporting and misclassification (associated with cultural taboos and sensitivity around suicide) also tend to negatively affect attempts to obtain accurate prevalence rates for suicide.

Global statistics indicate that in the past, completed suicides tended to be more common among older individuals. However, in recent years, an alarming pattern of younger people dying by their own hands has started to emerge, with the highest rates being amongst 15-29 year-olds (Värnik, 2012; WHO, 2014b).

Suicide statistics for 2012 (WHO, 2016) suggest a global gender ratio of male to female suicides of 1.9:1. However, this ratio varies markedly across regions, with Lithuania

recording a male to female ratio of 5.9:1 and Bahrain and Kuwait recording a male to female ratio of 1:1.1.

2.3.1.2 South African perspectives

The rate of death by suicide is an important indicator of the quality of life in a geographical space (Värnik, 1997). In particular, research has shown that countries undergoing transition have recorded associations between these changes and suicidal behaviour (Mäkinen, 2000; Rancans, Saïander Renberg, & Jacobsson, 2001). The major socio-political transformation that South Africa has undergone since the abolition of apartheid policies is likely to have had a psychological impact on the various socio-demographic groups within the country (Burrows & Laflamme, 2008). Burrows and Laflamme contend that studying patterns of suicide post-apartheid will provide important insight into how individuals have responded to the rapid sociopolitical changes in the country.

Available literature suggests that whilst great strides have been made in policy development to address issues of inequity and the redistribution of resources to those affected by discriminatory policies, there are still economic disparities that persist between race groups (Carter & May, 2001; Coovadia, Jewkes, Barron, Sanders, & McIntyre, 2009). The expectation of a higher quality of life in post-apartheid South Africa, combined with the lack of an external source of blame for hardships has also been proposed to explain higher rates of suicide among White South Africans. Indian South Africans are thought to be protected against suicide by adherence to religions proscribing suicide (Flisher et al., 2004), but on the other hand are at higher risk due to acculturation pressures (Pillay & Schlebusch, 1987) and family conflict (Beekrum et al., 2011). Black South Africans appear to be protected by close family ties and cultural taboos against suicide (Flisher et al., 2004) but are vulnerable due to

rapid political and socio-economic change (Ramgoon et al., 2006), while Coloured² South Africans appear to be protected by adherence to religion on the one hand (Flisher et al, 2004), but face risk associated with no longer enjoying preference over Black South Africans in terms of employment or social opportunities they might have had during the apartheid era (Joe et al., 2008).

In their examination of suicide rates amongst the four metropolitan cities in South Africa (Durban, Johannesburg, Pretoria and Cape Town), the NIMSS found that the suicide rates for Durban (14 per 100,000) were the second highest after Johannesburg (15 per 100,000) (Schlebusch, 2005). The latest figures from Statistics South Africa (2013) do not provide a racial breakdown of suicide rates, but indicate that, of the nine provinces, KwaZulu-Natal has the highest number of suicides, followed by the Western Cape. It is clear from these statistics that although there might be divergent views regarding which socio-demographic group is most at risk for suicide, the city of Durban and the province of KwaZulu-Natal (of which Durban is the main city and the location of the present study) are characterized by particularly high suicide rates.

The WHO (2014a) reports that suicide rates in the African Region were close to the global average of 11.4 per 100,000 population in 2012, and note that this figure represented an increase of 38% over comparative figures for the year 2000. However, the South African Depression and Anxiety Group (SADAG, 2015) report that in South Africa the suicide rate is closer to 17.2 per 100,000 population and represents 8% of all deaths recorded – with this figure relating only to deaths recorded by academic hospitals (suggesting that the actual figure is likely to be higher).

Historically the collection and documentation of suicide statistics for Black people in South Africa has been flawed (Burrows, Vaez, Butchart, & Laflamme, 2003). In the apartheid

² Race group in South Africa indicating person of mixed race

era, access to mental health care was limited and in some cases non-existent in rural areas, with the so called 'homeland territories' being completely excluded (Flisher et al., 2004). In addition, the Births and Deaths Registration Act of 1992 prevented the specification of the nature of non-natural deaths (Burrows et al., 2007), thereby compounding the problem.

The introduction of the National Injury Mortality Surveillance System (NIMSS) in 1999 – a collaborative effort between research groups and government bodies – has, however, led to improved efforts to collect suicide statistics for all race and socio-economic groups in the country, with data being collected from mortuaries and medico-legal investigations of non-natural deaths (Burrows et al., 2003). However, the inability of the system to cover all geographic areas sufficiently, together with (sometimes deliberate) underreporting and misreporting of death by suicide, has compromised this potentially effective monitoring system.

In addition, taboos about suicidal behaviour, mostly embedded in cultural and/or religious beliefs, prevail (WHO, 2014a), resulting in families going to great lengths to deny that a family member is suicidal, and often preventing timely access to treatment. Moreover, a range of structural issues are implicated in the blocking of access to mental health care services to those who most need it. Lund, Kleintjes, Kakuma and Flisher (2010) report a 7.7% reduction in hospital beds for mental health admissions in State hospitals, while Burns (2010) reports that two-thirds of psychiatric hospitals in KwaZulu-Natal experienced a drop in funding in the five years up to 2002. These are just some of the problems that affect the delivery of adequate mental health services in the country. Since untreated mental health issues have been shown to have a range of psychological sequelae including suicidal behaviour (Altamura, Dell'Osso, Berlin, Buoli, Bassetti, & Mundo, 2010), and suicide statistics are based on individuals who are able to access systems that monitor epidemiology,

there are clearly a number of structural factors that mask the true extent of suicidality in South Africa.

The extant literature also suggests that there are a number of risk and protective factors which are most commonly cited as being implicated in suicidality, or which act as buffers against suicidality. These are considered in the following section.

2.4 Risk and Protective Factors for Suicide

Understanding the causes of a complex, multi-factorial event such as suicide is a daunting task (Conwell, Van Orden, & Caine, 2011). A comprehensive understanding of suicide must include those risk factors that have been shown to have an association with suicidal behaviour (Van Orden et al., 2010), as well as those factors that protect against it. Gutierrez (2006) argues that suicide can only be fully understood when risk and protective factors are studied in combination, with the picture being complicated by the fact that some protective factors appear to neutralize the risk posed by others, while other factors (e.g., religion) have been found to be associated with both negative and positive mental health outcomes.

Given suicide's status as an increasing public health concern there is a vast amount of literature that has examined risk factors for suicidal behaviour. However, in South Africa there have been relatively few studies on the prevalence and correlates of suicide, making it difficult to determine the extent of the problem or to understand risk factors associated with suicidal behaviour (Bantjes & Kagee, 2013).

2.4.1 Demographic characteristics

2.4.1.1 Age

Suicide has traditionally been viewed as being the domain of older men in industrialized countries (Harwood, Hawton, Hope, & Jacoby, 2000; Robins, West, & Murphy, 1977). Over time, however, its preponderance among younger people has reached alarming proportions (Schlebusch, 2005), with suicide rates among those aged 35 to 64 years having risen by almost 20% between 2003 and 2011 (Conwell et al., 2011). The WHO (2016) reports that the highest rates for suicide can be found among even younger individuals, with suicide being the second leading cause of death among 15 to 29 year olds globally in 2012. Schlebusch (2005) refers to this shift as the *ungreying phenomenon*.

South African suicide statistics regarding age are consistent with international trends (Bertolote, 2001) with available data indicating that the majority of completed suicides are in the 15 to 34 year age category (Burrows & Laflamme, 2008; Burrows et al., 2003; Lerer, Knobel, & Matzopoulos, 1995; Naidoo & Schlebusch, 2014; Wassenaar et al., 2000). NIMSS figures for 2002 indicate that the highest percentage of suicides were in the 25 to 29 year age group, followed by the 20 to 24 year age group, and then the 30 to 34 year age group (Matzopoulos, Cassim, & Seedat, 2003). The highest rates of non-fatal suicidal behaviour in South Africa (du Toit et al., 2008; Joe et al., 2008; Meehan & Broom, 2007) are also for individuals under the age of 35 years.

In du Toit et al.'s (2008) study of suicide attempters who were referred to a hospital facility following a suicide attempt, an alarming finding was that the youngest attempter in their study was seven years old (an age at which children might be assumed to be oblivious to life stressors), and the oldest 87 years (the age at which family and society generally assume care for individuals) The findings of du Toit et al. also indicated significant gender

differences in the age of first attempters, with females making their first attempts at younger age (17 years) compared to males (21 years).

When age and race are examined together, age is a stronger predictor of suicide rates than is race (Berman, Jobes, & Silverman, 2006), suggesting that, regardless of race, similar developmental processes may underlie suicidal behaviour.

2.4.1.2 Gender

Over the years, empirical research on gender differences has consistently shown that while females report more suicidal thoughts and attempts (Burrows & Laflamme, 2006; du Toit et al., 2008; Joe et al., 2008; Langhinrichsen-Rohling et al., 1998; Laux, 2002), males engage more frequently in fatal suicidal acts (Hawton, 1992; Kelly & Bunting, 1998). The paradoxical ratio of female to male suicide attempts being 4: 1, and male to female completed suicide ratios being approximately 2: 1, has occupied the minds of many researchers. Canetto and Safinofsky (1998) refers to this phenomenon of women making more suicide attempts but men having a higher rate of completed suicide as the *gender paradox*. These ratios have been found equally in First and Third world countries with the exception of rural China (Phillips et al., 2002) and Eastern European countries (Värnik, 2012).

More recent statistics indicate that South Africa has a male to female ratio for completed suicide ranging between 3.5:1 and 5:1 (Bantjes & Kagee, 2013; Värnik, 2012), with several explanations having been proposed to explain why women engage in more attempts than men but are less likely to die from the attempt:

1. Men are more likely to use more lethal and aggressive methods in their suicide attempts (Hawton & Harris, 2008; Kerr, Owen, Pears, & Capaldi, 2008). Lethal weapons are more readily accessible and familiar to males than females (Maris, Berman,

Silverman, & Bongar, 2000; Stack, 2000), with women tending to favour less lethal methods such as prescription medication in their attempts.

2. Men also tend to display more intent and knowledge of ways in which to cause bodily harm and show less concern for bodily disfigurement, and are therefore more likely to favour more violent means in their attempts (Hawton, 2000).

3. Gender narratives socialize women into having greater access to protective factors such as religion, family, and social support. As such, many women tend to readily seek help from friends, family, and health care providers, and are therefore more likely to get treatment for problems which ultimately lead to suicidal behaviour (Murphy, 1998).

4. Men are more likely to use alcohol than women (Bjerkeset, Romundstad, & Gunnell, 2008; Stack, 2000), with men being five times more likely than women to use alcohol to cope with stress (Canetto, 1992). As substance use is a known risk factor for suicide, this may help to explain elevated rates for suicide among men.

5. Women may have lower intentions to die, with their suicide attempts being more likely to reflect distress at an oppressive or painful situation, or a strategy to change the offending behaviour of others, rather than to end their lives (Hawton, 2000).

6. Women are also more likely to consider the influence of their behaviour on others and may be more inclusive of others in their attempts to solve their problems (Murphy, 1998). Men on the other hand are constructed as brave problem-solvers and may consequently give less consideration to other people in processing a problem and taking action.

7. Women have more negative attitudes towards completed suicide, but are more accepting about suicide attempts (Stack, 2000). Men are more permissive about suicide, believing it to be an expression of individual freedom and autonomy in their lives (Meissner, Bantjes, & Kagee, 2016).

8. Women have more adaptive coping skills than do men due to their changing life roles (Stack, 2000). Their role in motherhood has been found to be a strong protective factor against suicide (Woods, Zimmerman, Carlin, Hill, & Kaslow, 2013), particularly single motherhood (Fernquist, 2004).

9. Women are more likely than men to be diagnosed with depression, a known risk factor for suicidality, and this may account for their higher rate of attempts (Langhinrichsen-Rohling et al., 1998, Nolen-Hoeksema, Larson, & Grayson, 1999).

Bjerkeset et al. (2008) suggest that the gender paradox may be explained by a combination of these factors. They argue that perhaps men have a more severe symptom profile of self-reported anxiety and depression, which is undetected due to stigma associated with mental illness and men's reluctance to seek help. These factors, already associated with suicide risk on their own, when combined with men's inclination to use alcohol as a form of self-medication, may put them at greater risk for more lethal attempts which may end their lives.

2.4.1.3 Race/ethnicity

In addition to age and gender, there are important racial differences in suicide rates. In the United States, available findings suggest that suicide rates are higher among Caucasians than among Afro-Americans, with there being recent evidence to suggest that this gap is narrowing (Kubrin & Wadsworth, 2009). In South Africa there have been few epidemiological studies on suicide, with this being particularly true for rural, economically under-resourced regions. Indeed, it has only been in the past three decades that suicidology as a discipline has shown empirical attention to the incidence of suicide among Black people in South Africa.

Epidemiological studies through the years, and over important periods of South Africa's socio-political history have, somewhat unsurprisingly, identified varying estimates of suicide rates for different population groups. Whereas Levin (1992) found a suicide rate of 4 per 100,000 for Black South Africans and 16 per 100,000 for Whites, Wassenaar et al. (2000) found suicide rates for Black South Africans (over a nine-year period up to 1996) to be 14 per 100, 000. Wassenaar et al.'s study also found that suicide rates for the general population in South Africa gradually increased from 1989 and peaked in 1995 at 18.24 per 100,000 population.

Schlebusch (2005) contends that the higher suicide rates noted in more recent South African studies may not just be the result of better reporting, but may reflect an actual increase in suicidal behaviour among Black people, which would make this group the highest 'at risk' section of the population. However, Burrows and Laflamme (2006) found that suicide rates for Whites are higher than those of the other race groups in the bigger municipalities of Johannesburg, eThekweni, Cape Town, and Tshwane for both sexes; Wassenaar et al.'s (2000) city-level study in Pietermaritzburg found similar suicide rates for Black South Africans, Whites and Indians; and Joe et al.'s (2008) study revealed that suicide rates for Coloured individuals were three times higher than rates for either White or Black South Africans.

Burrows and Laflamme (2006) attempt to explain the inconsistent rates reported for the different race groups. They argue that both the magnitude and distribution of suicide for the different race groups may be a function of geographical location in the country. In South Africa, race groups are concentrated in certain cities – for example, Durban has the largest concentration of Indians in the country, while the Northern and Western Cape have the largest concentration of Whites and Coloureds, and provinces such as Limpopo have comparatively high levels of Black South Africans (Statistics South Africa, 2011). This

distribution would then affect the findings of prevalence studies regarding race and suicidality in the different provinces.

Whilst there exists the danger of presenting suicide data according to racial categories which have no scientific validity (West & Boonzaier, 1989), the country's history is permeated with policies based on racial categorization, with belonging to a particular race group having had important implications for an individual's access to health care (Coovadia et al., 2009). Since race and socio-economic status are inextricably linked in South Africa, Bantjes and Kagee (2013) contend that studying socio-economic indicators such as job status, poverty, and level of education may contribute more meaningfully to our understanding of suicide than studying race *per se*.

2.4.2. Biopsychosocial risk factors

2.4.2.1 Interpersonal conflict

Interpersonal activity signifies an important developmental milestone in the life of the young adult (Carducci, 1998), with early adulthood being a period that is characterised most consistently by the desire to secure interpersonal commitments that lay the foundation for long-term companionship and marriage (Erikson, 1968). Interpersonal conflict in its various forms is thus a robust risk factor for suicidal behaviour throughout an individual's life span (Van Orden et al., 2010), beginning with parent-child conflict (Kuhlberg, Peña, & Zayas, 2010), followed by relationship conflict as one asserts one's identity in romantic relationships in early adulthood, and thereafter possible marital/partner conflict with its associated stressors of separation and divorce.

The failure to develop secure interpersonal connections is commonly associated with suicidality in young adults (O'Connor & Sheehy, 2000). Interpersonal conflict has been

widely cited as a significant correlate of both: (a) mental disorders (Seedat, Stein, Jackson, Heeringa, Williams, & Myer, 2009) and (b) suicidality (Bastia & Kar, 2009; Gould et al., 1998; Kerfoot, Harrington, & Dyer, 1995; Samaraweera, Sumathipala, Siribaddana, Sivayogan, & Bhugra, 2008; Weyrauch, Roy-Byrne, Katon, & Wilson, 2001; You, Van Orden, & Conner, 2011). Studies in Sub-Saharan African countries (including South Africa) have also documented an association between family conflict and suicidal behaviour (Beekrum et al., 2011; du Toit et al., 2008; Mgaya, Kazaura, Outwater, & Kinabo, 2005; Schlebusch & Bosch, 2000).

Individuals who lack intimate relationships report more stress-related symptoms and are more susceptible to physical illnesses and mental health disorders than are those in secure relationships (Kennedy, Kiecolt-Glaser, & Glaser, 1988). A 35-year longitudinal study by Leenars, Yang, and Lester (1993) found that divorce was associated with completed suicide, while Seedat et al. (2009) found that marriage served as a protective mechanism against psychiatric disorders and associated suicidal behaviours.

The mechanism through which social connectedness is related to suicidality appears to be the sense of thwarted belongingness that arises from the failure to develop and sustain meaningful relationships with others (You et al., 2011), with this sense of thwarted belongingness being regarded as a proximal risk factor for passive suicidal ideation (Joiner, 2005, Van Orden et al., 2008).

Whilst many authors suggest that weak family relationships and emotional neglect lead to perceptions of burdensomeness in relation to others (e.g., Khasakhala, Ndeti, & Mathai, 2013), Christensen, Batterham, Mackinnon, Donker, and Soubelet (2014) suggest that the converse may be true; i.e. that individuals must have a strong emotional connection and investment in a relationship in order to feel like they are being a burden to others.

2.4.2.2 Mental disorders

Approximately 90% of individuals who die by suicide have been diagnosed with a mental disorder (Cavanagh et al., 2003, Moscicki, 2001, Weir, 2001). The most common mental disorders associated with suicide appear to be the mood disorders (Cavanagh et al., 2003; Henriksson et al., 1993), with this association appearing to hold true regardless of race or ethnicity (Oquendo et al., 2005). Approximately 60% -70% of depressed individuals experience some degree of suicidal ideation (Möller, 2003), and although not all individuals who experience suicidal ideation make a suicide attempt, about 30% of them do (Nock et al., 2008). Individuals with a mood disorder are likely to make a suicide attempt in the first 10 years of their mental illness (Fisekovic & Celik, 2012), with this risk declining as the individual responds to treatment (Ping & Merete, 2005).

Bipolar disorder has been found to place individuals at a 15-fold increased risk for suicide, with some studies indicating that no other mental illness has as high a rate of completed suicide (Harris & Barraclough, 1997). Eroglu, Karakus and Tamam (2013) found a suicide prevalence rate of 19.7% in an outpatient sample of bipolar patients, while Valtonen et al. (2008) contend that bipolar disorder confers a lifetime risk of non-fatal suicide attempts of between 25% and 56%, with Bipolar II disorder conferring a higher risk for completed suicide than Bipolar I disorder. On average, the ratio of suicide in the bipolar population is 1:100 per year (Baldessarini, Tondo, Davis, Pompili, Goodwin, & Hennen, 2006). Clements et al. (2013) suggest that a way of putting these figures into perspective is to consider that approximately 10% of all suicides are related to bipolar disorder, while just 2% of the population are diagnosed with the illness.

In a meta-analysis of the relationship between substance abuse and suicide risk, Harris and Barraclough (1997) found that individuals who are diagnosed with alcohol abuse have a suicide rate that is nearly six times higher than the rate for the general population. Harris and

Barraclough's analysis was based on a meta-analysis of 32 studies with a total sample of over 45 000 from 11 countries, followed-up (in some cases) for up to 30 years. In one of the studies, opioid use was found to be associated with an increased risk (OR = 14.0) for suicide in a sample of over 7500 participants drawn from five countries over a 12 year time span (Harris & Barraclough, 1997).

The literature also indicates a co-morbid relationship between substance abuse and other mental disorders (Cavanagh et al., 2003; Clements et al., 2013). Substance abuse is often a secondary DSM diagnosis in cases where individuals die by suicide, suggesting that suicide may be related to other mental health problems for which substance abuse constitutes a means of coping (Clements et al., 2013). Lamis and Malone (2011) found that perceptions of burdensomeness and decreased belongingness were both significant mediators in the relationship between alcohol use and suicidality.

The anxiety disorders have also been found to have a strong association with suicidal behaviour (Beautrais, 2002; Bolton, Cox, Afifi, Enns, Bienvenu, & Sareen, 2008; Khasakhala, Sorsdahl, Harder, Williams, Stein, & Ndeti, 2011; Nepon, Belik, Bolton, & Sareen, 2010; Tidemalm, Långström, Lichtenstein, & Runeson, 2008). Although the relationship between elevated rates of suicide attempts and panic disorder can be accounted for by comorbid diagnoses of depression, substance use, or borderline personality (Cox, Dorenfeld, Swinson, & Norton 1994), Nepon et al.'s (2010) study of over 34 000 adults found that panic disorder was significantly associated with suicide attempts even after controlling for other Axis 1 and 2 disorders. This finding is somewhat paradoxical as the exaggerated fear of dying that is a common feature of the disorder would suggest that it would serve as a protective mechanism. Van Orden et al. (2008) however contend that mental disorders that typically have anxiety and agitation as their characteristic symptoms are predictive of the

transition from suicidal ideation to more active suicidal attempts. It would seem that the desire to escape chronic anxiety and/or agitation may fuel suicidal behaviour.

In African studies, 61% of patients reporting suicidal ideation and 70% of those who make a suicide attempt have been found to have prior DSM-IV diagnoses (Khasakhala et al., 2011), with other studies reporting weaker associations between suicidal behaviour and mental disorders (e.g., du Toit et al., 2008). However, the general trend that has emerged from African studies is similar to findings of international studies: substance use and mood disorders are the mental disorders that are most commonly associated with suicidality (Donson, 2009; Khasakhala et al., 2013; Schlebusch, Vawda, & Bosch, 2003; Shilubane, Ruiter, Bos, van den Borne, James, & Reddy, 2012).

2.4.2.3 Previous suicide attempts

Considering that 56% of first attempts end in suicide (Isometsa & Lonnqvist, 1998), previous suicide attempts represent one of the strongest risk factors for future suicide (Alberdi-Sudupe et al., 2011; Beautrais, 2002; Coryell & Young, 2005; Fawcett et al., 1990; Yim, Yip, Li, Dunn, Yeung, & Miao, 2004; Zonda, 2006). A longitudinal study of over 39,000 patients conducted by Tidemalm et al. (2008) found that the majority of suicides occurred within the first five years after the index suicide attempt, regardless of whether or not a mental illness was present, and that the risk for suicide among previous attempters continued over the total follow-up period of 21-32 years. Other studies (e.g., Krupinski, Fischer, Grohmann, Engel, Holleg, & Moller, 1998; Stephens, Pascal, & McHugh, 1999) confirm that individuals who engage in medically serious suicide attempts requiring hospitalization have a higher risk of future completed suicide than those with a history of less serious attempts.

Multiple previous attempts are an especially strong indicator of a future lethal attempt (Zonda, 2006) as are previous attempts with a higher degree of lethality (Gibb, Beautrais, & Ferguson, 2005). Goldston et al. (2015) found that intent to die in successive attempts increased both with age and with number of prior attempts, and that the period between successive suicide attempts decreased as the number of attempts increased. Joiner et al. (2005) contend that previous self-harm is related to future self-harm through two primary related mechanisms. First, with repeated exposure, one habituates to the pain and fear of dying associated with self-harm. Secondly, an opponent-processing mechanism comes into play: through repetition of a painful or fear inducing behaviour, the effects of the painful stimulus diminish, and the opposite effect, or opponent process, strengthens. This may explain why an increase in pain threshold is likely to occur after repeated painful suicide attempts, which, in turn, may spur the person on to an even more lethal attempt. Motto (1990) contends that the first suicide attempt requires the most psychological resistance, with subsequent attempts requiring progressively less motivation.

Alberdi-Sudupe et al. (2011) caution that the association between potentially lethal prior and current suicide attempts may be explained by detection bias; i.e. individuals who attempt suicide and end up in hospital are typically more often diagnosed, closely monitored, and studied, with conclusions being drawn in relation to suicidal behaviours that may not extend to individuals who are not hospitalized. However, Joiner et al. (2005) found, across four diverse samples, that past suicidality predicted current suicidality even after controlling for known correlates of suicidality such as depression and hopelessness. The consistency of this finding across four samples (differing in age, clinical profile, gender, and geographic location) suggests that the relationship between past self-harm and current suicidality may be “nonspurious and possibly causal” (Joiner et al., 2005, p. 300).

2.4.2.4 Physical illness

Various physical and mental illnesses have been implicated as risk factors for suicidal behaviour. While some studies have found the relationship between suicidal behaviour and physical illness to be indirect and accounted for by co-morbid risk factors including mental disorders (Kurd, Troxel, Crits-Christoph, & Gelfand, 2010; O'Connell et al., 2004; O'Mahony et al., 2005; Rasic, Belik, Bolton, Chochinov, & Sareen, 2008), others have found an association between suicidal behaviour and poor physical health, even after controlling for other risk factors (Gartrell, Jarvis, & Derksen, 1993; Grossman, Milligan, & Deyo, 1991; Rey-Gex, Narring, Ferron, & Michaud, 1998).

Illnesses that are chronic, terminal, or are characterized by ongoing pain appear to have a strong correlation with suicidal behaviour (Calandre, 2011), with a diagnosis of brain cancer having been found to be associated with a nine-fold increased risk of suicidal behaviour, and other forms of cancer being found to be associated with a fourfold increased risk compared to figures for the general population (Harris & Barraclough, 1997). Research indicates that this link is related to concern about being a burden to others (Akechi, Okuyama, Sugawara, Nakano, Shima, & Uchitomi, 2003; Wilson, Curran, & McPherson, 2005).

The association between HIV/AIDS and suicidal behaviour has been well documented. Globally, HIV/AIDS and suicide remain two of the most worrying healthcare issues, particularly in low- and middle-income countries (Schlebusch & Vawda, 2010; WHO, 2012b). South Africa has one of the highest rates of HIV/AIDS in the world with approximately seven million people living with the disease, and 19% of those affected being in the 15 to 49 years age group (UNAIDS, 2016). Harris and Barraclough (1997) contend that the disease places individuals at a seven times higher risk for suicide compared to the general population.

Although the association between HIV/AIDS and suicide has been under-researched in South Africa, *ad hoc* studies support the view that individuals living with HIV/AIDS constitute a high risk group for suicidal behaviour (Govender & Schlebusch, 2012). An increased risk of suicide among those individuals living with HIV/AIDS has been found to be related to: antibody testing, learning of a seropositive status, the diagnosis of full-blown AIDS, and the latter stages of the disease which may be characterized by pain and dementia (Schlebusch, 2005; Schlebusch & Vawda, 2010).

2.4.2.5 Poverty and unemployment

A number of studies on the association between suicide rates and various socio-economic indices (e.g., gross domestic product [GDP] and unemployment) have been conducted in developing countries in recent years, with findings from these studies having particular relevance in light of the current global economic crisis which has led to austerity measures and job losses in many countries.

Ruhm (2000) contends that the association between suicide and the state of the economy is not always clear, with some studies showing a positive correlation and others an inverse relationship. Suicide rates may increase during economic upswings due to increased alcohol consumption, less leisure time, and greater work-related stress (Pridemore, 2006; Ruhm, 2000). However, the weight of evidence would appear to support the view that suicide rates increase during periods of recession due to financial and psychological stress as well as job vulnerability (Jungeilges & Kirchgassner, 2002; Suzuki, 2008), with the effects of such stressors tending to be more marked among individuals working in unskilled jobs and among workers who have a lower level of education (Holtman, Shelmerdine, London, & Flisher, 2011; Kidd & Kral, 2002; King et al., 2001; Weyrauch et al., 2001). Even in cases where economic hardship may be temporary, individuals who are unemployed may believe that

their prospects for future employment are bleak (Dixit & Pindyck, 1994), leading to feelings of hopelessness that may result in suicidal behaviour. Additionally, high rates of alcohol consumption among the unemployed, particularly young males from disadvantaged communities, may further increase their risk (Stark et al., 2010).

Gender constructions of social and economic roles may help to explain the link between unemployment and suicide. It is often the case that women's income is viewed as supplementary to that of men, who are constructed as primary providers (Shiner, Scourfield, Fincham, & Langer, 2009). In this context, unemployment may represent not only a financial hardship but may also be experienced as emasculating and shameful for men. Given that men are not generally socialized to express their feelings, such feelings of shame are likely to be internalized, and possibly find expression in substance abuse and/or suicidal behaviour (Möller-Leimkühler, 2003).

The relationship between unemployment and suicidality may, however, be a bidirectional rather than a linear one. The cross-sectional nature of most research into this link makes it difficult to determine whether depression and associated suicidal feelings lead individuals to be less productive and, in turn, lose their jobs, or whether individuals lose their jobs and consequently became depressed and suicidal (Moran, 2013; Platt, 1984).

2.4.2.6 Social isolation

Social isolation has consistently been found to be a reliable predictor of suicidal behaviour across age groups, nationalities, and clinical severity of the suicidal behaviour (Bearman & Moody, 2004; Conwell, 1997; Dervic, Brent, & Oquendo, 2008; Joiner & Van Orden, 2008). Social isolation may be imposed on an individual (e.g., by imprisonment or death of a significant other) or be a choice (e.g., intentional social withdrawal from significant others).

Conversely, social support has been found to constitute a protective factor against suicidal behaviour (Christensen et al., 2014; Compton, Thomson, & Kaslow, 2005; Thompson, Mazza, Herting, Randell, & Eggert, 2005; You et al., 2011). It has been proposed that the protective mechanism of social support is linked to its ability to moderate genetic and environmental vulnerabilities by increasing resilience to stress, possibly through its effects on the hypothalamic-pituitary-adrenocortical (HPA) system, the noradrenergic system, and oxytocin pathways (Ozbay, Johnson, Dimoulas, Morgan, Charney, & Southwick, 2007). The importance of social support as a protective factor is underscored by two nationally representative studies in the US and UK which indicate that even after controlling for a host of known risk and protective factors such as age, gender, psychiatric history, and help-seeking behaviour, individuals with higher social support are 30% less likely to make a suicide attempt in their lifetime than those with lower social support (Kleiman & Liu, 2013).

Social support may operate not just at an individual level but also at a community level in the form of support groups, charity groups and religious gatherings, which serve to enhance the individual's functioning and diminish the negative effects of stressors. When individuals feel disconnected from others, a sense of rejection often occurs, which, if perceived as stable and enduring, may lead to negative psychological sequelae. Social support, whether real or perceived, is a subjective experience, and the *perception* of support may be as important as the *actual* support received (Compton et al., 2005).

It would appear that the role of social support in the continuum of suicidal behaviours is that its presence prevents death ideation from moving along the continuum towards suicidal ideation, while its absence promotes movement along this trajectory. Conversely, numerous studies have found that thwarted belongingness (which has a latent dimension of perceptions of alienation from others) is associated with death ideation, which in combination

with the perception of being a burden on others, may lead to a pernicious form of suicidal ideation (Van Orden et al., 2008).

2.4.2.7 Religion and suicide

The mediating role of religion on physical and psychological wellbeing has been extensively reported in the literature. Religion has been found to increase meaning in life (Ahmad, Binti Muhammad, & Abdullah, 2011) and lead to a greater sense of satisfaction with life (Patel, Ramgoon, & Paruk, 2009). It has also been associated with higher self-esteem and perceptions of self-worth, which in turn have been found to be associated with better physical and mental health outcomes (Ellison & Levin, 1998). Additionally, religion has been found to be associated with improved coping in bereavement (Thompson & Vardaman, 1997) and better social support (van Olphen et al., 2003). Adherence to a religion has been found to reduce suicidal ideation (Marion & Range, 2003) and lower rates of suicide (Van Praag, 2009), whilst non adherence to a religion has been found to be associated with the opposite effect (Pienaar, Rothmann, & van der Vijver, 2007). Although the literature often refers to social support as characterizing the relationship between religion and mental health, Benda (2003) contends that religiosity outweighs social support as a protective factor against suicide risk.

Religion has, however, also been associated with some negative psychological and social events, for example, in the case of cult suicides (Dein & Littlewood, 2005), passive coping styles in which individuals shift responsibility for their problems to a higher power, or believe that they deserve punishment for past sins (Flanely, Ellison, & Strock, 2004), and religiously motivated suicide bombings (Townsend, 2007).

In a comprehensive review of studies on religion and wellbeing (Koenig, 2009), it was concluded that overall, religion has a salutary effect on both mental and physical health, with

this salutary effect being achieved through religion's emphasis on positive cognitive appraisals of situations (e.g., "I don't need to worry, God will deliver"), faith-associated social support, a healthy lifestyle, and lower levels of substance use (Dein, 2006). The relationship between religion and suicidal behaviour is thus conceived of as being indirect in nature; that is, religion mediates the deleterious effects of physical and mental health stressors by insulating the individual from feelings of hopelessness and alienation in the face of adversity, thereby reducing the likelihood of suicidal behaviour.

2.4.2.8 Coping styles

Coping theory provides an important framework for understanding the ways in which individuals appraise events, the outcomes of these appraisals, and how these appraisals are mediated by intrapersonal and interpersonal factors (Folkman, 1984). Personal coping skills play an important role in the process of handling life stressors, with *approach coping* being viewed as an adaptive coping strategy that is generally associated with better outcomes than *avoidance coping* (Steiner, Erickson, Hernandez, & Pavelski, 2002). Younger adults in particular, experience a range of developmental challenges and transitions coupled with psychological and social variables that compound their risk for a number of psychological problems. The failure to effectively navigate social and psychological issues such as relationship difficulties, academic failure, unemployment, or loss of significant others for the first time in their lives, may lead to a range of negative psychological outcomes including depression and suicidal behaviour (Bridge, Goldstein, & Brent, 2006; Ranjbar, Bayani, & Bayani, 2013).

Using Beck's (1967) cognitive diathesis-stress model, Broderick and Korteland (2002) have called attention to the role of cognitive factors in moderating vulnerability to mental illness. The authors contend that specific risk factors, such as negative attributional or

explanatory styles, interact with other psychosocial stressors to increase one's vulnerability to mental illnesses such as depression, which are in turn associated with suicidal behaviour. Other cognitions such as hopelessness can also be understood within this framework. When individuals hold the cognition that a situation is hopeless, they are less likely to employ adaptive coping strategies such as effective problem-solving. This may have the effect of setting into motion a negative feedback loop in which: (a) perceptions of hopelessness make an individual less likely to seek professional help (Rudd, Joiner, & Rajab, 1995), which may result in suicidal ideation, with (b) suicidal ideation further impacting on the individual's ability to employ coping strategies that may mitigate suicidality (Deane, Wilson, & Ciarrochi, 2001).

Rumination is an emotion-focused coping style that involves responding to problems by directing feelings internally, often toward negative thoughts. Rumination appears to be used more commonly as a coping strategy by females than males (Broderick & Korteland, 2002), the latter tending to deal with difficult situations through distraction or disengagement (Nolen-Hoeksema, Larson, & Grayson, 1999). Broderick and Korteland (2002) contend that the feminine role that society constructs for females, which encourages passivity and emotional expressivity, are characteristic of a ruminative coping style. This observation may help to explain higher rates of suicidal attempts amongst females. Although rumination that involves journal writing, for example, may have a cathartic effect, ruminative pondering about problems while in a depressed mood may actually make the depression worse (Morrow & Nolen-Hoeksema, 1990).

Conversely, the use of healthy and adaptive coping strategies promotes one's well-being. Problem-focused coping which typically involves dealing with a problem by analyzing, then planning and taking action, and seeking the assistance of others as necessary (Carver, Scheier, & Weintraub, 1989), has been found to reduce suicidal tendencies (Zulu,

2010). Additionally, positive self-appraisal has been found to provide a buffering effect on suicidality when an individual is faced with negative life events (Johnson, Gooding, Wood, & Tarrier, 2010).

While it is evident that the literature recognizes numerous risk factors for the development of suicidality, empirical advancement requires moving beyond associations and focusing more on causal relationships (Nock, 2009). This must include the development of robust theoretical models that can fully explain both risk factors and the transition from ideation to attempts (Barzilay et al., 2015). The following section provides an account of some of the main social, biological, and psychological theories that have been used to conceptualize suicidality to date.

2.5 Conceptualising Suicidal Thoughts and Behaviours

Early attempts to conceptualize suicide are older than the practice of psychology itself. Durkheim's seminal work *Le Suicide* (1897) [1951] contains insights that have been incorporated into several subsequent theories on the dynamics of suicidal behaviour. This section reviews some of this work before introducing the Interpersonal -Psychological Theory of suicidal behaviour (IPTS) (Joiner, 2005) which is the theoretical framework that informed the present study.

2.5.1 Sociological theories

In advancing his sociological theory of suicide, Durkheim postulated that suicide is a response to the lack of integration (*egoism*) or regulation (*anomie*) in society. Durkheim contended that a state of *egoism* occurs when people are too focused on self and are not strongly integrated into social groups or wider society. Integration into society provides people with a sense of belongingness and connectedness to others, which, if lacking, may

lead people to commit *egoistic suicide*. Durkheim employed the variables of family life, education, religion, and politics to test this aspect of his theory. He wrote that “the family is the essential factor in the immunity of married persons toward suicide” (p. 198) and that larger families allowed for more social exchanges (thereby opportunities for integration). He argued that education made people question the beliefs and values they hold, and was therefore likely to result in their having weakened ties with society. Durkheim also postulated that religions that encourage their members to be unified have lower rates of suicide, as these members have a “sufficiently intense collective *life*” (p.170). Finally, he maintained that politics unified people as it kept them focused and working together towards a common goal.

Anomie deals with what Durkheim refers to as people’s need to be regulated by society because “every disturbance of equilibrium . . . is an impulse to voluntary death” (p. 246). Durkheim used marriage and the economy as variables to test this aspect of his theory, stating that the institution of marriage helps to regulate sexual behaviour by controlling erotic impulses that may overwhelm a person. Expanding on the link between the economy and suicide, he theorized that any change in economic status may lead to a disturbance in a person’s equilibrium, propelling him/her towards suicide. Contemporary research has found support for the mediating effects of family and economic variables on suicide (Botha, 2012; Holtman et al., 2011; Mgya et al., 2005), with a number of studies providing support for the view that divorce, but not economic factors, constitutes a risk factor for suicide (e.g., Leenaars, et al., 1993).

While there is a consensus that the stress of modern living has contributed to the escalating rates of suicide globally, Durkheim’s theory has been criticized for considering only completed suicides in his understanding of suicide. In finding higher rates of suicide for men, he argued that women were protected by their greater social integration than men. Kushner and Sterk (2005) argue that this explanation falls short when considering that

women engage in suicidal attempts far more often than men do. Durkheim has also been criticized for failing to acknowledge the impact of psychological factors on suicide, with this exclusion possibly reflecting the fact that his theory preceded psychological understandings of human behaviour.

Maskil, Hodges, McClellan and Collings (2005) argue that contrary to Durkheim's proposition that levels of "social integration" and "social regulation" determined whether or not suicidal behaviours were apparent, suicidal behaviour is more accurately construed as arising from society itself (i.e. from social norms, beliefs, and socio-political factors). Maskil and colleagues contend that an inability to fit into society and to follow its unwritten rules and expectations left a person with increased levels of internal anxiety, which may ultimately lead to suicide (Maskil et al., 2005). Durkheim's theory has also been criticized for ignoring the influence of genetics and mental disorders in the development of suicidal behaviour (Joiner, 2005), both of which have garnered much research attention in recent years. Van Orden et al. (2010) contend that the theory does not account for individual factors, as it fails to explain why if all individuals in a society are subject to the same shift in social forces, only a small percentage of individuals in society commit suicide.

Durkheim's theory has nevertheless stimulated much debate around religiosity, social integration, and gender as contributing factors to differences in suicide rates in different social contexts (Fernquist, 2004), with the theory continuing to influence contemporary thinking about suicidality.

2.5.2 Bio-physical theories

Bio-physical theories of suicidality emphasize the role of physiological processes in the development of suicidality, suggesting that neurological disturbances caused by genetic defects, injury or infection, or temporary physiological malfunctions are associated with

increased vulnerability to suicidality. Research findings suggest that suicide attempters have lower levels of serotonin which have been found to be associated with personality variables such as impulsivity and aggression (Joiner, Brown, & Wingate, 2005).

The literature clearly implicates impulsivity in the development of suicidality. Research has consistently indicated associations between impulsive personality characteristics and suicidal behaviour (e.g., Conner, Meldrum, Wieczorek, Duberstein, & Welte, 2004; Dougherty, Mathias, Marsh, Papageorgiou, Swann, & Moeller, 2004; Hull-Blanks, Kerr, & Kurpius, 2004; Maser, et al., 2002); with a number of authors having hypothesised that impulsivity facilitates the transition from passive suicidal ideation to suicidal behaviour (e.g., Klonsky & May, 2010; Slap, Goodman, & Huang, 2001). With respect to the mechanisms linking impulsivity to suicidal behaviour, it has been proposed that: (a) impulsive individuals are more likely to engage in behaviour that involve elements of pain, fear, and disregard for personal safety, leading to (b) the development of a higher tolerance for pain and a lowered fear of death, resulting in (c) an acquired capability for engaging in lethal suicidal behaviour (Joiner, 2005; Solomon, 1980).

With respect to aggression, prenatal testosterone exposure (Bailey & Hurd, 2005) and decreased levels of norepinephrine (Mann, 2003) have been implicated in elevated levels of aggression. The fact that aggressive individuals have been found to have a higher threshold for pain, and are consequently more likely to engage in activities where pain is endured and often celebrated, suggests that aggression may constitute another pathway to the development of an acquired capability for suicidal behaviour (Ribeiro & Joiner, 2009).

There are also research findings which suggest that there is a strong heredity factor in the development of both depression and suicidal behaviour (Ribeiro & Joiner, 2009), with this association being understood in the context of a diathesis-stress model in terms of which underlying genetic predispositions are assumed to interact with proximal personal and

psycho-social risk factors, leading to an increased risk for suicide. It has also been proposed that some individuals may have an underlying genetic predisposition for engaging in painful and provocative behaviour, leading to habituation to painful experiences and an associated acquired capability for suicide (Ribeiro & Joiner, 2009).

2.5.3 Psychoanalytic theories

Although Freud was at the forefront of the development of psychoanalytic theory – with his work focusing on the intrapsychic conflict that is central to understanding suicidal behaviour – he did not address the issue of suicide specifically. His classic work *Mourning and Melancholia* (1917) does, however, outline the mechanisms involved in turning hostility towards the self, which was theorized as being associated with melancholic depression that preceded self-destructive behaviour. According to Shneidman (1980; cited in Berman et al., 2006), the central Freudian position on suicide is that it represents "*murder in the 180th degree*". If individuals identify with and internalize love objects towards whom they experience conflicted feelings, they may direct these aggressive impulses towards the internalized love object, and in doing so harm themselves.

In contrast to Freud's indirect conceptualization of suicide, Menninger (1933) assumed a more direct psychoanalytic position on suicide. Combining his own seminal ideas with those of Freud, Menninger's (1938) classic text *Man Against Himself* represents one of the earliest comprehensive psychoanalytic conceptualizations of suicide. Menninger contends that the psychodynamics of hostility and suicide can be understood using three fantasy states (a) the wish to kill, (b) the wish to be killed, and (c) the wish to die. He used case studies to demonstrate how suicidal behaviour typically plays out as the desire to punish others (the wish to kill), to escape psychic pain (the wish to be killed) and to self-punish (the wish to die).

Menninger also elaborated on Freud's concept of the *death instinct* in suicidal behaviour. He refers to *chronic suicide* – involving long-term, potentially life-threatening, and indirect self-destructive behaviour (e.g., high-risk behaviour such as substance abuse) – as a representation or manifestation of Freud's death wish.

Zilboorg (1936) refined Menninger's theory, asserting that suicidal individuals experience unconscious hostility towards others, combined with a disturbed ability to give and receive love, with such unconscious hostility possibly explaining why so many individuals who engage in suicidal behaviour do so because of unrequited love, unmet needs, or difficulty in separating from others. Zilboorg also explored narcissistic conceptualizations of suicide, asserting that ego-driven individuals fantasize about their immortality through the act of suicide.

Object relations theorists have conceptualized suicide as a means of resolving problems relating to separation and individuation (Wade, 1987). The painful recognition of the self as a separate being in an enmeshed relationship may lead to a desire to escape such enmeshment, which may result in suicidal acts. Wade's (1987) study of adolescent females indicated that the pain associated with perceived abandonment may lead individuals to use suicide as a means of regressing to the security of an earlier symbiotic state. Thus, suicide may represent a dysfunctional resolution of the separation-individuation conflict.

Hazan and Shaver (1987) contend that individuals are drawn to others based on their mental representations of primary attachment figures. Individuals with secure attachment experiences are able to regulate their desire to be both close and independent of others, while those with insecure attachment experiences are likely to either experience *attachment anxiety* or *attachment avoidance* (Brennan & Shaver, 1995). Individuals who experience *attachment anxiety* are those who have a desire for closeness but anticipate and fear separation, rejection, and abandonment (Gormley & McNiel, 2010). As a result, their emotions may vacillate

between helplessness and resentment and anger at needing others (Biringen, 1994). Since this resentment and anger cannot be expressed for fear of losing said others, it may be directed towards the self in the form of injurious behaviour, which in turn feeds back into the loop of attempting to secure attachment. On the other hand, individuals who experience *attachment avoidance* are uncomfortable with closeness and may distrust others based on prior experience or perceptions of being let down by attachment figures. They may thus not seek help when they experience distress and instead may express their distress as anger, which often turns towards self (Mikulincer & Orbach, 1995).

Adult attachment anxiety has been consistently associated with vulnerability to depression (Kidd & Sheffield, 2005; Wei, Mallinckrodt, Larson, & Zakalik, 2005) which in turn has been found to be linked to suicidal behaviour. Studies have shown that *attachment anxiety* is more strongly associated with depressive symptoms than is *attachment avoidance* (Bifulco Moran, Ball, & Bernazzani, 2002; West & George, 2002). Additionally, those with high levels of *attachment anxiety* have been found to have more inner-directed anger than those with other attachment orientations (Mikulincer, 1998).

Psychoanalytic perspectives of suicidality have been widely used in understanding adolescent suicidality related to disrupted parent-child relationships, typically addressing the ambivalence between needing and not wanting to need others (Briggs, Maltsberger, Goldblatt, Linder, & Fiedler, 2006)

2.5.4 Shneidman's psychological theory

Shneidman (1996) proposed that suicidal behaviour represents an attempt to escape intense psychological pain related to "frustrated psychological needs" (p. 4). He theorized that after basic physical needs are met, an individual seeks to have their more intangible need for love, belonging, and affiliation met. When these needs are unmet or thwarted in some

way, it can result in unbearable psychic pain, which he termed “*psychache*” (Shneidman, 1996, p. 4). Psychache is conceptualized as the pain or anguish resulting from fear, loneliness, anxiety, guilt, or excessively felt shame. Suicide may often seem like the only escape from this situation (Shneidman, 1993). Shneidman (1996, p. 131) proposed that there are 10 psychological commonalities in suicides:

1. “The common purpose of suicide is to seek a solution”: A suicidal person views suicide as a solution to a problem that causes him/her intense emotional suffering.
2. “The common goal of suicide is cessation of consciousness”: In the anguished mind of a suicidal person, terminating conscious thoughts and feelings are seen as the only way to end suffering.
3. “The common stimulus of all suicide is unbearable psychological pain” which the author refers to as *psychache*.
4. “The common stressor in suicide is frustrated psychological needs”: A suicidal person is driven to self-injury and death by a thwarted psychological need for nurturance and belonging.
5. “The common emotion in suicide is hopelessness-helplessness”: A suicidal person feels that the situation that causes them pain is stable and irremediable and feels powerless to change it.
6. “The common cognitive state of suicide is ambivalence”: Suicidal individuals view death as the only solution to their problems but simultaneously wish to be rescued from the attempt.
7. “The common perceptual state in suicide is constriction”: The mind of a suicidal person is constricted in its ability to rationally explore solutions, and dichotomizes the available options as either continued suffering or death.

8. “The common action in suicide is escape”, usually from intense psychological pain arising out of thwarted needs.
9. “The common interpersonal act in suicide is communication of intention”: The suicidal person attempts to communicate their intent to others directly or indirectly over time.
10. “The common pattern in suicide is consistency of lifelong styles.” How individuals cope with everyday situations is likely to determine how they cope in crisis situations. It is therefore possible to predict the likelihood of suicidal behaviour based on these patterns.

In earlier work, Shneidman (1995) also theorised that in order to engage in suicidal behaviour, an individual must possess *lethality*, which is defined as the ability to engage in self-injurious behaviour that is likely to result in death.

The extant literature provides consistent support for Shneidman’s hypotheses, with research conducted both in Africa and abroad demonstrating: (a) an association between psychological support and suicidal behaviour, and (b) that interpersonal difficulties constitute one of the leading causes of suicidal behaviour (du Toit et al., 2008, Khasakhala et al, 2013). The theory has also been one of the major influences in Joiner’s (2005) IPTS, which is the central explanatory model in the present research.

2.5.5. Cognitive theories of suicide

2.5.5.1 Beck’s cognitive theory

Beck (1967) has provided the best known cognitive theory of human behaviour to date, using the central concept of *cognition* to demonstrate how an individual perceives self in relation to the world and acts on the basis of these perceptions. Using Alford and Beck’s

(1997) central axioms of the theory, Rudd (2000) conceptualizes suicidal behaviour in relation to cognitive theory as follows:

1. The central pathway for suicidality is cognition (i.e., how an individual perceives himself, the world, and the future). Negative perceptions of this cognitive triad over a sustained period of time may result in feelings of hopelessness.
2. The suicidal belief system will differ from person to person, depending on their experiences and context, but is driven by similar themes of lowered distress tolerance, unloveability, and a sense of hopelessness about the situation.
3. Cognitive vulnerability (i.e. distortions of thinking) are often related to mental illness, usually the affective disorders.
4. The interaction between the suicidal belief system and other biological and social variables is symbiotic.
5. The suicidal belief system may reside at different levels of consciousness, with the conscious level being most accessible to psychotherapy (Rudd, 2000).

From this cognitive perspective, suicide attempters are conceptualized as poor problem solvers who use suicidal behaviour either as a maladaptive strategy for resolving their problems or as a way of escaping pain (Ghahramanlou-Holloway, Cox, & Greene-Palmer, 2012). The inability to generate more adaptive alternatives to resolving their problems may be related to their cognitive rigidity (Schotte & Clum, 1982), in that what may be a transient feeling of hopelessness related to a current situation may be perceived as a more permanent state that can lead to suicidal behaviour.

Beck's cognitive theory has been found to constitute a useful way of understanding suicidal behaviour, with many prevention and treatment programmes having been developed based on the approach (Beck, 2005; Rudd, 2000). Cognition based interventions have been

found to be particularly effective with younger individuals who respond well to solution-focused interventions.

2.5.5.2 Baumeister's escape theory

Baumeister (1990) conceptualized suicide as being an escape from the self. Expanding on Baechler's (1980) earlier conceptualization of suicide as being a maladaptive means of escaping one's problems, he proposed that suicidal behaviour stems from a desire to escape aversive emotional states and from the awareness that the self is flawed. Baumeister (1990) described a six step process which he regarded as constituting decision points in the journey to suicide, with the manner in which each step is negotiated being assumed to mediate/moderate the decision to engage in suicidal behaviour:

Step 1: The individual perceives that their current life circumstances do not meet up to the expectations of themselves or others. This perception is usually produced by unrealistic expectations of self or others.

Step 2: The individual develops *negative internal attributions*, such that these life events are blamed on the self. This self-blame leads to low self-esteem and a sense of worthlessness. Individuals who do not develop negative attributions thus do not attribute external events to themselves.

Step 3: As a result of perceiving the self as not meeting standards and being responsible for disappointing life events, *an aversive state of high self-awareness* develops. The individual becomes acutely aware of the self as inadequate and incompetent.

Step 4: In this step, *negative affect* develops in response to unfavourable comparisons of self with unrealistic standards and the consequential awareness that the self is flawed. Typically, this affect includes depressive feelings.

Step 5: The individual attempts to escape this state of negative affect by moving from meaningful thought to a state of *cognitive deconstruction*, ignoring broader perspectives of self and the situation and focusing only on the present goal of escaping negative affect.

Step 6: The *consequences* of cognitive deconstruction include decreased self-awareness and lowered inhibition. In this state, individuals are less able to resist suicidal impulses and thus may make a suicide attempt.

An individual's perception of each step in this process will determine the outcome of that step. For example, an individual with low expectations of self or others will not go on to develop negative attributions of self, which in turn will not lead to negative affect from which he/she attempts to escape.

From this perspective, suicide can be conceptualized as a drastic means to escape from self and one's surroundings. Baumeister contends that even unsuccessful suicide attempts may constitute a successful escape from self, as after an attempt the individual is often regarded differently by others, which may result in forms of social attention that the individual desperately desires (at least in the short-term).

Baumeister's theory provides a compelling account of how individuals engage in self-destructive behaviour in order to escape aversive emotional states, with there being compelling empirical support for this hypothesis. In a meta-analysis of six studies, Chatard and Selimbegovic (2011) found evidence of a direct causal relationship between failure to attain standards and the accessibility of suicidal thoughts, while Dean and Range (1999) found a causal pathway from perfectionism to suicidal ideation in a clinical sample.

2.5.5.3 The Hopelessness theory of suicidality

The hopelessness theory of suicidality (Abramson et al., 2000) is an extension of the hopelessness theory of depression (Abramson, Metalsky, & Alloy, 1989) and proposes that people make three kinds of inferences regarding negative life events: causal attributions, inferred consequences, and inferred characteristics of the self. When life events are construed as unimportant, and are seen as unlikely to lead to further negative outcomes, the perception of self is likely to remain unaltered. However, when negative life events are perceived as important, and the individual attributes these events to stable and global internal causes, they may expect other negative consequences to follow, which may lead to perception of the self as flawed or deficient. The enduring nature of such perceptions can result in a sense of hopelessness, which in turn may lead to depression (Abramson et al., 1989). Abramson et al. (2000) contend that the suicidality continuum from ideation to completed suicide is a core symptom of such hopelessness-induced depression.

The theory therefore proposes a diathesis-stress model, in terms of which individuals exhibiting particular cognitive vulnerabilities face an increased risk for suicidality, with this association being moderated by hopelessness (Liu, Kleiman, Nestor, & Cheek, 2015).

The hopelessness theory of suicide represents one of the first attempts to consider the moderating influence of hopelessness within a theoretical model. Liu et al. (2015) report that only two studies have tested the theory since it was expanded to focus on suicidality, with available evidence suggesting an association in the expected direction between negative inferential style and suicidal behaviour (Kleiman, Law, & Anestis, 2014; O'Connor, Connery & Cheyne, 2000).

Each of the theories of suicidality described in this section is able to provide only a partial explanation for the development of suicidality. The fact that available theories have been relatively unsuccessful in predicting and preventing suicide attempts (O'Connor &

Sheehy, 2000), suggests that there is a need for more comprehensive theories of suicide that generate specific hypotheses regarding suicidality that can be empirically tested (O'Connor, 2003; Wenzel & Beck, 2008).

2.6 The Case for a Multidimensional Theory of Suicide

Van Orden et al. (2010) contend that a multidimensional theory of suicide must include both causes and correlates of suicidal behaviour, be able to explain known facts about the phenomenon, and be able to identify those who are at future risk. A comprehensive theory of suicide must be able to answer the question of why not every individual who experiences suicidal ideation engages in suicidal behaviour; and, of those who do, why not all die from suicide attempts. It must also account for why some individuals with Axis 1 and 2 pathology engage in suicidal behaviour and others don't, or why not all individuals with a family history of suicide will attempt suicidal behaviour themselves. Finally, it must expand neurobiological understandings of the phenomenon, which currently, while satisfactorily arguing that there is a link between reduced serotonergic activity and suicide, fails to explain fully why some individuals die by suicide and others do not. From a practical point of view, a theory that identifies sufficient proximal causes of suicidal behaviour that can form the basis for effective intervention and prevention efforts, is needed (O'Connor, 2003; Wenzel & Beck, 2008). In sum, what is needed is a comprehensive theory that is not only able to explain why individuals die by suicide, but is also able to reliably and precisely identify those who are most at risk for future suicidal behaviour.

Joiner's (2005) Interpersonal-Psychological theory of suicide (IPTS) attempts to address all of the above issues. Drawing on insights from earlier sociological, psychological, and biological theories of suicide, the IPTS conceptualizes suicide as a dynamic interplay of

proximal risk factors that interact to confer the risk of a potentially lethal suicide attempt.

This theory has been used as the central explanatory model of the present research.

2.7 The Interpersonal-Psychological theory of suicidal behaviour (IPTS)

Developed by Joiner (2005), the IPTS attempts to address the shortcomings of available theories of suicide by seeking to provide a more comprehensive understanding of why some people die by suicide and others don't. Joiner contends that people die by suicide because *they can* and because *they want to*, and proposes that suicide is the outcome of both distal and proximal risk factors that interact to increase an individual's vulnerability to a lethal suicide attempt. Joiner proposes that suicidal behaviour is influenced by three key constructs – *perceived burdensomeness*, *thwarted belongingness* and an *acquired capability* for suicide – with the confluence of these three proximal influences resulting in lethal suicidal behaviour. A description of the key constructs of the theory follows:

- ***Perceived burdensomeness***

Van Orden et al. (2010) describe the construct of perceived burdensomeness as the perception that one is a burden to others and that said others would benefit in some way if the individual were no longer around. The authors propose that perceived burdensomeness has two latent dimensions: *liability* (the belief that the self is so inadequate as to be a burden to others) and *self-hate* (in relation to perceived flaws). Resting on Sabbath's (1969) theory of adolescent suicidal behaviour, Van Orden et al. (2010) propose that when individuals perceive themselves as being expendable to significant others, their desire for suicide may become elevated.

The perception of *liability* often develops in the presence of other risk factors for suicidal behaviour. For example, family conflict, unemployment, and physical illness all

imply an element of liability to others, with such liability having been found to be independently associated with suicidal behaviour (Van Orden et al., 2010). Unemployment has been found to increase feelings of burdensomeness, as unemployment often returns individuals to a state of financial dependence on others (Holtman et al., 2011). This feeling of being a liability to others is often accompanied by self-hate at needing others. The effect of physical illness is similar, with the added element being that of physical dependence on others, especially in the case of serious illness. Whilst it may be true that serious illness can put an actual strain on family members, a sense of burdensomeness is often as much a perception as it is a reality, with such perceptions being open to therapeutic intervention (Van Orden et al., 2010).

The dimension of *self-hate* also tends to be associated with variables that have known empirical associations with suicidality, including low self-esteem, self-blame and shame, and agitation. Joiner (2005) contends that perceived burdensomeness is a dynamic construct that individuals experience at varying degrees of severity and duration, depending on events that occur in their lives at different points in time. Van Orden et al. (2010) therefore argue that it is necessary to investigate the dimensions of perceived burdensomeness (i.e. severity and duration) that need to be present in order for perceived burdensomeness to serve as a catalyst for suicidal behaviour.

- ***Thwarted belongingness***

Given that belongingness is a fundamental human psychological need, its failure to be met is likely to be associated with feelings of social isolation of varying intensity – at times mild and transient and, in extreme cases, unbearable. The concept of belongingness is central to the understanding of human beings and represents the essence of the study of psychology

and sociology. Indeed, Durkheim's view that suicide is the result of the lack of social integration was the prevailing theory of suicide in the 19th Century.

Social isolation can be understood as being one dimension of the construct of social connectedness (Berkman, Glass, Brissette, & Seeman, 2000), with other dimensions including loneliness and the death of a spouse, both of which have been linked to suicidal behaviour. Although social connectedness has many facets, the IPTS proposes that the need for belongingness is a specific interpersonal need which, when thwarted, leads to suicidal ideation. Van Orden et al. (2010) propose that thwarted belongingness is a multi-faceted construct, comprising the latent variables of *loneliness* and expectations of *reciprocal care*, both of which have been found to be related to suicidal behaviour. Whilst an association between loneliness and suicidal ideation has been widely reported in the literature, the value of giving to others has recently been the subject of a number of studies, with findings from these studies suggesting that the benefits derived from helping others include reduced distress (Midlarsky, 1991) and improved health (Brown, Nesse, Vinokur, & Smith, 2003; Schwartz & Sendor, 2000).

Van Orden et al. (2010) describe thwarted belongingness as a dynamic (rather than stable) cognitive trait, which is influenced by both intrapersonal and interpersonal factors. This implies that an individual's experience of belongingness is likely to vary over time and be affected by actual events, perceptions of care, and prevailing affect at a given time. Given that all individuals at some point in their lives are likely to experience the pain of rejection at some level, it is important to explore at what point along this continuum suicidal ideation emerges (Van Orden et al., 2010).

- ***Relationship between thwarted belongingness, perceived burdensomeness, and hopelessness***

Thwarted belongingness and perceived burdensomeness have been assumed to be distinct but related constructs (Joiner, 2005), in the sense that a person needs to have social connections with others in order to perceive a sense of being a burden to others. However, Van Orden et al. (2010) argue that this may not be the case, as *perceptions* of burdensomeness may arise in the absence of social connectedness.

Although Van Orden et al. (2008) found that individuals with high levels of thwarted belongingness did not experience suicidal ideation unless high perceptions of burdensomeness were also present, other studies have found that the constructs are independently associated with suicidal ideation (e.g., Conner, Britton, Sworts, & Joiner, 2007). However, Ribeiro and Joiner (2009) contend that the confluence of high levels of both perceived burdensomeness and thwarted belongingness is likely to have particularly pernicious effects on the development of suicidal ideation.

The IPTS proposes that a sense of hopelessness moderates the association between perceived burdensomeness, thwarted belongingness and suicidal ideation (Joiner, 2005), with Van Orden et al. (2010) contending that it is only hopelessness specific to these interpersonal constructs (as opposed to a generalized sense of hopelessness) that moderates this association. At the point at which an individual experiences hopelessness regarding their feelings of self-hate, being a burden to others, and feeling unwanted and expendable, death ideation is likely to transform into suicidal ideation, with higher levels of hopelessness being related to higher levels of suicidal ideation (Van Orden et al., 2010).

- *An Acquired Capability for Suicide*

Current theories of suicide conceptualize suicide as a response to an aggregation of co-occurring risk factors, with suicidal ideation being associated with the least number of risk factors and suicide attempts with a greater number (Van Orden et al., 2010). These assumptions have been widely accepted in the understandings of suicidal behaviour. However, Joiner (2005) maintains that the presence of proximal risk factors for suicidal ideation is not enough to result in a suicide attempt. The individual must also lose the *fear* associated with suicidal behaviour. Expanding on this premise, Joiner argues that millions of years of evolution have resulted in human beings developing an instinct for self-preservation. An individual must therefore be able to overcome this instinct and become inured to the physical pain and fear of dying associated with suicidal behaviour in order to make a lethal suicidal attempt; that is, he/she must acquire the capability for suicide.

An acquired capability of suicide is composed of the dimensions of *lowered fear of death* and *elevated physical pain tolerance*, which results from habituation (i.e. repeated exposure) to painful events, which may or may not be associated with suicidal intent (Van Orden et al., 2010). Over time, an individual with such exposure develops a heightened sense of fearlessness and a higher pain threshold (Bryan, Cukrowicz, West, & Morrow, 2010a) which, in conjunction with suicidal ideation, may result in a lethal suicide attempt (Joiner, 2005). Providing support for this view, Van Orden and colleagues (2008) found that past suicide attempts significantly predicted levels of an acquired capability for suicide.

The diathesis-stress model of an acquired capability for suicide (Smith & Cukrowicz, 2010) posits that genetic and biological predisposition are expressed in life experiences that eventually lead to habituated fear. For example, individuals who have reduced serotonergic activity are likely to be aggressive and impulsive, and may engage in high-risk activity such as physical fights, intravenous drug use, self-harm (i.e. habituation to pain), as well as

activities such as sky-diving and bungee jumping (i.e. habituation to fear of dying), resulting in an acquired capability for suicide. Joiner (2005) maintains that while these painful and provocative events contribute to an acquired capability for suicide, the suicidal ideation is also fuelled by other negative cognitive and emotional states relating to an individual's perceptions of self and others.

- ***The relationship between perceived burdensomeness, thwarted belongingness and the acquired capability for suicide***

Joiner (2005) contends that even though the combined presence of perceived burdensomeness and thwarted belongingness may result in suicidal ideation, an individual is unlikely to act on these thoughts unless the acquired capability for suicide is also present. The greatest risk for suicidal behaviour is thus hypothesised as occurring in the presence of high levels of both perceived burdensomeness and thwarted belongingness (and hopelessness in relation to these distressing states) combined with high levels of an acquired capability for suicide. Van Orden et al. (2010) posit that while perceived burdensomeness and thwarted belongingness are dynamic states, an acquired capability for suicide, once developed, remains relatively stable. As such, whilst the interpersonal states are amenable to therapeutic modification, an acquired capability for suicide remains a stable risk factor for suicide over time.

2.8 A Brief Comparison of the Hopelessness and the Interpersonal-Psychological Theories of Suicidality

The Hopelessness and IPTS models share similarities in that both models consider antecedents to suicidality and propose that hopelessness plays a moderating role in the development of suicidal ideation. The Hopelessness model proposes that hopelessness

moderates the relationship between cognitive vulnerabilities and suicidal ideation, whereas the IPTS proposes that hopelessness moderates the relationship between the interpersonal states of perceived burdensomeness and thwarted belongingness and suicidal ideation. However, whereas hopelessness in the former model is proposed to be ‘relatively generalized’ (Abramson et al., 2000, p. 21), Van Orden et al. (2010) contend that it is hopelessness specifically in relation to interpersonal states that results in a pernicious form of suicidal ideation. Moreover, whereas the Hopelessness theory proposes that cognitive vulnerabilities are believed to be “stable, distal factors” in the development of suicidal ideation (Kleiman et al., 2014, p. 432), perceived burdensomeness and thwarted belongingness are regarded as dynamic, proximal risk factors for the development of suicidal ideation in the IPTS (Van Orden et al., 2010).

In a study attempting to integrate both models, Kleiman et al. (2014) found that the combination of perceived burdensomeness and thwarted belongingness mediated the relationship between negative cognitive styles and suicidal ideation. However, they also found that an alternative model, in which negative cognitive styles were hypothesized to mediate the relationship between perceived burdensomeness, thwarted belongingness, and suicidal ideation, accounted for a significantly smaller proportion of the variation in suicidal ideation scores. Kleiman and colleagues concluded that negative cognitive styles (a distal risk factor) may be a precursor to the development of perceived burdensomeness and thwarted belongingness (proximal risk factors). Available evidence thus suggests that of the two models, the IPTS model provides a better fit for the risk and moderating variables implicated in the development of suicidal ideation.

2.9 Key Hypotheses of the IPTS

Key assumptions of the IPTS (see Figure 2.1) are expressed in terms of a number of clearly articulated hypotheses.

- **Hypothesis 1:** High levels of thwarted belongingness or perceived burdensomeness will constitute a sufficient proximal cause of death ideation (i.e. a desire to be dead without reference to suicide)
- **Hypothesis 2:** The confluence of high levels of both thwarted belongingness and perceived burdensomeness, in the presence of high levels of hopelessness in relation to both of these distressing states, will constitute a sufficient proximal cause of suicidal ideation (i.e. a desire to commit suicide).
- **Hypothesis 3:** The confluence of high levels of suicidal ideation, in the presence of high levels of an acquired capability for suicide, will constitute a sufficient proximal cause for a potentially lethal suicide attempt.

2.10 Empirical tests of IPTS hypotheses

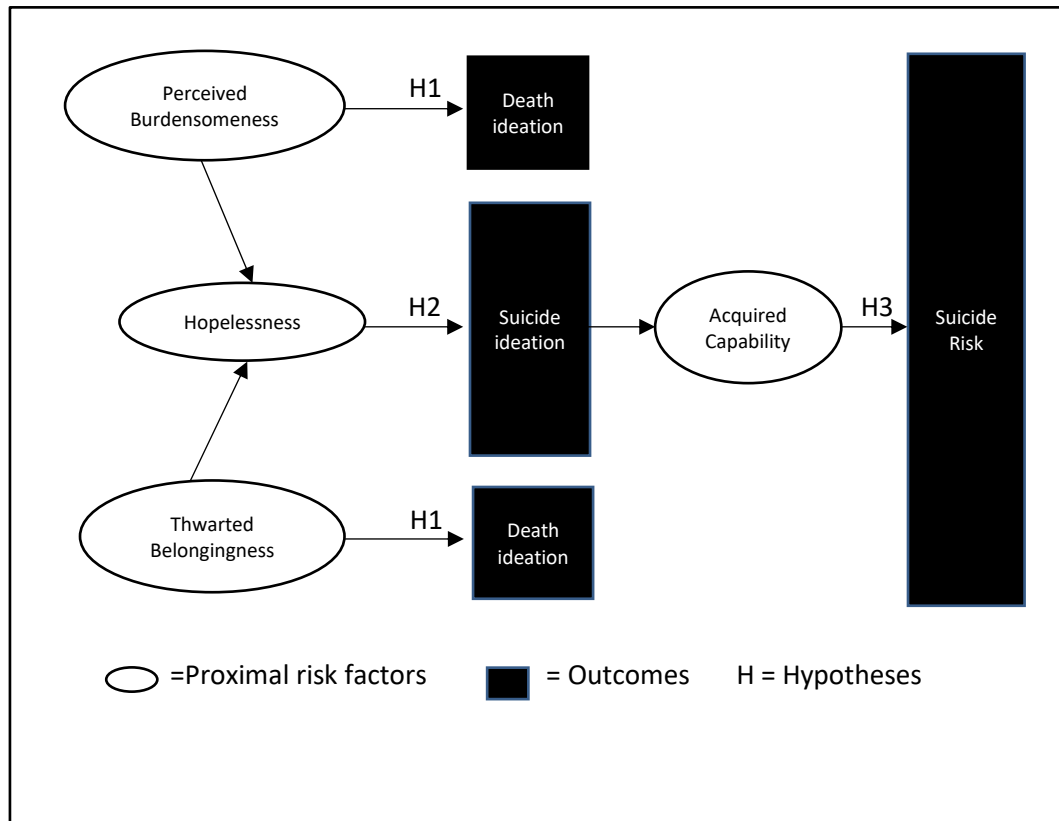
To date, there have been several empirical tests of the theory's central hypotheses. These have provided qualified support for the assumptions of the theory and some of these findings are presented below:

2.10.1 Hypothesis 1: Risk factors for death ideation

In terms of the model (Figure 2.1), the sufficient proximal causes of death ideation are the presence of high levels of either perceived burdensomeness or thwarted belongingness (Hypothesis1). According to Van Orden et al. (2010), this hypothesis can be falsified if studies do not document: (a) independent associations for both thwarted belongingness and perceived burdensomeness with death ideation; and (b) the presence of death ideation among

all individuals with a completely thwarted sense of belongingness or a global sense of perceived burdensomeness.

Figure 2.1 Key hypotheses of the IPTS



Reproduced from Van Orden et al. (2010). The Interpersonal theory of suicide. *Psychological Review*, 117(2), 575-600, American Psychological Association. Reprinted with permission.

Studies that have examined associations between IPTS risk factors and death ideation have produced few consistent findings, with some studies reporting that death ideation is associated with perceived burdensomeness but not with thwarted belongingness (Cukrowicz, Jahn, Graham, Poindexter, & Williams, 2013; Van Orden, et al., 2008), and other studies finding that high levels of thwarted belongingness are associated with death ideation, but only in the presence of high levels of perceived burdensomeness (Murariu, 2016). Moreover, there has, to date, been no systematic attempt to falsify the hypothesis that death ideation will be present among all individuals with a completely thwarted sense of belongingness and/or a

global sense of perceived burdensomeness. Taken together, these findings provide no consistent support for IPTS predictions regarding risk factors for death ideation.

2.10.2 Hypothesis 2: Proximal risk factors for suicidal ideation

According to Van Orden et al. (2010), *the sufficient proximal causes of suicidal ideation are high levels of both thwarted belongingness and perceived burdensomeness, in the presence of high levels of hopelessness in relation to both of these distressing states (Hypothesis 2)*. This hypothesis can be falsified if studies do not document: (a) a significant two-way interaction in terms of which suicidal ideation is more severe at high levels of both thwarted belongingness and perceived burdensomeness; (b) a significant three-way interaction in terms of which suicidal ideation is more severe at high levels of: perceived burdensomeness, thwarted belongingness, and perceived hopelessness; and (c) that individuals with high levels of hopelessness regarding perceived burdensomeness and thwarted belongingness are more likely to report suicidal ideation than they are to report death ideation.

The extant literature provides inconsistent support for these hypotheses. While some studies have documented a significant two-way interaction, in terms of which suicidal ideation is more severe at high levels of both thwarted belongingness and perceived burdensomeness (Cuckrowitz et al., 2013; Murariu, 2016; Van Orden et al., 2008), other studies have failed to document a significant two-way interaction between thwarted belongingness and perceived burdensomeness in predicting suicidal ideation (Cero, Zuromski, Witte, Ribeiro, & Joiner, 2015; Christensen, Batterham, Soubelet, & Mackinnon, 2013; Chu, Buchman-Schmitt, Hom, Stanley, & Joiner, 2016). In addition, there are studies that have provided only qualified support for IPTS predictions, with Hagan, Podlogar, Chu, and Joiner (2015) finding that high levels of both perceived burdensomeness and thwarted

belongingness were strongly predictive of suicidal ideation in a college student sample but not in a clinical sample, and Barzilay et al. (2015) finding that perceived burdensomeness interacts with parental belongingness, but not with peer belongingness (i.e., elements of, rather than the whole construct of thwarted belongingness) in predicting suicidal ideation.

Similarly, attempts to test for the presence of a significant 3-way interaction between thwarted belongingness, perceived burdensomeness, and hopelessness have produced largely conflicting findings. Although one study did document the presence of the anticipated three-way interaction (Hagan et al., 2015), most studies have failed to document a three-way interaction between IPTS risk factors and suicidal ideation (e.g., Christensen et al., 2013; Cuckrowitz et al., 2013).

In addition, there has, to date, been no systematic attempt to falsify the hypothesis that individuals with high levels of hopelessness regarding perceived burdensomeness and thwarted belongingness are more likely to report suicidal ideation than they are to report death ideation.

2.10.3 Hypothesis 3: Risk factors for potentially lethal suicidal behaviour

In terms of IPTS predictions (Van Orden et al., 2010), *the sufficient proximal causes of potentially lethal suicidal behaviour are high levels of suicidal ideation in the presence of high levels of an acquired capability for suicide (Hypothesis 3)*. This hypothesis can be falsified if studies fail to document: (a) that suicidal ideation (alone) or an acquired capability (alone) do not predict potentially lethal suicidal behaviour; (b) an interactive effect of an acquired capability and suicidal ideation on the risk for suicide; and (c) that individuals with high levels of suicidal ideation are more likely than individuals with high levels of death ideation to be at risk for a potentially lethal suicide attempt.

Research on IPTS risk factors for potentially lethal suicidal behaviour have produced qualified support for IPTS predictions. In a study of a large community sample, Christensen et al. (2013) found that an acquired capability (alone) did not predict suicidal risk, but that suicide risk was predicted by a two-way interaction between suicidal ideation and a measure of intentional self-harm (i.e., an acquired capability). However, Christensen and her colleagues also identified a significant main effect of suicidal ideation, which suggests that suicidal ideation (alone) may predict suicide risk. Similarly, a clinical study conducted by Van Orden et al. (2008) found that an acquired capability (alone) did not predict suicide risk but that suicide risk was predicted by a two-way interaction between an acquired capability for suicide and perceived burdensomeness. Contrary to expectations, Van Orden and colleagues' analysis suggested that perceived burdensomeness (alone) was the risk factor that was most strongly predictive of suicide risk.

Finally, there has, to date, been no systematic attempt to falsify the hypothesis that individuals with high levels of suicidal ideation are more likely than individuals with high levels of death ideation to be at risk for a potentially lethal suicide attempt.

2.11 Methodological issues in research on the IPTS

Inconsistent findings that have emerged from research on the IPTS may reflect differences in sample characteristics, with available studies having focused on a variety of samples including: secondary school and college students (Barzilay et al., 2015; Ream, 2015; Van Orden et al., 2008); clinical samples (Hagan et al., 2015; Silva, Ribeiro, & Joiner, 2015; Van Orden et al., 2008); and samples drawn from the general population (Christensen et al., 2013; Chu et al., 2016; Cukrowicz et al., 2013; Hagan et al., 2015; Murariu, 2016).

A lack of consistent findings regarding IPTS predictions may also reflect the use of measures that fail to adequately capture key constructs. This would appear to be particularly

true regarding measures that have been used to assess *hopelessness* as a risk factor for suicidal ideation. In the absence of an instrument that is specifically designed to assess hopelessness in relation to both perceived burdensomeness and thwarted belongingness, researchers have either not included a measure of hopelessness in their study (e.g., Barzilay et al., 2015; Chu et al., 2016; Van Orden et al., 2008, 2012), or have tended to rely on measures that are designed to assess either negative expectations about the self and the world (e.g., Cuckrowitz et al., 2013; Hagan et al., 2015) or generalized social hopelessness (cf. Murariu, 2016). As Van Orden et al. (2010) point out, such measures fail to adequately capture precisely what it is that individuals are hopeless about, and in this regard, Van Orden and her colleagues (2010, p. 590) propose that:

“It is only hopelessness regarding complete and pervasive thwarted belongingness and perceived burdensomeness that will cause active suicidal desire because it is only at this juncture of mental states that individuals see no possibility of positive change”.

Attempts to test IPTS hypotheses have also been hampered by the absence of a validated measure of an acquired capability for suicide that adequately addresses all content domains relevant to the construct. As Van Orden et al. (2010) point out, the acquired capability for suicide is a multidimensional construct that encompasses habituation to potentially life-threatening events and painful/provocative experiences, leading to a lowered fear of death and elevated levels of physical pain tolerance. Although these content domains have been adequately addressed by the item content of a number of different measures that have been employed in IPTS research – e.g., the Acquired Capability for Suicide Scale (ACSS; Van Orden et al., 2008), the Impulsive Behaviour Scale (IBS; Rossotto, Yager, & Rorty, 1998); and the Painful and Provocative Events Scale (PPES; Bender, Gordon, & Joiner, 2007) – there has, to date, been no systematic attempt to derive a single measure that comprehensively addresses all content domains relevant to an acquired capability for suicide.

In addition, available measures of an acquired capability have tended to be characterised by low ($< .70$) levels of internal consistency (see, for example, Chu et al., 2016; Silva et al., 2015; Van Orden et al., 2008) suggesting that scale items may not measure a coherent construct.

A further confounding issue in research on the IPTS relates to the fact that suicidal ideation has, at times, been assessed using measures which do not clearly distinguish between death ideation and suicidal ideation. Thus, for example, measures of suicidal ideation that have been employed in IPTS research include: (a) total scale scores on the Beck Scale for Suicidal Ideation (Beck & Steer, 1991), which contains items designed to assess both death ideation and suicidal ideation (e.g., Van Orden et al., 2008, Van Orden, Cukrowicz, Witte, & Joiner, 2012); and (b) author developed measures of suicidal ideation that contain items relating to both death and suicidal ideation (e.g., Christensen et al., 2013).

Finally, if we are to accept the proposition that tests of causal associations require that causal influences need to precede (or at least be contiguous with) inferred effects, it does some damage to the logic of causal reasoning if *current* perceptions of IPTS risk factors are assumed to causally influence *past* suicidal behaviours. And yet, such distortions of the principle of temporal precedence/contiguity have been evident in the IPTS literature, with some authors (e.g., Barzilay et al., 2015; Chu et al., 2016) having examined the causal influence of current perceptions of IPTS risk factors on past suicide attempts. As Van Orden et al. (2008) point out, such threats to internal validity can be optimally addressed through the use of prospective designs which compare individuals' scores on measures of IPTS risk factors at a given point in time to the lethality of suicide attempts at a subsequent point in time. A somewhat weaker (although nevertheless acceptable) test of IPTS hypotheses would be to demonstrate a contiguous association between scores on measures of IPTS risk factors

and scores on reliable and validated measures of risk for potentially lethal suicidal behaviour – an approach adopted in the present study.

2.12 Conclusions and implications

In the context of the methodological limitations outlined above, it could be argued that there has been no adequate attempt to test the key hypotheses of the IPTS in a single sample. This omission is somewhat surprising, as the IPTS would appear to have much to commend it.

The IPTS is comprehensive in that it proposes a causal pathway of risk factors and mediating variables leading to lethal suicidal behaviour, while at the same time acknowledging the influence of distal neurobiological, psychological, and sociological influences on suicidal behaviour. In addition, the IPTS is designed to address the need for both sensitivity and specificity, with

- Sensitivity being demonstrated by the theory's ability to: (a) detect a large number of individuals who are not likely to be at risk for suicidal desire (i.e. those experiencing low levels of thwarted belongingness and perceived burdensomeness); and (b) identify those who are not likely to be at risk for suicidal attempts (i.e. those who do not report high levels of suicidal ideation and an acquired capability for suicide).
- Specificity being demonstrated by the theory's ability to: (a) detect the smaller number of individuals who are likely to be at risk for suicidal ideation (i.e. those experiencing high levels of thwarted belongingness and perceived burdensomeness); and (b) identify those at risk for suicidal attempts (i.e. those who report high levels of suicidal ideation *and* have an acquired capability for suicide).

There are, however, numerous challenges that arise when attempting to test a predictive theory of suicide. Logistical challenges relate to the low base-rate of suicide in the general population (Moscicki, 2001), difficulties in recruiting suicidal individuals for studies (Conwell et al., 2000; Rudd et al., 2004), and the difficulties of doing research in an area fraught with ethical concerns for the safety of participants (Prinstein, 2008). There are also methodological challenges in studying demographic and mental health precursors *after* a suicide event, and challenges in defining suicidal behaviours (Andriessen, 2006; Silverman et al., 2007a) in ways that allow for the replication of studies. Finding a theory that is able to predict those most at risk for suicide – by identifying the precursors that lead to death ideation, transform death ideation into suicidal ideation, and transform suicidal ideation into risk for suicide – is thus crucial to our understanding of suicidal behaviour.

The IPTS (Joiner, 2005; Van Orden et al., 2010) is a testable, predictive theory that has been found to fulfil these criteria. The theory addresses both proximal and distal risk factors for suicidality, and addresses the interplay between intra- and interpersonal dynamics that influence the continuum of suicidal behaviour (Prinstein, 2008). To date, only a few studies have tested the simultaneous and interactive effects of the theory's constructs (Barzilay et al., 2015), with none of these studies having been conducted in South Africa. Finding support for the main hypotheses of the theory has the potential to enhance prevention efforts, and thereby play a role in reducing suicide rates in this country.

In this context, the present study attempted to provide an adequate test of all key IPTS hypotheses, and to do so in a manner that addressed the methodological limitations that have characterized available research on the theory.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the research approach and the aims and objectives of the study, before going on to describe the research methodology. Issues like study sites, sample recruitment, the measurement of key constructs, the study procedure, and data reduction strategies are addressed and ethical issues relevant to the research are considered.

3.2 Research Approach

This study adopts a cross-sectional design. In addition, it makes use of a quantitative research approach which allows for the examination of the latent dimensions of variables, the inter-relationships between variables, and the causal pathways suggested by a theoretical model.

Quantitative research employs statistical analysis for the measurement of variables and places emphasis on the use of structured questionnaires (Cant, Gerber-Nel, Nel & Kotze, 2005). Further, quantitative research rests heavily on the positivist paradigm, which applies scientific methods to the study of human behaviour and adopts a deductive approach to the process (Mouton, 1996).

According to Neuman (2011), quantitative research enables the researcher to validate relationships and allows him/her to test hypotheses. A quantitative approach is favoured when one intends to draw objective conclusions about the relationship between two variables, based on the manipulation of one of those variables to observe its effects on the other, when other variables are controlled (Babbie, 1995). Quantitative methodology also satisfactorily addresses issues relating to the validity and reliability of assessment measures (Neuman, 2011).

Qualitative and quantitative methods of scientific enquiry generate different types of knowledge based on differing philosophical perspectives. Qualitative research is subjective and contextual as compared to quantitative methods, which are objective and generalizable (Whittemore, Chase, & Mandle, 2001). Whereas the former seeks depth of understanding over breadth of data and attempts to study the lived experience of participants, quantitative enquiry seeks to aggregate evidence that can be compared in meaningful ways (Ambert, Adler, Adler, & Detzner, 1995).

The extant literature has reported extensively on the merits of both methods, and while the author acknowledges the tension between proponents of both forms of enquiry, the choice of method should be based primarily on the objectives of a given study. Accordingly, in the case of the present study, the decision to employ a quantitative methodology was based on the research aims and objectives of the study, which were to validate a theory of suicidal behaviour using a cross-sectional survey design.

3.3 Research Aims

The central aim of the study was to test the validity of Joiner's (2005) Interpersonal-Psychological Theory of suicidal behaviour in a South African sample of psychiatric outpatients.

3.4 Research Objectives

The study objectives were:

1. To evaluate the psychometric properties of available measures of IPTS risk factors and outcome variables.

2. To adapt or to develop appropriate measures for assessing IPTS risk and outcome variables in cases where available measures were not found to have adequate psychometric properties.
3. To explore the association between demographic/clinical characteristics and IPTS risk factors.
4. To test the three key hypotheses of the IPTS (cf., Section 2.3.4.2) in a sample of South African psychiatric outpatients.
 - a. *Hypothesis 1:* High levels of thwarted belongingness or perceived burdensomeness will constitute a sufficient proximal cause of death ideation (i.e., a desire to be dead without reference to suicide).
 - b. *Hypothesis 2:* The confluence of high levels of both thwarted belongingness and perceived burdensomeness, in the presence of high levels of hopelessness (in relation to both of these distressing states), will constitute a sufficient proximal cause of suicidal ideation (i.e., a desire to commit suicide).
 - c. *Hypothesis 3:* The confluence of high levels of suicidal ideation, in the presence of high levels of an acquired capability for suicide, will constitute a sufficient proximal cause for a potentially lethal suicide attempt.

3.5 Research Questions

- 3.5.1 Are the psychometric properties of existing measures of IPTS constructs adequate?
- 3.5.2. In cases where available measures of IPTS constructs are not found to have adequate psychometric properties, do alternate (adapted or developed) measures have adequate psychometric properties?

3.5.3 To what extent do demographic and clinical characteristics predict scores on IPTS risk factors?

3.5.4 Do study data provide support for the three key IPTS hypotheses?

3.6 Location of the Study

The study was conducted in the EThekweni Municipality of the province of KwaZulu-Natal in South Africa. KwaZulu-Natal is the province with the second largest population in South Africa, with 10.92 million (19,9%) of the country's 54 million people living in this province (Statistics South Africa, 2016). The EThekweni Municipality covers a geographical area of 226 kilometres and at the time of the last national census in 2011, was home to 3.44 million people (Statistics South Africa, 2011). The majority of the population is classified as Black (51.1%) with Indians (24%), Whites (15.3%) and Coloureds (8.6%) making up the rest of the population. There are more females (51.5%) than males (48.5%) in this municipality. The language predominantly spoken is English (49.7%), followed by isiZulu (33.1%). Sixty-six percent of the population is below the age of 35 years, with individuals in the 15-34 age group representing 41% of the population, and those in the 35-39 age range representing 26% of the population. The economically active age group (15-59 years) represent 67% of the population in the municipality (Statistics South Africa, 2011).

3.7. Sites of the Study

All State hospitals in the Durban and surrounding areas, as well as five private psychiatry/psychology practices and a university psychology outpatient clinic were invited (using a convenience sampling method) to participate in the study. Of these, three State hospitals and all private practices (two psychiatry and three psychology practices), and the university clinic elected to participate. Once gatekeeper permission was obtained (as detailed

in the Research procedure that follows), the sites were entered on dates and times negotiated with gatekeepers.

3.8 Sampling Strategy

The primary purpose of sampling is to select a subset of cases that closely represents features of interest in a larger population (Neuman, 2011). There are two basic approaches to sampling: probability and non- probability sampling. The defining feature of probability sampling is that the researcher can specify, for each element of the population, the probability that it will be included in the sample (Shaughnessy & Zechmeister, 1990). This approach includes simple random sampling (participants selected via a completely random procedure), stratified random sampling (participants randomly selected into predetermined groups) and cluster sampling (participants selected via multistage processes on several levels (Neuman, 2011).

Non-probability sampling includes convenience sampling (whereby availability and willingness to respond are the overriding criteria for selection), snowballing (whereby participants recruit others into the process) and purposive sampling (whereby participants meet a set of pre-determined criteria based on the research objectives) (Neuman, 2011).

Given that the central aim of the study was to test the hypotheses of the IPTS on a psychiatric outpatient population, participants were selected using a purposive sampling strategy. Participants enrolled into the study were required to have a psychiatric diagnosis and to be attending an outpatient mental health facility where they were consulting a psychiatrist or psychologist at the time of the study. Other inclusion and exclusion criteria for selection are detailed below.

3.9 Research Participants

The study enrolled 239 participants from State hospital outpatient clinics, a university psychology clinic, and private psychology and psychiatry practices. Inclusion criteria for the study were:

- Age of at least 18 years;
- Ability to provide informed consent;
- Ability to communicate in English;
- Judgement by the treating clinician as being capable of participating in the research without experiencing additional distress as a result of their participation.

Exclusion criteria were:

- Evidence of psychotic symptoms at the time of data collection;
- Mental retardation.

As can be seen from Table 4.1, the study sample included participants from all the main race groups in the Durban area. Participants' ages ranged from 18 to 68 years ($M = 36.4$ years; $SD = 11.95$ years), with 64% of the sample being in the 18 to 40-year-old age group.

Seventy participants (29.3%) were married or in an intimate relationship, with approximately two out of three participants (63.6%) indicating that they lived alone. One third of participants (33.5%) had undergone some form of tertiary training and 51% were employed.

Although there were gender differences in the nature of the primary diagnosis provided by attending clinicians (see Table 4.1), a mood disorder (major depressive or bipolar) was the most common diagnosis for both male (50.0%) and female (52.2%) participants. Consistent with previous findings, which indicate that psychiatric outpatients constitute a high risk group for suicide (Dhossche, 2000), approximately half of the participants (50.2%) reported that they had made a previous suicide attempt, with approximately one in three participants

(34.6%) being rated as being at moderate to high risk for a future suicide attempt by their attending practitioner.

Table 3.1

Participants' demographic and mental health characteristics

	Total (<i>n</i> = 239)	Male (<i>n</i> = 78)	Female (<i>n</i> = 161)	χ^2 (<i>df</i>)	<i>p</i>
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)		
Age					
< 30 years	80 (33.5)	25 (32.1)	55 (34.2)	0.16 (2)	.925
30-40 years	73 (30.5)	25 (32.1)	48 (29.8)		
> 40 years	86 (36.0)	28 (35.8)	58 (36.0)		
Race					
Black	96 (40.2)	20 (25.6)	76 (47.2)	12.16 (3)	.007
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)		
Partnership status					
No partner	169 (70.7)	62 (79.5)	107 (66.5)	4.31 (1)	.054
Married/domestic partner	70 (29.3)	16 (20.5)	54 (33.5)		
Educational level					
High school or less	159 (66.5)	52 (66.7)	107 (66.5)	0.01 (1)	.975
Post graduate education	80 (33.5)	26 (33.3)	54 (33.5)		
Living arrangements					
Lives alone	152 (63.6)	50 (64.1)	102 (63.4)	0.01 (1)	.910
Lives with others	87 (36.4)	28 (35.9)	59 (36.6)		
Employment status					
Not employed	117 (49.0)	39 (50.0)	78 (48.4)	0.05 (1)	.890
Employed	122 (51.0)	39 (50.0)	83 (51.6)		
Primary DSM-5 diagnosis					
Major depressive disorder	79 (33.1)	18 (23.1)	61 (37.9)	52.67 (12)	<.001
Bipolar disorder	44 (18.4)	21 (26.9)	23 (14.3)		
An anxiety disorder	17 (7.1)	2 (2.6)	15 (9.3)		
Partner relational problem	17 (7.1)	5 (6.4)	12 (7.5)		
A 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)		
An 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-specified personality disorder	5 (2.1)	0 (0.0)	5 (3.1)		
Not specified	7 (2.8)	6 (7.7)	1 (0.6)		
Past suicide attempts					
None	119 (49.8)	44 (56.4)	75 (46.6)	2.11 (2)	.348
One previous attempt	52 (21.8)	14 (18.0)	38 (23.6)		
> one previous attempt	68 (28.4)	20 (25.6)	48 (29.8)		
Clinician rated suicide risk					
Low	153 (64.0)	51 (65.4)	102 (63.4)	2.07 (2)	.355
Moderate	54 (22.6)	14 (18.0)	40 (24.8)		
High	32 (13.4)	13 (16.6)	19 (11.8)		

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

3.10 Research Procedure

Gatekeeper permission was obtained in writing from individual sites and the Department of Health, for State hospital sites (permission letters are available on request). Before entering the sites, two intern clinical psychologists were trained (by the author) in the administration of the research questionnaire and in strategies for managing potential distress resulting from participation. The author or one of the interns were available at the sites on the negotiated days and times to collect the data.

Upon arriving for their treatment, the treating clinician assessed prospective participants for their suitability (in terms of their psychological stability) to participate. If they were deemed suitable, they were referred to the data collector for screening regarding study inclusion/exclusion criteria. Prospective participants who fulfilled the inclusion criteria were directed to a separate room and the nature and purpose of the study was explained to them. The informed consent form was signed by the participant prior to data collection. It was emphasised to participants that they would not receive any direct benefits as a result of their participation, and that there would be no negative consequences associated with a decision not to participate, or with a decision to withdraw at any stage during the research process. Data collection then proceeded with questionnaire completion taking an average of 35 minutes to complete.

The treating practitioner, who also provided a primary psychiatric DSM-5 diagnosis (APA, 2013), assessed the participants' risk for suicide. Data collection was completed either before or after the participants' psychological or psychiatric consultation, depending on the site's logistic preferences.

3.11 Research Instruments

The structured research questionnaire contained standard demographic questions (age, gender, race, marital status, educational level, and employment status) as well as measures designed to assess all key IPTS constructs (see Appendix C):

3.11.1 Measures of IPTS risk factors

The Interpersonal Needs Questionnaire (INQ): Developed by Van Orden et al. (2008), the INQ is a 12-item scale designed to measure participants' current beliefs about the extent to which they feel connected to others (belongingness) and perceive themselves to be a burden to others (burdensomeness). Seven items on the INQ scale measure perceived burdensomeness (e.g., "These days I feel like a burden on the people in my life") and five items measure thwarted belongingness (e.g., "These days other people care about me"). All items are scored on a 7-point Likert scale and are coded such that higher scores reflect higher levels of perceived burdensomeness or thwarted belongingness. Van Orden et al. (2008) report good internal consistency coefficients for the scales, with alpha values of 0.89 for the perceived burdensomeness sub-scale and 0.85 for the thwarted belongingness sub-scale. In this study, Cronbach's alpha levels were .91 for the perceived burdensomeness sub-scale and .85 for the thwarted belongingness sub-scale.

The Interpersonal Hopelessness Scale (IHS). In the absence of an appropriate measure of hopelessness in relation to both perceived burdensomeness and thwarted belongingness, the author developed the IHS to assess levels of interpersonal hopelessness in this study. With respect to participants' responses to each of the 12 items on the INQ, participants were asked to indicate whether they believed that things would get better or worse in the future, with responses being scored on a 5-point Likert scale ranging from 1 (*things will get a lot better*) to 5 (*things will get a lot worse*). Responses for each of the 12

items were then summed to provide a possible score range of 12-60, with higher scores representing greater interpersonal hopelessness. [A detailed description of the development of and the psychometric properties of the IHS is presented in Chapter 4, Section 4.3.2].

Acquired Capability for Suicide Scale (ACSS). Developed by Van Orden et al. (2008), the ACSS contains five items designed to assess fearlessness regarding self-injury (e.g., “I am not at all afraid to die”, I can tolerate more pain than most people”). Each item is scored on a 5 point scale ranging from 0 (*Not at all like me*) to 4 (*Very much like me*), yielding a possible score range of 0 to 20. The authors report evidence of construct validity for the scale – in the sense that ACSS scores have been found to be correlated, in the expected direction, with scores on the Fear of Suicide subscale of the Reasons for Living Inventory (Linehan, Goodstein, Nielsen, & Chiles, 1983) – with Van Orden et al. (2008) reporting an alpha coefficient for the ACSS of .67. In this study, Cronbach’s alpha for the ACSS was .62.

Painful and Provocative Events Scale (PPES): Developed by Bender et al. (2007), the PPES is a 10-item scale which contains items that the IPTS propose are likely to lead to an acquired capability for suicide (e.g., “Have you been shot?”, “Have you jumped from high places?”). Each item is scored on 5–point ordinal scale ranging from 1 (*Never*) to 5 (*More than 20 times*), with the scale yielding a possible score range from 10 to 50. The PPES has been found to demonstrate adequate levels of internal consistency and construct validity (Van Orden et al., 2008). In this study, Cronbach’s alpha for the PPES was .71.

Impulsive Behaviour Scale (IBS): Developed by Rossotto et al. (1998), the IBS is a 25-item scale designed to assess how often individuals have engaged in dangerous or provocative behaviours (e.g., “Have you engaged in unsafe sex?”, “Have you driven recklessly?”). Items are scored on a 5–point scale ranging from 1 (*Never*) to 5 (*Regularly* –

more than 20 times), yielding a possible score range of 25 to 125. The authors report an alpha coefficient for the IBS of .85. In this study, Cronbach's alpha was recorded as .90.

Beck Depression Inventory-II (BDI-II): Developed by Beck, Steer and Brown (1996), the BDI-II is an extensively used 21 item instrument designed for the measurement of depressive symptomatology. Scores range from 0-3 for each item with higher scores indicating more severe depressive symptoms, and a total possible score range of 0-63. Joiner et al. (2008) recorded Cronbach's alpha coefficients of 0.89 for an undergraduate student sample and .93 for a psychology clinic sample. In this study, the alpha coefficient was .95.

3.11.2 Measures of IPTS outcome variables

Death ideation: Death ideation was assessed using four items taken from the Beck Scale for Suicidal Ideation (BSS; Beck & Steer, 1991): "I have no wish to live", "I wish I was dead", "I have strong reasons for dying", and "I would not avoid threats to my life". Each of these items were scored on a graded 3-point scale ranging from 0 to 2, with higher scores indicating higher ideation, and possible scores ranging from 0 to 8. In this study, 131 participants (54.8%) reported some degree of death ideation. Exploratory factor analysis, using principal components analysis, indicated that all items loaded on a single factor, with scale items accounting for 65.9% of the variance. Item loadings ranged from 0.80 to 0.81. Coefficient alpha for the four items in this study was .92.

Suicidal ideation: Suicidal ideation was assessed using five items from the BSS: "I have a strong desire to kill myself", "I often think about killing myself", "I continually think about killing myself", "I accept the idea of killing myself", and "I cannot keep from killing myself". Each of these items was scored on a graded 3-point scale ranging from 0 to 2, with higher scores indicating greater suicidal ideation, and possible scores ranging from 0 to 10. In this study, 96 participants (40.2%) reported some degree of suicidal ideation. Exploratory

factor analysis, using principal components analysis, indicated that all the items loaded on a single factor that accounted for 62.9% of the variance. Item loadings ranged from 0.74 to 0.84. Coefficient alpha for the five items in this study was .93.

Suicide risk: Suicide risk was assessed using the Clinician Protocol for Rating and Managing Suicide Risk (CPRMSR; adapted from Van Orden et al., 2008). The CPRMSR assesses suicide risk on a 3-point scale: 1 (*low risk*), 2 (*moderate risk*), and 3 (*high risk*). Suicide risk is assessed in relation to current suicidal ideation, a history of suicide attempts, the presence of plans and preparations to engage in suicidal behaviour, and the presence of a DSM-5 diagnosis (See Appendix C). Van Orden et al. (2008) report adequate levels of inter-rater reliability for the CPRMSR ($\kappa = .71, p < .001$), and evidence of concurrent criterion related validity in the sense that CPRMSR ratings have been found to be positively associated with scores for an acquired capability for suicide in the presence of high levels of perceived burdensomeness ($p = .026$). In the present study, the participants' attending clinician rated their level of suicide risk.

3.12 Data Preparation

3.12.1 Data entry

Participant responses were entered into Microsoft Excel, following which the data file was exported to the Statistical Package for Social Sciences version 23 (SPSS; IBM, 2015). Prior to data entry, the variables were defined and coded where necessary. Accuracy of data entry was checked by looking for values that fell outside the range of possible scores for a variable.

3.12.2 Dealing with missing values

A missing values analysis (Little's MCAR test) was conducted which provided weak evidence ($p > 0.05$) against the null hypothesis that no patterns existed in the missing data.

The rate of missing data was 0.4% for three of the measures (INQ, PPES and IBS). Although Graham (2009) suggests that where the rate of lost cases due to missing data is small (less than 5%), biases and loss of power are both likely to be inconsequential, it was decided to replace missing values using the Expectation-Maximization (EM) method (Schafer & Olsen, 1998). This interactive procedure in SPSS uses other correlated variables to impute an estimated value based on the available data (Expectation), then checks whether that is the most likely value (Maximization). If that is not the case, the program re-imputes a more likely value. Whilst both Multiple Imputation and Maximum Likelihood procedures also address the problem of missing values, EM imputations preserve the relationship with other variables, which is crucial in both factor and regression analyses, both of which analyses were performed in this study.

3.12.3 Recoding of variables

Five items on the INQ subscales (items 4, 8, 10, 11 and 12) and one item on the ACSS (item 4) required reverse scoring, with these items being recoded to ensure that higher scores on all items reflected a greater presence of the construct being measured.

3.13 Data Analysis

3.13.1 Psychometric properties of IPTS risk measures

The psychometric properties of IPTS risk measures were assessed using:

- Descriptive statistics (frequencies, means, standard deviations, measures of variability, and correlational analyses);
- Confirmatory factor analyses (extant measures) or exploratory factor analyses (adapted/developed measures);

- Measures of internal consistency (item-total correlations and Cronbach's alpha);
- Tests of the normality of score distributions (z -values based on kurtosis and skewness statistics); and
- Multivariate regression analyses, to assess for concurrent criterion-related validity, theoretical validity, and (in the case of author developed measures) incremental validity.

3.13.2 Psychometric properties of predictors of IPTS risk factors

The predictors of IPTS risk factors were explored using:

- Descriptive statistics (frequencies, means, standard deviations, measures of variability, and correlational analyses); and
- Multivariate linear regression analyses.

3.13.3 Tests of IPTS hypotheses

IPTS hypotheses were tested using:

- Descriptive statistics (frequencies, means, standard deviations, measures of variability, and correlational analyses);
- Multivariate linear regression analyses (in cases where the distribution of dependent measure scores did not differ significantly from what would be expected under the normal curve), and
- Multivariate logistic regression analyses (in cases where the distribution of dependent measure scores differed significantly from that expected under the normal curve).

3.14 Ethical considerations

The University of KwaZulu-Natal's Biomedical Research Ethics Committee (BREC) granted ethical approval for the study (Protocol no: BE138/14, see Appendix A). The research complied with the following guidelines for engaging in ethical research (Wassenaar & Mamotte, 2012):

3.14.1 Informed consent

The researcher undertook to ensure that the full nature of the study, the extent of participation expected, and possible distress that could occur were fully disclosed to participants. Participants' freedom to withdraw without penalty was emphasised, especially considering that all participants were receiving mental health care treatment at the time of data collection. No financial incentives were offered to participants, with information in this regard being provided in the information sheet. Participants were informed of their rights to anonymity and confidentiality, with only aggregated data being used to report the research findings (cf., Informed consent form: Appendix B).

3.14.2 Risks and benefits

Wassenaar and Mamotte (2012) point out that in research, benefits to society are secondary to benefits to participants but are, nevertheless, important considerations in a risk-benefit analysis. In any field, research on vulnerable populations is an important driver of initiatives to improve the lives of those affected and to reduce the rates of new persons affected. There is however a commonly held perception that talking about sensitive topics may result in distress to participants and, in the case of suicide, may lead to suicidal feelings (Lakeman & Fitzgerald, 2009). While the issue of psychological vulnerability and potential distress of participants, especially in clinical settings, must be addressed, available evidence

suggests that participation in research on suicide does not lead to an increased risk for suicide (Dazzi Gribble, Wessely, & Fear 2014; Eynan et al., 2014).

In their review of 13 studies, Dazzi and colleagues concluded that for both general and ‘at-risk’ populations, there was no statistically significant increase in suicidal ideation among participants asked about suicidal thoughts, with there being some evidence to suggest that talking about suicide may actually reduce suicidal ideation and promote help-seeking behaviour. Similarly, Eynan et al. (2014) concluded that changes in suicidal urges following participation in suicide research were “small, infrequent, and were most likely to reflect a decrease in suicidality” (p. 123).

Notwithstanding this evidence, due care was taken in the execution of the research to ensure that harm to participants was minimized. The questionnaires were administered by the researcher and by two intern clinical psychologists who were trained to monitor and respond to any emotional distress evidenced by participants. Participants’ emotional responses and body language were monitored throughout the data collection process, with provision being made for: (a) participants to be excluded from the study in cases where there were concerns that participation might be experienced as distressing, and (b) debriefing and counselling to be offered to any participants who experienced their participation as unduly distressing. [In this study, none of the participants reported or evidenced distress related to their research participation].

Regarding benefits, it was emphasised to all participants that while they would not receive any direct benefit as a result of their participation, their involvement could provide long-term benefits to other psychiatric patients.

3.14.3 Oversight

The University of KwaZulu-Natal's Biomedical Research Ethics Committee (BREC) evaluated the proposal and granted ethical approval prior to the commencement of the data collection process. BREC is a regulatory body at the University of KwaZulu-Natal, which considers the design of proposed studies in relation to current national legislation regarding ethics in research, with special attention being paid to (a) research involving vulnerable populations, and (b) ensuring safeguards to minimize harm. All recommendations made by BREC were adhered to in the research process.

3.14.4 Social value

It is envisaged that validation of the IPTS and its associated measures may result in more effective screening of 'at risk' individuals and will lead to interventions that target the constructs of perceived burdensomeness, thwarted belongingness, and an acquired capability for suicide.

3.14.5 Post-trial obligations

Research findings will be disseminated in the form of articles in accredited international and local psychological and medical journals (to date, two articles based on the findings of this study have been submitted to international journals for consideration). Study findings will also be disseminated to staff working in state hospitals and to university stakeholders. Where requested, results will also be disseminated to individual participants via email and to interested psychologists and psychiatrists whose private patients were accessed in the study.

3.15 Summary

This chapter has provided an outline of the aims and objectives of the study before detailing the research questions. The author also describes the IPTS risk and outcome measures employed in the study. The research procedure and data reduction strategies are outlined, and ethical issues relevant to the research are reviewed. The findings of the study are presented in the following chapter.

CHAPTER FOUR

RESULTS

4.1. Introduction

Study findings are presented in four sections, each corresponding to the four main research objectives (cf., Chapter three, Section 3.4). In Section one, the psychometric properties of available measures of IPTS constructs are evaluated; while Section two describes the development of two new measures of IPTS constructs:

- The *Interpersonal Hopelessness Scale* (IHS). The author developed this scale because there is no available measure that has been designed to assess hopelessness in relation to both burdensomeness and thwarted belongingness.
- The *Death Inurement Scale* (DIS). This scale was developed by the author because available measures of an acquired capability for suicide: (a) have been found to be characterised by low levels of internal consistency, and/or (b) do not adequately address content domains that are hypothesised by the IPTS as being relevant to the development of an acquired capability for suicide.

In Section three the demographic and clinical predictors of IPTS risk factors are explored and in Section four, the author reports findings from tests of the four key hypotheses of the IPTS.

4.2 Section 1: Psychometric Properties of Available Measures of IPTS Constructs

4.2.1 Psychometric properties of available measures of IPTS risk factors

According to the IPTS, proximal risk factors for suicidal behaviours are: (a) high levels of *perceived burdensomeness* and *thwarted belongingness*, (b) high levels of *hopelessness* in

relation to both perceived burdensomeness and thwarted belongingness, and (c) the presence of an acquired capability for suicide (cf., Figure 2.2).

4.2.1.1 Measures of perceived burdensomeness and thwarted belongingness

As indicated previously (Section 3.10.1), perceived burdensomeness and thwarted belongingness were assessed in this study using items from the INQ (van Orden et al., 2008). From Table 4.1, it is evident that both INQ sub-scales were characterised by acceptable levels of internal consistency, with scores for both measures ranging across the full score range.

Table 4.1
Descriptive statistics for measures of perceived burdensomeness and thwarted belongingness

Risk Factor	Source (item)	Item description	Item-total correlations	Coefficient alpha	<i>M</i>	<i>SD</i>	Score range
Burdensomeness	INQ (1)	People better off without me	.84**	.91	22.59	12.50	7-49
	INQ (2)	People happier without me	.84**				
	INQ (3)	I have failed people	.66**				
	INQ (4)	I contribute to others well-being ^a	.56**				
	INQ (5)	I am burden to others	.76**				
	INQ (6)	People would like to get rid of me	.72**				
	INQ (7)	I make things worse for others	.76**				
Belongingness	INQ (8)	Other people care about me ^a	.67**	.85	17.53	8.34	5-35
	INQ (9)	I am disconnected from others	.48**				
	INQ (10)	There are people I can turn to ^a	.72**				
	INQ (11)	I am close to others ^a	.75**				
	INQ (12)	Have one satisfying interaction ^a	.66**				

Note: Burdensomeness = Perceived burdensomeness. Belongingness = Thwarted belongingness. INQ = Interpersonal Needs Questionnaire (Van Orden et al., 2008).

** $p < .01$

^a Reverse scored.

The distribution of scores on measures of perceived burdensomeness and thwarted belongingness were examined using *z*-scores. It is generally acknowledged that conventional estimates of the normality of data (Shapiro Wilk and Kolmogorov-Smirnov tests) tend to be unreliable when applied to large samples, with an evaluation of *z*-scores for skewness and kurtosis statistics tending to provide more reliable estimates in larger samples (Kim, 2013).

As outlined by Kim (2013), the procedure for calculating such z -values involves dividing the absolute value of skewness and kurtosis statistics by the associated standard error, with obtained z -values being evaluated in relation to sample size:

- For small samples ($n \leq 50$): absolute z -values for either skewness or kurtosis larger than 1.96 indicate that the data differ significantly ($p < .05$) from what would be expected under the normal curve.
- For medium samples ($50 \geq n \leq 300$): absolute z -values for either skewness or kurtosis larger than 3.29 indicate that the data differ significantly ($p < .05$) from what would be expected under the normal curve.
- For large samples ($n > 300$): absolute z -values for skewness of greater than 2 or kurtosis of greater than 7 indicate that the data differ significantly ($p < .05$) from what would be expected under the normal curve.

Given that there were 239 participants in this study, normality of scores distributions were assumed if z -values for both skewness and kurtosis were ≤ 3.29 . An inspection of relevant z -values (Table 4.2) indicates that score distributions for the measures of perceived burdensomeness and thwarted belongingness did not differ significantly from what would be expected under the normal curve.

Table 4.2

Distribution of scores for measures of perceived burdensomeness and thwarted belongingness

Measure	Skewness statistic	Standard error	z -value	Kurtosis statistic	Standard error	z -value
Perceived burdensomeness	.452	.157	2.88	-.895	.314	2.85
Thwarted belongingness	.263	.157	1.68	-1.011	.314	3.22

Taken together, these findings for measures of perceived burdensomeness and thwarted belongingness indicate that both measures are characterised by satisfactory levels of internal consistency, with score distributions for both measures not differing significantly from what would be expected under the normal curve.

With respect to content validity, the item content of the two INQ sub-scales appear to adequately address the content domains theorised to be relevant to both perceived burdensomeness and thwarted belongingness (cf., Van Orden et al., 2010).

4.2.1.2 Measuring hopelessness in relation to perceived burdensomeness and thwarted belongingness

In the absence of an extant measure of hopelessness in relation to perceived burdensomeness and thwarted belongingness, a new measure of interpersonal hopelessness (the IHS) was developed for the purposes of the present study (cf., Section 4.3.2).

4.2.1.3 Measures of an acquired capability for suicide

As indicated previously (Section 3.10.1), three measures of an acquired capability for suicide were considered in this study: the ACSS (Van Orden et al., 2008), the IBS (Rossotto et al., 1998); and the PPES (Bender et al., 2007). From Table 4.3, it is evident that all three measures of an acquired capability for suicide were characterised by acceptable levels of internal consistency, with scores for all three measures ranging from the lowest possible score to near maximum scores.³

³ The comparatively low alpha level for the ACSS ($\alpha = .62$) is possibly attributable to the fact that coefficient alpha levels are dependent on the number of items in a scale (Tavakol & Dennick, 2011). Given that the ACSS has only five items, item-total correlations are likely to provide a more meaningful indication of the internal consistency of the scale; item-total correlations for the ACSS ($r = .55-.76$) suggest an acceptable level of internal consistency. Conversely, the obtained alpha level for the IBS (25 items) is likely to provide a somewhat inflated estimate of internal consistency.

Table 4.3**Descriptive statistics for measures of an acquired capability for suicide**

Risk Measure	Source (item)	Item description	Item-total correlations	Coefficient alpha	<i>M</i>	<i>SD</i>	Score range
ACSS				.62	9.61	4.93	0-20
	ACSS (1)	Not scared of things	.76**				
	ACSS (2)	Can tolerate more pain	.54**				
	ACSS (3)	I am described as fearless	.69**				
	ACSS (4)	Pain in dying frightens me ^a	.55**				
	ACSS (5)	I am not afraid to die	.62**				
IBS				.90	49.48	16.12	25-92
	IBS (1)	I have overdosed	.54**				
	IBS (2)	Have been sexually promiscuous	.64**				
	IBS (3)	Have had self-mutilation impulses	.64**				
	IBS (4)	Have had too much alcohol	.69**				
	IBS (5)	Sex when I didn't necessarily want to	.66**				
	IBS (6)	I am a daredevil	.59**				
	IBS (7)	Have made suicide gestures	.65**				
	IBS (8)	Have engaged in self-harm	.56**				
	IBS (9)	Have abused laxative and diet pills	.43**				
	IBS (10)	Have stolen items or money	.65**				
	IBS (11)	Have driven under the influence	.53**				
	IBS (12)	Have made suicide attempts	.57**				
	IBS (13)	Have had unsafe sex	.48**				
	IBS (14)	I am accident prone	.44**				
	IBS (15)	Have had suicidal thoughts	.62**				
	IBS (16)	Eaten food in store without paying	.44**				
	IBS (17)	Taken too many recreational drugs	.67**				
	IBS (18)	I push myself to the limit	.53**				
	IBS (19)	Have driven recklessly	.52**				
	IBS (20)	Have stolen goods from a store	.53**				
	IBS (21)	Have regularly hurt myself	.49**				
	IBS (22)	Have impulsively spent money	.47**				
	IBS (23)	Have engaged in self-mutilation	.58**				
	IBS (24)	I enjoy risks and danger	.64**				
IBS (25)	I have stolen food	.40**					
PPES				.71	17.20	5.18	10-34
	PPES (1)	Participated in contact sports	.63**				
	PPES (2)	I have a tattoo	.62**				
	PPES (3)	I have a piercing	.17**				
	PPES (4)	I have shot a gun	.57**				
	PPES (5)	I have tied a noose	.48**				
	PPES (6)	I have hurt animals	.37**				
	PPES (7)	I have been in physical fights	.72**				
	PPES (8)	I have jumped from high places	.70**				
	PPES (9)	I have been stabbed	.65**				
PPES (10)	I have been shot	.31**					

Note: ACSS: Acquired Capability for Suicide Scale (Van Orden et al., 2008); IBS: Impulsive Behaviour Scale (Rossotto et al., 1998); PPES: Painful and Provocative Events Scale (Bender et al., 2007).

** $p < .01$

^a Reverse scored.

Consistent with the recommendations of Kim (2013), the normality of score distributions for the three measures of an acquired capability for suicide were assessed using z -values, with z -values for both skewness and kurtosis of 3.29 or less indicating that score distributions do not deviate significantly from what would be expected under the normal

curve. An inspection of relevant z -values (Table 4.4) indicates that: (a) score distributions for the ACSS did not differ significantly from what would be expected under the normal curve, but that (b) score distributions for the IBS and the PPES differed significantly from what would be expected under the normal curve.

Table 4.4

Distribution of scores for measures of an acquired capability for suicide

Measure	Skewness statistic	Standard error	z -value	Kurtosis statistic	Standard error	z -value
ACSS	-.109	.157	0.69	-.712	.314	2.27
IBS	.567	.157	3.61	-.372	.314	1.18
PPES	.857	.157	5.46	.297	.314	0.95

Note: ACSS: Acquired Capability for Suicide Scale (Van Orden *et al.*, 2008); IBS: Impulsive Behaviour Scale (Rossotto *et al.*, 1998); PPES: Painful and Provocative Events Scale (Bender *et al.*, 2007).

With respect to construct validity, the combined item content of all three measures of acquired capability for suicide would appear to adequately address the content domains (i.e., impulsivity, exposure to painful and provocative experiences, a lowered fear of death, and a high pain tolerance) theorised to be relevant to an acquired capability for suicide (Van Orden *et al.*, 2010). However, each of the three measures (considered on their own) would appear to provide only a partial measure of the intended construct.

4.2.2 Psychometric properties of measures of IPTS outcome variables

4.2.2.1 Measures of death and suicidal ideation

As indicated previously (Section 3.10.2), death and suicidal ideation were assessed using items from the BSS (Beck & Steer, 1991; see Table 4.5). In this study, 131 participants (54.8%) reported some degree of death ideation, with 96 participants (40.2%) reporting some degree of suicidal ideation. From Table 4.5 it is evident that the measures of death and

suicidal ideation were characterised by acceptable levels of internal consistency, with scores for both measures being documented across the full score range.

Table 4.5
Descriptive statistics for measures of death and suicidal ideation

Outcome Measure	Source (item)	Item description	Item-total correlations	Coefficient alpha	<i>M</i>	<i>SD</i>	Score range
Death ideation				.92	2.52	2.13	0-8
	BSS (1)	No wish to live	.80**				
	BSS (2)	Wish to live	.81**				
	BSS (3)	Strong reasons for dying	.81**				
Suicidal ideation	BSS (5)	Wouldn't avoid threats to life	.81**				
				.93	2.98	2.06	0-10
	BSS (4)	Strong desire to kill myself	.84**				
	BSS (6)	Often think about killing myself	.83**				
	BSS (7)	Continually think about killing self	.74**				
	BSS (8)	I accept the idea of killing myself	.75**				
	BSS (9)	I cannot keep from killing myself	.74**				

Note. BSS = Beck Scale for Suicidal Ideation (Beck & Steer, 1991).

***p* < .01

Consistent with the recommendations of Kim (2013), the normality of score distributions for the measures of death and suicidal ideation were assessed using *z*-values; with *z*-values for both skewness and kurtosis of 3.29 or less indicating that score distributions do not deviate significantly from what would be expected under the normal curve. From Table 4.6 it is evident that the distribution of scores for both death and suicidal ideation deviated significantly from what would be expected under the normal curve. However, when subjected to a linear (square root) transformation, score distributions for both death and suicidal ideation did not differ significantly from what would be expected under the normal curve. As such, transformed scores for both death and suicidal ideation were used in all subsequent analyses for which a normal distribution of scores is assumed.

Table 4.6**Distribution of scores for measures of death and suicidal ideation**

Measure	Skewness statistic	Standard error	z-value	Kurtosis statistic	Standard 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

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

4.2.2.2 Measuring suicide risk

Risk for suicidal behaviour was assessed using the Clinician Protocol for Rating and Managing Suicide Risk (CPRMSR: adapted from Van Orden et al., 2008) in terms of which individuals are rated on a 3-point scale: 1 (*low risk*), 2 (*moderate risk*), or 3 (*high risk*). The authors report adequate levels of inter-rater agreement for the CPRMSR ($r = .71, p < .001$) and acceptable levels of concurrent criterion-related validity in the sense that CPRMSR scores have been found to be significantly correlated with BSS scores ($r = .64$). In this study, suicide risk was rated as either: *low* ($n = 153, 64.0\%$), *moderate* ($n = 54, 22.6\%$), or *high* ($n = 32, 13.4\%$), with risk ratings being significantly correlated in the expected direction with BSS scores ($r = .78, p < .00!$). An analysis of the distribution of risk ratings indicated that distributions for both raw scores and transformed (square root) scores differed significantly from what would be expected under the normal curve (see Table 4.7). Consequently, subsequent analyses of factors predicting suicide risk employed binary logistic regression analysis, in which suicide risk scores were dichotomized: 1 (*low risk, n = 153*) or 2 (*moderate to high risk, n = 86*).

Table 4.7**Distribution of scores for the CPRMSR**

Measure	Skewness statistic	Standard error	z-value	Kurtosis statistic	Standard error	z-value
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 ($p < .05$).

4.3 Section 2: Development of New Measure of IPTS constructs**4.3.1 Rationale**

In the absence of an instrument that is specifically designed to assess hopelessness in relation to both perceived burdensomeness and thwarted belongingness, researchers have either not included a measure of hopelessness in their study (e.g., Barzilay et al., 2015; Chu et al., 2016; Van Orden et al., 2008, 2012), or have tended to rely on measures that are either designed to assess negative expectations about the self and the world (e.g., Cuckrowitz et al., 2013; Hagan et al., 2015) or to measure generalized social hopelessness (cf., Murariu, 2016). As Van Orden et al. (2010) point out, such measures fail to adequately capture precisely what it is that individuals are hopeless about. As such, it was considered appropriate to develop a new measure of hopelessness in relation to perceived burdensomeness and thwarted belongingness for purposes of the present study.

Further, given that available measures of an acquired capability for suicide do not appear to adequately address the content domains that have been theorised as being relevant to the construct (cf., Section 2.1.1), it was considered appropriate to develop a new measure of an acquired capability for suicide for purposes of the present study.

4.3.2 Development and preliminary validation of the Interpersonal Hopelessness Scale (IHS)

Items for the Interpersonal Hopelessness Scale (IHS) were obtained by attaching an additional rating scale to the INQ (see Figure 4.1). With respect to each item on the INQ, participants were not only asked to indicate how true the statement was for them currently, but were also requested to indicate (on a 5-point Likert scale) whether they believed that things would get better or worse in the future.

Figure 4.1 Illustration of the additional rating scale added to the INQ

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

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

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

	How true is this of how you feel currently?	Do you think that things will get worse or better 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

All 12 items on the additional rating scale were then summed to provide an estimate of hopelessness in relation to both perceived burdensomeness and thwarted belongingness; with the possible score range being 12 to 60.

An exploratory factor analysis was conducted in order to explore the factor structure of the IHS, with factors being retained if they met the criteria of: an eigenvalue >1, a scree plot of eigenvalues supporting retention, a factor loading of at least .40, and the meaningfulness of identified factors. Preliminary analyses indicated that the data were suitable for factor analysis [Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) = .945, Bartlett's Test of Sphericity < .001].⁴ A subsequent Principal Components Analysis, using Oblimin rotation, produced a single factor (eigenvalue = 7.63) which accounted for 63.6% of the variance – with factor loadings ranging from .70 to .86 (see Table 4.8).

Table 4.8
Factor structure and descriptive statistics for the IHS

Outcome Measure	Source (item)	Item description	Factor loadings	% variance explained	Alpha	<i>M</i>	<i>SD</i>	Score range
IHS				63.57	.95	41.54	12.75	12-60
	IHS (1)	Hopelessness in relation to INQ 1	.70					
	IHS (2)	Hopelessness in relation to INQ 2	.72					
	IHS (3)	Hopelessness in relation to INQ 3	.77					
	IHS (4)	Hopelessness in relation to INQ 4	.82					
	IHS (5)	Hopelessness in relation to INQ 5	.83					
	IHS (6)	Hopelessness in relation to INQ 6	.74					
	IHS (7)	Hopelessness in relation to INQ 7	.82					
	IHS (8)	Hopelessness in relation to INQ 8	.80					
	IHS (9)	Hopelessness in relation to INQ 9	.84					
	IHS (10)	Hopelessness in relation to INQ 10	.86					
	IHS (11)	Hopelessness in relation to INQ 11	.84					
	IHS (12)	Hopelessness in relation to INQ 12	.82					

Note. IHS = Interpersonal Hopelessness Scale (author developed). INQ = Interpersonal Needs Questionnaire (Van Orden et al., 2008).

Descriptive statistics presented in Table 4.8 indicate that the IHS is characterised by high levels of internal consistency ($\alpha = .95$), with scores obtained across the full score range (i.e., 12 to 60). Moreover, an analysis of the distribution of IHS scores indicated that the

⁴ According to Kaiser (1970), in order to proceed with factor analyses the KMO value should be .7 or higher and Bartlett's test of Sphericity should be .05 or lower.

score distribution did not differ significantly from what would be expected under the normal curve (*skewness*: statistic = -.431, standard error = .157, $z = 2.75$; *kurtosis*: statistic = -.370, standard error = .314, $z = 1.18$).

In order to demonstrate that the IHS is characterised by an acceptable level of incremental validity, it is necessary to demonstrate that the IHS accounts for a significant proportion of the variance in suicidal ideation scores after controlling for the effects of extant measures of interpersonal alienation (i.e., perceived burdensomeness and thwarted belongingness). To this end, a hierarchical regression analysis was conducted, in which suicidal ideation scores were regressed on burdensomeness and belongingness scores in step 1, and IHS scores were entered as an additional predictor in step 2. This analysis indicated that the variables entered in step 1 (perceived burdensomeness and thwarted belongingness) significantly predicted suicidal ideation, $F(2,238) = 142.95, p < .001$, accounting for 54.8% of the variance. The inclusion of IHS scores in the model in step 2 led to a significant increase in the proportion of explained variance in suicidal ideation, $\Delta F(3,238) = 103.74, p < .001; \Delta R^2 = 2.2\%$. These findings provide support for the incremental validity of the IHS.

4.3.3 Development and preliminary validation of the Death Inurement Scale (DIS)

Available measures of an acquired capability for suicide (the ACSS, IBS, and PPES), when considered together, appear to comprehensively address the content domains theorised as being relevant to the development of an acquired capability for suicide. As such, an exploratory factor analysis of the item content of all three of these measures was conducted in order to identify factors that could form the basis for the development of a comprehensive measure of an acquired capability for suicide. The factor analysis was conducted using Principal Component Analysis with Oblimin rotation, with factors being retained if they met the criteria of: an eigenvalue >1 , a scree plot of eigenvalues supporting retention, a factor

loading of at least .40, and the meaningfulness of identified factors. Preliminary analyses indicated that the data were suitable for factor analysis [Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) = .857, Bartlett's Test of Sphericity < .001].⁵ The factor analysis produced one factor that met all retention requirements (see Table 4.9). This factor accounted for 66.2% of the variance, with factor loadings for the items ranging from .42 to .81.

Table 4.9

Factor structure and descriptive statistics for the DIS

Outcome Measure	Source (item)	Item description	Factor loadings	% variance explained	Alpha	<i>M</i>	<i>SD</i>	Score range
DIS				66.21	.82	21.92	7.57	11-41
	ACSS (1)	Not scared of things	.56					
	ACSS (3)	I am described as fearless	.55					
	ACSS (4)	Pain in dying frightens me ^a	.46					
	ACSS (5)	I am not afraid to die	.42					
	IBS (6)	I am a daredevil	.78					
	IBS (18)	I push myself to the limit	.69					
	IBS (21)	Have regularly hurt myself	.56					
	IBS (24)	I enjoy risks and danger	.81					
	PPES (2)	I have a tattoo	.51					
	PPES (7)	I have been in physical fights	.63					
	PPES (8)	I have jumped from high places	.67					

Note. DIS = Death Inurement Scale. ACSS = Acquired Capability for Suicide Scale (Van Orden et al., 2008); IBS = Impulsive Behaviour Scale (Rossotto et al., 1998); PPES = Painful and Provocative Events Scale (Bender et al., 2007).

^a Reverse scored.

Descriptive statistics presented in Table 4.9 indicate that the DIS is characterised by acceptable levels of internal consistency ($\alpha = .82$), with obtained scores spanning across most of the score range (i.e., 11-41). Moreover, an analysis of the distribution of DIS scores indicated that the score distribution did not differ significantly from what would be expected under the normal curve (*skewness*: statistic = .503, standard error = .157, $z = 3.20$; *kurtosis*: statistic = -.766, standard error = .314, $z = 2.44$).

⁵ According to Kaiser (1970), in order to proceed with factor analyses the KMO value should be .7 or higher and Bartlett's test of Sphericity should be .05 or lower.

In order to demonstrate that the DIS has an acceptable level of incremental validity, it is necessary to demonstrate that the instrument accounts for a significant proportion of the variance in suicide risk scores after controlling for the effects of extant measures of an acquired capability for suicide (i.e., the ACSS, the IBS, and the PPES). To this end, a hierarchical binary logistic regression analysis was conducted, in which suicide risk scores (as measured by the CPRMSR) were regressed on total ACSS, IBS, and PPES scores in step 1, with DIS scores being entered as an additional predictor in step 2. This analysis indicated that the measures entered in step 1 (the ACSS, IBS, and PPES) significantly predicted suicide risk ($\chi^2_{(3)} = 59.72, p < .001$) accounting for 30.3% of the variance. The inclusion of DIS scores in the model in step 2 led to a significant increase in the explained variance of suicide risk scores ($\Delta\chi^2_{(1)} = 5.45, p = .020; \Delta R^2 = 2.4\%$). Taken together these findings provide support for the incremental validity of the DIS.

4.3.4 Conclusions

An analysis of the psychometric properties of the IHS and DIS suggest that the two measures are characterised by acceptable levels of variability, internal consistency, and incremental validity, with the distribution of scores for both measures not differing significantly from what would be expected under the normal curve.

4.4 Section 3: Predictors of IPTS Risk Factors

4.4.1 Rationale

Although the primary focus of the IPTS is the identification of the sufficient proximal causes of suicidal thoughts and behaviours, Van Orden and colleagues (2010) also consider the ways in which individual and clinical variables may influence scores on measures of IPTS

risk factors (i.e., perceived burdensomeness, thwarted belongingness, hopelessness, and an acquired capability for suicide). Although these associations have been examined in a number of studies (e.g., Christensen et al., 2014; Silva et al., 2015), to date there has been no systematic attempt to explore individual and clinical influences on all IPTS risk factors in a single sample.

4.4.2 Analysis of demographic and clinical predictors of IPTS risk factors

Two broad categories of independent variables were considered in the analysis of variables predicting IPTS risk factors:

- *Individual/demographic variables:* age, sex, race/ethnicity,⁶ relationship status, employment status, and level of education
- *Clinical status:* primary DSM-5 diagnosis provided by the attending clinician (cf. Chapter 3, Table 3.1).

In a series of hierarchical linear regression analyses, each of the IPTS risk factors were regressed on the independent measures (specified above) after controlling for the effects of all other IPTS risk factors.

4.4.2.1 Demographic and clinical predictors of perceived burdensomeness

Findings from the regression analysis in which perceived burdensomeness was entered as the criterion variable are summarised in Table 4.10. When control variables were entered in step 1, the model significantly predicted perceived burdensomeness, $F(3,235) = 106.38$, $p < .001$, and explained 57.6% of the variance in perceived burdensomeness scores. When the independent variables were added to the model in step 2, there was a significant increase in

⁶ Preliminary analyses of all permutations of ethnicity indicated that the group categorized as African or Coloured was most strongly predictive of scores on all IPTS risk factors, with this group being consequently used as the reference category in all subsequent analyses.

explained variance ($\Delta R^2 = .091, p < .001$), with perceived burdensomeness scores being positively associated with female sex, being unemployed, a lower level of educational attainment, and all primary diagnoses considered in the study (with the notable exception of anxiety disorders). Although the addition of the independent variables in step 2 was associated with a significant increase in explained variance, the effect size for this increase in explained variance was small.⁷

Table 4.10

Demographic and clinical predictors of perceived burdensomeness

Step	Variable	β	<i>t</i>	<i>P</i>	Test of Model coefficients						
					<i>R</i> ²	<i>F</i> for model	<i>p</i>	<i>f</i> ² effect size	Change		
									ΔR^2	<i>p</i>	<i>f</i> ² effect size
1	(Constant)		2.51	.013	.576	106.38	<.001	1.36	.576	<.001	1.36
	Thwarted belongingness	.596	11.94	<.001							
	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							
	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 predictors are presented in **bold**, $p < 0.05$

⁷ 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 ($f^2 = \geq .35$).

4.4.2.2 Demographic and clinical predictors of thwarted belongingness

Findings from the regression analysis in which thwarted belongingness was entered as the criterion variable are summarised in Table 4.11. When control variables were entered in step 1, the model significantly predicted thwarted belongingness, $F(3,235) = 95.57$, $p < .001$, and explained 55% of the variance in thwarted belongingness scores. When the independent variables were added to the model in step 2, there were no significant main effects of any individual/demographic variables. Findings regarding clinical status indicate that a primary diagnosis of anxiety or substance use disorder was associated with significantly *lower* scores on the measure of thwarted belongingness. However, variables entered in step 2 did not account for a significant increase in explained variance ($\Delta R^2 = .044$, $p = .118$) and produced only a small effect size ($f^2 = 0.04$).

Table 4.11

Demographic and clinical predictors of thwarted belongingness

Step	Variable	β	t	P	Test of Model coefficients						
					Model			Change			
					R^2	F for model	p	f^2 effect size	ΔR^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							
	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							
	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	.010							
	Borderline personality	-.125	-2.07	.039							
	Substance use disorder	-.167	-2.7	.008							
	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 predictors are presented in **bold**, $p < 0.05$

4.4.2.3 Demographic and clinical predictors of hopelessness

Findings from the regression analysis in which hopelessness was entered as the criterion variable are summarised in Table 4.12. When control variables were entered in step 1, the model significantly predicted hopelessness, $F(3,235) = 34.68$, $p < .001$, and explained 30.7% of the variance in hopelessness scores. When the independent variables were added to the model in step 2, there was no significant increase in explained variance ($\Delta R^2 = .051$, $p = .294$) and only a small effect size ($f^2 = 0.05$). As can be seen from Table 4.12, there were no significant main effects of any of the independent measures entered in step 2.

Table 4.12

Demographic and clinical predictors of hopelessness

Step	Variable	β	T	P	Test of Model coefficients						
					Model			Change			
					R^2	F for model	p	f^2 effect size	ΔR^2	P	f^2 effect size
1	(Constant)			<.001	.307	34.68	<.001	0.44	.307	<.001	0.44
	Perceived burdensomeness	-.297	23.81	<.001							
	Thwarted belongingness	-.296	-3.67	<.001							
	Acquired capability	-.012	-3.76	.830							
2	(Constant)		2.09	.038	.358	6.82	<.001	0.56	.051	.294	0.05
	Perceived burdensomeness	-.330	-3.63	<.001							
	Thwarted belongingness	-.310	-3.78	<.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 predictors are presented in **bold**, $p < 0.05$

4.4.2.4 Demographic and clinical predictors of an acquired capability for suicide

Findings from the regression analysis in which an acquired capability for suicide was entered as the criterion variable are summarised in Table 4.13. When control variables were entered in step 1, the model significantly predicted an acquired capability for suicide, $F(3,235) = 8.70, p < .001$, and explained 10% of the variance in acquired capability for suicide scores. The addition of the demographic and clinical variables to the model in step 2 explained an additional 20.8 % of the variance in acquired capability for suicide ($p < .001, f^2$ effect size = 0.27) with acquired capability scores being positively associated with younger age, being male, and being employed.

Table 4.13

Demographic and clinical predictors of an acquired capability for suicide

Step	Variable	β	t	P	Test of Model coefficients						
					Model			Change			
					R^2	F for model	p	f^2 effect size	ΔR^2	P	f^2 effect size
1					.100	8.70	<.001	0.11	.100	<.001	0.11
	(Constant)		6.80	<.001							
	Perceived burdensomeness	-.297	3.80	<.001							
	Thwarted belongingness	-.296	-0.68	.495							
	Hopelessness	-.012	0.22	.830							
2					.308	4.40	<.001	0.45	.208	<.001	0.27
	(Constant)		.55	.582							
	Perceived burdensomeness	-.330	4.02	<.001							
	Thwarted belongingness	-.310	-1.49	.139							
	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 predictors are presented in **bold**, $p < 0.05$

4.4.3 Conclusions

After controlling for the effects of other IPTS risk factors, demographic and clinical characteristics did not account for a significant proportion of the variance in scores for hopelessness. However:

- When perceived burdensomeness was entered as the criterion variable, there were significant main effects of female sex, being unemployed, a lower level of educational attainment, and all primary diagnoses considered in the study – with the notable exception of impulse control disorders ($\Delta R^2 = .091, p < .001, f^2 = 0.10$);
- when thwarted belongingness was entered as the criterion variable, there were significant main effects of anxiety disorders, BPD, and substance use disorders ($\Delta R^2 = .044, p = .118, f^2 = 0.04$), and
- when an acquired capability for suicide was entered as the criterion variable, there were significant main effects of younger age, being male, and being employed ($\Delta R^2 = .208, p < .001, f^2 = 0.27$).

4.5 Section 4: Tests of Key IPTS Hypotheses

4.5.1 Preliminary analyses

Zero-order correlations between all IPTS constructs are presented in Table 4.14.

Consistent with theoretical predictions, perceived burdensomeness and thwarted belongingness scores were significantly correlated with: (a) each other, (b) scores on the IHS (i.e., hopelessness), and (c) scores on measures of both death and suicidal ideation.

Furthermore, scores on the measure of suicidal ideation and the DIS (i.e., acquired capability for suicide) were significantly correlated: (a) with each other, and (b) scores on the CPRMSR (i.e., risk for suicidal behaviour).

Table 4.14**Zero-order correlations between IPTS constructs**

Variable	1	2	3	4	5	6	7
1.Perceived burdensomeness	--						
2.Thwarted belongingness	.72**	--					
3.Hopelessness	.52**	.51**	--				
4.Death ideation	.76**	.62**	.52**	--			
5.Suicidal ideation	.72**	.62**	.53**	.89**	--		
6.Acquired capability	.31**	.20**	.16*	.32**	.30**	--	
7.Suicide risk	.68**	.57**	.44**	.72**	.81**	.25**	--

*correlation significant at $p < 0.01$

** correlation significant at $p < 0.05$

With respect to the distribution of scores for IPTS outcome measures, previous analyses (cf., Tables 4.6 and 4.7) indicated that:

- Obtained scores for death and suicidal ideation were not normally distributed.

However, when subjected to a linear (square root) transformation, scores for both outcome measures did not deviate significantly from what would be expected under the normal curve (see Table 4.6). Transformed scores for death and suicidal ideation were therefore used in all analyses for which a normal distribution of scores is assumed.

- Obtained, as well as transformed (square root), scores for suicide risk deviated significantly from what would be expected under the normal curve (see Table 4.7). Regression analyses in which suicide risk was entered as the criterion variable were therefore conducted using binary logistic regression analyses, with suicide risk being dichotomized as either low (1) or moderate/high (2).

With respect to control variables, available tests of IPTS hypotheses have tended to control for the effects of demographic variables and depressive symptomatology [typically assessed using the Beck Depression Inventory (BDI; Beck et al., 1996)]. In order to identify control variables for this study, a series of regression analyses were conducted in which IPTS

outcome variables (death ideation, suicidal ideation, and suicide risk) were regressed on demographic variables and BDI scores (see Table 4.15)

Table 4.15 Demographic characteristics and BDI scores as predictors of IPTS outcome measures

Predictors	Death ideation			Suicidal ideation			Suicide risk		
	Beta	T	p	Beta	t	p	OR	95% CI	p
(Constant)		0.95	.344		-0.37	.710	0.02		.015
Younger age	.093	1.96	.050	.067	1.98	.047	1.03	1.01-1.04	.048
Female sex	.011	0.24	.811	-0.60	-1.26	.225	1.16	0.50-2.68	.730
Race ⁸ (Black or Coloured)	.054	1.16	.248	0.15	3.13	.002	1.50	0.68-3.31	.316
Unemployed	.059	1.30	.195	.002	0.04	.966	0.96	0.93-1.01	.102
Not in a relationship	.056	1.19	.235	.007	0.15	.880	1.09	0.45-2.63	.854
Fewer years of education	.016	0.36	.721	.041	0.86	.389	0.84	0.51-1.40	.506
BDI scores	.706	15.42	<.001	.686	14.47	<.001	1.14	1.10-1.17	<.001
Model summary									
Adjusted R ²		.545			.511			.545	
F/χ ² for model		F = 41.664			F = 36.508			χ ² = 121.078	
Df		7, 231			7, 231			7, 231	
P		< .001			< .001			< .001	
f ² effect size		1.198			1.061			1.198	
Categorisation of effect size		Large			Large			Large	

Note. Significant findings are presented in **bold**, $p < 0.05$. BDI = Beck Depression Inventory (Beck et al., 1996).

For all three outcome measures, these analyses indicated that the independent measures accounted for a significant proportion of the variance in outcome scores ($R^2 = .51-.55$) which corresponded to large effect sizes ($f^2 > 1.0$).

BDI scores accounted for a significant proportion of the variance in all three outcome measures, with suicidal ideation being additionally predicted by younger age and race (being Black or Coloured), and suicide risk being additionally predicted by younger age.

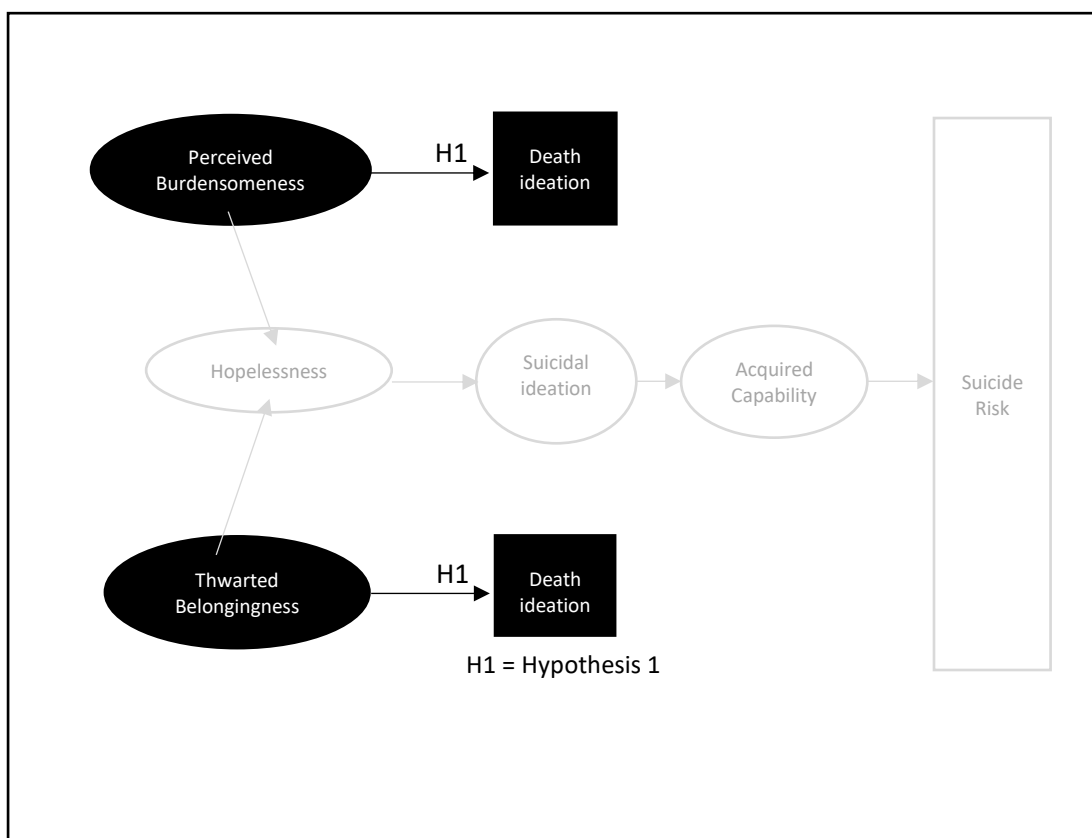
⁸ A preliminary exploration of all possible racial permutations indicated that the “Black or Coloured” category most strongly predicted scores on all IPTS outcome measures

Given that each of the regression models presented in Table 4.15 produced high R^2 values and large f^2 effect sizes, the variables that were found to be associated with specific IPTS outcomes were entered as covariates in subsequent analyses.

4.5.2 Tests of Hypothesis 1

The first IPTS hypothesis (illustrated in bold in Figure 4.2) predicts that *the sufficient proximal causes of death ideation are the presence of high levels of either burdensomeness or thwarted belongingness.*

Figure 4.2 Illustration of Hypothesis 1



According to Van Orden et al. (2010), this first hypothesis can be falsified if studies do not demonstrate that:

Hypothesis 1a: burdensomeness and thwarted belongingness are independently associated with death ideation; and

Hypothesis 1b: death ideation is present among all individuals with a completely thwarted sense of belongingness or a global sense of perceived burdensomeness.

4.5.2.1 Tests of Hypothesis 1a

The test of *Hypothesis 1a* was conducted in two phases. First, regression analyses were conducted to determine whether perceived burdensomeness and thwarted belongingness were each associated with death ideation in separate regression analyses (after controlling for the effects of BDI scores). Second, a single regression analysis was conducted in which death ideation scores were regressed on both perceived burdensomeness and thwarted belongingness scores (after controlling for the effects of BDI scores) in order to determine whether there were significant main effects of both perceived burdensomeness and thwarted belongingness.

Findings from the first phase of this analysis provide compelling support for *Hypothesis 1a*. When death ideation scores were regressed on perceived burdensomeness scores (after controlling for BDI scores), the model significantly predicted death ideation $F(2,236) = 234.74, p < .001$, and explained 66.7% of the variance in death ideation scores (see Table 4.16), with there being a significant main effect of perceived burdensomeness ($\beta = .512, p < .001$).

Table 4.16**Regression of death ideation on perceived burdensomeness**

Step	Variable	β	t	p	Test of Model coefficients					
					Model			Change		
							f^2 effect size	ΔR^2	p	
1	(Constant)		-2.14	.034	.533	270.51	<.001	1.14	.533	<.001
	BDI scores	.730	16.45	<.001						
2	(Constant)		-6.67	<.001	.665	234.74	<.001	1.99	.132	<.001
	BDI scores	.370	6.98	<.001						
	Perceived burdensomeness	.512	9.66	<.001						

Note. Significant findings are presented in **bold**, $p < 0.05$. BDI = Beck Depression Inventory (Beck, et al., 1996). According to Cohen (1988), $f^2 > .35$ represents a large effect size.

Similarly, when death ideation scores were regressed on thwarted belongingness scores (after controlling for BDI scores), the model significantly predicted death ideation scores, $F(2,236) = 163.25$, $p < .001$, and explained 58% of the variance in death ideation scores (see Table 4.17), with there being a significant main effect of thwarted belongingness ($\beta = .281$, $p < .001$).

Table 4.17**Regression of death ideation on thwarted belongingness**

Step	Variable	B	T	p	Test of Model coefficients					
					Model			Change		
							f^2 effect size	ΔR^2	p	
1	(Constant)		-2.14	.034	.533	270.51	<.001	1.14	.533	<.001
	BDI scores	.730	16.45	<.001						
2	(Constant)		-4.90	.000	.580	163.25	<.001	1.38	.047	<.001
	BDI scores	.552	10.12	<.001						
	Thwarted belongingness	.281	5.15	<.001						

Note. Significant findings are presented in **bold**, $p < 0.05$. BDI = Beck Depression Inventory (Beck, et al., 1996). According to Cohen (1988), $f^2 > .35$ represents a large effect size.

Finally, when death ideation scores were regressed on both perceived burdensomeness and thwarted belongingness scores (after controlling for BDI scores), the model significantly predicted death ideation scores, $F(3,235) = 136.90$, $p < .001$, and explained 63.1% of the variance in death ideation scores (see Table 4.18), with there being significant main effects of both perceived burdensomeness ($\beta = .549$, $p < .001$) and thwarted belongingness ($\beta = .115$, $p = .046$).

Taken together, these findings provide compelling support for *Hypothesis 1a*.

Table 4.18 Regression of death ideation on perceived burdensomeness and thwarted belongingness

Step	Variable	β	t	p	Test of Model coefficients					
					Model			Change		
					R^2	F for model	P	f^2 effect size	ΔR^2	p
1	(Constant)		-2.14	.034	.533	270.51	<.001	1.14	.533	<.001
	BDI scores	.730	16.45	<.001						
2	(Constant)		-7.17	.000	.631	136.90	<.001	1.71	.098	<.001
	BDI scores	.221	4.27	<.001						
	Perceived burdensomeness	.549	8.74	<.001						
	Thwarted belongingness	.115	2.00	.046						

Note. Significant findings are presented in **bold**, $p < .05$. BDI = Beck Depression Inventory (Beck, et al., 1996). According to Cohen (1988), $f^2 > .35$ represents a large effect size.

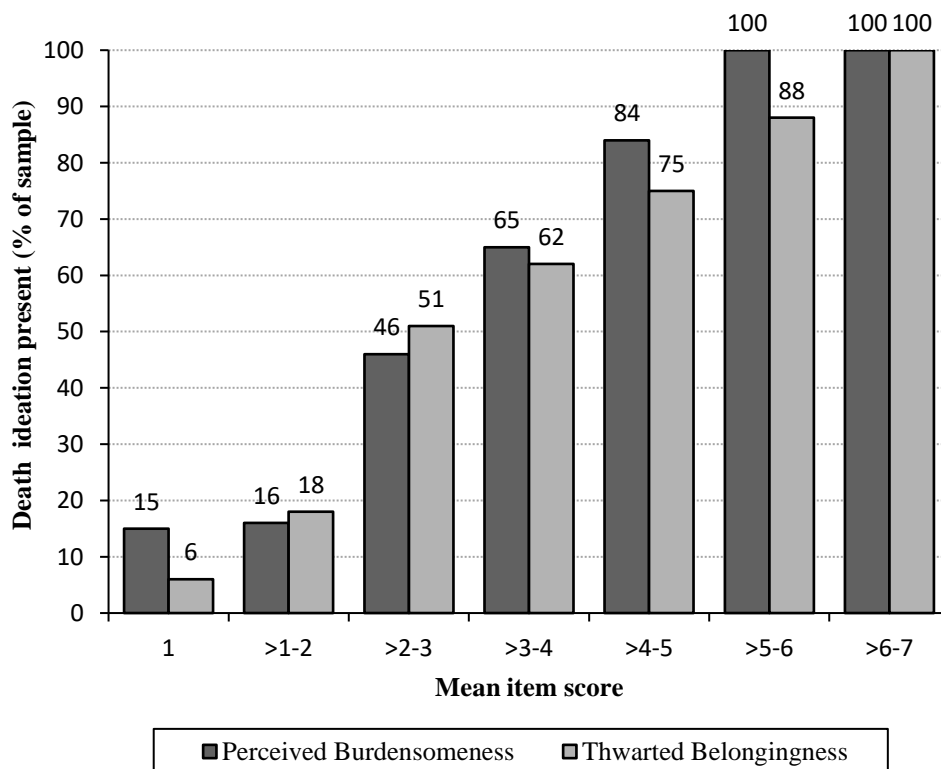
4.5.2.2 Tests of Hypothesis 1b

In order to determine whether death ideation was present among all participants with a global sense of burdensomeness and thwarted belongingness, scores on the measures of burdensomeness and thwarted belongingness were charted against the proportion of participants who demonstrated some degree of death ideation (See Fig 4.3). For purposes of analysis, a *global sense* of perceived burdensomeness and thwarted belongingness were operationalised as a mean item score greater than six on the 7-point response scale for each measure (i.e., a mean item score of > 6 to 7).

From Figure 4.3 it is evident that both thwarted belongingness ($r = .62, p < .001$) and perceived burdensomeness ($r = .76, p < .001$) were positively correlated with death ideation scores, with some degree of death ideation being reported by all participants who reported a global sense of perceived burdensomeness and/or thwarted belongingness.

These findings provide support for the prediction that death ideation will be present among all participants who have a global sense of perceived burdensomeness and/or thwarted belongingness (i.e. *Hypothesis 1b*).

Figure 4.3 Associations between perceived burdensomeness, thwarted belongingness, and the presence of some degree of death ideation



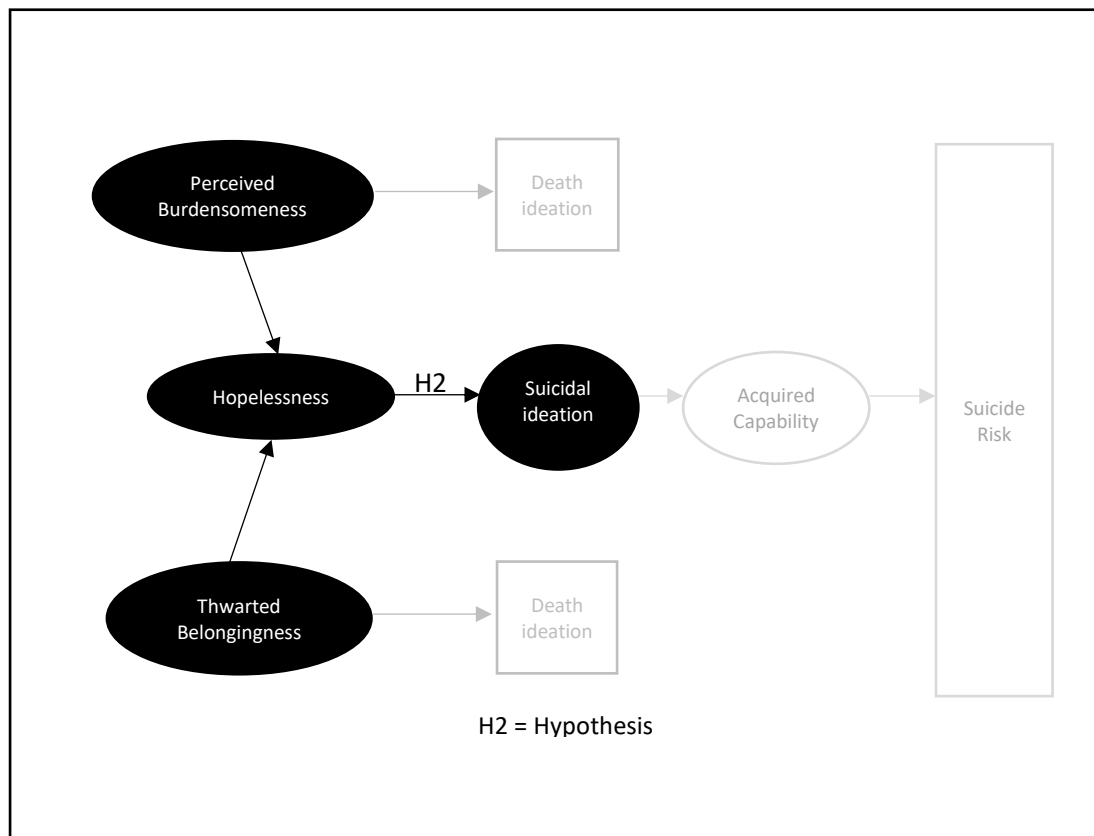
4.5.2.3 Conclusion

Tests of *Hypotheses 1a* and *1b* provide compelling and consistent support for IPTS predictions, and therefore consistent support for *Hypothesis 1*.

4.5.3 Tests of *Hypothesis 2*

The second IPTS hypothesis (illustrated in bold in Figure 4.4) predicts that *the sufficient proximal causes of suicidal ideation are high levels of both thwarted belongingness and perceived burdensomeness, in the presence of high levels of hopelessness in relation to both of these distressing states.*

Figure 4.4 Illustration of *Hypothesis 2*



According to Van Orden et al. (2010), this second hypothesis can be falsified if studies do not demonstrate that:

Hypothesis 2a: There is a significant two-way interaction between perceived burdensomeness and thwarted belongingness, in terms of which suicidal ideation is more severe at high levels of both thwarted belongingness and perceived burdensomeness;

Hypothesis 2b: There is a significant three-way interaction between perceived burdensomeness, thwarted belongingness, and hopelessness in terms of which suicidal ideation is more severe at high levels of: perceived burdensomeness, thwarted belongingness, and perceived hopelessness; and

Hypothesis 2c: Individuals with high levels of hopelessness (regarding perceived burdensomeness and thwarted belongingness) are more likely to report suicidal ideation than they are to report death ideation.

4.5.3.1 Tests of Hypothesis 2a

Hypothesis 2a was tested using a stepwise linear regression analysis (see Table 4.19) in which transformed (square root) suicidal ideation scores were regressed on perceived burdensomeness and thwarted belongingness scores (after controlling for the effects of age, race, and BDI scores). When control variables were entered in step 1, the model significantly predicted suicidal ideation, $F(3,235) = 84.84, p < .001$, accounting for 52% of the variance ($f^2 = 1.08$). When the independent measures were entered in step 2, there was a significant increase in explained variance ($\Delta R^2 = .098, p < .001$), with there being significant main effects of both perceived burdensomeness ($\beta = .358, p < .001$) and thwarted belongingness ($\beta = .133, p = .030$). However, when the perceived burdensomeness x thwarted belongingness interaction was entered in step 3, these significant main effects fell away, with there being a

significant perceived burdensomeness x thwarted belongingness interaction effect ($\beta = .456, p = .006$).

Table 4.19

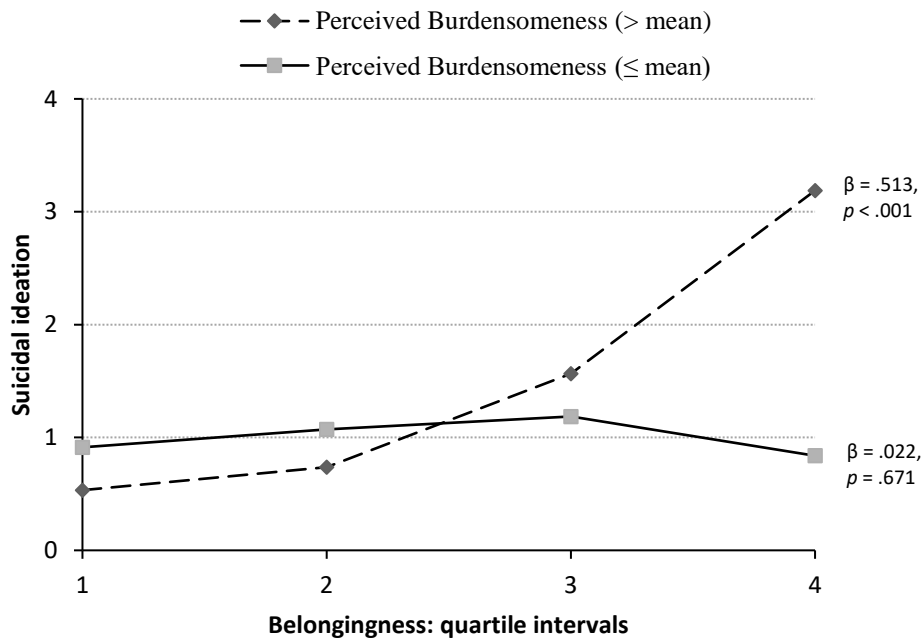
Regression of suicidal ideation on perceived burdensomeness and thwarted belongingness

Step	Variable	β	t	p	Test of Model coefficients					
					Model			Change		
					R^2	F for model	p	f^2 effect size	ΔR^2	p
1	(Constant)		-2.31	.022	.520	84.84	<.001	1.08	.520	<.001
	Older age	-.068	-1.46	.144						
	Race (Black or Coloured)	.141	3.03	.003						
	BDI scores	.695	15.37	<.001						
2	(Constant)		-4.38	<.001	.618	75.39	<.001	1.62	.098	<.001
	Age	-.025	-0.58	.560						
	Race (Black or Coloured)	.111	2.65	.009						
	BDI scores	.360	6.05	<.001						
	Perceived burdensomeness	.358	5.38	<.001						
	Thwarted belongingness	.133	2.18	.030						
3	(Constant)		-.210	.037	.630	65.93	<.001	1.70	.012	<.006
	Older age	-.031	-0.75	.456						
	Race (Black or Coloured)	.114	2.74	.007						
	BDI scores	.353	6.02	<.001						
	Perceived burdensomeness	.084	0.71	.480						
	Thwarted belongingness	-.064	-0.69	.491						
	Burdensome x Belonging	.456	2.78	.006						

Note. Significant predictors are presented in **bold**, $p < 0.05$. BDI = Beck Depression Inventory Inventory (Beck et al., 1996). According to Cohen (1988), $f^2 > .35$ represents a large effect size.

In the analysis of significant interaction effects, *low scores* were defined as scores that were \leq the mean, *with high scores* being defined as scores that were $>$ the mean. With respect to the significant perceived burdensomeness x thwarted belongingness interaction, tests of the simple slope (Figure 4.5) indicated that high levels of thwarted belongingness were only associated with suicidal ideation in the presence of high levels of perceived burdensomeness. This finding is consistent with theoretical predictions (*Hypothesis 2a*) that high levels of suicidal ideation are likely to be associated with high levels of both thwarted belongingness and perceived burdensomeness.

Figure 4.5 Analysis of the significant perceived burdensomeness x thwarted belongingness interaction



4.5.3.2 Tests of Hypothesis 2b

In order to explore the association between hopelessness and suicidal ideation (*Hypothesis 2b*), a step-wise linear regression analysis was conducted (see Table 4.20) in which transformed (square root) suicidal ideation scores were entered as the criterion measure. Control variables (age, race, and BDI scores,) were entered in step 1 and IPTS risk factors for suicidal ideation (perceived burdensomeness, thwarted belongingness, and hopelessness) in step 2, and all interaction effects in step 3.

When control variables were entered in the analysis in step 1, the model significantly predicted suicidal ideation, $F(3,235) = 56.95, p < .001$, accounting for 52% of the variance. When the independent measures were entered in step 2, there were significant main effects of

perceived burdensomeness ($\beta = .316, p < .001$) and hopelessness ($\beta = .161, p = .001$), but no significant main effect of thwarted belongingness ($\beta = .087, p = .156$). The entry of the independent measures in step 2 led to a significant increase in explained variance ($\Delta R^2 = .116, p < .001$).

When interaction effects were entered in step 3, there was a small but significant increase in explained variance ($\Delta R^2 = .027, p = .002$), with there being significant main effects of all independent measures and of all 2- and 3-way interactions (see Table 4.20). The strongest predictor of suicidal ideation was the 3-way interaction between perceived burdensomeness, thwarted belongingness, and hopelessness ($\beta = 1.25, p < .001$).

Table 4.20

Regression of suicidal ideation on perceived burdensomeness, thwarted belongingness and hopelessness

Step	Variable	β	T	p	Test of Model coefficients					
					Model			Change		
					R^2	F for model	p	f^2 effect size	ΔR^2	p
1	(Constant)		-2.31	.022	.520	84.84	<.001	1.08	.520	<.001
	Older age	-.068	-1.46	.144						
	Race (Black or Coloured)	.141	3.03	.003						
	BDI scores	.695	15.37	<.001						
2	(Constant)		-0.73	.467	.636	67.48	<.001	1.75	.116	<.001
	Age	-.032	-0.78	.436						
	Race (Black or Coloured)	.104	2.53	.012						
	BDI scores	.350	6.01	<.001						
	Perceived burdensomeness	.316	4.76	<.001						
	Thwarted belongingness	.087	1.42	.156						
	Hopelessness	.161	3.36	.001						
3	(Constant)		-2.43	.016	.661	44.73	<.001	1.95	.027	.002
	Older age	-.045	-1.12	.264						
	Race (Black or Coloured)	.103	2.54	.012						
	BDI scores	.337	5.93	<.001						
	Perceived burdensomeness	1.056	2.87	.005						
	Thwarted belongingness	.789	2.39	.018						
	Hopelessness	.388	2.17	.031						
	Burdensome x Belonging	1.243	2.70	.008						
	Burdensome x Hopeless	.880	3.04	.003						
	Belonging x Hopeless	.789	2.93	.004						
	Burden x Belong x Hopeless	1.25	3.89	<.001						

Note. Significant predictors are presented in **bold**, $p < 0.05$. BDI = Beck Depression Inventory Inventory (Beck et al., 1996). Burden = perceived burdensomeness. Belonging = thwarted belongingness. Hopelessness = hopelessness in relation to perceived burdensomeness and thwarted belongingness. According to Cohen (1988), $f^2 > .35$ represents a large effect size

In the analysis of significant interaction effects, *low scores* were defined as scores that were \leq the mean, *with high scores* being defined as scores that were $>$ the mean. With respect to the significant perceived burdensomeness x thwarted belongingness interaction, tests of the simple slope (Figure 4.5) indicated that high levels of thwarted belongingness were only associated with suicidal ideation in the presence of high levels of perceived burdensomeness. For the significant 2-way interaction between perceived burdensomeness and hopelessness, tests of the simple slope (Figure 4.6) indicated that high levels of hopelessness were only associated with suicidal ideation in the presence of high levels of

perceived burdensomeness. Finally, for the significant 2-way interaction between thwarted belongingness and hopelessness, tests of the simple slope (Figure 4.7) indicated that high levels of hopelessness were only associated with suicidal ideation in the presence of high levels of thwarted belongingness.

Figure 4.5 Analysis of significant burdensomeness x belongingness interaction

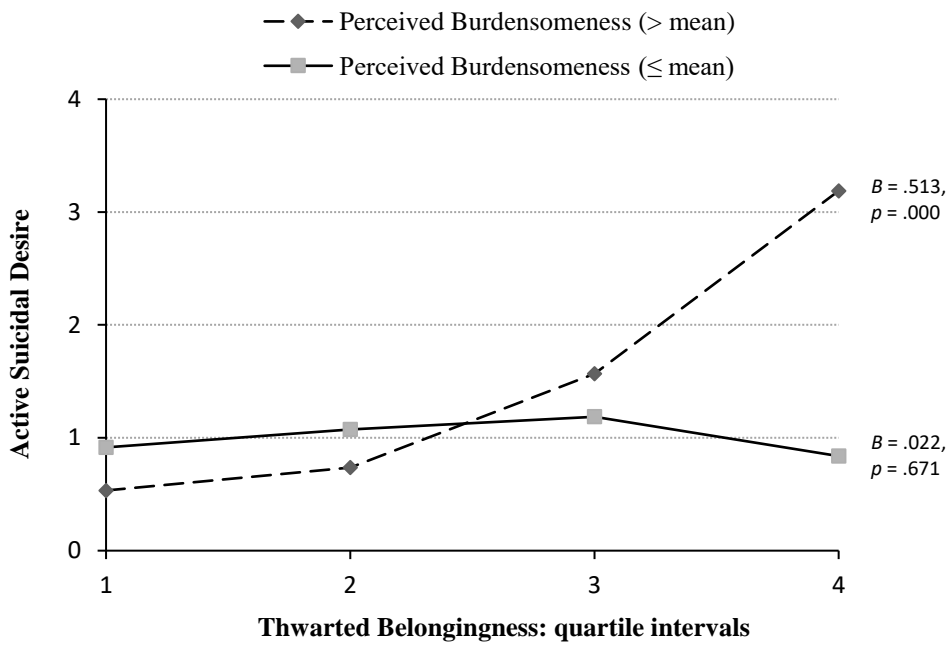


Figure 4.6 Analysis of significant perceived burdensomeness x hopelessness interaction

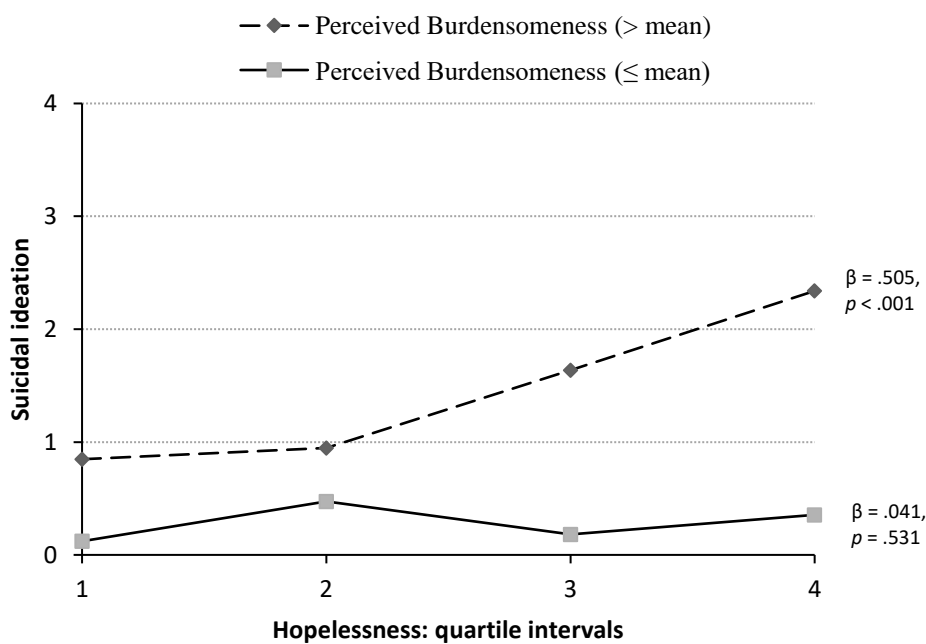
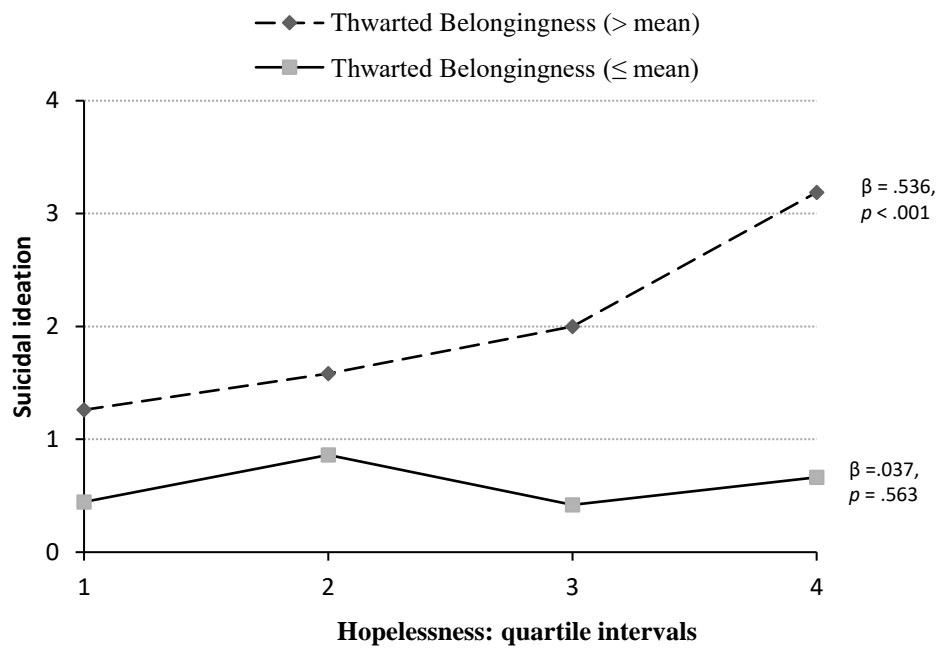
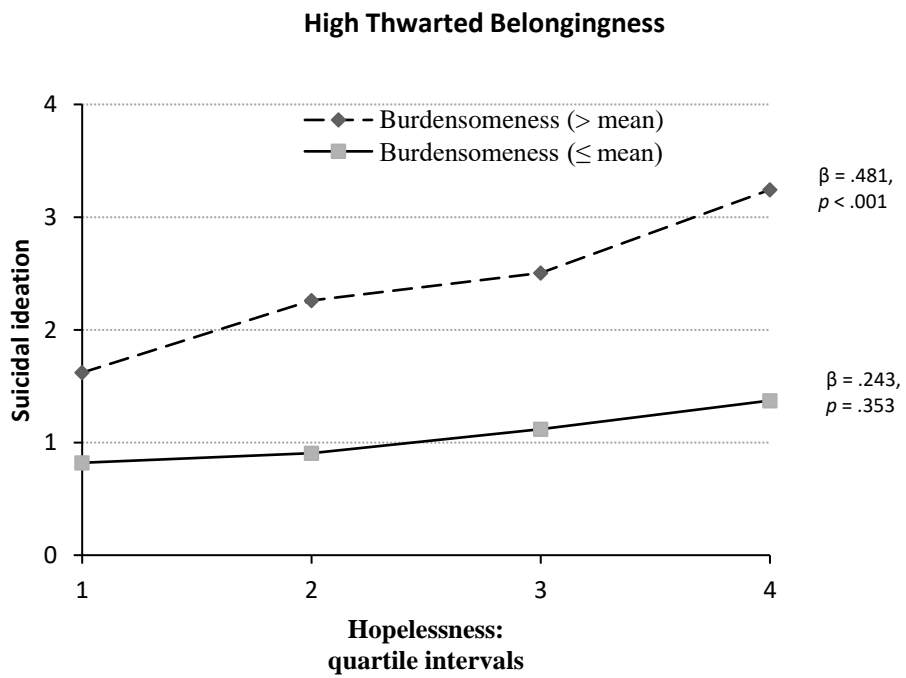
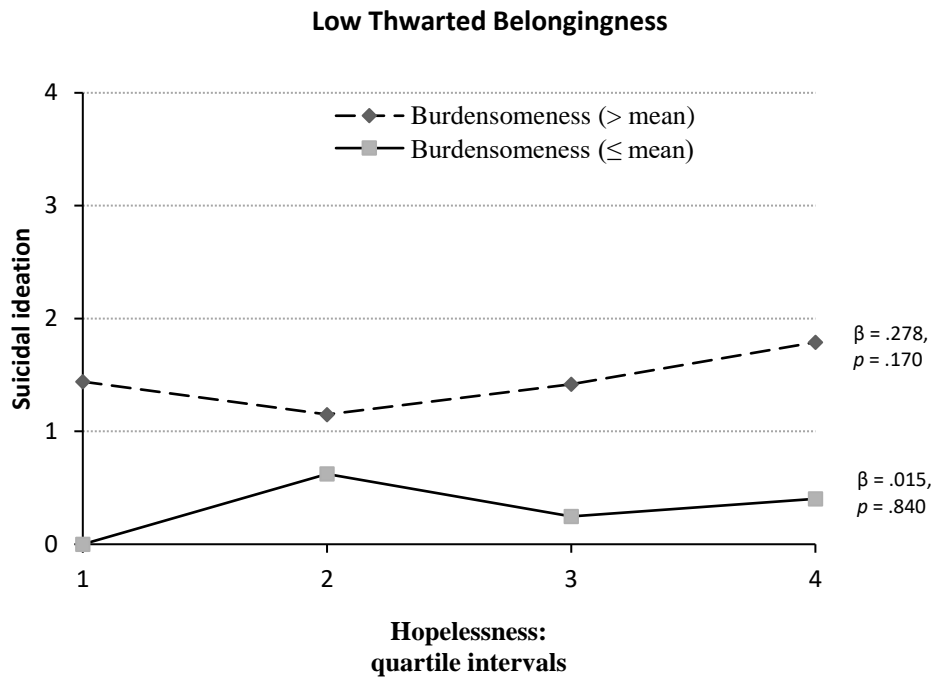


Figure 4.7 Analysis of significant belongingness x hopelessness interaction



An analysis of the significant 3-way interaction is presented in Figure 4.8.

Figure 4.8 Analysis of the significant 3-way interaction



The analysis of the 3-way interaction (Figure 4.8) indicates that high levels of hopelessness were only associated with suicidal ideation in the presence of high levels of both perceived burdensomeness and thwarted belongingness ($\beta = .481, p < .001$). Taken together, these findings are consistent with the IPTS prediction (i.e., *Hypothesis 2b*) that suicidal ideation will be predicted by high levels of both perceived burdensomeness and thwarted belongingness in the presence of high levels of hopelessness in relation to both of these distressing interpersonal states.

4.5.3.3 Tests of Hypothesis 2c

Hypothesis 2c predicts that individuals who report high levels of hopelessness are more likely to report suicidal ideation than they are to report death ideation. The hypothesis was tested using both univariate and multivariate procedures.

For purposes of these analyses:

- *High levels* of hopelessness were operationally defined as a score on the IHS which was greater than the mean for the study sample (of the 239 participants in the study, 114 (47.7%) fell into the *high level of hopelessness* category); and
- Three mutually exclusive ideation groups were derived: (a) a *no ideation group* who did not endorse any items relating to either death or suicidal ideation ($n = 105$, 43.9%); (b) a *death ideation group*, who endorsed items relating to death ideation but did not endorse items relating to suicidal ideation ($n = 39$, 16.3%); and (c) a *suicidal ideation group*, who endorsed items relating to suicidal ideation regardless of whether death ideation items were endorsed or not ($n = 95$, 39.8%).

A Chi-Square Test of Independence (see Table 4.21) – in which the frequency of suicide-related ideations (death or suicidal ideation) were examined as a function of levels of hopelessness (high = > sample mean, low = ≤ sample mean) – produced a significant χ^2

value ($\chi^2_{(1)} = 13.10, p < .001$). Participants who reported high levels of hopelessness were more than four times as likely to fall into the suicidal ideation group than they were to fall into the death ideation group (OR = 4.13, 95% CI = 1.87-9.09). This finding is consistent with theoretical predictions (*Hypothesis 2c*) that individuals who report high levels of hopelessness will be more likely to report suicidal ideation than they will to report death ideation.

Table 4.21

Cross tabulation of frequencies for hopelessness and suicide-related ideations

		Ideation group			
		Death ideation		Suicidal ideation	
		<i>f</i>	(%)	<i>f</i>	(%)
Hopelessness	≤ sample mean	26	(66.7)	31	(32.6)
	> sample mean	13	(33.3)	64	(67.4)

($\chi^2_{(1)} = 13.10, p < .001, OR = 4.13, 95\% CI = 1.87-9.09$)

A further test of *Hypothesis 2c* was conducted using a Multinomial Logistic Regression Analysis (Table 4.22), in which: (a) ideation group (no ideation, death ideation, or suicidal ideation) was entered as the criterion measure, (b) age, race, and BDI scores were entered as control variables, and (c) hopelessness scores were entered as an independent variable. Findings from this analysis (Table 4.22) indicate that the likelihood of falling into the *death ideation* group (as opposed to the *no ideation* group) was unrelated to levels of hopelessness. However, individuals who reported high levels of hopelessness were significantly more likely to fall into the *suicidal ideation* category than they were to fall into the *no ideation* category. Taken together, these findings are also consistent with the predictions of *Hypothesis 2c*.

Table 4.22**Multinomial logistic regression model of factors associated with suicidal and death ideation (N = 239)**

Risk factor	Death ideation vs. no ideation			Suicidal ideation vs. no ideation		
	$\chi^2_{(1)}$	OR (95% CI)	<i>p</i>	$\chi^2_{(1)}$	OR (95% CI)	<i>P</i>
Older age (>40 years)	3.31	2.13 (0.94-4.80)	.069	1.54	1.59 (0.76-3.32)	.215
Race (Black or Coloured)	0.00	1.01 (0.45-2.24)	.984	7.51	0.35 (0.17-0.74)	.006
BDI scores (> mean)	17.07	6.45 (2.66-15.63)	<.001	55.73	21.28 (9.65-47.62)	<.001
Hopelessness (> mean)	0.07	0.90 (0.34-2.03)	.794	10.97	3.35 (1.68-6.84)	.001

Note. Significant predictors are presented in **bold**, $p < 0.05$. BDI = Beck Depression Inventory Inventory (Beck et al., 1996). Reference category = the no ideation group. OR = odds ratio. CI = confidence interval.

4.5.3.4 Conclusions

Tests of *Hypotheses 2a*, *2b* and *2c* provide compelling and consistent support for IPTS predictions, and therefore consistent support for *Hypothesis 2*.

4.5.4 Tests of Hypothesis 3

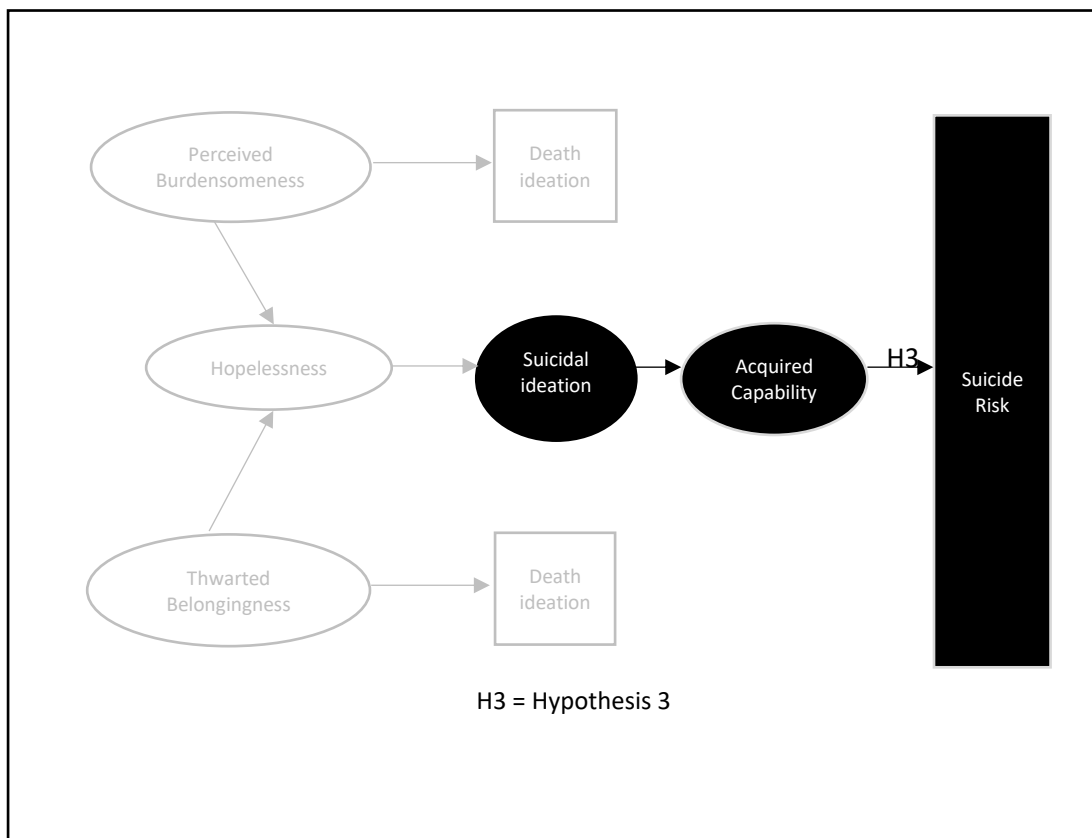
The third IPTS hypothesis (illustrated in bold in Figure 4.9) predicts that *the sufficient proximal causes of potentially lethal suicidal behaviour are high levels of suicidal ideation in the presence of high levels of acquired capability to commit suicide*.

According to Ven Orden et al. (2010), this third hypothesis can be falsified if studies fail to document that:

- *Hypothesis 3a*: suicidal ideation (alone) or acquired capability (alone) do not predict potentially lethal suicidal behaviour;
- *Hypothesis 3b*: there is an interactive effect of acquired capability and suicidal ideation on the risk for suicide; and

- *Hypothesis 3c*: individuals with high levels of suicidal ideation are more likely than individuals with high levels of death ideation to be at risk for a potentially lethal suicide attempts.

Figure 4.9 Illustration of *Hypothesis 3*



4.5.4.1 Tests of Hypothesis 3a and 3b

Hypotheses 3a and *3b* were tested using a hierarchical binary logistic regression analysis in which CPRMSR scores (i.e., suicide risk ratings) were regressed on control variables (age and BDI scores) in step 1, with independent measures (suicidal ideation and an acquired capability for suicide) being added to the model in step 2, and the suicidal ideation x acquired capability interaction being added in step 3 (see Table 4.23).

Table 4.23**Binary logistic regression model predicting suicide risk**

Step	Variable	OR	95% CI	P	Test of model coefficients				
					Model			Change	
					R ²	X ² (df)	P	ΔR ²	P
1	(Constant)	0.06		<.001	.526	115.56 (2)	<.001	.526	<.001
	Age	0.97	0.94-1.01	.056					
	BDI scores	1.13	1.09-1.16	<.001					
2	(Constant)	0.33		.007	.698	169.95 (4)	<.001	.172	<.001
	Age	0.98	0.94-1.02	.313					
	BDI scores	1.07	1.03-1.10	<.001					
	Acquired capability	1.01	0.95-1.08	.829					
	Suicidal ideation	4.37	2.77-6.90	<.001					
3	(Constant)	0.10		.087	.718	177.19 (5)	<.001	.020	.007
	Age	0.98	0.94-1.02	.394					
	BDI scores	1.06	1.02-1.10	.002					
	Acquired Capability	0.95	0.88-1.03	.249					
	Suicidal ideation	1.55	0.63-3.79	.342					
	Acquired capability x suicidal ideation	1.01	1.00-1.03	.014					

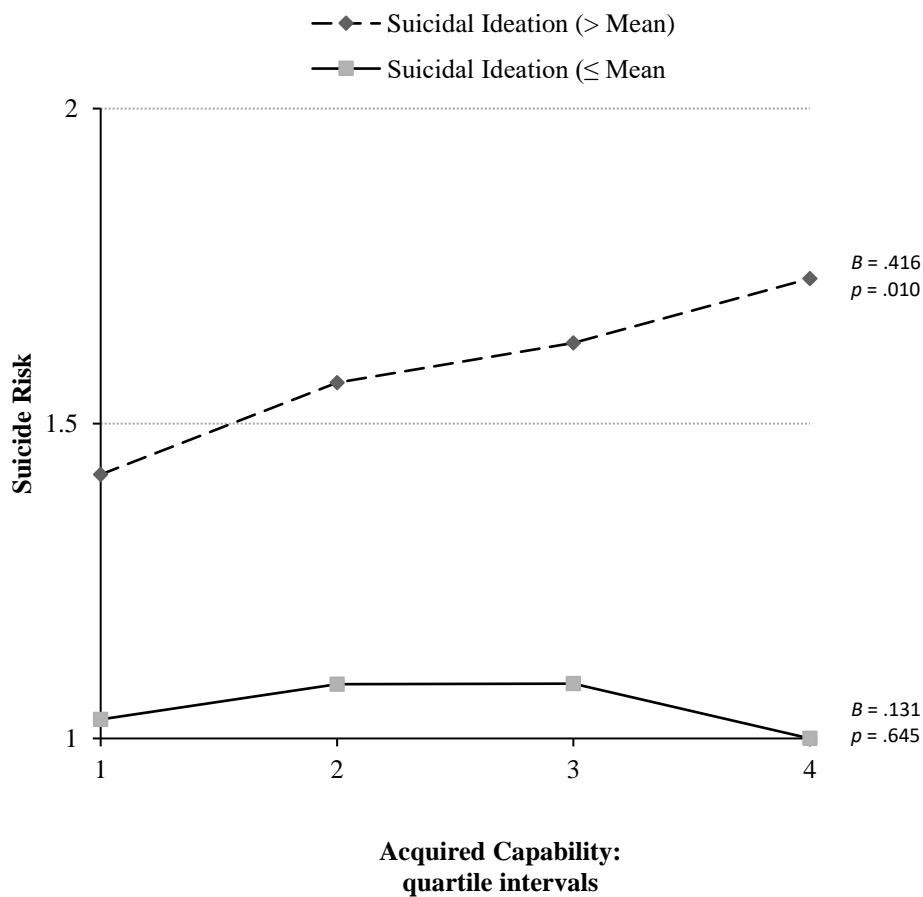
Note. Significant predictors are presented in **bold**, $p < 0.05$. BDI = Beck Depression Inventory (Beck et al., 1996). OR = odds ratio. CI = confidence interval.

When control variables were entered in step 1, the model significantly predicted suicide risk ($\chi^2_{(1)} = 115.56, p < .001$) accounting for 52.5% of the variance. The inclusion of the independent measures in step 2, lead to a significant increase in explained variance ($\Delta R^2 = .172, p < .001$) with there being a significant main effect of suicidal ideation (OR = 4.37, $p < .001$) but no significant main effect of acquired capability (OR = 1.01, $p = .829$). Finally, when the acquired capability x suicidal ideation interaction was entered in step 3, there was a small but significant increase in explained variance ($\Delta R^2 = .020, p = .007$).

In this final model, there were no significant main effects of acquired capability or suicidal ideation, but a significant interaction effect (OR = 1.01, $p = .014$). Taken together these findings are consistent with theoretical predictions that: (a) suicidal ideation (alone) or acquired capability (alone) do not predict potentially lethal suicidal behaviour (*Hypothesis 3a*), but (b) there is an interactive effect of acquired capability and suicidal ideation on the risk for suicide (*Hypothesis 3b*).

Moreover, and consistent with theoretical predictions, an analysis of the significant interactive effect (Figure 4.10) indicated that high levels of acquired capability for suicide were only associated with an increased risk for suicidal behaviour in the presence of high levels of suicidal ideation

Figure 4.10 Analysis of significant suicidal ideation x acquired capability interaction



4.5.4.2 Tests of Hypothesis 3c

Hypothesis 3c predicts that individuals with high levels of suicidal ideation are more likely than individuals with high levels of death ideation to be at risk for a potentially lethal suicide attempt. In order to test this hypothesis, a binary logistic regression analysis was conducted using levels of suicide risk (low versus moderate/high) as the criterion variable,

and the main and interactive effects of death ideation and suicidal ideation as independent variables (see Table 4.24).

Table 4.24

Binary logistic regression model testing the association between death ideation, suicidal ideation and suicide risk.

Step	Variable	OR	95% CI	p	Test of Model Coefficients			
					R ²	X ²	(df)	p
1	(Constant)	0.06		<.001	.685	165.47	(3)	<.001
	Death ideation	1.39	0.92-2.09	.119				
	Suicidal ideation	1.61	1.07-2.42	.023				
	Death ideation x Suicidal ideation	1.04	0.92-1.05	.532				

Note: Significant predictor is presented in **bold**, $p < 0.05$.

This model significantly predicted suicide risk, $\chi^2_{(3)} = 165.47$, $p < .001$, accounting for 68.5% of the variance. An examination of main and interaction effects indicated that there was a significant main effect of suicidal ideation (OR = 1.61, 95% CI = 1.07-2.42, $p = .023$), but no significant main effect of death ideation (OR = 1.39, 95% CI = 0.92-2.09, $p = .119$) and no significant interaction effect (OR = 1.04, 95% CI = 0.92-1.05, $p = .532$). These findings are consistent with the prediction that individuals with high levels of suicidal ideation are more likely than are individuals with high levels of death ideation to be at risk for suicidal behaviour.

4.5.4.3 Conclusions

Tests of *Hypotheses 3a, 3b* and *3c* provide compelling and consistent support for IPTS predictions, and therefore consistent support for *Hypothesis 3*.

4.6 Summary and Conclusion to Chapter

In Section one of this chapter, the author examined the psychometric properties of available measures of IPTS constructs. With two exceptions (measures of hopelessness and an acquired capability for suicide), available measures were found to have satisfactory psychometric characteristics.

In Section two the development and preliminary validation of the IHS and the DIS were described. Both of these new measures were found to be characterised by adequate levels of internal consistency as well as acceptable levels of face and construct validity.

In Section three, demographic and clinical predictors of IPTS risk factors were examined, with identified demographic and mental health variables being found to vary across risk factors.

Finally, in Section four, tests of three key IPTS hypotheses were conducted, with study findings providing unqualified support for all three hypotheses.

The findings are discussed in Chapter five.

CHAPTER FIVE

DISCUSSION

5.1 Introduction

In this chapter, findings regarding each of the main study objectives are discussed in relation to the predictions of IPTS theory and in relation to the extant literature in the field.

5.2 Psychometric Properties of Available IPTS Measures

5.2.1 IPTS risk measures

5.2.1.1 Perceived burdensomeness and thwarted belongingness (INQ scale)

The perceived burdensomeness and thwarted belongingness subscales of the INQ evidenced acceptable levels of internal consistency in the present study, with score distributions not differing significantly from what would be expected under the normal curve. In addition, both measures: (a) appeared to adequately address the content domains theorised to be relevant to perceptions of burdensomeness and failed belongingness; and (b) were characterised by acceptable levels of both theoretical and concurrent criterion-related validity, in the sense that obtained scores were correlated in expected directions with other IPTS risk and outcome measures. These findings are consistent with previous findings obtained using the 12-item version of the INQ (Davidson, Wingate, Rasmussen, & Sligh, 2009; Freedenthal, Lamis, Osman, Kahlo, & Gutierrez, 2011; Hill & Pettit, 2014; Kim & Yang, 2015; Van Orden et al., 2008).

However, in a study which compared different versions of the INQ (i.e. the 10-, 12-, 15-, 18-, and 25-item versions of the INQ), Hill, Rey, Marin, Sharp, Green, and Pettit (2015) found that while all versions demonstrated acceptable levels of internal consistency, the 10-

item and 15-item versions of the scale demonstrated the best fit in confirmatory factor analyses. In addition, only the 10-item version consistently predicted suicidal ideation across clinical and college samples. Further, findings from two studies indicate that in clinical samples, suicidal ideation is predicted by the perceived burdensomeness subscale of the 12-item INQ but not by the thwarted belongingness subscale of the 12-item scale (Hill et al., 2015; Van Orden et al., 2008).

It is, of course, possible that discrepancies between the present and previous findings may reflect inter-study differences in the way in which interpersonal alienation has been operationalised, with further research being indicated in order to further explore the utility of the INQ as a measure of perceived burdensomeness and thwarted belongingness in IPTS research (Hill et al., 2015).

5.2.1.2 Hopelessness

Although hopelessness in relation to perceived burdensomeness and thwarted belongingness is theorised as constituting a sufficient proximal cause of suicidal ideation (Van Orden et al., 2010), there is no available measure that has been designed to assess the construct. As such, a measure of hopelessness in relation to perceived burdensomeness and thwarted belongingness was developed for the purposes of the present study [the Interpersonal Hopelessness Scale (IHS)], which is discussed in more detail in Section 5.3.1.

5.2.1.3 Acquired capability for suicide

Attempts to measure an acquired capability for suicide have employed several versions of the ACSS – a 5-item version (e.g., Bryan et al., 2010a; Bryan, Morrow, Anestis, & Joiner, 2010b; Van Orden et al., 2008), a 7-item version (Anestis, Khazem, Mohn, & Green, 2015), and a 20-item version (Monteith, Menefee, Pettit, Leopoulos, & Vincent, 2013; Simlot,

McFarland, & Lester, 2013; Zhang, Zhao, & Zhou, 2013) – with some authors (e.g., Van Orden et al., 2008) having also included items from the PPES and/or the IBS in their measures of acquired capability for suicide. The 5-item version of the ACSS, which has been commonly used in IPTS research, has consistently been found to be characterised by low levels of internal consistency ($\alpha < .070$; e.g., Bryan et al., 2010a; Bryan et al., 2010b; Van Orden et al., 2008), with the coefficient alpha in this study being .62. Although higher alpha coefficients have been reported for longer versions of the ACSS (Anestis et al., 2015; Simlot et al., 2013; Zhang et al., 2013), it is possible that these findings reflect the sensitivity of coefficient alpha to the number of items in a scale rather than to any actual increase in internal consistency.

In addition to concerns regarding internal consistency, the 5-item version of the ACSS raises concerns regarding content validity, as the five items on the scale do not adequately address all the content domains theorised as being relevant to the development of an acquired capability for suicide (i.e. impulsivity, a history of engaging in risky or provocative behaviour, pain inurement, and fearlessness of death; cf. Van Orden et al., 2010).

In the context of these limitations, it was decided to develop a more comprehensive measure of an acquired capability for suicide in the present study [i.e. the Death Inurement Scale (DIS)], which is discussed in more detail in Section 5.3.2.

5.2.2 IPTS Outcome Measures

5.2.2.1 Death and suicidal ideation

Previous tests of the IPTS hypotheses have used a variety of instruments to measure death and suicidal ideation with:

- Death ideation having been assessed using single items from the BDI-II, the BSS (e.g., Pfeiffer et al., 2014), or the death ideation subscale of the Geriatric Suicide Ideation Scale (GSIS; e.g., Cukrowicz et al., 2013; Heisel & Flett, 2006; Murariu, 2016); and
- Suicidal ideation having been assessed using items 1-19 of the BSS (e.g., Anestis et al., 2015; Monteith et al., 2013; Van Orden et al., 2008), the suicide ideation subscale of the GSIS (Murariu, 2016), the Suicidal Behaviours Questionnaire-Revised (Osman, Bagge, Gutierrez, Konick, Kopper, & Barrios 2001) (e.g., Bryan et al., 2010b), or the Suicidal Ideation Questionnaire (Reynold, 1987) (e.g., Kim & Yang, 2015).

However, some of these measures conflate different forms of suicide-related ideation, and consequently provide confounded estimates of specific forms of suicidal ideation. For example, items 1-19 of the BSS include items designed to assess for death ideation (e.g., “I have a moderate to strong wish to die”), suicidal ideation (“I accept the idea of killing myself”), and suicidal planning (“I have a specific plan for killing myself”). As a result, estimates of *suicidal ideation* provided by the 19 BSS items fail to address adequately the distinction between death and suicidal ideation, and therefore cannot reliably be used to independently test hypotheses relating to either death or suicidal ideation.

In an attempt to address these concerns, two scales were derived from the BSS (cf. Table 4.5), with: (a) the first scale comprising items that assessed a desire for death without

reference to suicide (i.e. death ideation); and (b) the second scale comprising items that reflected a desire to commit suicide (i.e. suicidal ideation).

An exploration of the psychometric properties of the suicidal and death ideation measures indicated that the scales have high levels of internal consistency ($\alpha = .93$ and $.92$, respectively) and adequate levels of: (a) concurrent criterion-related validity (in the sense that scale scores were significantly correlated, in the expected direction, with other IPTS risk and outcome factors); and (b) strong theoretical validity (in the sense that consistent support was found for all IPTS hypotheses involving death or suicidal ideation).

With respect to prevalence rates for death and suicidal ideation, the measures used in the study produced prevalence rates for death ideation of 55% and for suicidal ideation of 40%. Other studies have reported prevalence rates for death ideation in clinical samples ranging from 7.3% (Allen et al., 2013) to 27.5% (Bartels et al., 2008), with prevalence rates for suicidal ideation in clinical samples having been found to range from 7% (Sørлие, Sørgaard, Bogdanov, Bratlid, & Rezvy, 2015) to 67% (Dilsaver, Benzami, Rihmer, Akiskal, & Akiskal, 2005). Taken together, these findings suggest that the study sample was characterised by comparatively high rates of death and suicide-related ideation.

5.2.2.2 Suicide risk

Suicide risk was operationalized in the present study as the degree to which participants were rated by the treating clinician as being at low, moderate, or high risk for a suicide attempt. The measure employed for this rating, the CPRMSR, has been found to have adequate levels of inter-rater agreement and acceptable levels of concurrent criterion-related validity (Van Orden et al., 2008). In the present study, the measure correlated in the expected direction with other IPTS risk and outcome measures.

Previous tests of the IPTS hypotheses have measured suicide risk as an outcome variable in diverse ways. In addition to the CPRMSR (Van Orden et al., 2008) which predicts the level of current suicide risk, suicide risk has been assessed using suicide plans and attempts in the past year (Christensen et al., 2013), history of a recent suicide attempt (Joiner et al., 2009), the lifetime number of suicide attempts (Anestis & Joiner, 2011; Barzilay et al., 2015; Monteith et al., 2013), suicidal history based on SBQ-R scores (Bryan et al., 2010b), as well as estimates of future risk for suicide attempts (Czyz, Berona, & King, 2015). Taken together, these studies have provided inconsistent support for IPTS hypotheses – an inconsistency that possibly reflects the range of different assessment procedures that have been employed.

What has been somewhat problematic about available attempts to test IPTS hypotheses regarding the proximal causes of suicidal behaviour, is that the logic of causal reasoning (particularly the requirement of temporal precedence of cause over effect) has not always been adequately addressed. For example, current estimates of proximal risk factors for suicidal behaviour (e.g., suicidal ideation and an acquired capability for suicide) have frequently been used to predict *past* suicidal behaviours (e.g., a past history of suicidal behaviour). In this respect, there would appear to be a clear advantage to the use of measures such as the CPRMSR that are designed to provide an estimate of future suicidal risk.

5.3 Development of Scales for Use in the Study

5.3.1 Development of the Interpersonal Hopelessness Scale (IHS)

The IHS was specifically developed for use in the present study to measure hopelessness in relation to the IPTS constructs of perceived burdensomeness and thwarted belongingness.

The IPTS posits that the joint presence of burdensomeness and belongingness, in the presence of hopelessness regarding these two states, is the condition under which death ideation transforms into suicidal ideation, with Joiner (2005) clearly articulating this position in his description of the theory's hypotheses.

In a review of the theory, Ribeiro and Joiner (2009) suggest that including hopelessness-related parameters such as *irremediability* for the interpersonal constructs would significantly increase the specificity of the model. Yet, to date, no study has attempted to test this prediction using a custom-made measure of interpersonal hopelessness. Previous studies have tended to either not measure hopelessness, or to measure hopelessness using generalized measures of hopelessness, or general measures of social hopelessness (e.g., Christensen et al., 2013; Cukrowicz et al., 2013, Hagan, et al., 2015; Murariu, 2016; Pfeiffer et al., 2014).

In the present study, the IHS was found to have adequate factor loadings and a high level of internal consistency (Cronbach alpha = 0.95). In addition, the IHS correlated with measures of death ideation, suicidal ideation, and BDI-II scores in the expected direction. Finally, the IHS demonstrated strong theoretical validity, in the sense that study findings provide strong and consistent support for all IPTS hypotheses involving interpersonal hopelessness.

5.3.2 Development of the Death Inurement Scale (DIS)

Due to the limitations of extant measures of an acquired capability for suicide (i.e., failure of a single measure to adequately capture the latent dimensions of acquired capability for suicide; *fearlessness about death* and *elevated pain tolerance*, cf. Section 5.2.1.3), a new measure of acquired capability for suicide – the Death Inurement Scale (DIS) – was developed for the present study. The revised measure of acquired capability was designed to assess for all content domains that have been theorised as being relevant to the construct (impulsivity, a history of risky/provocative behaviour, pain inurement, and fearlessness of death), and drew on the item content of the ACSS (5-item version), the PPES, and the IBS (cf. Section 4.3.2).

The DIS adequately addressed all content domains that have been theorised as being relevant to an acquired capability for suicide (cf. Table 4.9) and was characterised by a high level of internal consistency ($\alpha = .82$), thus addressing the two major concerns that have been raised regarding extant measures of acquired capability for suicide (cf. Section 5.2.1.3). In addition, the DIS demonstrated strong theoretical validity, in the sense that study findings provided strong and consistent support for all IPTS hypotheses involving an acquired capability for suicide. Finally, evidence for the incremental validity of the DIS was provided by the fact that DIS scores accounted for a significant additional proportion of the variance in CPRMSR scores after accounting for the effects of the ACSS, the PPES, and the IBS (cf. Section 4.3.3).

5.3.3 Summary

Tests of the IPTS hypotheses to date have produced few consistent findings, with differences in study findings possibly reflecting inter-study sampling and/or methodological variations.

Tests of the psychometric properties of extant measures of IPTS constructs suggest that available measures of thwarted belongingness, perceived burdensomeness, suicide-related ideation, and risk for suicidal behaviour have adequate psychometric properties. New measures of interpersonal hopelessness (the IHS) and an acquired capability for suicide (the DIS) which were developed for the study, were also found to have sound psychometric properties.

Although further validation of all of these measures is required, the present findings suggest that measures employed in the present study provide reliable and valid estimates of all IPTS risk factors and outcome variables.

5.4 Demographic and Clinical Predictors of IPTS Risk Factors

In addition to formal hypotheses regarding the sufficient proximal causes of suicidal behaviour, the IPTS also considers the ways in which demographic and clinical variables may influence scores on measures of IPTS risk factors (cf. Van Orden et al., 2010). This section explores demographic and clinical antecedents to IPTS risk factors that were identified in the present study.

5.4.1. Demographic and clinical predictors of perceived burdensomeness

In this study, scores for perceived burdensomeness were significantly predicted by both demographic factors (sex, employment status, level of education) and clinical factors (a primary diagnosis of: major depressive disorder, bipolar disorder, borderline personality disorder, substance use disorder, bereavement, partner relational problem, and schizophrenia).

5.4.1.1. Sex

Study findings indicate that females are more likely than their male counterparts to report a sense of perceived burdensomeness. This finding contrasts with findings from previous studies of community samples (e.g., Donker, Batterham, Van Orden, & Christensen, 2014) which found no gender differences in levels of perceived burdensomeness. A possible reason for this discrepancy in findings could be that the present study involved psychiatric outpatients; with a psychiatric illness having the potential to induce stronger perceptions of self-hate and of being a burden to others in women than in men, this could affect perceived burdensomeness differently for women. Women typically invest more emotionally in their interpersonal relationships, as their self-concept is often defined by socialization into roles of nurturance and caretakers within the family (Cross & Madson, 1997; Gallagher & Gerstel, 1993; Saragovi, Koestner, Dio, & Aube', 1997). As such, it is possible that when women experience mental illness their nurturing role is compromised or reversed, leading them to perceive their illness as a personal flaw that makes them a liability to others.

5.4.1.2 Education level and employment status

The present study also found that lower levels of education, and being unemployed, were independently associated with perceived burdensomeness. Although some studies (e.g., Christensen et al., 2014) have found no relationship between years of education and IPTS constructs, the literature consistently indicates that low levels of education and unemployment are associated with negative mental health outcomes including an increased risk for suicidal behaviour (Aschan, Goodwin, Cross, Moran, Hotopf, & Hatch, 2013; Hawton et al., 2016; Husky, Guignard, Beck, & Michel, 2013; Joe et al., 2008; Kessler et al., 1999; Oh et al., 2015).

Lower levels of education and unemployment are often related issues in depressed job markets where fierce competition for the few available jobs is likely to sideline the less

qualified, with individuals who are less well educated being less likely to acquire the jobs they desire or earn the incomes they need. Resultant financial pressures have the potential to place a strain on relationships with significant others, leading to perceptions of burdensomeness.

In a study of suicide among unemployed individuals, Stack and Wasserman (2007) found that over two thirds of deaths were attributable to multiple strains, particularly economic strain accompanied by relationship difficulties. Coope et al. (2015) found that over 80% of individuals in recession-related deaths by suicide were married or cohabiting and had dependents, suggesting that these individuals may have been deeply affected by the strain that their unemployment was inflicting on others.

5.4.1.3 Mood disorders

Major depressive and bipolar disorder were found to be significantly associated with perceptions of perceived burdensomeness, with similar trends having been observed in a number of previous studies (e.g., Christensen, et al., 2014; Jahn, Cukrowicz, Linton, & Prabhu, 2011; Owen, Gooding, Dempsey, & Jones, 2015; Silva et al., 2015). Symptoms of mood disorders, such as the radical shifts in mood that characterize bipolar disorder as well as feelings of hopelessness and worthlessness, may result in perceptions that the self is inadequate and flawed. In addition, related impairments in social and occupational functioning may induce perceptions that one is a liability to others (Silva et al., 2015). In Owen et al.'s (2015) qualitative study of bipolar patients, it was found that participants voiced “feeling burdensome” and “negative self-appraisals” (p.133) as major interpersonal concerns.

The fact that not all depressed individuals experience suicidal ideation (Balsis & Cully, 2008) has led Jahn et al. (2011) to contend that the relationship between depression

and suicidal ideation may be mediated by perceptions of burdensomeness. As such, intervention efforts designed to target perceived burdensomeness may have the potential to effectively break the link between mood disorders and suicidal ideation.

5.4.1.4 Borderline personality disorder

The significant association between borderline personality disorder (BPD) and perceived burdensomeness that emerged in the present study has previously been reported by other authors (e.g., Silva et al., 2015). McGirr, Paris, Lesage, Renaud, and Turecki (2009) suggest that the affective instability symptoms of BPD are some of the key symptoms that lead to the development of suicidality in affected individuals. This instability lends itself to emotionally intense relationships with others, with the vacillation between intense neediness and deprecation of others resulting in significant impairments in interpersonal relationships (Bhome & Fridrich, 2015).

To compound the situation, low levels of self-esteem, which individuals diagnosed with BPD often experience, may lead to perceptions that the self is flawed. This flawed sense of self, combined with symptoms such as impulsivity and inappropriate anger, may lead to engagement in high risk behaviours that have negative implications for significant others (Silva et al., 2015), which in turn may perpetuate the cycle of perceived burdensomeness.

5.4.1.5 Anxiety disorders

The association between anxiety disorders and perceived burdensomeness noted in the present study is consistent with findings from previous studies (e.g., Christensen et al., 2014; Donker et al., 2014). Thibodeau, Welch, Sareen and Asmundson (2013) suggest that the pathway from anxiety disorders to suicidal ideation may be similar to that between depression and suicidal ideation in that the desire for suicide may also be a means of

escaping suffering rooted in anxiety, fear, and worry. In addition, individuals with anxiety disorders typically ruminate and hold maladaptive beliefs relating to a range of intrapersonal and interpersonal issues (Beck, Emery, & Greenberg, 2005), which, over time, may lead to perceptions of self-hate and liability to others (i.e., perceived burdensomeness), the latter being theoretically proposed to be the gateway to suicidal ideation (Van Orden et al., 2010).

5.4.1.6 Substance use disorders

The finding that substance abuse is associated with perceptions of perceived burdensomeness, is consistent with findings obtained in other studies (e.g., Silva et al., 2015). It is well known that alcohol abuse causes disinhibition and impaired judgment which may lead to suicidal behaviour (Husky et al., 2013; Monnin et al., 2012). It is also well known that not everyone who abuses substances engages in suicidal behaviour. Bantjes and Kagee (2013) suggest that there are other factors that moderate the conditions under which alcohol becomes a significant risk factor for suicide, with one such factor possibly being a perception of burdensomeness on others, leading an individual (in a state of intoxication and consequent impairment of problem-solving skills) to believe that suicide is a way of dealing with problems.

This hypothesised association between substance abuse, perceived burdensomeness, and suicidal ideation is likely to be particularly relevant in the South African context in which approximately 40% of individuals who die by suicide have positive blood alcohol levels (Bantjes & Kagee, 2013).

5.4.1.7 Bereavement

The association between bereavement and perceived burdensomeness noted in the present study has not previously been reported. The available literature does, however,

suggest that bereavement following the death of a loved one is likely to be associated with considerable functional impairment and poor physical and mental health outcomes (Boelen, & Prigerson, 2007; Stroebe, Schut, & Stroebe, 2007) including suicidality (Luoma & Pearson, 2002). Although grief is a normal, adaptive, response to the loss of a loved one, research suggests that as many as 20% of individuals experience complicated bereavement with unexpected, unnatural, deaths tending to be associated with complicated bereavement more often, due to the unexpectedness, and sometimes violent, nature of the death (de Groot, de Keijser, & Neeleman, 2006; Parkes, 1998). Individuals grieving in response to unnatural deaths move through a bereavement process characterized by guilt, shame and taboo (Jordan, 2001), which is often experienced in the context of social isolation, both self-imposed and imposed by others (de Groot et al., 2006).

Bereavement may also be associated with perceived burdensomeness via its association with financial strain; i.e. loss of income from the deceased person may result in financial difficulties and a reliance on others, which may lead to the bereaved individual perceiving him- or her- self as being a burden on others (Ghesquiere, Bazelai, Berman, Greenberg, Kaplan, & Bruce, 2016).

5.4.1.8 Partner relational difficulties

The association between relationship difficulties and perceived burdensomeness noted in the present study is consistent with findings obtained in some previous studies (e.g., Buitron, Hill, Petitt, Green, Hatkevich, & Sharp, 2016). However, findings from most previous studies suggest that relational difficulties (i.e. separation, divorce, abandonment, or threat of abandonment) are most likely to be associated with perceptions of thwarted belongingness (Cantor & Slater, 1995; Hyman, Ireland, Frost, & Cottrell, 2012; Kurtas et al., 2012; Lorenzini & Bates, 2002; Martin et al., 2013).

In a retrospective community study of 28,703 participants, Logan, Hall and Karch (2011) found a higher proportion of suicides among individuals who had no known history of mental illness, but who had experienced intimate partner difficulties prior to the suicidal act. Similarly, Martin et al. (2013) found that 54% of their sample experienced an interpersonal conflict in the 24 hours prior to death, with 34% citing the end of an intimate relationship as the reason for ending their lives.

5.4.1.9 Schizophrenia

The association between schizophrenia and perceived burdensomeness noted in the present study is consistent with findings reported by other authors (Silva et al., 2015; Tarrier, Barrowclough, Andrews, & Gregg, 2004). Although the extant literature indicates that actively psychotic individuals may end their lives in response to command hallucinations (DeVylder, Lukens, Link, & Lieberman, 2015), in order to escape from distressing psychotic symptoms, – such as persecutory delusions (Thong, Su, Chan, & Chia, 2008) or due to co-morbid affective states (Popovic et al., 2014; Togay, Noyan, Tasdelen, & Ucok, 2015) or substance use (Gottlieb, Mueser, & Glynn, 2012) – the results of the present study suggest that there is a need for further empirical research designed to explore the association between schizophrenia, related interpersonal distress, and suicidality.

In addition to the cognitive impairment that characterizes psychotic disorders, schizophrenia is also likely to be associated with deficits in social and occupational functioning, having the potential for causing interpersonal strain (Gottlieb et al., 2012; Tarrier et al., 2004). Tarrier and colleagues found that negative self-evaluation and social isolation were associated with hopelessness, which in turn was associated with suicidality. Moreover, negative self-evaluation has been found to be associated with criticism from significant others (Tarrier et al., 2004). Silva et al. (2015) found that in addition to the impact of psychotic

patients' eccentric behaviour, reliance on others (e.g., in relation to hospitalization during periods of relapse or the need for supervised care) may lead to perceptions of being a burden on others.

5.4.2 Clinical predictors of thwarted belongingness

In the present study, perceptions of thwarted belongingness were found to be negatively associated with a primary diagnosis of: substance abuse disorder, borderline personality disorder, and anxiety disorders (see Table 4.11).

5.4.2.1 Substance use disorders

An unexpected finding of the present study was that individuals with a substance use disorder were significantly *less* likely to report perceptions of thwarted belongingness. This finding contrasts with findings from previous studies which suggest that substance abuse is associated with dysfunctional interpersonal relationships (Florsheim & Moore, 2008; Matejevic, Jovanovic, & Lazarevic, 2014; Skeer, McCormick, Normand, Mimiaga, Buka, & Gilman, 2011).

A possible reason for this discrepant finding is suggested by the work of Silva et al. (2015) who found that alcohol use did not predict thwarted belongingness but that poly-substance dependence did; they suggest that it is the extent of poly-substance abuse, rather than substance use *per se*, that is likely to be associated with perceptions of thwarted belongingness.

A further plausible explanation for the study finding is that substance abuse disorder is generally associated with younger individuals for whom alcohol use is associated with peer socialisation, with such socialisation tending to lead to *increased* perceptions of connectedness with others (Oostveen, Knibbe, & de Vries, 1996).

The design of the present study, however, does not permit a systematic test of either of the above assumptions; further research is required in order to explore the association between substance abuse and perceptions of thwarted belongingness more systematically.

5.4.2.2 Borderline personality disorder

An equally unexpected finding was that individuals with borderline personality disorder (BPD) were less likely to experience thwarted belongingness. This finding is particularly surprising as individuals with borderline personality disorder typically experience serious disruptions in their interpersonal functioning due to their tendency to vacillate between idealizing and devaluing others (Bhome & Fridrich, 2015), a process imbued with anticipation of rejection by others (Berenson, Downey, Rafaeli, Coifman, & Paquin, 2011). In addition, the insecure attachment style and emotional lability that characterize this disorder are further triggers for interpersonal disruption (Bender & Skodol, 2007).

A possible explanation for the study finding is that because of heightened sensitivity to rejection and abandonment (Berenson et al., 2011; Zeigler-Hill, & Abraham, 2006), individuals with BPD may consciously express that they do not need others or want to be needed by others, in an unconscious attempt to protect themselves from anticipated rejection or abandonment. Such self-protective attributions may have been reflected in the way in which individuals with BPD answered questions relating to a sense of thwarted belongingness in the present study.

5.4.2.3 Anxiety disorders

A third study finding, that contrasted with findings from previous studies (Hawton, Comabella, Haw, & Saunders, 2013; Starr & Davila, 2012), was that individuals diagnosed with an anxiety disorder were *less* likely to report thwarted belongingness.

A possible explanation for this finding is that interpersonal sensitivity, fear of negative evaluation, and low self-esteem, all of which are core features of anxiety disorders (Uhmann, Beesdo-Baum, Becker, & Hoyer, 2010), could lead to the suppression of an individual's own interpersonal needs to care and be cared for (McEvoy, Burgess, Page, Nathan, & Fursland, 2013), thereby leading to reductions in self-perceptions of thwarted belongingness.

5.4.3 Demographic and clinical predictors of hopelessness

None of the clinical and demographic characteristics considered in the study were found to be associated with scores on the measure of hopelessness (i.e. the IHS). This finding is entirely consistent with the predictions of the IPTS (cf. Van Orden et al., 2010), in terms of which the association between clinical/demographic characteristics and hopelessness are assumed to be mediated by forms of interpersonal alienation (i.e. perceived burdensomeness and thwarted belongingness).

5.4.4 Demographic and clinical predictors of an acquired capability for suicide

Scores on the DIS were found to be significantly predicted by demographic characteristics (age, sex, and employment status).

5.4.4.1 Age

Study findings suggest that younger age is significantly and positively associated with an acquired capability for suicide. This finding is consistent with results from previous studies that suggest that younger individuals are more likely to develop an acquired capability for suicide. In a sample of adolescents, Ortin, Lake, Kleinman and Gould (2012) found that sensation-seeking predicted the risk of suicide attempts even after controlling for depressive symptoms, while Bender, Gordon, Bresin & Joiner's (2011) study with a college sample

found that impulsivity had an indirect relationship with acquired capability, and that this relationship was mediated by painful and provocative events. Moreover, Dvorak, Lamis and Malone (2013) found that the relationship between depressive symptoms and suicide proneness was mediated by two facets of impulsivity (i.e. *urgency*, defined as the tendency to make rash decisions when one is experiencing strong emotions, and *sensation-seeking*) in the presence of alcohol use.

In the context of high worldwide prevalence rates for suicidal behaviour among younger individuals (Nock et al., 2008; WHO, 2016), these findings suggest the need for research efforts that are designed to identify factors leading to the development of an acquired capability for suicide among younger people. In addition, the development of empirically informed interventions, designed to target factors such as substance use, poor problem-solving skills, and sensation-seeking activity would appear to be indicated in order to prevent the development of an acquired capability for suicide among younger individuals.

5.4.4.2 Sex

The finding that males scored higher than females on the DIS is consistent with findings obtained in previous studies (Anestis, Bender, Selby, Ribeiro, & Joiner, 2011; Christensen et al., 2014; Donker et al., 2014; Van Orden et al., 2008). Previous studies have found that men possess significantly higher levels of pain tolerance (Alabas, Tashani, Tabasam, & Johnson, 2012) and a reduced fear of death (Ellis & Lamis, 2007), with pain tolerance and a reduced fear of death comprising the two latent dimensions of an acquired capability for suicide (Van Orden et al., 2010). In addition, research findings suggest that distress tolerance, defined as the capacity to withstand aversive affective states (Simons & Gaher, 2005), may interact with gender to produce an acquired capability for suicide, with

males who report higher levels of distress tolerance having been found to evidence higher levels of an acquired capability for suicide (Anestis et al., 2011).

Furthermore, the socio-cultural conditioning of men tends to encourage males to engage in more painful and provocative life events (Granato, Phillip, Smith, & Selwyn, 2015), and in more sensation-seeking activities involving risk or thrill (Ortin et al., 2012; Whiteside & Lynam, 2001); these are likely to be associated with higher levels of an acquired capability for suicide among males than among females.

5.4.4.3 Employment status

The finding that “being employed” is significantly associated with an acquired capability for suicide is not particularly surprising. According to Schneider Grebner, Schnabel, Hampel, Georgi, and Seidler (2011), being employed in low skilled jobs, having more work responsibility or higher psychic strain, and engaging in monotonous work have been found to increase suicide risk.

Christensen et al. (2014) suggest that there is another dynamic that may explain the relationship between being employed and acquired capability. Their study findings suggested that high mastery, a concept similar to high self-directedness, was associated with an increased acquired capability for suicide. Granato et al. (2015) concur that the masculine gender norms of ambition, power, and competition, which are associated with success in the workplace, are indirectly associated with an acquired capability for suicide as these are also the norms that drive engagement in sensation-seeking behaviour.

5.4.5 Summary: Demographic and clinical predictors of IPTS risk factors

According to the IPTS, distal risk factors such as psychiatric disorders, and social issues such as unemployment, contribute to suicide risk by fostering suicidal ideation through

the disruption of the interpersonal need to belong and to contribute to the wellbeing of others (Van Orden et al., 2010). Such distal risk factors thus represent a catalyst that increases individual risk for later vulnerability to proximal risk factors for suicidal ideation (Moscicki, 1997; Van Orden et al., 2010).

Although it could be argued that the presence of *any* mental disorder confers risk for the IPTS constructs compared to *no* mental disorder (Silva et al., 2015), some psychiatric diagnoses are more strongly associated with IPTS risk factors than others (Hawton et al., 2013). In the present study, the mood disorders and substance use disorder predicted perceived burdensomeness, while the anxiety disorders, borderline personality disorder, and substance use disorders were found to be negatively associated with thwarted belongingness. In addition, the demographic variables of female sex, unemployment, and lower level of education were found to predict perceived burdensomeness, while younger age, male sex, and employment were found to be associated with an acquired capability for suicide.

5.5 Demographic and Clinical Predictors of Scores on IPTS Outcome Measures

5.5.1 Age, suicidal ideation and suicide risk

The finding that younger age (< 40 years) is associated with higher levels of suicidal ideation and with a higher suicide risk is consistent with findings obtained in other South African studies (du Toit et al., 2008; Joe et al., 2008; Meehan & Broom, 2007) and is in keeping with global trends (Nock et al., 2008; WHO, 2016).

It is generally acknowledged that younger age is associated with the known correlates of suicidality: higher rates of alcohol or drug use, more impulsivity, poor problem-solving skills, interpersonal problems, and psychiatric disorders (Britton et al, 2015; Cavanagh et al., 2003; Mok, Antonsen, Bøcker Pedersen, Appleby, Shaw, & Webb, 2015; Nock et al., 2008).

In addition, younger adults must negotiate a range of developmental challenges and transitions, which, coupled with these psychosocial variables, compound the risk for suicidality. Conversely, as emotional regulation and coping strategies improve with increasing age, self-destructive behaviours are likely to reduce (Moran et al., 2012).

Attempts to reduce the risk of suicidal behaviour among younger individuals have tended to involve the use of structured, problem-focused, therapeutic modalities such as cognitive therapy and dialectical behaviour therapy (Beckstead, Lambert, DuBose, & Linehan, 2015; Bhar, Brown, Olsen, & Beck, 2012), which have been found to be effective in targeting maladaptive coping strategies such as alcohol use and negative coping skills.

5.5.2 Race, suicidal ideation and suicide risk

The present finding that race (being Black or Coloured) places an individual at a significantly higher risk for suicidal ideation and suicidal behaviour is consistent with previous findings obtained for South African samples; for example, Joe et al. (2008) reported that the rate of attempted suicide for Coloureds in South Africa was approximately three times higher than that of White and Black South Africans, while Naidoo and Schlebusch (2014) found higher rates of suicide amongst Black South Africans than among other population groups.

A report by Statistics South Africa (2016) on race, age, and employment trends in South Africa between 1994 and 2014 – a period of rapid sociopolitical change in the country – indicates that Black and Coloured youth continue to be more likely to be unemployed, or employed in low skill jobs, than their Indian or White counterparts. Low-paying employment, or unemployment, is likely to have a myriad of related consequences for affected individuals. It is likely to determine where they live, what they eat, their access to good schools, tertiary education, and medical care, and their exposure to crime. These

various forms of social deprivation, combined with a lack of any marked improvement under the new political dispensation, are likely to have engendered a sense of hopelessness that can lead to suicidal ideation (Ramgoon et al., 2006; Laubscher, 2003).

Efforts to address structural issues in South Africa that affect mental health clearly need to involve more than just empty rhetoric if the high incidence of suicidality is to be meaningfully addressed. Instead, what would appear to be required is the implementation of multi-sectoral interventions designed to foster known protective factors amongst Black and Coloured South Africans (Flisher et al., 2004).

5.5.3 BDI-II scores and death ideation, suicidal ideation and suicide risk

The present finding that BDI-II scores are associated with death ideation, suicidal ideation, and risk for suicide is consistent with the literature on depression and suicidality (Britton et al., 2015; Brown, Beck, Steer, & Grisham, 2000). As suicidal behaviour is one of the diagnostic criteria for major depression (APA, 2013), it is hardly surprising that depression is the predominant mental health diagnosis associated with suicidality (Hawton et al., 2013).

Although the present findings indicate that BDI-II scores are associated with suicidality (even in the absence of hopelessness), available literature supports the view that hopelessness is a correlate of depression (Joiner, Cook, Hersen, & Gordon, 2007; Strohmeier, Rosenfield, DiTomasso, & Ramsay, 2016). The nature and direction of the relationship between the two variables has been found to vary, however, with some studies (e.g., Wang, Jiang, Cheung, Sun, & Chan, 2015) finding that depression mediates the effect of hopelessness on suicidality, and others (e.g., Nimeus, Traskman-Bendz, & Alsen, 1997) suggesting that hopelessness plays a mediating role in the relationship between depression and suicidality.

Depressed individuals typically view others and the world as unsupportive, punitive, and hostile, and feel inadequate about their ability to effect change in their environments (Beck et al., 1989). This lack of self-efficacy often leads to the interpretation of situations as being irremediable and hopeless. Since depression has been shown to be amenable to a range of therapeutic and psychotropic interventions (Amsterdam, Lorenzo-Luaces, Soeller, Qing Li., Mao, & DeRubeis, 2015; Gibbons, Fournier, Stirman, DeRubeis, Crits-Christoph, & Beck, 2010; Kok, Nolen, & Heeren, 2012; Sudak, 2012), such interventions would appear to constitute an important starting point for interrupting the suicidal continuum.

5.5.4 Summary: Demographic variables and BDI scores as predictors of IPTS outcomes

The present findings suggest that being a young Black or Coloured person with depressive symptoms places an individual at particular risk for suicidality. In addition to the normal developmental challenges that younger adults face, it is clear that the psychosocial implications of belonging to historically disadvantaged population groups in South Africa contribute to an aggregated suicide risk for patients with psychiatric disorders. Although the country has undergone rapid socio-political transformation, with policies having been promulgated to address issues of inequity, these efforts have not led to meaningful change for the majority of disadvantaged individuals (Laubscher, 2003).

The finding of no significant gender association with death ideation, suicidal ideation, or suicide risk is inconsistent with previous findings that suggest that rates of suicidal ideation and suicide risk are likely to be higher among males (Hawton & van Heeringen, 2009; Phillips & Zhang, 2002; Varnik, 2012). This discrepancy in findings may be explained by findings from studies conducted in several low- and middle-income countries such as China and India, which suggest that the pattern of suicidal behaviours in these countries may differ markedly from those documented in high-income countries; for example, in an

international study, Nock et al. (2008) found that gender and the presence of mental disorders play less of a role in the occurrence of suicidal behaviours in low- and middle-income countries as compared to higher income countries.

5.6 Hypothesis Testing

The fourth objective of the current research was to conduct tests of three key IPTS hypotheses; the findings from these tests are discussed in this section.

5.6.1 Burdensomeness and belongingness are proximal and sufficient causes of death ideation (*Hypothesis 1*)

Findings of the present study are consistent with theoretical predictions that perceived burdensomeness and thwarted belongingness are proximal and sufficient causes of *death ideation*. Regression analyses indicated that both perceived burdensomeness and thwarted belongingness are independently associated with death ideation scores.

Few previous studies have tested *Hypothesis 1*, with most researchers appearing to have assumed the validity of the hypothesis and focusing instead on hypotheses regarding the association between IPTS risk factors and *suicidal ideation*. Further, the few studies that have investigated the association between perceived burdensomeness, thwarted belongingness, and death ideation have produced inconsistent findings (Cukrowicz et al., 2013, Pfeiffer et al., 2014; Murariu, 2016).

Pfeiffer et al. (2014) and Cuckrowicz et al. (2013) found that perceived burdensomeness predicted death ideation, but that thwarted belongingness did not, while Murariu (2016) found that thwarted belongingness, but not perceived burdensomeness, predicted death ideation. As alluded to earlier in this chapter, these inconsistent findings may be related to measurement issues and sample characteristics; for example, Pfeiffer et al.

(2014), in their study of a clinical sample, used proxy measures derived from the BDI-II (Beck et al., 1996) to assess perceived burdensomeness, the Interpersonal Support Evaluation List (IPEL; Cohen, Mermelstein, Kamarck, & Hoberman, 1985) to measure thwarted belongingness, and single items from the BSS and BDI-II to assess suicide-related ideations. On the other hand, Cuckrowicz et al. (2013), in their study of older adults, used a validated 15-item version of the INQ to measure the constructs of perceived burdensomeness and thwarted belongingness, and the GSIS to measure death ideation, while Murariu's (2016) community study of older adults used a 25-item version of the INQ to measure perceived burdensomeness and thwarted belongingness, with death ideation being assessed using the GSIS. These differences in measurement and sample characteristics may account for the inconsistent findings reported by the authors.

As part of the test of *Hypothesis 1*, the present study also tested the sub-hypothesis that death ideation would be present among all individuals with a completely thwarted sense of belongingness or a global sense of perceived burdensomeness. Study findings provide clear support for this sub-hypothesis, with scores for perceived burdensomeness and thwarted belongingness being positively associated with levels of death ideation, and with some degree of death ideation being present among all participants who reported high levels of both perceived burdensomeness and thwarted belongingness.

These observed associations between death ideation and risk factors for suicide pose a challenge to the popular notion that it is suicidal ideation (rather than death ideation) that needs to be emphasised in the assessment of suicide risk. As Simon (2014) cautions, it is often seemingly innocuous “wishes to die” or thoughts that “life is not worth living” that can easily transform into suicidal ideation, as both constructs contain “a dynamic mix of ambivalent thoughts and feelings along a continuum of severity” (p.14).

Moreover, a study by Hall, Platt and Hall (1999) found that 69% of patients who had made a serious suicide attempt reported only fleeting passive suicidal ideation (i.e. death ideation), or no suicide-related ideation at all, prior to the attempt; while findings from more recent studies (Baca-Garcia et al., 2011; May et al., 2015) suggest that death ideation may constitute an independent risk factor for suicidal behaviour.

Baca-Garcia and colleagues examined the association between death ideation and suicide attempts in two large nationally representative samples adults in the US (Baca-Garcia et al., 2011), with analyses involving a comparison of four mutually exclusive groups: a no ideation group (no death or suicidal ideation reported); a death ideation group (death ideation in the absence suicidal ideation); a suicidal ideation group (suicidal ideation in the absence of death ideation); and a combined group (death and suicidal ideation). Study findings suggest that death ideation is associated with suicide attempts both independently (the death ideation group being more likely than the no-ideation group to report lifetime suicide attempts: ORs = 37.37 and 46.87 in the two studies) and interactively (the combined group being more likely than any other group to report lifetime suicide attempts). Taken together, these findings suggest that death ideation may constitute an important clinical marker for suicide risk.

Similarly, May et al. (2015) found that psychiatric outpatients who reported death ideation scored similarly to those who reported suicidal ideation on measures of depression, suicidal behaviour, and hopelessness, suggesting that death ideation may constitute a marker not only for suicidal behaviour but also for other risk factors associated with suicidal behaviour.

5.6.2 The joint presence of burdensomeness and belongingness is a proximal and sufficient cause of suicidal ideation (*Hypothesis 2*)

The findings of the present study confirm theoretical predictions that the joint presence of perceived burdensomeness and thwarted belongingness constitute a proximal and sufficient cause of suicidal ideation.

Previous tests of this hypothesis have produced inconsistent findings.

- In some studies (Joiner et al., 2009; Marty, 2011; Monteith, et al., 2013; O' Keefe, Wingate, Tucker, Rhoades-Kerswill, Slish, & Davidson, 2014; Van Orden et al., 2008) it was found that there were significant main effects of perceived burdensomeness and a significant interaction effect but no significant main effect of thwarted belongingness;
- In a study of an adolescent clinical sample (Miller, Esposito-Smythers, & Leichtweis, 2016) it was found that perceived burdensomeness predicted suicidal ideation, but that thwarted belongingness was not associated with suicidal ideation independently of, or in interaction with, perceived burdensomeness;
- In a study involving a military sample (Anestis et al., 2015), it was found that there was no significant main effects of burdensomeness and belongingness but a significant interaction effect;
- A number of studies (Cero et al., 2015; Christensen et al., 2013) have found significant main effects of perceived burdensomeness and thwarted belongingness on suicidal ideation but no significant interaction effects;
- Pfeiffer et al. (2014), in a study of patients enrolled in a clinical trial, found that neither the main nor the interaction effects of perceived burdensomeness and thwarted belongingness significantly predicted suicidal ideation.

In tests of *Hypothesis 2* conducted outside of the United States, Christensen et al. (2014) documented significant main effects for both perceived burdensomeness and thwarted belongingness, as well as significant interaction effects, when predicting suicidal ideation. Barzilay et al. (2015), using an Israeli community sample, however, found evidence for a significant interaction effect but no significant main effects of either perceived burdensomeness or thwarted belongingness when predicting suicidal ideation. Zhang et al. (2013) found that both perceived burdensomeness and thwarted belongingness predicted suicidal ideation in a sample of Chinese university students, while Kim and Yang (2015), in a comparative sample of homosexual and heterosexual South Koreans, found that perceived burdensomeness predicted suicidal ideation in both samples but that thwarted belongingness did not.

In sum, the present study and the study by Christensen et al. (2014) are the only two studies that have provided unequivocal support for *Hypothesis 2*, with discrepant findings from other studies being difficult to interpret given variations in sampling and measurement. With respect to measurement, some studies (e.g., Christensen et al., 2013, Christensen et al., 2014, Joiner et al., 2009) have used proxy measures of the INQ constructs, whilst others have used different versions of the INQ scale: the 10-item version (Bryan, et al., 2010a; a 12-item version (Davidson et al., 2009; Kim & Yang, 2015), a 15-item version (Anestis et al., 2015, Cero et al., 2015), an 18-item version (Marty, 2011; Monteith et al., 2013; O’Keefe et al., 2014; Van Orden et al., 2008; Zhang et al., 2013), and a Spanish version of the INQ (Garza & Pettit, 2010).

Moreover, the dependent measure (suicidal ideation) has been assessed using a range of measures including: items 1-19 of the BSS (e.g., Anestis et al., 2015; Monteith et al., 2013; Van Orden et al., 2008), the suicide ideation subscale of the GSIS (Murariu, 2016), the Suicidal Behaviours Questionnaire-Revised (e.g., Bryan et al., 2010b), and the Suicidal

Ideation Questionnaire (Kim & Yang, 2015). The inconsistent evidence generated by the use of these various measures suggests that the IPTS model may not be robust to the use of diverse measures of its constructs or outcomes; the implications of this finding are discussed in more detail in the following chapter.

Despite inconsistencies in findings that have emerged in tests of *Hypothesis 2*, available studies have consistently demonstrated that perceived burdensomeness is a more robust predictor of suicidal ideation than is thwarted belongingness. Although the present study documented significant associations between both interpersonal constructs and suicidal ideation, perceived burdensomeness emerged as a stronger predictor of suicidal ideation ($\beta=1.056$) than did thwarted belongingness ($\beta=.789$); this finding is consistent with findings that have emerged in other studies (e.g., Davidson et al., 2009; Van Orden et al., 2008).

Additional evidence that underscores the relative importance of perceived burdensomeness as a form of interpersonal alienation is provided by studies that have demonstrated that perceived burdensomeness moderates the association between acquired capability and suicidal ideation (Bryan, Clemans, & Hernandez, 2012); mediates the association between depressive symptoms and suicidal ideation (Bryan, Hernandez, Allison & Clemans, 2013); predicts suicidal ideation above and beyond the effects of important suicide markers including depressive symptoms, hopelessness, and functional impairment (Cukrowicz, Cheavens, Van Orden, Ragain, & Cook, 2011); predicts suicide risk (Van Orden et al., 2008); and predicts deaths by suicide (Motto & Bostrom, 1990).

Given that the latent dimensions of perceived burdensomeness are *liability* and *self-hate*, it would appear that the perception of the self as being so flawed as to be a burden to others has greater implications for the development of suicidal ideation than the feeling of thwarted belongingness (which comprises the latent dimensions of *loneliness* and *reciprocal care*). Moreover, the dimensions of liability and self-hate that comprise perceived

burdensomeness resonate with theoretical conceptualizations of suicide as being a self-destructive act in which the individual seeks to escape *psychache*, escape from the self, or avoid dealing with attachment dynamics such as neediness.

However, in a recent review of 66 studies of the IPTS, Ma, Batterham, Calear and Han (2016) suggest that the finding of non-significant main effects for thwarted belongingness in some studies (e.g., Van Orden et al., 2008) may imply that the INQ thwarted belongingness subscale may be problematic in that it may not fully capture the construct. Ma and colleagues therefore caution that the privileging of perceived burdensomeness over thwarted belongingness in the IPTS model may be premature in the absence of more studies using measures that more adequately address the issue of construct validity.

With specific reference to the 2-way interaction predicted by *Hypothesis 2*, two studies (Monteith et al., 2013; Van Orden et al., 2008) have found that at low levels of perceived burdensomeness, the relationship between thwarted belongingness and suicidal ideation is not statistically significant, but that at higher levels of perceived burdensomeness the relationship becomes positive and significant.

Similar to the findings of the present study, other studies (e.g., Barzilay et al., 2015; Christensen et al., 2014; Joiner et al., 2009) have documented an expected 2-way interaction, with participants who reported high levels of both perceived burdensomeness and thwarted belongingness reporting the highest levels of suicidal ideation, a finding which is entirely consistent with IPTS predictions.

5.6.3 The relationship between burdensomeness, belongingness, hopelessness and suicidal ideation (*Hypothesis 2*)

Findings of the present study support theoretical predictions that the joint presence of perceived burdensomeness and thwarted belongingness, in the presence of hopelessness

regarding these two distressing states, constitutes a proximal and sufficient cause of suicidal ideation. Consistent with IPTS hypotheses, the strongest predictor of suicidal ideation in the present study was the significant 3-way interaction, in terms of which suicidal ideation was predicted by high levels of both perceived burdensomeness and thwarted belongingness in the presence of high levels of hopelessness (but not in the presence of low levels of hopelessness). Taken together, these findings provide strong support for both the concurrent criterion-related validity and the theoretical validity of the IHS that was developed for purposes of the present study. Further research is required to validate/cross-validate the utility of the IHS in tests of the IPTS hypotheses.

Although a predicted 3-way interaction (perceived burdensomeness x thwarted belongingness x hopelessness) was documented by Hagan et al. (2015), other studies have failed to document a significant 3-way interaction between the constructs proposed by the model (cf. Christensen et al., 2013; Cukrowicz et al., 2013; Pfeiffer et al., 2014); a plausible reason for these divergent findings is that available studies have failed to employ measures of hopelessness that relate specifically to the forms of interpersonal alienation emphasized by the IPTS.

In a review of the status of the IPTS, Ribeiro and Joiner (2009) suggested that it would be useful to examine whether parameters relating to hopelessness should be incorporated into the IPTS model (i.e. it may be worth investigating at what levels of perceived burdensomeness and thwarted belongingness is hopelessness associated with suicidal ideation). In keeping with this recommendation, the 3-way interaction between perceived burdensomeness, thwarted belongingness, and hopelessness was explored further, with this exploration revealing that hopelessness was not significantly associated with suicidal ideation at low levels of perceived burdensomeness and/or thwarted belongingness. However, at high

levels of both burdensomeness and belongingness, the relationship between hopelessness and suicidal ideation became positive and significant.

Moreover, an additional test of *Hypothesis 2* indicated that participants who experienced high levels of hopelessness (greater than the sample mean) were more than four times as likely to report suicidal ideation than they were to report death ideation. The central, interactive, role played by hopelessness in the development and maintenance of suicidal ideation has been extensively reported in the literature (Abramson et al., 1989; Beck et al., 1989; Klonsky, Kotov, Bakst, Rabinowitz, & Bromet, 2012; O'Connor & Sheehy, 2000). It has been argued that hopelessness is a stronger predictor of suicidal behaviour than the severity of depressive symptomatology (e.g., Hill, Gallagher, & Thompson, 1988) or suicidal ideation (Truant, O'Reilly, & Donaldson, 1991). In both inpatient and outpatient clinical settings, high levels of hopelessness have been shown to be present in over 90% of individuals who eventually died by suicide (Beck, Brown, Berchick, Stewart, & Steer, 1990; Beck, Steer, Kovacs, & Garrison, 1985).

The mechanism by which hopelessness is theorized to impact on suicidality is hypothesized to involve feelings of helplessness and low self-efficacy combined with the belief that the future will be permanently bleak, leading to perceptions of situations as being stable and unchanging (i.e. hopeless); this in turn promotes movement along the suicidality continuum (Beck et al., 1985).

With respect to intervention, the fact that hopelessness is not considered to be “a stable trait but a variable psychological state that escalates to predictable levels of intensity during times of intrapsychic disturbance” (Beck et al., 1985, p. 562) implies that although other risk factors (such as mental illness) may be more stable, hopelessness is potentially modifiable (Steege et al., 2016) and therefore amenable to psychotherapeutic interventions.

5.6.4 The greatest risk for suicide occurs in the context of both acquired capability and suicidal ideation (*Hypothesis 3*)

The findings of the present study support the linchpin hypothesis of the IPTS; that is, an increased risk for engaging in potentially lethal suicidal behaviour occurs in the presence of high levels of both suicidal ideation and acquired capability. In the present study, tests of the simple slope indicated that the suicidal ideation x acquired capability interaction was significant and in the expected direction:

- At low levels of suicidal ideation, there was no significant effect of an acquired capability for suicide on levels of suicide risk; but
- At high levels of suicidal ideation, there was a significant main effect of acquired capability on levels of suicide risk.

Previous tests of *Hypothesis 3* have adopted different approaches to examining risk factors for potentially lethal suicidal behaviour:

- Joiner et al. (2009) examined the 3-way interaction of burdensomeness, belongingness and acquired capability on recent suicide attempts (Joiner et al., 2009);
- Three studies have examined the 3-way interaction of perceived burdensomeness, thwarted belongingness, and acquired capability on either a history of past suicide ideation/attempts (Anestis et al., 2015; Bryan et al., 2010b) or life-time suicide attempts (Monteith et al., 2013);
- Christensen et al. (2013) examined the two-way interaction between suicidal ideation and acquired capability on past suicide attempts and plans;
- Van Orden et al. (2008) examined the interaction of burdensomeness and acquired capability on future risk of suicide;

- Simlot et al. (2013) examined the main effects of the three IPTS risk factors (thwarted belongingness, perceived burdensomeness, and acquired capability) on past and future likelihood of suicidal behaviour; and
- Christensen et al. (2014) examined the main effects of perceived burdensomeness, thwarted belongingness and acquired capability, as well as the perceived burdensomeness x thwarted belongingness interaction, on past suicide plans and attempts.

Some of these studies have produced findings that are generally consistent with IPTS predictions (cf. Anestis et al., 2015; Christensen et al., 2013; Joiner et al., 2009; Van Orden et al., 2008). However, others (e.g., Bryan et al., 2010b; Czyz et al., 2015, Monteith et al., 2013) have not documented a significant 3-way interaction effect of perceived burdensomeness, thwarted belongingness and an acquired capability in predicting suicide attempts. Barzilay et al. (2015), however, found (contrary to IPTS predictions) that an acquired capability for suicide operated independently from suicidal ideation in predicting suicide attempts.

These discrepant findings are, however, difficult to interpret/evaluate in the context of marked inter-study variations in sampling, methodology, and design. Risk factors for potentially lethal suicidal behaviours have, for example, been variously assessed using proxy measures (e.g., Barzilay et al., 2015; Christensen et al. 2013; Czyz et al., 2015) or different versions of the INQ (e.g., Bryan et al., 2010b; Joiner et al., 2009; Monteith et al., 2013), while outcome variables have been assessed using a variety of past suicidal behaviours and/or estimates of future risk for suicidal behaviours.

With respect to the measurement of outcomes (i.e. potentially lethal suicidal behaviour):

- The use of current levels of IPTS risk factors to predict past suicidal behaviours is somewhat problematic as it does some damage to the logic of causal reasoning (particularly regarding the principle of temporal precedence).
- The assessment of suicide risk using concurrent estimates of future risk (as was the case in the present study) is likely to be associated with a degree of measurement error due to concerns relating to the sensitivity and specificity of available measures (Van Orden et al., 2008).

At a broader level, estimates of IPTS risk and outcome measures, obtained at a particular point in time, can legitimately be used to obtain an indication of the *descriptive validity* of IPTS hypotheses (i.e. are IPTS constructs associated with each other in ways predicted by the theory?). However, tests of the *predictive validity* of the theory (i.e. are estimates of IPTS risk factors assessed at one point in time associated with potentially lethal suicidal behaviour at a subsequent point in time?) require the use of prospective research designs. As such, the present findings provide compelling evidence in support of the descriptive validity of the IPTS, with further prospective studies being required to test the predictive validity of the theory adequately.

With regard to translating theory into practice, it is worth noting that the construct of acquired capability is not easily amenable to therapeutic modification. The literature suggests that the two latent dimensions of acquired capability, *lowered fear of death* and *elevated physical pain tolerance*, develop through habituation and opponent processes and, once developed, are likely to remain relatively stable over time (Joiner, 2005; Van Orden et al., 2010). This would suggest that prevention/intervention efforts are likely to be most successful if they target perceptions of perceived burdensomeness and thwarted belongingness, both of which are dynamic cognitive states that are amenable to therapeutic intervention.

5.6.5 Conclusions: Hypothesis testing

The findings of this study provide compelling support for the descriptive validity of the IPTS, with analyses providing support for all key hypotheses tested. However, further prospective studies are indicated in order to test the predictive validity of the IPTS,

5.7 Summary of Study Findings

Although the present findings provide compelling support for the descriptive validity of the IPTS, available evidence suggests that the theory is not robust to the use of proxy measures of its constructs and outcomes. With respect to the measurement of IPTS constructs, study findings suggest that measures of IPTS constructs used in the study (including the IHS and DIS developed for purposes of the study) are characterised by adequate psychometric characteristics, with further research being indicated in order to explore:

- The utility and heuristic value of the IHS and the DIS as measures of key IPTS constructs;
- The relative importance of perceived burdensomeness and thwarted belongingness as predictors of suicidal behaviour;
- The dynamics of interpersonal alienation and hopelessness in predicting suicidal ideation;
- Demographic and clinical characteristics as predictors of IPTS risk and outcome variables; and
- The predictive validity of the IPTS.

CHAPTER SIX

LIMITATIONS, STRENGTHS, AND IMPLICATIONS

In this chapter, the limitations and strengths of the study are considered, followed by a discussion of the implications of the study findings for research, theory, and intervention.

6.1 Limitations and Strengths of the Study

The nature of cross-sectional study designs, where relationships are examined between variables of interest as they exist in a defined population at a single point in time, is not without its limitations.

The cross-sectional design of the present study precludes the drawing of any strong causal inferences regarding associations between IPTS constructs. Although an estimate of *future* suicidal behaviour was used in the present study (i.e. the CPRMSR), the sensitivity and specificity of this measure is unknown. In addition, the simultaneous assessment of both IPTS risk and outcome variables prevents any strong inferences from being drawn regarding the nature and direction of observed associations; prospective studies are indicated if researchers hope to achieve an adequate test of the predictive (as opposed to descriptive) validity of key IPTS hypotheses. With specific reference to interventions, studies addressing hypotheses concerning burdensomeness and belongingness could address issues of causality by utilizing a within-subjects quasi-experimental design (i.e. changes in levels of suicidal ideation could be measured before and after interventions designed to target these constructs).

A second limitation of the study was that the study design did not allow the researcher to disentangle the influence of genetic or personality characteristics that might have been present at birth, and which may have been associated with the development of an acquired capability for suicide. In this regard, future research on the development of an acquired

capability for suicide could also benefit from the use of a within-subjects quasi-experimental design, in terms of which high risk or provocative behaviours could be tracked over time.

Although prospective research designs are required to adequately test the predictive validity of the IPTS, the use of such designs is likely to create a number of ethical dilemmas. Tracking suicidal individuals who are at risk without attempting to intervene and provide treatment would be unethical. For example, if an individual, at a point in time, endorses items that suggest the presence of a high risk for suicide, the researcher would have an ethical obligation to intervene timeously. Although such interventions are likely to serve the best interests of participants, important information regarding longitudinal risk factors for suicide can be lost, and since there is no other ethical choice but to intervene, longitudinal designs pose a considerable challenge to suicidology researchers.

A third limitation of the study relates to the generalisability of the study findings. The present findings were derived from a relatively small sample of psychiatric outpatients residing in a specific geographical area. It is worth noting however, that the sample was demographically representative of the Ethekwini Municipality in which the study was located. It is possible, however, that different patterns of findings may emerge in other provinces in the country, studies of larger samples drawn from the general population, or from other sub-populations within the general population (e.g., college students, the aged, or adolescents).

With specific reference to sample size, the relatively small sample used in the present study may have affected the power of statistical analyses. For example, the large number of DSM-5 diagnoses examined in relation to the size of the sample may have produced some spurious associations, making it necessary to replicate these findings in larger clinical samples. In addition, a larger sample size might have provided the opportunity for a more

nuanced and in-depth exploration of the associations between demographic factors and IPTS constructs.

A further limitation of the study relates to the use of self-report assessments to collect data on IPTS constructs, depressive symptomatology, and suicidal behaviours. Self-report measures are prone to errors of memory recall (Shiffman & Stone, 1998), which together with social desirability bias can significantly compromise the accuracy of data (McGrath, Mitchell, Kim, & Hough, 2010).

Despite these limitations, the study was characterised by a number of strengths including:

- The use of clinician-assessed diagnosis of mental disorders rather than a reliance on self-report measures;
- The assessment of risk for suicidal behaviour based on a comprehensive clinical assessment protocol that included DSM-5 diagnosis as well as other risk factors for suicidal behaviour (including possible plans and preparations for an attempt). This approach was adopted in order to address distortions of the principle of temporal precedence regarding causal reasoning which have been evident in tests of the IPTS hypotheses, whereby some studies have examined the causal influence of *current* perceptions of IPTS risk factors on *past* suicide attempts (e.g., Anestis et al., 2015; Barzilay et al., 2015; Chu et al., 2016);
- The use of measures of IPTS constructs – including two new measures that were developed for purposes of the present study (i.e. the IHS and the DIS) which have sound psychometric properties, and which appear to have adequate content validity with respect to the content domains that have been theorised as being relevant to IPTS constructs;

- A comprehensive assessment of all key IPTS hypotheses, including much neglected hypotheses regarding death ideation, in a single sample; and finally
- This was the first systematic effort to validate the IPTS model in a South African sample.

6.2 Implications of Study Findings

The implications of study findings are presented in four sections, with these four sections corresponding to the four research objectives of the study.

6.2.1 Methodological issues relating to the IPTS

To date, tests of the IPTS have produced few consistent findings, with these inconsistencies possibly reflecting the influence of two methodological issues: (a) the use of a variety of different measures to assess key IPTS constructs; and (b) inter-study variations in operational definitions of key IPTS constructs and outcomes. In the context of these methodological issues, it is not possible to determine whether inter-study differences in observed findings have relevance for the validity of the IPTS, or whether such differences merely reflect inconsistencies in the ways in which key constructs have been operationally defined and/or measured.

Importantly, inconsistent findings regarding the predictive utility of the IPTS model (that can be attributed to measurement error) have important implications for both theory and practice. Regarding theory, measurement error can have implications for conclusions that are drawn regarding IPTS hypotheses, as well as for the way in which suicidal behaviour is conceptualized. In addition, possible revisions to the model based on these conclusions may be premature or unwarranted.

The clinical implications of these inconsistent findings are that suicide prevention and intervention programs that are based on such findings, may not adequately address the intended issue/s; for example, the extant literature on the IPTS is unclear regarding whether perceived burdensomeness, thwarted belongingness, or both constructs should be identified as targets for intervention (Hill et al., 2015), or whether the confluence of an acquired capability and suicidal ideation predicts lifetime, current, or future suicide attempts. In other words, it is currently far from clear which point along the suicidal continuum constitutes the optimal point for intervention.

As such there would appear to be a need for research on the IPTS to return to first principles, and to devise a generally agreed upon battery of assessment measures that can be used to consistently assess IPTS constructs across a variety of populations.

6.2.2 Development of instruments for the present study

The DIS and IHS, developed for the present study, were found to be characterised by good levels of variability, internal consistency, and incremental validity. The instruments also correlated in the expected direction with measures of death and suicidal ideation and with estimates of risk for suicidal behaviour.

The DIS and IHS thus hold promise as measures that could be used to test, more precisely and comprehensively, the predictions of the IPTS, thereby improving the robustness of the model and increasing the confidence with which individuals who are most at risk for suicide can be identified. As such, further empirical validation of the IHS and the DIS in a variety of populations would appear to be strongly indicated.

6.2.3 Prevalence rates and demographical and clinical correlates of suicidal behaviour in South Africa

Prevalence rates for suicidal behaviour documented in the present study are comparatively higher than rates documented in most previous studies of clinical populations. Given that the suicide rate in South Africa is 17 per 100,000 population (compared to the global average of 11.4 per 100,000) this is an unsurprising, although nevertheless worrying, finding. Even though systems such as the NIMSS monitor suicidality, these systems typically monitor only completed acts of suicide. The challenge is therefore to screen and to identify ‘at risk’ individuals at earlier points along the continuum of suicidality. Although those who have access to private mental health care are more likely to come to the attention of health care providers, this is unlikely to be the case for the majority of mainly Black and Coloured individuals in this country, who often rely on under-resourced government services (Statistics South Africa, 2011).

The problem in South Africa is that although mental healthcare policies are progressive, a large portion of the health care budget is spent on communicable diseases such as tuberculosis and HIV/AIDS, which remain major health challenges in the country (Mayosi, Lawn, van Niekerk, Bradshaw, Abdool Karim, & Coovadia, 2012). As a result, mental health care has been sidelined; for example, 53% of State hospitals are mandated to provide 72-hour assessments of psychiatric emergencies, in keeping with the provisions of the Mental Health Care Act (National Health Council, 2013). However, these hospitals frequently do not have the resources to provide the level of care required and suicidal patients are sometimes turned away due to lack of capacity (SADAG, 2016).

As such, it is apparent that what is required is that the implementation of mental health promotion and prevention initiatives, as proposed by the National Mental Health Policy framework and strategic plan (National Health Council, 2013), be integrated into the

policies of other government sectors such as social development and education. Risk factors for suicidal behaviour, such as mental disorders (particularly mood disorders, anxiety disorders, and substance use disorders), interpersonal distress, poor problem-solving skills, and high-risk behaviours (such as sensation-seeking behaviours), can be targeted in interventions planned by these sectors. This means that schools and social development agencies will need to be better equipped in terms of training and capacity to roll out screening and intervention programmes at a primary level. The IPTS has been found to constitute a useful organising framework for conceptualising such initiatives; with readily modifiable risk factors for suicide (such as perceived burdensomeness and thwarted belongingness) appearing to constitute important targets for such intervention efforts.

6.2.4. Tests of IPTS hypotheses

The IPTS has been lauded as the answer to the absence of a multidimensional theory of suicide. The model provides a compelling account of why some individuals, and not others, die by suicide. In addition, it is a testable theory that includes proximal and distal risk variables and specifies pathways to lethal suicide attempts. In the past few years, there have been over 100 studies that have been designed to test IPTS hypotheses. The present study adds to these research efforts by testing all key IPTS hypotheses, with study findings suggesting that the model can be used to effectively predict those who are at risk for death ideation, suicidal ideation, and suicidal behaviour.

Consistent with findings from previous studies (Cuckrowicz et al., 2013; Donker et al., 2014; Pfeiffer et al., 2014; Van Orden et al., 2008), the present findings suggest that perceived burdensomeness is a better predictor of suicidal ideation than is thwarted belongingness, with growing evidence to suggest that thwarted belongingness does not remain a statistically significant predictor of suicidal ideation after controlling for the effects

of perceived burdensomeness (Anestis & Joiner, 2011; Bryan et al., 2012; Monteith et al., 2013). Taken together, these findings suggest that social disconnection might have less value than perceptions of liability to others in screening and prevention efforts (Buitron et al., 2016). Moreover, there is a growing body of evidence which suggests that perceived burdensomeness mediates or moderates the influence of other risk factors for suicidal behaviour (Bryan et al., 2012, 2013; Hill & Pettit, 2014) and serves as a proximal risk factor for lethal suicidal attempts (Van Orden et al., 2008) and for death by suicide (Motto & Bostrom, 1990).

Importantly, current suicide prevention efforts appear to focus primarily on building social connectedness (i.e. addressing perceptions of thwarted belongingness) rather than attempting to address perceptions of perceived burdensomeness (cf. King, Klaus, Kramer, Venkataraman, Quinlan, & Gillespie, 2009). The present findings suggest, however, that interventions that target perceptions of liability and self-hate (i.e. perceived burdensomeness) may be more useful in stemming the rising incidence of suicidality (Buitron et al., 2016). As such, further research, using longitudinal designs that evaluate the effectiveness of such interventions, would appear to be strongly indicated.

A further issue that emerged in the present research was the suggestion that the pathways to suicide may be different for males and females, with this possibility having been acknowledged by a number of other researchers (e.g., Anestis, et al., 2011; Christensen et al., 2013; Ellis & Lamis, 2007). In the present study, being male was found to constitute a risk factor for the development of an acquired capability for suicide, with this finding being consistent with previous findings that indicate that males are more likely than females to possess high levels of pain tolerance (e.g., Alabas et al., 2012) and a lower fear of death (e.g., Ellis & Lamis, 2007). As such, further exploration of the association between gender and

IPTS constructs would appear to be indicated, with the aim of refining the IPTS model to possibly reflect separate pathways to suicidal ideation for males and females.

At a broader level, the extant literature suggests that, to date, clinical and research efforts to screen, identify, and treat at risk individuals have not been empirically driven; the focus has been on the reduction of known risk factors for suicidality. The availability of an empirically based, cohesive, model such as the IPTS that incorporates these risk factors and builds on them in ways that provide tangible, modifiable, targets for intervention will thus strengthen these efforts. In addition to being theoretically sound, the IPTS has testable hypotheses that translate into practical intervention strategies.

6.3 Clinical implications of the validation of IPTS constructs

The literature is clear that perceived burdensomeness and thwarted belongingness are cognitive states, as opposed to traits (Joiner, 2005; Van Orden et al., 2010) and are therefore potentially modifiable through interventions that target their latent dimensions. Van Orden et al. (2008) contend that it may be effective to target these interpersonal states by incorporating them into established interventions. Hames et al. (2015) suggest that one of the ways to do this is by monitoring excessive reassurance-seeking behaviours in ‘at risk’ individuals and by increasing available social support to them.

Motto and Bostrom (2001) found that mailing letters to high-risk individuals who received treatment following a suicide attempt, elicited a sense of being ‘cared for’ in those individuals. The use of social media has the potential to not just make information about resources more readily to suicidal individuals, but also to alert significant others to an individual’s suicidal state. The social media platform Facebook, for example, has implemented a new system to identify and help users reporting suicidal thoughts. It allows concerned friends of such users to notify Facebook, who will in turn use organisations like

Lifeline to review the user's content on their Facebook page and if deemed necessary, suggest resources they could access for help (Zupello, 2016).

As a form of crisis intervention for suicidal patients in consulting rooms, Rudd et al. (2004) suggest having the patient list his/her painful symptoms, feelings, or attitudes in relation to others. The clinician and the patient can then use these lists to identify ways to ameliorate the most painful thoughts, beliefs or symptoms, with the aim being to provide short-term emotional relief and encouraging more long-term exploration into underlying issues.

Longer-term interventions that target maladaptive cognitions, for example unsubstantiated perceptions that individuals are burdensome to others because they experience mental illness or have become unemployed, or that they are not worthy of being cared for because a relationship has ended, are likely to lead to more sustained reduction of these states. Van Orden, Lynam, Hollar, & Joiner (2006) suggest that in order to reduce perceptions of burdensomeness, the clinician could help the patient to create a list of ways he/she has contributed to the lives of others. Such interventions could be used as homework assignments to extend the therapeutic benefit. In addition, providing individuals with the opportunity for reciprocal care is likely to reduce feelings of thwarted belongingness, for example, through joining an organisation (meeting the need to belong) or becoming involved in community work (opportunity to care for others) (Linehan, 1993).

The interactive nature of the IPTS constructs would suggest that a reduction in any one of the risk constructs should lead to a reduction in suicide risk (Joiner, 2005). However, the construct of acquired capability, once acquired, remains fairly stable over time (Joiner, 2005, Van Orden et al., 2010) and is therefore not as easily amenable to modification as are perceived burdensomeness or thwarted belongingness. While acquired capability may have some neurobiological underpinnings (such as impulsivity and/or low serotonin levels), it is

exposure to painful and provocative events that leads to the development of and consolidates an acquired capability for suicide, via the mechanism of habituation. It is evident then that interventions targeting acquired capability must take two forms: (a) preventing the development of acquired capability; and/or (b) preventing the expression of acquired capability where it has developed.

Given that high risk behaviours, such as substance abuse, or engagement in painful sensation-seeking activity and physical fights, have been linked to an acquired capability for suicide (Bender et al., 2011; Nickerson & Slater, 2009), prevention efforts that target socio-cultural conditioning (e.g., exploring what it means to be masculine, 'cool', or strong') may lead to shifts in perceptions that are likely to have more enduring effects than can be achieved through efforts designed to address the physical consequences of substance use or engagement in other high-risk activities. In addition, teaching individuals emotion regulation techniques, of the kind employed in Dialectic Behaviour Therapy, may be useful in helping individuals to contain emotions such as anxiety and impulsivity (Christensen et al., 2013).

Interventions designed to restrict access to the means of suicide, are crucial, particularly for high-risk groups (Anestis & Bryan, 2013). Means-restriction counselling can be conducted with both high-risk individuals and their significant others as a part of the process of clinical management (WHO, 2014b). Such means-restriction interventions could involve psycho-education regarding restricting access to firearms, the medical danger associated with the over use of prescription and over the counter medication, and excessive substance use.

However, given that acquired capability remains stable over time, it may be more feasible to target the interpersonal states of perceived burdensomeness and thwarted belongingness to prevent the development of suicidal ideation, in the absence of which a suicide attempt is unlikely. Silva et al. (2015) suggest a dual-pronged approach for

psychiatric patients in which the proximal risk factors of thwarted belongingness and perceived burdensomeness are assessed regularly as part of a risk assessment process, while the more distal risk factors (i.e. mental disorders that are typically associated with these interpersonal states) are targeted for longer-term interventions.

Finally, the construct of hopelessness has been found to be amenable to therapeutic intervention using cognitive frameworks (Cuijpers, de Beurs, van Spijker, Berking, Andersson, & Kerkhof, 2013; Rush, Beck, Weissenburger, & Hollon, 1982). Rossellini and Bagge (2014) suggest that mediation models such as the IPTS have the potential utility of reducing suicide risk via interventions that directly target hopelessness. Identifying cognitive distortions, such as the tendency to attach global labels to the self about failure, and helping patients to identify situations when they have been successful at something, particularly in relation to interpersonal issues, will assist in providing a more balanced and rational view of current distress. In particular, psycho-education with patients on the temporal nature of negative emotions may help reduce levels of hopelessness by helping them realize that emotional suffering can abate with time (Rossellini & Bagge, 2014).

However, proposed interventions to reduce suicidal behaviour require more than the will of clinicians to reduce suicidality; they require policy changes at government level that will translate into more resources being made available to more sectors of society. More effective screening programmes at schools, in employee wellness programmes, and primary health care centres, for example, have the potential to alter the trajectory of death ideation before it moves further along the continuum of suicidality. However, while the IPTS may provide us with the tools to enable screening and intervention, such efforts require both monetary and human resources investment in the mental wellbeing of people in a country.

6.4. Chapter summary

The limitations and strengths of the present study were considered in this chapter and recommendations for how some of these limitations may be addressed in future studies are offered. In addition, study findings with reference to their implications for further research, theory, and practice were considered.

In the following chapter the findings of the present study are briefly summarized and some recommendations for future research are offered, followed by concluding remarks.

CHAPTER SEVEN

SUMMARY, RECOMMENDATIONS AND CONCLUSION

A brief summary of the research problem is provided in this chapter followed by a summary of the study findings. This is followed by recommendations for future research based on these findings. The author's concluding remarks mark the end of this dissertation.

7.1. Brief Summary of the Research Problem

Suicidal behaviour has become an increasingly worrying mental health care issue, with individuals between the ages of 15 and 44 years being overrepresented in global statistics, and a male to female ratio of completed suicide of approximately 4:1. While completed suicide has a low base rate in the general population, the impact of suicidality for those who make serious attempts and for those who are bereaved by the suicides of significant others is devastating in terms of mental health and possibly physical outcomes. In response to the unabated increase in the rates of suicide across the world, the WHO (2014b) has instituted a Mental Health Action Plan for 2013-2020, in which all WHO Member States, including South Africa, have committed to working towards reducing the global suicide rate by 10% by 2020. The plan focuses on evidence-based suicide prevention strategies, the provision of technical guidance to expand service provision in less-developed countries, and the strengthening of research efforts.

The field of suicidology has had relatively little clinical or empirical attention paid to it as compared to other mental health issues (Mishara & Weisstub, 2005). In addition, both clinical and research efforts have been plagued by methodological issues arising from unclear definitions of suicidal behaviour. However, the possibility of including Suicidal Behaviour Disorder as a separate diagnosis in a future version of the DSM speaks to the importance of suicide as a potential diagnosis that is clinically distinguishable from other mental disorders,

is associated with biological and genetic markers, and amenable to a differential diagnosis (Robins & Guze, 1970). Importantly, the consideration of suicidal behaviour as a diagnosis in its own right represents a shift from regarding suicidality as being little more than a symptom of other mental disorders (Oquendo et al., 2008). However, the diagnostic classification of suicidality, while having the potential to improve treatment efforts, is not, in itself, likely to enhance our conceptual understanding of this increasingly worrying mental health problem, and may therefore do little to enhance prevention efforts. In other words, affording suicidality a diagnostic status may enable clinicians to classify and treat suicidal behaviour more effectively, but it does not answer the question of why individuals engage in suicidal behaviour in the first place.

Several theories have been advanced in the last few decades in an attempt to understand this question, with some theories providing more compelling frameworks for the understanding of suicidality than others. In formulating the Interpersonal-Psychological Theory of suicidal behaviour, Joiner (2005) attempts to answer the question of why people die by suicide. Joiner contends that millions of years of evolution have sharpened our instincts for self-preservation, with individuals needing to overcome this instinct in order to engage in lethal self-injury.

The IPTS arguably provides the most comprehensive framework for understanding suicidality to date. It includes both intrapersonal and interpersonal risk factors and acknowledges the influence of genetics, neurobiological correlates, and temperament in the development of suicidal ideation. Importantly, it is a testable theory with clearly defined hypotheses that propose pathways between and amongst distal and proximal risk factors for suicidal ideation.

The central hypothesis of the IPTS is that the confluence of the two interpersonal constructs of perceived burdensomeness and thwarted belongingness (in the presence of

hopelessness regarding these two distressing states) combined with an acquired capability for suicide constitutes a sufficient proximal cause of potentially lethal suicide attempts.

The central aim of the present study was to test the key hypotheses of the IPTS in a South African sample of psychiatric outpatients, with the objectives of the study being to:

- Evaluate the psychometric properties of available measures that have been developed to assess IPTS risk factors and outcome variables;
- Adapt or develop appropriate measures for assessing IPTS risk and outcome variables in cases where available measures were not found to have adequate psychometric properties;
- Explore the association between specific demographic/clinical characteristics and IPTS risk factors and outcomes; and
- Test the four key hypotheses of the IPTS (cf. Section 2.3.4.2) in a clinical sample of South African psychiatric outpatients.

7.2 Summary of Study Findings

With regard to the above objectives, the study findings indicate the following:

- Extant measures of interpersonal alienation, suicidal ideation, and risk for suicidal behaviour were found to be characterized by adequate psychometric properties.
- Two new measures that were developed for the study - the Death Inurement Scale (DIS) and the Interpersonal Hopelessness Scale (IHS) - were also found to have adequate psychometric properties.
- Demographic and clinical predictors of IPTS risk factors and outcome variables were explored; the findings were generally consistent with findings reported in previous studies.

- The final and most important objective was to test the three main hypotheses of the IPTS, with study findings providing compelling and consistent support for all three hypotheses.

7.3 Recommendations for Future Research

Study findings suggest that more consistent findings relating to the descriptive and predictive validity of the IPTS are likely to be obtained by the use of validated and uniform measures of IPTS constructs; the measures developed during the present study (i.e. the DIS and the IHS) hold promise as useful measures of key IPTS constructs.

In addition, future tests of the linchpin hypothesis of the theory (i.e. that suicidal behaviour is the outcome of the interactive effects of suicidal ideation and an acquired capability for suicide) would benefit from using more appropriate measures of suicide risk severity that have documented levels of sensitivity and specificity as recommended by Van Orden et al. (2008). Empirical advances that involve the generation of increasingly precise predictions of lethal suicide attempts are crucial, not only to provide adequate tests of IPTS hypotheses, but also to accurately predict and avert suicidal behaviour.

The results of the present study, taken together with data generated by other studies, suggest that the etiological pathways leading to suicide are possibly more complex than originally proposed by Joiner (2005). Future studies need to explore the possibility that perceived burdensomeness is a stronger predictor of suicidal ideation than thwarted belongingness, with consideration being given to the possibility of weighting perceived burdensomeness more heavily than thwarted belongingness in order to reflect this differential influence more accurately. The possibility that there may be different pathways to suicidal ideation for males and females also needs to be explored more fully in future studies.

Finally, future research needs to focus on whether the IPTS provides a better understanding of the pathways linking death ideation to suicide attempt than are offered by other theoretical frameworks. However, in the absence of theories with testable hypotheses, research comparing the fit of data to different models has been scant, with a few notable exceptions (e.g., Kleiman et al., 2014).

7.4. Concluding Remarks

The IPTS was designed to address the need for both sensitivity and specificity in relation to predicting suicidal behaviour, with the theory having been found to be both sensitive (i.e. able to predict a large number of individuals at risk for suicidal ideation) and specific (i.e. successfully identifying individuals who are at risk for a suicide attempt) (Van Orden et al., 2008).

The fact that the present study provided unqualified support for the theory's key hypotheses suggests that the theory is valid for populations in the South African clinical context. However, further validation studies of the theory are necessary, with the present findings suggesting that such studies will benefit from the use of validated measures not only of key constructs, but also the risk for suicidal behaviour.

At a broader level, the IPTS would appear to hold promise as a valid framework for understanding suicidal behaviour in the South African context. Although it is acknowledged that there are likely to be a number of pathways to suicidal behaviour, the present findings add to a growing body of evidence that suggests that IPTS risk factors constitute sufficient proximal causes of both suicide-related ideations and potentially lethal suicidal behaviours; the heuristic value of the IPTS lies in its ability to provide both a risk assessment and treatment framework for psychiatric patients and individuals in suicidal distress.

REFERENCES

- Abramson, L. Y., Alloy, L. B., Hogan, M. E., Whitehouse, W. G., Gibb, B. E., Hankin, B. L., & Cornette, M. M. (2000). The Hopelessness Theory of suicidality. In Joiner, T. & Rudd, M. D. (Eds.). *Suicide Science: Expanding the boundaries* (pp. 18-32). Massachusetts: Kluwer Academic Publishers.
- Abramson, L. Y., Metalsky, G. L., & Alloy, L. B. (1989). Hopelessness depression: A theory-based subtype of depression. *Psychological Review*, *96*, 372-358.
- Ahmad, F., Binti Muhammad, M., & Abdullah, A. A. (2011). Religion and spirituality in coping with advanced breast cancer: Perspectives from Malaysian Muslim women. *Journal of Religion and Health*, *50*, 36-45.
- Akechi T., Okuyama, T., Sugawara, Y., Nakano, T., Shima, Y., & Uchitomi, Y. (2003). Suicidality in terminally ill Japanese patients with cancer. *Cancer*, *100*, 183-191.
- Alabas, O. A., Tashani, O. A., Tabasam, G., & Johnson, M. I. (2012). Gender role affects experimental pain responses: A systematic review with meta-analysis. *European Journal of Pain*, *16*(9), 1211-1223.
- Alberdi-Sudupe, J., Pita-Fernández, S., Gómez-Pardiñas, S. M., Iglesias-Gil-deBernabé, F., García-Fernández, J., Martínez-Sande, G.,...Pértega-Díaz, S. (2011). Suicide attempts and related factors in patients admitted to a general hospital: A ten year cross-sectional study. *BMC Psychiatry*, *11*(51), 1-10.
- Alford, B. A., & Beck, A. T. (1997). *The integrative power of cognitive therapy*. New York: Guilford Press.

- Allen, M. H., Abar, B. W., McCormick, M., Barnes, D. H., Haukoos, J., Garmel, G. M., & Boudreaux, E. D. (2013). Screening for suicidal ideation and attempts among emergency department medical patients: Instrument and results from the psychiatric emergency research collaboration. *Suicide and Life-threatening Behavior, 43*(3), 313-323.
- Altamura, A.C., Dell'Osso, B., Berlin, H. A., Buoli, M., Bassetti, R., & Mundo, E. (2010). Duration of untreated illness and suicide in bipolar disorder: a naturalistic study. *European Archives of Psychiatry and Clinical Neuroscience, 260*, 385-391.
- Ambert, A. M., Adler, P. A., Adler, P., & Detzner, D. F. (1995). Understanding and evaluating qualitative research. *Journal of Marriage and the Family, 57*, 879-893.
- American Psychiatric Association (2013). *Diagnostic and Statistical Manual of Mental Disorders*. (5th ed.) Washington, DC: Author.
- Amsterdam, J. D., Lorenzo-Luaces, L., Soeller, I., Qing Li, S., Mao, J. J., & DeRubeis, R. J. (2015). Safety and effectiveness of continuation antidepressant versus mood stabilizer monotherapy for relapse-prevention of bipolar II depression: A randomized, double-blind, parallel-group, prospective study. *Journal of Affective Disorders, 185*, 31-37.
- Andriessen, K. (2006). On "Intention" in the definition of suicide. *Suicide and Life-Threatening Behavior, 36*(5), 533-538.
- Anestis, M. D., Bender, T. W., Selby, E.A., Ribeiro J. D., & Joiner, T. E. (2011). Sex and emotion in the acquired capability for suicide. *Archives of Suicide Research, 15*, 172-182.
- Anestis, M.D., & Bryan, C. J. (2013). Means and capacity for suicidal behavior: A comparison of the ratio of suicide attempts and deaths by suicide in the US military and general population. *Journal of Affective Disorders, 148*, 42-47.

- Anestis, M. D., & Joiner, T. E. (2011). Examining the role of emotion in suicidality: Negative urgency as an amplifier of the relationship between components of the Interpersonal–Psychological theory of suicidal behavior and lifetime number of suicide attempts. *Journal of Affective Disorders, 129* (1-3), 261-269.
- Anestis, M. D., Khazem, L. R., Mohn, R. S., & Green, B. A. (2015). Testing the main hypotheses of the Interpersonal–Psychological theory of suicidal behavior in a large diverse sample of United States military personnel. *Comprehensive Psychiatry, 60*, 78-85.
- Aschan, L., Goodwin, L., Cross, S., Moran, P., Hotopf, M., & Hatch, S. L. (2013). Suicidal behaviors in South East London: Prevalence, risk factors and the role of socio-economic status. *Journal of Affective Disorders, 150*, 441-449.
- Babbie, E. (1995). *The Practice of Social Research* (7th ed.). New York: Wadsworth Publishing Co.
- Baca-Garcia, E., Perez-Rodriguez, M. M., Oquendo, M. A., Keyes, K. M., Hasin, D. S., Grant, B. F., & Blanco, C. (2011). Estimating risk for suicide attempt: Are we asking the right questions? Passive suicidal ideation as a marker for suicidal behavior. *Journal of Affective Disorders, 134*(1–3), 327-332.
- Baechler, J. (1980). A strategic theory. *Suicide and Life-Threatening Behavior, 10*, 70-99.
- Bailey, A. A., & Hurd, P. L. (2005). Depression in men is associated with more feminine finger length ratios. *Personality and Individual Differences, 39*(4), 829-836.
- Baldessarini, R. J., Tondo, L., Davis, P., Pompili, M., Goodwin, F. K., & Hennen, J. (2006). Decreased risk of suicides and attempts during long-term lithium treatment: a meta-analytic review. *Bipolar Disorders, 8*, 625-639.

- Balsis, S., & Cully, J. A. (2008). Comparing depression diagnostic symptoms across younger and older adults. *Aging & Mental Health, 12*(6), 800-806.
- Bantjes, J., & Kagee, A. (2013). Epidemiology of suicide in South Africa: Setting an agenda for future research. *South African Journal of Psychology, 43*(2), 238-251.
- Bartels, S. J., Coakley, E., Oxman, T. E., Constantino, G., Oslin, D., Chen, H., ... Sanchez, H. (2008). Suicidal and death ideation in older primary care patients with depression, anxiety, and at-risk alcohol use. *American Journal of Geriatric Psychiatry, 10*(4), 417-427.
- Barzilay, S., Feldman, D., Snir, A., Apter, A., Carli, V., Hoven, C. W., ... Wasserman, D. (2015). The interpersonal theory of suicide and adolescent suicidal behavior. *Journal of Affective Disorders, 183*, 68-74.
- Bastia, B. K., & Kar, N. (2009). A psychological autopsy study of suicidal hanging from Cuttack, India: Focus on stressful life situations. *Archives of Suicide Research, 13*, 100-104.
- Baumeister, R. F. (1990). Suicide as escape from self. *Psychological Review, 97*(1), 90-113.
- Bayaga, A. (2010). Multinomial logistic regression: usage and application in risk analysis. *Journal of Applied Quantitative Methods, 5*(2), 288-297.
- Bearman, P. S., & Moody, J. (2004). Suicide and friendships among American adolescents. *American Journal of Public Health, 94*(1), 89-95.
- Beautrais, A. L. (2002). A case control study of suicide and attempted suicide in older adults. *Suicide and Life Threatening Behavior, 32*, 1-9.
- Beck, A. T. (1967). *Cognitive therapy and the emotional disorders*. New York: International Universities Press.
- Beck, AT. (2005). The current state of cognitive therapy: A 40-year retrospective. *Archives of General Psychiatry, 62*, 953-959.

- Beck, A. T., Brown, G., Berchick, R. J., Stewart, B. L., & Steer, R. A. (1990). Relationship between hopelessness and ultimate suicide: A replication with psychiatric outpatients. *The American Journal of Psychiatry, 147*, 190-195.
- Beck, A. T., Brown, G., & Steer, R. A. (1989). Predictions of eventual suicide in psychiatric inpatients by clinical ratings of hopelessness. *Journal of Consulting and Clinical Psychology, 57*, 309-310.
- Beck, A. T., Emery, G., & Greenberg, R. L. (2005). *Anxiety disorders and phobias: A cognitive perspective*. New York, NY: Basic Books.
- Beck, A. T., & Steer, R. A. (1991). *Manual for the Beck Scale for suicide ideation*. San Antonio, TX: Psychological Corporation.
- Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Manual for the Beck Depression Inventory-II*. San Antonio, TX: Psychological Corporation.
- Beck, A. T., Steer, R. A., Kovacs, M., & Garrison, B. (1985). Hopelessness and eventual suicide: a 10-year prospective study of patients hospitalized with suicidal ideation. *American Journal of Psychiatry 142*, 559-563.
- Beckstead, D. J., Lambert, M. J., DuBose, A. P., & Linehan, M. (2015). Dialectical behavior therapy with American Indian/Alaska Native adolescents diagnosed with substance use disorders: Combining an evidence based treatment with cultural, traditional, and spiritual beliefs. *Addictive Behaviors, 51*, 84-87.
- Beekrum, R., Valjee, S. R., & Collings, S. J. (2011). An emic perspective on the dynamics of non-fatal suicidal behaviour in a sample of South African Indian women. *South African Journal of Psychology, 41*(1), 63-73.

- Benda, B. B. (2003). Discriminators of suicide thoughts and attempts among homeless veterans who abuse substances. *Suicide and Life-Threatening Behavior*, 33(4), 430-442.
- Bender, T.W., Gordon, K.H., Bresin, K. & Joiner (2011). Impulsivity and suicidality: The mediating role of painful and provocative experiences. *Journal of Affective Disorders*, 129 (3), 301-307.
- Bender, T. W., Gordon, K. H., & Joiner, T. E. (2007). Impulsivity and suicidality: A test of the mediating role of painful experiences. Unpublished manuscript.
- Bender, D. S., & Skodol, A. E. (2007). Borderline personality as self-other representational disturbance. *Journal of Personality Disorders*, 21(5), 500-517.
- Berenson, K. R., Downey, G., Rafaeli, E., Coifman, K. G., & Paquin, N. L. (2011). The rejection–rage contingency in borderline personality disorder. *Journal of Abnormal Psychology*, 120(3), 681-690.
- Berkman, L. F., Glass, T., Brissette, I., & Seeman, T. E. (2000). From social integration to health: Durkheim in the new millennium. *Social Science & Medicine*, 51, 843-857.
- Berman, A. L., Jobes, D. A., & Silverman, M. M. (2006). *Adolescent Suicide: Assessment and intervention* (2nd ed.). Washington DC: American Psychological Association.
- Berman, A.L. & Schwartz, R.H. (1990). Suicide attempts among adolescent drug users. *Am J Dis Child*, 144(3), 310-4.
- Bertolote, J.M. (2001). Suicide in the world: an epidemiology overview, 1959-2000. In Wasserman, D (Ed.). *Suicide: An Unnecessary Death*. (pp.3-10). London: Martin Dunitz.
- Beskow, J., Runeson, J., & Asgard, U. (1990). Psychological autopsies: Methods and ethics. *Suicide and Life-Threatening Behavior*, 20(4), 307-320.
- Bhattacharya, A. K., Bhattacharjee, S., Chattopadhyay, S., Roy, P., Kanji, D., Singh, O. P. (2011). Deliberate self-harm: A search for distinct group of suicide. *Indian Journal of Psychological Medicine*, 33(2), 182-187.

- Bhome, R., & Fridrich, P. (2015). Borderline Personality disorder. *British Journal of Hospital Medicine*, 76(1). doi: 10.12968/hmed.2015.76.1.C14
- Bifulco, A., Moran, P. M., Ball, C., & Bernazzani, O. (2002). Adult attachment style: Its relationship to clinical depression. *Social Psychiatry & Psychiatric Epidemiology*, 37, 50-59.
- Biringen, Z. (1994). Attachment theory and research: Application to clinical practice. *American Journal of Orthopsychiatry*, 64, 404-420.
- Bjerkeset, O., Romundstad, P., & Gunnell, D. (2008). Gender differences in the association of mixed anxiety and depression with suicide. *British Journal of Psychiatry*, 192, 474-475.
- Boelen, P. A., & Prigerson, H. G. (2007). The influence of symptoms of prolonged grief disorder, depression, and anxiety on quality of life among bereaved adults: A prospective study. *European Archives of Psychiatry and Clinical Neuroscience*, 257, 444-452.
- Bolton, J. M., Cox, B. J., Afifi, T. O., Enns, M. W., Bienvenu, O. J., & Sareen, J. (2008). Anxiety disorders and risk for suicide attempts: Findings from the Baltimore Epidemiologic Catchment Area Follow-Up Study. *Depression and Anxiety*, 25, 477-481.
- Botha, F. (2012). The economics of suicide in South Africa. *South African Journal of Economics*, 80(4), 526-552.
- Brennan, K. A., & Shaver, P. R. (1995). Dimensions of adult attachment, affect regulation, and romantic relationship functioning. *Personality and Social Psychology Bulletin*, 21, 267-283.
- Bridge, J. A., Goldstein, T. R., & Brent, T. A. (2006). Adolescent suicide and suicidal behavior. *Journal of Child Psychology and Psychiatry*, 47, 372-394.
- Briere, J., & Gil, E. (1998). Self-mutilation in clinical and general population samples: prevalence, correlates, and functions. *American Journal of Orthopsychiatry*, 68, 609-620.

- Briggs, S., Maltzberger, J. T., Goldblatt, R. J., Linder, R., & Fiedler, G. (2006). Assessing and engaging suicidal teenagers in Psychoanalytic Psychotherapy: A case consultation. *Archives of Suicide Research, 10*(4), 323-333.
- Britton, P. C., Stephens, B., Wu, J., Kane, C., Gallegos, A., Ashrafioun, L, ... Conner, K. R. (2015). Comorbid depression and alcohol use disorders and prospective risk for suicide attempt in the year following inpatient hospitalization. *Journal of Affective Disorders, 187*, 151-155.
- Broderick, P., & Korteland, C. (2002). Coping style and depression in early adolescence: Relationships to gender, gender role, and implicit beliefs. *Sex Roles, 46*(7), 201-213.
- Brown, G. K., Beck, A. T., Steer, R. A., & Grisham, J. R. (2000). Risk factors for suicide in psychiatric outpatients: A 20-year prospective study. *Journal of Consulting and Clinical Psychology, 68*(3), 371-377.
- Brown, S. L., Nesse, R. M., Vinokur, A. D., & Smith, D. M. (2003). Providing social support may be more beneficial than receiving it: Results from a prospective study of mortality. *Psychological Science, 14*(4), 320-327.
- Bryan, C. J., Cukrowicz, K. C., West, C. L., & Morrow, C. E. (2010b). Combat experience and the acquired capability for suicide. *Journal of Clinical Psychology, 66*(10), 1044-1056.
- Bryan, C. J., Morrow, C. E., Anestis, M. D., & Joiner, T. E. (2010a). A preliminary test of the Interpersonal–Psychological theory of suicidal behavior in a military sample. *Personality and Individual Differences, 48*(3), 347–350.

- Bryan, C. J., Clemans, T. A., & Hernandez, A. M. (2012). Perceived burdensomeness, fearlessness of death, and suicidality among deployed military personnel. *Personality and Individual Differences, 52*(3), 374-379.
- Bryan, C. J., Hernandez, A. M., Allison, S., & Clemans, T. (2013). Combat exposure and suicide risk in two samples of military personnel. *Journal of Clinical Psychology, 69*, 64-77.
- Buitron, V., Hill, R. M., Pettit, J. W., Green, K. L., Hatkevich, C. H., & Sharp, C. (2016). Interpersonal stress and suicidal ideation in adolescence: An indirect association through perceived burdensomeness toward others. *Journal of Affective Disorders, 190*, 143-149.
- Burns, J. K. (2010). Mental health services and funding in KwaZulu-Natal: A tale of inequity and neglect. *South African Medical Journal, 100*(10), 662-666.
- Burrows, S., & Laflamme, L. (2006). Suicide mortality in South Africa: a city level comparison across socio-demographic groups. *Social Psychiatry & Psychiatric Epidemiology, 41*, 108-114.
- Burrows, S., & Laflamme, L. (2008). Pattern analysis of suicide mortality surveillance data in urban South Africa. *Suicide and Life-Threatening Behavior, 38*(2), 209-220.
- Burrows, S., Vaez, M., Butchart, A., & Laflamme, L. (2003). The share of suicide in injury deaths in the South African context: sociodemographic distribution. *Public Health, 117*, 3-10.
- Burrows, S., Vaez, M., & Laflamme, L. (2007). Sex-specific suicide mortality in the South African urban context: The role of age, race, and geographical location. *Scandinavian Journal of Public Health, 35*, 133-139.
- Calandre, E. P. (2011). Suicide attempts and risk of suicide in patients with fibromyalgia: a survey in Spanish patients. *Rheumatology, 50*, 1889-1893.

- Canetto, S. S. (1992). Gender and suicide in the elderly. *Suicide and Life-Threatening Behavior*, 22(1), 80-97.
- Canetto, S.S. & Safinofsky, I. (1998). The gender paradox of suicide. *Suicide & Life threatening Behaviour*, 28 (1), 1-23.
- Cant, M. C., Gerber-Nel, C., Nel, D., & Kotze, T. (2005). *Marketing Research* (2nd ed.). Cape Town: New Africa Books.
- Cantor, C. H., & Slater, P. J. (1995). Marital breakdown, parenthood, and suicide. *Journal of Family Studies*, 1(2), 91-102.
- Cantor, P. (1998). Can suicide ever be eradicated? A professional journey. In D. G. Jacobs (Ed.). *The Harvard Medical School Guide to Suicide Assessment and Intervention* (pp. 238-248). San Francisco: Jossey-Bass Publishers.
- Carducci, B. J. (1998). *The Psychology of Personality*. USA: Brooks/Cole Publishing Company.
- Carter, M. R., & May, J. (2001). One kind of freedom: Poverty dynamics in post-apartheid South Africa. *World Development*, 29(12), 1987-2006.
- Carver, C.S., Scheier, M.F., & Weintraub, J.K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology*, 56, 267-283.
- Cavanagh, J., Carson, A., Sharpe, M., & Lawrie, S. M. (2003). Psychological autopsy studies of suicide: a systematic review. *Psychological Medicine*, 33, 395-405.
- Centre for Disease Control (2015). *Suicide facts at a glance*. Retrieved from <https://www.cdc.gov/violenceprevention/pdf/suicide-datasheet-a.pdf>
- Cero, I., Zuromski, K. L., Witte, T.L., Ribeiro, J. D., Joiner, T. E. (2015). Perceived burdensomeness, thwarted belongingness and suicide ideation: Re-examination of the Interpersonal-Psychological Theory in two samples. *Psychiatry Research*, 228, 544-550.

- Chatard, A., & Selimbegović, L. (2011). When self-destructive thoughts flash through the mind: Failure to meet standards affects the accessibility of suicide-related thoughts. *Journal of Personality and Social Psychology, 100*(4), 587-605.
- Christensen, H., Batterham, P. J., Mackinnon, A. J., Donker, T., & Soubelet, A. (2014). Predictors of the risk factors for suicide identified by the interpersonal–psychological theory of suicidal behavior. *Psychiatry Research, 219*(2), 290-297.
- Christensen, H., Batterham, P. J., Soubelet, A., & Mackinnon, A. J. (2013). A test of the interpersonal theory of suicide in a large community-based cohort. *Journal of Affective Disorders, 144*(3), 225-234.
- Chu, C., Buchman-Schmitt, J. M., Hom, M. A., Stanley, I. H., & Joiner, T. E. (2016). A test of the Interpersonal theory of suicide in a large sample of current firefighters. *Psychiatry Research, 240*, 26-33.
- Clements, C., Morris, R., Jones, S., Peters, S., Roberts, C., & Kapur, N. (2013). Suicide in bipolar disorder in a national English sample, 1996–2009: Frequency, trends and characteristics. *Psychological Medicine, 43*(12), 2593-2602.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Cohen, S., Mermelstein, R., Kamarck, T., & Hoberman, H. M. (1985). Measuring the functional components of social support. In Sarason, I. G., & Sarason, B. R. (Eds.). *Social Support: Theory, Research and Applications*. Netherlands: Martinus Nijhoff.
- Colt, G. H. (1991). *The enigma of suicide*. New York: Simon and Schuster.
- Compton, M. T., Thompson, N. J., & Kaslow, N. J. (2005). Social environment factors associated with suicide attempt among low-income African Americans: The protective role of family relationships and social support. *Social Psychiatry and Psychiatric Epidemiology, 40*, 175-185.

- Conner, K. R., Britton, P. C., Sworts, L. M., & Joiner, T. E. (2007). Suicide attempts among individuals with opiate dependence: The critical role of belonging. *Addictive Behaviors, 32*(7), 1395-1404.
- Conner, K. R., Meldrum, S., Wieczorek, W. F., Duberstein, P. R., & Welte, J. W. (2004). The association of irritability and impulsivity with suicidal ideation among 15-20-year-old males. *Suicide and Life Threatening Behavior, 34*(4), 363-373.
- Conwell, Y. (1997). Management of suicidal behavior in the elderly. *Psychiatric Clinics of North America, 20*(3), 667-683.
- Conwell, Y., Lyness, J. M., Duberstein, P., Cox, C., Seidlitz, L., DiGiorgio, A., & Caine, E. D. (2000). Completed suicide among older patients in primary care practices: A controlled study. *Journal of the American Geriatric Society, 48*(1), 23-29.
- Conwell, Y., Van Orden, K., & Caine, E. D. (2011). Suicide in older adults. *Psychiatric Clinics of North America, 34*, 451-468.
- Coope, C., Donovan, J., Wilson, C., Barnes, M., Metcalfe, C., Hollingworth, W, ... Gunnell, D. (2015). Characteristics of people dying by suicide after job loss, financial difficulties and other economic stressors during a period of recession (2010–2011): A review of coroners' records. *Journal of Affective Disorders, 183*, 98-105.
- Coovadia, H., Jewkes, R., Barron, P., Sanders, D., & McIntyre, D. (2009). The health and health system of South Africa: historical roots of current public health challenges. *Lancet, 374*, 817-834.
- Coryell, W., & Young, E. (2005). Clinical predictors of suicide in primary major depressive disorder. *Journal of Clinical Psychiatry, 66*, 412-417.

- Cox B.J., Direnfeld D.M., Swinson R.P., & Norton, G.R (1994). Suicidal ideation and suicide attempts in panic disorder and social phobia. *American Journal of Psychiatry*, *151*, 882-887.
- Cross, S. E., & Madson, L. (1997). Models of the self: Self-construals and gender. *Psychological Bulletin*, *122*, 5-37.
- Cuijpers, P., de Beurs, D. P., van Spijker, B. A. J., Berking, M., Andersson, G., & Kerkhof, Ad J. F. M. (2013). The effects of psychotherapy for adult depression on suicidality and hopelessness: A systematic review and meta-analysis. *Journal of Affective Disorders*, *144*, 183-190.
- Cukrowicz, K. C., Cheavens, J. S., Van Orden, K. A., Ragain, R., & Cook, R. L. (2011). Perceived burdensomeness and suicide ideation in older adults. *Psychology and Aging*, *26*(2), 331-338.
- Cukrowicz, K. C., Jahn, D. R., Graham, R. D., Poindexter, E. K., & Williams, R. B. (2013). Suicide risk in older adults: Evaluating models of risk and predicting excess zeros in a primary care sample. *Journal of Abnormal Psychology*, *122*(4), 1021-1030.
- Czyz, E. K., Berona, J., & King, C. A. (2015). A prospective examination of the Interpersonal–psychological theory of suicidal behavior among psychiatric adolescent inpatients. *Suicide and Life-Threatening Behavior*, *45*(2), 243-259.
- Davidson, C. L., Wingate, L. R., Rasmussen, K. A., & Sligh, M. L. (2009). Hope as a predictor of interpersonal suicide risk. *Suicide and Life-Threatening Behavior*, *39*(5), 499-507.
- Dazzi, T., Gribble, R., Wessely, S., & Fear, N. T. (2014). Does asking about suicide and related behaviors induce suicidal ideation? What is the evidence? *Psychological Medicine*, *44*, 3361-3363.

- Dean, P. J., & Range, L. M. (1999). Testing the escape theory of suicide in an outpatient clinical population. *Cognitive Therapy and Research*, 23, 561-572.
- Deane, F.P., Wilson, C.J. & Ciarrochi, J. (2001). Suicidal ideation and help-negation: Not just hopelessness or prior help. *Journal of Clinical Psychology*, 57(7), 901–914.
- De Groot, M. H., de Keijser, J., & Neeleman, J. (2006). Grief shortly after suicide and natural death: A comparative study among spouses and first-degree relatives. *Suicide and Life-Threatening Behavior*, 36(4), 418-431.
- Dein S. (2006). Religion, spirituality and depression: Implications for research and treatment. *Primary Care and Community Psychiatry*, 11, 67-72.
- Dein, S., & Littlewood, R. (2005). Apocalyptic suicide: From a pathological to an eschatological interpretation. *International Journal of Social Psychiatry*, 51(3), 198-210.
- De Leo, D. (2002). Why are we not getting any closer to preventing suicide? *British Journal of Psychiatry*, 181, 372-374.
- De Leo, D., Bertolote, J., & Lester, D. (2002). Self-directed violence. Chapter 7. In E. G. Krug, L. L. Dahlberg, J.A. Mercy, A. Zwi, & R. Lozano (Eds.). *World Report on Violence and Health*. Geneva: World Health Organization.
- De Leo, D., Burgis, S., Bertolote, J. M., Kerkhof, A. J. F. M., & Bille-Brahe, U. (2006). Definitions of suicidal behavior: Lessons learned from the WHO/EURO Multicentre Study. *Crisis*, 27(1), 4-15.
- De Leo, D., Burgis, S., Bertolote, J., Kerkhof, A.D., & Bille-Brahe, U. (2004). Definitions of suicidal behavior. In D. DeLeo, U. Bille-Brahe, A.D. Kerkhof, & A. Schmidtke (Eds.). *Suicidal behavior: Theories and research findings* (pp. 17-39). Washington: Hogrefe & Huber.

- Dervic, K., Brent, D. A., & Oquendo, M. A. (2008). Completed suicide in childhood. *Psychiatric Clinics of North America*, 31, 271-291.
- DeVylder, J.E., Lukens, E., Link, B.G., & Lieberman, J.A. (2015). Suicidal ideation and suicide attempts among adults with psychotic experiences: Data from the collaborative psychiatric epidemiology surveys. *JAMA Psychiatry*, 72(3), 219-225.
- Dhossche, D. M. (2000). Suicidal behavior in psychiatric emergency room patients. *Southern Medical Journal*, 93(3), 310-314.
- Dhyani, M., Trivedi, J. K., Nischal, A., Sinha, P. K., & Verma, S. (2013). Suicidal behavior of Indian patients with obsessive compulsive disorder. *Indian Journal of Psychiatry*, 55(2), 161-166.
- Dilsaver, S. C., Benazzi, F., Rihmer, Z., Akiskal, K. K., & Akiskal, H. S. (2005). Gender, suicidality and bipolar mixed states in adolescents. *Journal of Affective Disorders*, 87(1), 11-16.
- Dixit, A. K., & Pindyck, R. S. (1994). *Investment under uncertainty*. New Jersey: Princeton University Press.
- Donker, T., Batterham, P. J., Van Orden, K. A., & Christensen, H. (2014). Gender-differences in risk factors for suicidal behavior identified by perceived burdensomeness, thwarted belongingness and acquired capability: Cross-sectional analysis from a longitudinal cohort study. *BMC Psychology*, 2-20.
- Donson, H. (2009). A profile of fatal injuries in South Africa: Annual report for South Africa based on the National Injury Mortality Surveillance System (NIMSS). Medical Research Council - UNISA Crime, Violence and Injury Lead Programme: UNISA.
- Durkheim, E. (1951). *Suicide: A study in sociology*. New York: Free Press. (Original work published 1897).

- du Toit, E. H., Kruger, J. M., Swiegers, S. M., van der Merwe, M., Calitz, F. J. W., Philane, L., & Joubert, G. (2008). The profile analysis of attempted-suicide patients referred to Pelonomi Hospital for psychological evaluation and treatment from 1 May 2005 to 30 April 2006. *South African Journal of Psychology, 14*, 20-25.
- Dvorak, R. D., Lamis, D. A., & Malone, P. S. (2013). Alcohol use, depressive symptoms, and impulsivity as risk factors for suicide proneness among college students. *Journal of Affective Disorders, 149*, 326-334.
- Ellis, J. B., & Lamis, D. A. (2007). Adaptive characteristics and suicidal behavior: A gender comparison of young adults. *Death Studies, 31*, 845-854.
- Ellison, C. G., & Levin, J. S. (1998). The religion-health connection: evidence, theory, and future directions. *Health Education and Behavior, 25*(6), 700-720.
- Erikson, E. H. (1968). *Identity, Youth and Crisis*. New York: Norton and Co.
- Eroglu, M. Z., Karakus, G., & Tamam, L. (2013). Bipolar disorder and suicide. *The Journal of Psychiatry and Neurological Sciences; 26*, 139-147.
- Eynan, R., Bergmans, Y., Antony, J., Cutcliffe, J. R., Harder, H. G., Ambreen. M. ... Links, P. S. (2014). The effects of suicide ideation assessments on urges to self-harm and suicide. *Crisis, 35*(2), 123-131.
- Fawcett, J., Scheftner, W. A., Fogg, L., Clark, D. C., Young, M. A., Hedeker, D. & Gibbons, R. (1990). Time-related predictors of suicide in major affective disorder. *American Journal of Psychiatry, 147*(9), 1189-1194.
- Fernquist, R. M. (2004). Does single motherhood protect against Black female suicide? *Archives of Suicide Research, 8*, 163-171.
- Fisekovic S. & Celik D. (2012). Socio-demographic and clinical characteristics of persons who had committed a suicide attempt. *HealthMED, 6*(5), 1865-1869.

- Flisher, A. J., Liang, H., Laubscher, R., & Lombard, C. F. (2004). Suicide trends in South Africa, 1968–90. *Scandinavian Journal of Public Health, 32*, 411-418.
- Flannelly, K.J., Ellison, C.G., & Strock, A.L. (2004). Methodologic issues in research on religion and health. *Southern Medical Journal, 97*, 1231-1241.
- Florsheim, P., & Moore, D. R. (2008). Observing differences between healthy and unhealthy adolescent romantic relationships: Substance abuse and interpersonal process. *Journal of Adolescence, 31*(6), 795-814.
- Folkman, S. (1984). Personal control and stress and coping processes: A theoretical analysis. *Journal of Personality and Social Psychology, 46*, 839-852.
- Freedenthal, S., Lamis, D.A., Osman, A., Kahlo, D., & Gutierrez, P.M. (2011). Evaluation of the psychometric properties of the Interpersonal Needs Questionnaire-12 in samples of men and women. *Journal of Clinical Psychology, 67*(6), 609-623.
- Freud, S. (1917). *Mourning and Melancholia*. Standard Edition. London: Hogarth.
- Gallagher, S. K., & Gerstel, N. (1993). Kinkeeping and friend keeping among older women: The effect of marriage. *The Gerontologist, 33*, 675-681.
- Gartrell, J. W., Jarvis, G. K., & Derksen, L. (1993). Suicidality among adolescent Alberta Indians. *Suicide and Life-Threatening Behavior, 23*, 366-373.
- Garza, M. J., & Pettit, J. W. (2010). Perceived burdensomeness, familism, and suicidal ideation among Mexican women: Enhancing understanding of risk and protective factors. *Suicide and Life-Threatening Behavior, 40*(6), 561-573.
- Ghahramanlou-Holloway, M., Cox, D.W., & Greene-Palmer, F. (2012). Post-admission Cognitive Therapy: A brief intervention for psychiatric inpatients admitted after a suicide attempt. *Cognitive and Behavioral Practice, 19*(2), 233–244.

- Ghesquiere, A. R., Bazelais, K. N., Berman, J., Greenberg, R. L., Kaplan, D., & Bruce, M. L. (2016). Associations between recent bereavement and psychological and financial burden in homebound older adults. *Dying, 73*(4), 326-339.
- Gibb, S. J., Beautrais, A. L., & Fergusson, D. M. (2005). Mortality and further suicidal behavior after an index suicide attempt: A 10-year study. *Australian and New Zealand Journal of Psychiatry, 39*, 95-100.
- Gibbons, C. J., Fournier, J. C., Stirman, S. W., DeRubeis, R. J., Crits-Christoph, P., & Beck, A.T. (2010). The clinical effectiveness of cognitive therapy for depression in an outpatient clinic. *Journal of Affective Disorders, 125*, 169-176.
- Giddens, J.M. (2014). The DSM-V offers suicidal behavior disorder as a condition for further study that seems to medicalize suicide attempt. Thoughts? Retrieved from https://www.researchgate.net/post/s_Thoughts?
- Glenn, C. R., & Klonsky, E. D. (2013). Nonsuicidal self-injury disorder: An empirical investigation in adolescent psychiatric patients. *Journal of Clinical Child and Adolescent Psychology, 42*(6), 496-507.
- Goldston, D. B., Daniel, S. S., Erkanli, A., Heilbron, N., Doyle, O., Weller, B. ... Faulkner, M. (2015). Suicide attempts in a longitudinal sample of adolescents followed through adulthood: Evidence of escalation. *Journal of Consulting and Clinical Psychology, 83*(2), 253-264.
- Gormley, B., & McNiel, D. E. (2010). Adult attachment orientations, depressive symptoms, anger, and self-directed aggression by psychiatric patients. *Cognitive Therapy Research, 34*(3), 272-281.
- Gottlieb, J. D, Mueser, K.T., & Glynn, S. M. (2012). Family therapy for schizophrenia: Co-occurring psychotic and substance use disorders. *Journal of Clinical Psychology, 68*(5), 490-501.

- Gould, M. S., King, R., Greenwald, S., Fisher, P., Schwab-Stone, M., Kramer, R., ...Shaffer, D. (1998). Psychopathology associated with suicidal ideation and attempts among children and adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry, 37*, 915-923.
- Govender, R. D., & Schlebusch, L. (2012). Hopelessness, depression and suicidal ideation in HIV-positive persons. *South African Journal of Psychiatry, 18*(1), 16-21.
- Graham, J. (2009). Missing data analysis: Making it work in the real world. *Annual Review of Psychology, 60*, 549-576.
- Granato, S., Phillip, L., Smith, N., & Selwyn, C. N. (2015). Acquired capability and masculine gender norm adherence: Potential pathways to higher rates of male suicide. *Psychology of Men & Masculinity, 16*(3), 246-253.
- Grossman, D. C., Milligan, B. C., & Deyo, R. A. (1991). Risk factors for suicide attempts among Navajo adolescents. *American Journal of Public Health, 81*, 870-874.
- Gutierrez, P. M. (2006). Integratively assessing risk and protective factors for adolescent suicide. *Suicide and Life-Threatening Behavior, 36*(2), 129-135.
- Hagan, C. R., Podlogar, M. C., Chu, C., & Joiner, T. E. (2015). Testing the Interpersonal Theory of suicide: The moderating role of hopelessness. *International Journal of Cognitive Therapy, 8*(2), 99-113.
- Hall, R. C. W., Platt, D. E., & Hall, R. C. W. (1999). Suicide risk assessment: A review of risk factors for suicide in 100 patients who made severe suicide attempts. Evaluation of suicide risk in a time of managed care. *Psychosomatics, 40*(1), 18-27.
- Hames, J. L., Chiurliza, B., Podlogar, M. C., Smith, A. R., Selby, E. A., Anestis, M. D., & Joiner, T. E. (2015). Perceived burdensomeness and thwarted belongingness predict excessive reassurance seeking among clinical outpatients. *Journal of Clinical Psychology, 71*(6), 597-605.

- Harris, E. C., & Barraclough, B. (1997). Suicide as an outcome for mental disorders: a meta-analysis. *British Journal of Psychiatry*, *170*, 205-228.
- Harwood, D. M. H., Hawton, K., Hope, T., & Jacoby, R. (2000). Suicide in older people: mode of death, demographic factors, and medical contact before death. *International Journal of Geriatric Psychiatry*, *15*(8), 736-743.
- Hasso, F.S. (2005). Discursive and political deployments by/of the 2002 Palestinian women suicide bombers/martyrs. *Feminist Review*, *81*, 23-51.
- Hawton, K. (1992). By their own young hand. *British Medical Journal*, *304*, 1000.
- Hawton, K. (2000). Sex and suicide: Gender differences in suicidal behavior. *British Journal of Psychiatry*, *177*(6), 484-485.
- Hawton, K., Appleby, L., Platt, S., Foster, T., Cooper, J., Malmberg, A., & Simkin, S. (1998). The psychological autopsy approach to studying suicide: A review of methodological issues. *Journal of Affective Disorders*, *50*(2-3), 269-276.
- Hawton, K., Bergen, H., Geulayov, G., Waters, K., Ness, J., Cooper, J., & Kapur, N. (2016). Impact of the recent recession on self-harm: Longitudinal ecological and patient-level investigation from the Multicentre Study of Self-harm in England. *Journal of Affective Disorders*, *191*, 132-138.
- Hawton, K., Cole, D., O'Grady, J., & Osborn, M. (1982). Motivational aspects of deliberate self-poisoning in adolescents. *British Journal of Psychiatry*, *141*, 286-91.
- Hawton, K., Comabella, C. C., Haw, C., & Saunders, K. (2013). Risk factors for suicide in individuals with depression: A systematic review. *Journal of Affective Disorders*, *147*, 17-28.
- Hawton, K., & Harriss, L. (2008). How often does deliberate self-harm occur relative to each suicide: A study of variations by gender and age. *Suicide and Life-Threatening Behavior*, *38*, 650-660.

- Hawton, K., & Van Heeringen, K. (2009). Suicide. *Lancet*, 373, 1372-1381.
- Hazan, C., & Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology*, 52(3), 511-524.
- Heisel, M. J., & Flett, G. L. (2006). The development and initial validation of the Geriatric Suicide Ideation Scale. *American Journal of Geriatric Psychiatry*, 14(9), 742-751.
- Hendin, H., Maltsberger, J. T., Lipschitz, A., Haas, A. P., & Kyle, J. (2001). Recognizing and responding to a suicide crisis. *Annals of the New York Academy of Sciences*, 932, 169-187.
- Henriksson, M. M., Aro, H. M., Marttunen, M. J., Heikkinen, M. E., Isometsä, E. T., Kuoppasalmi, K. I., & Lonnqvist, J. K. (1993). Mental disorders and comorbidity in suicide. *American Journal of Psychiatry*, 150, 935-940.
- Hill, R. D., Gallagher, D., Thompson, L. W., & Ishida, T. (1988). Hopelessness as a measure of suicidal intent in the depressed elderly. *Psychology and Aging*, 3(3), 230-232.
- Hill, R. M., & Pettit, J. W. (2014). Perceived burdensomeness and suicide-related behaviors in clinical samples: Current evidence and future directions. *Journal of Clinical Psychology*, 70(7), 631-643.
- Hill, R. M., Rey, Y., Marin, C. E., Sharp, C., Green, K. L., & Pettit, J. W. (2015). Evaluating the Interpersonal Needs Questionnaire: Comparison of the reliability, factor structure, and predictive validity across five versions. *Suicide and Life-Threatening Behavior*, 45(3), 302-314.
- Holtman, Z., Shelmerdine, S., London, L., & Flisher, A. (2011). Suicide in a poor rural community in the Western Cape, South Africa: Experiences of five suicide attempters and their families. *South African Journal of Psychology*, 41(3), 300-309.

- Hull-Blanks, E. E., Kerr, B. A., & Kurpius, S. E. R. (2004). Risk factors of suicidal ideations and attempts in talented at risk girls. *Suicide and Life-Threatening Behavior, 34*, 267-276.
- Husky, M. M., Guignard, R., Beck, F., & Michel, G. (2013). Risk behaviors, suicidal ideation and suicide attempts in a nationally representative French sample. *Journal of Affective Disorders, 151*, 1059-1065.
- Hyman, J., Ireland, R., Frost, L., & Cottrell, L. (2012). Suicide incidence and risk factors in an active duty US military population. *American Journal of Public Health, 102*(S1), S138–S146.
- IBM (2015). Statistical Program for the Social Sciences. Version 23.0. Armonk, NY: IBM Corporation.
- Isometsa, E.T., & Lonnqvist, J. K. (1998). Suicide attempts preceding completed suicide. *British Journal of Psychiatry, 173*(3), 531-535.
- Jacobson, C. M., & Gould, M. (2007). The epidemiology and phenomenology of nonsuicidal self-injurious behavior among adolescents: A critical review of the literature. *Archives of Suicide Research, 11*(2), 129-147.
- Jahn, D. R., Cukrowicz, K. C., Linton, K., & Prabhu, F. (2011). The mediating effect of perceived burdensomeness on the relation between depressive symptoms and suicide ideation in a community sample of older adults. *Aging & Mental Health, 15*(2), 214-220.
- Joe, S., Stein, D. J., Seedat, S., Herman, A., & Williams, D. R. (2008). Non-fatal suicidal behavior among South Africans: Results from the South Africa Stress and Health Study. *Social Psychiatry and Psychiatric Epidemiology, 43*(6), 454-461
- Johnson, J., Gooding, P. A., Wood, A. M., & Tarrrier, N. (2010). Resilience as positive coping appraisals: Testing the schematic appraisals model of suicide (SAMS). *Behavior Research and Therapy, 48*(3), 179-186.

- Joiner, T. E. (2005). *Why do people die by suicide?* Cambridge, MA: Harvard University Press.
- Joiner, T.E., Brown, J.S., & Wingate, L.R. (2005). The psychology and neurobiology of suicidal behavior. *Annual Review of Psychology*, *56*, 287-314.
- Joiner, T. E., Conwell, Y., Fitzpatrick, K. K., Witte, T. K, Schmidt, N. B., Berlim, M. T., ... Rudd, M. D. (2005). Four studies on how past and current suicidality relate even when “Everything but the kitchen sink” is covaried. *Journal of Abnormal Psychology*, *114*(2), 291-303.
- Joiner, T. E., Cook, J. M., Hersen, M., & Gordon, K. H. (2007). Double depression in older adult psychiatric outpatients: Hopelessness as a defining feature. *Journal of Affective Disorders*, *101*, 235-238.
- Joiner, T.E., Ribeiro, J.D., & Silva, C. (2012). Non-suicidal self-injury, suicidal behavior, and their co-occurrence as viewed through the lens of the Interpersonal theory of suicide. *Current Directions in Psychological Science*, *21*(53), 42-347.
- Joiner, T. E., & Van Orden, K. A. (2008). The Interpersonal-Psychological Theory of suicidal behavior indicates specific and crucial psychotherapeutic targets. *International Journal of Cognitive Therapy*, *1*, 80-89.
- Joiner, T. E., Van Orden, K. A., Witte, T. K., Selby, E. A., Ribeiro, J. D., Lewis, R., ...Rudd, M. D. (2009). Main predictions of the Interpersonal–Psychological theory of suicidal behavior: empirical tests in two samples of young adults. *Journal of Abnormal Psychology*, *118*(3), 634-646.
- Jordan, J. R. (2001). Is suicide bereavement different? A reassessment of the literature. *Suicide and Life-Threatening Behavior*, *31*(1), 91-102.

- Jungeilges, J., & Kirchgassner, G. (2002). Economic welfare, civil liberty, and suicide: An empirical investigation. *Journal of Socio-Economics, 31*, 215-231.
- Kaiser, H.F. (1970). A second generation little jiffy. *Psychometrika, 35*(4), 401-415.
- Kazi, T. B., & Naidoo, S. (2016). Does religiosity mediate suicidal tendencies? A South African study of Muslim tertiary students. *Journal of Religion and Health, 55*(3), 1010-1023.
- Kelly, S., & Bunting, J. (1998). Trends in suicide in England and Wales, 1982-1996. *Population Trends, 92*, 29-41.
- Kennedy, S., Kiecolt-Glaser, J. K., & Glaser, R. I. (1988). Immunological consequences of acute and chronic stressors: Mediating role of interpersonal relationships. *British Journal of Medical Psychology, 61*(1), 77-85.
- Kerfoot, M., Harrington, R., & Dyer, E. (1995). Brief home-based intervention with young suicide attempters and their families. *Journal of Adolescence, 18*, 557-568.
- Kerr, D. C. R., Owen, L. D., Pears, K. C., & Capaldi, D. M. (2008). Prevalence of suicidal ideation among boys and men assessed annually from ages 9 to 29 years. *Suicide and Life-Threatening Behavior, 38*, 390-402.
- Kessler, R. C., Borges, G., & Walters, E. E. (1999). Prevalence of and risk factors for lifetime suicide attempts in the National Comorbidity Survey. *Archives of General Psychiatry, 56*(7), 617-626.
- Khasakhala, L.I., Ndeti, D.M., & Mathai, M. (2013). Suicidal behavior among youths associated with psychopathology in both parents and youths attending outpatient psychiatric clinic in Kenya. *Annals of General Psychiatry, (12)*, 13. Retrieved from <http://www.annals-general-psychiatry.com/content/12/1/13>

- Khasakhala, L., Sorsdahl, K., Harder, V., Williams, D., Stein, D., & Ndeti, D. (2011). Lifetime mental disorders and suicidal behavior in South Africa. *African Journal of Psychiatry, 14*, 134-139.
- Kidd, S., & Kral, M. J. (2002). Suicide and prostitution among street youth: a qualitative analysis. *Adolescence, 37*, 411-430.
- Kidd, S. A. (2003). The need for improved operational definition of suicide attempts: Illustrations from the case of street youth. *Death Studies, 27*, 449-455.
- Kidd, T., & Sheffield, D. (2005). Attachment style and symptom reporting: Examining the mediating effects of anger and social support. *British Journal of Health Psychology, 10*, 531-541.
- Kim, H-Y. (2013). Statistical notes for clinical researchers: assessing normal distribution (2) using skewness and kurtosis. *Restorative Dentistry & Endodontics, 38*(1), 52–54.
- Kim, S. Y., & Yang, E. (2015). Suicidal ideation in gay men and lesbians in South Korea: A test of the Interpersonal-Psychological Model. *Suicide and Life-Threatening Behavior, 45*(1), 98-110.
- King, C. A., Klaus, N., Kramer, A., Venkataraman, S., Quinlan, P., & Gillespie, B. (2009). The youth-nominated support team—version II for suicidal adolescents: A randomized controlled intervention trial. *Journal of Consulting and Clinical Psychology, 77*(5), 880-893.
- King, R. A., Schwab-Stone, M., Flisher, A. J., Greenwald, S., Kramer, R. A., Goodman, S. H....Gould, M. S. (2001). Psychosocial and risk behavior correlates of youth suicide attempts and suicidal ideation. *Journal of the American Academy of Child and Adolescent Psychiatry, 40*, 837-846.

- Kleiman, E. M., Law, K. C., & Anestis, M. D. (2014). Do theories of suicide play well together? Integrating components of the hopelessness and interpersonal psychological theories of suicide. *Comprehensive Psychiatry*, *55*(3), 431-438.
- Kleiman, E. M., & Liu, R. T. (2013). Social support as a protective factor in suicide: Findings from two nationally representative samples. *Journal of Affective Disorders*, *150*(2), 540-545.
- Klonsky, E. D., Kotov, R., Bakst, S., Rabinowitz, J., & Bromet, E. J. (2012). Hopelessness as a predictor of attempted suicide among first admission patients with psychosis: a 10-year cohort study. *Suicide and Life-Threatening Behavior*, *42*(1), 1-10.
- Klonsky, E. D., & May, A. (2010). Rethinking impulsivity in suicide. *Suicide and Life-Threatening Behavior*, *40*(6), 612-619.
- Koenig, H. G. (2009). Research on religion, spirituality, and mental health: A review. *Canadian Journal of Psychiatry*, *54*, 283-291.
- Kok, R. M., Nolen, W. A., & Heeren, T. J. (2012). Efficacy of treatment in older depressed patients: A systematic review and meta-analysis of double-blind randomized controlled trials with antidepressants. *Journal of Affective Disorders*, *141*, 103-115.
- Krupinski, M., Fischer, A., Grohmann, R., Engel, R., Holleg, M., & Moller, H. J. (1998). Risk factors for suicides of inpatients with depressive psychoses. *European Archives of Psychiatry and Clinical Neuroscience*, *248*, 96-104.
- Kubrin, C. E., & Wadsworth, T. (2009). Explaining suicide among blacks and whites: How socioeconomic factors and gun availability affect race-specific suicide rates. *Social Science Quarterly*, *90*(5), 1203-1227.
- Kuhlberg, J. A, Peña, J. B, & Zayas, L. H. (2010). Familism, parent-adolescent conflict, self-esteem, internalizing behaviors and suicidal attempts among adolescent Latinos. *Child Psychiatry and Human Development*, *4*, 425-440.

- Kurd, S. K., Troxel, A. B., Crits-Christoph, P., & Gelfand, J. M. (2010). The risk of depression, anxiety and suicidality in patients with psoriasis: A population-based cohort study. *Archives of Dermatology, 146*(8), 891-895.
- Kurtaş, Ö., Boşgelmez, Ş., Yaluğ, İ., Birincioglu, İ., Biçer, Ü., Aker, T., & Yahşi, S. (2012). The evaluation of suicide letters in Turkey from a cognitive perspective. *Crisis, 33*(2), 73-79.
- Kushner, H. I. & Sterk, C. E. (2005). The limits of social capital: Durkheim, suicide, and social cohesion. *American Journal of Public Health, 95*(7), 1139-1143.
- Lakeman, R. & Fitzgerald, M. (2009). Ethical suicide research: A survey of researchers. *International Journal of Mental Health Nursing, 18* (1), 10–17.
- Lamis, D. A., & Malone, P. S. (2011). Alcohol-related problems and risk of suicide among college students: The mediating roles of belongingness and burdensomeness. *Suicide and Life-Threatening Behavior, 41*(5), 543-553.
- Langhinrichsen-Rohling, J., Lewinsohn, P., Rohde, P., Seeley, J., Monson, C. M., Meyer K. A., & Langford, R. (1998). Gender differences in the suicide-related behaviors of adolescents and young adults. *Sex Roles, 39*, 839-854.
- Laubscher, L. R. (2003). Suicide in a South African town: A cultural psychological investigation. *South African Journal of Psychology, 33*(3), 133-143.
- Laux, J. M. (2002). A primer on suicidology: Implications for counsellors. *Journal of Counselling and Development, 80*, 380-383.
- Leenaars, A. A. (2010). Review: Edwin S. Shneidman on suicide. *Suicidology Online, 1*, 5-18.
- Leenars, A. A., Yang, B., & Lester, D. (1993). The effect of domestic and economic stress on suicide rates in Canada and the United States. *Journal of Clinical Psychology, 49*(6), 918-921.

- Lerer, L., Knobel, G., & Matzopoulos, R. (1995). The epidemiology of suicide in a South African city: From mortality surveillance to injury control. In L. Schlebusch & B. S. Bosch (eds.). *Suicidal Behaviour 4: Proceedings of the Third Southern African Conference on Suicidology*. Durban: Department of Medically Applied Psychology, Faculty of Medicine, University of Natal.
- Levin, A. (1992). Suicide patterns and trends in South Africa's population groups. In L. Schlebusch (ed.). *Suicidal Behaviour 2: Proceedings of the second Southern African Conference on Suicidology*. Durban: Department of Medically Applied Psychology, Faculty of Medicine, University of Natal.
- Linehan, M. (1993). *Cognitive-behavioural treatment of borderline personality disorder*. New York, NY: Guilford Press.
- Linehan, M., Goodstein, J., Nielson, S., & Chiles, J. (1983). Reasons for staying alive when you are thinking of killing yourself: The Reasons for Living Inventory. *Journal of Consulting and Clinical Psychology, 51*, 276-286.
- Liu, R. T., Kleiman, E. M., Nestor, B. A., & Cheek, S. M. (2015). The Hopelessness Theory of depression: A quarter century in review. *Clinical Psychology: Science and Practice, 2*(4), 345-365.
- Liversage, A. (2007). *A study of the relationship between religiosity and suicidal tendencies within a South African context*. Unpublished Honours project, University of Kwa Zulu-Natal, Durban, South Africa.
- Logan, J., Hall, J., & Karch, D. (2011). Suicide categories by patterns of known risk factors: A latent class analysis. *Archives of General Psychiatry, 68*(9), 935-941.
- Lorensini, S., & Bates, G. (2002). Relationship difficulties and unemployment in attempted suicide in an Australian regional center. *Psychological Reports, 90*(3), 923-929.

- Lund, C., Kleintjes, S., Kakuma, R., & Flisher, A. J. (2010). Public sector mental health systems in South Africa: interprovincial comparisons and policy implications. *Social Psychiatry and Psychiatric Epidemiology*, *45*(3), 393-404.
- Luoma, J. B., & Pearson, J. L. (2002). Suicide and marital status in the United States, 1991-1996: Is widowhood a risk factor? *American Journal of Public Health*, *92*(9), 1518-1522.
- Ma, J., Batterham, P. J., Calear, A. L., & Han, J. (2016). A systematic review of the predictions of the Interpersonal-Psychological Theory of suicidal behavior. *Clinical Psychology Review*, *46*, 34-45.
- Mäkinen, I. H. (2000). Eastern European transition and suicide mortality. *Social Science and Medicine*, *51*, 1405-1420.
- Mann, J. (2003). Neurobiology of suicidal behavior. *Neuroscience*, *4*, 819-828.
- Marion, M. S., & Range, L. M. (2003). African American college women's suicide buffers. *Suicide and Life-Threatening Behavior*, *33*(1), 33-43.
- Maris, R. W., Berman, A. L., Silverman, M. M., & Bongar, B. M. (2000). *The comprehensive text book of suicidology*. NY: Guilford Press.
- Martin, J. S., Ghahramanlou-Holloway, M., Englert, D. R., Bakalar, J. L., Olsen, C., Nademin, E. M., & Branlund, S. (2013). Marital status, life stressor precipitants, and communications of distress and suicide intent in a sample of United States Air Force suicide decedents. *Archives of Suicide Research*, *17*(2), 148-160.
- Marty, M. A. (2011). *Older adults and the desire for suicide: the role of perceived burdensomeness and thwarted belongingness*. Unpublished Doctoral dissertation, Department of Psychology, University of Colorado at Colorado Springs.
- Maser, J., Akiskal, H. S., P., Schettler, P., Scheftner, W., Mueller, T., Endicott, J. ... Clayton, P. (2002). Can temperament identify affectively ill patients who engage in lethal or near-

- lethal suicidal behavior? A 14-year prospective study. *Suicide and Life-Threatening Behavior*, 32, 10-32.
- Maskil, C., Hodges, I., McClellan, V., & Collings, S (2005). *Report 1: Explaining patterns of suicide: A selective review of studies examining social, economic, cultural and other population-level influences*. Retrieved from <http://www.moh.govt.nz>
- Matejevic, M., Jovanovic, D., & Lazarevic, V. (2014). Functionality of family relationships and parenting style in families of adolescents with substance abuse. *Social and Behavioral Sciences*, 128, 281-287.
- Matzopoulos, R., Cassim, M., & Seedat, M. (2003). *A profile of fatal injuries in South Africa: Fourth annual report of the National Injury Mortality Surveillance System*. Tygerberg: Medical Research Council / UNISA Crime, Violence and Injury Lead Programme.
- May, C. N., Overholser, J. C., Ridley, J., & Raymond, D. (2015). Passive suicidal ideation: A clinically relevant risk factor for suicide in treatment-seeking veterans. *Illness, Crisis & Loss*, 23(3), 261-277.
- Mayosi, B. M., Lawn, J. E., van Niekerk, A., Bradshaw, D., Abdool Karim, S. S., & Coovadia, H. M. (2012). Health in South Africa: changes and challenges since 2009. *Lancet*, 380, 2029-2043.
- McEvoy, P. M., Burgess, M. M., Page, A. C., Nathan, P., & Fursland, A. (2013). Interpersonal problems across anxiety, depression, and eating disorders: A transdiagnostic examination. *British Journal of Clinical Psychology*, 52, 129-147.

- McGirr, A., Paris, J., Lesage, A., Renaud, J., & Turecki, G. (2009). An examination of DSM-IV Borderline Personality Disorder symptoms and risk for death by suicide: A psychological autopsy study. *Canadian Journal of Psychiatry, 54*(2), 87-92.
- McGrath, R. E., Mitchell, M., Kim, B. H., & Hough, L. (2010). Evidence for response bias as a source of error variance in applied assessment. *Psychological Bulletin, 136*(3), 450-470.
- Meehan, S. A., & Broom, Y. (2007). Analysis of a national toll free suicide crisis line in South Africa. *Suicide and Life-Threatening Behavior, 37*(1), 66-78.
- Meissner, B., Bantjes, J., & Kagee, A. (2016). I would rather just go through with it than be called a wussy: An exploration of how a group of young South African men think and talk about suicide. *American Journal of Men's Health, 10*(4), 338-348.
- Menninger, K. (1933). Psychoanalytic aspects of suicide. *International Journal of Psychoanalysis, 14*, 376-390.
- Menninger, K. (1938). *Man against himself*. New York: Harcourt Brace.
- Mgaya, E., Kazaura, M. R., Outwater, A., & Kinabo, L. (2005). Suicide in the Dar es Salaam region, Tanzania. *Journal of Forensic and Legal Medicine, 15*, 172-176.
- Midlarsky, E. (1991). Helping as coping. In M. S. Clark (Ed.). *Prosocial Behavior* (pp. 238-264). Thousand Oaks, CA, US: Sage Publications.
- Mikulincer, M. (1998). Adult attachment style and individual differences in functional versus dysfunctional experiences of anger. *Journal of Personality and Social Psychology, 74*, 513-524.
- Mikulincer, M., & Orbach, I. (1995). Attachment styles and repressive defensiveness: The accessibility and architecture of affective memories. *Journal of Personality and Social Psychology, 68*, 917-925.

- Miller, A.B., Esposito-Smythers, C., & Leichtweis, R. N. (2016). A short-term, prospective test of the Interpersonal–Psychological Theory of suicidal ideation in an adolescent clinical sample. *Suicide and Life-Threatening Behavior*, *46*(3), 337-351.
- Miller, M. D. (2012). Complicated grief in late life. *Dialogues in Clinical Neuroscience*, *14*(2), 195-202.
- Mishara, B.L., & Weisstub, D.N. (2005). Ethical and legal issues in suicide research. *International Journal of Law and Psychiatry*, *28*(1), 23–41.
- Mok, P. L. H., Antonsen, S., Bøcker Pedersen, C, Appleby, L., Shaw, J., & Webb, R.T. (2015). National cohort study of absolute risk and age-specific incidence of multiple adverse outcomes between adolescence and early middle age. *BMC Public Health*, *15*:920.
- Möller, H. J. (2003). Suicide, suicidality and suicide prevention in affective disorders. *Acta Psychiatrica Scandinavica*, *108*, 73-80.
- Moller-Leimkuhler, A. M. (2003). The gender gap in suicide and premature death, or why are men so vulnerable? *European Archives of Psychiatry and Clinical Neuroscience*, *253*, 1-8.
- Monnin, J., Thiemard, E., Vandell, P., Nicolier, M., Tio, G., Courtet, P. ... Haffen, E. (2012). Sociodemographic and psychopathological risk factors in repeated suicide attempts: Gender differences in a prospective study. *Journal of Affective Disorders*, *136*, 35-43.
- Monteith, L. L., Menefee, D. S., Pettit, J. W., Leopoulos, W. L., & Vincent, J. P. (2013). Examining the Interpersonal Psychological theory of suicide in an inpatient veteran sample. *Suicide and Life-Threatening Behavior*, *43*(4), 418-428.
- Moran, C. (2013). Passive suicidal ideation: a clinically relevant risk factor for suicide. Unpublished Masters Dissertation, Department of Psychological Sciences, Case Western Reserve University. School of Graduate Studies.

- Moran, P., Coffey, C., Romaniuk, H., Olsson, C., Borschmann, R., Carlin, J. B., Patton, G. C. (2012). The natural history of self-harm from adolescence to young adulthood: a population-based cohort study. *Lancet*, 379, 236-243.
- Morrow, J., & Nolen-Hoeksema, S. (1990). Effects of responses to depression on the remediation of depressive affect. *Journal of Personality and Social Psychology*, 58, 519-527.
- Mościcki, E. K. (1997). Identification of suicide risk factors using epidemiologic studies. *Psychiatric Clinics of North America*, 20(3), 499-517.
- Mościcki, E. K. (2001). Epidemiology of completed and attempted suicide: Toward a framework for prevention. *Clinical Neuroscience Research*, 1, 310-323.
- Motto, J. A. (1990). Problems in suicide risk assessment. In D. Jacobs & H. N. Brown (Eds.). *Suicide: Understanding and Responding*. (pp. 129-142). Madison: International University Press.
- Motto, J. A., & Bostrom, A. G. (1990). Empirical indicators of near-term suicide risk. *Crisis*, 11(1), 52-59.
- Motto, J. A., & Bostrom, A. G. (2001). A randomized controlled trial of post-crisis suicide prevention. *Psychiatric Services*, 52(6), 828-833.
- Mouton, J. (1996). *Understanding Social Research*. Pretoria: Van Schaik.
- Mullis, R. L., & Chapman, P. (2000). Age, gender, and self-esteem differences in adolescent coping styles. *Journal of Social Psychology*, 140(4), 539-41.
- Murariu, D. (2016) *Testing the Interpersonal Theory of suicide in community - residing older adults*. Unpublished Masters dissertation, University of Western Ontario, Ontario.
- Murphy, G.E. (1998). Why women are less likely than men to commit suicide. *Comprehensive Psychiatry*, 39, 165-175.

- Murray, A. (1999). *Suicide in the Middle Ages. Vol. I: The Violent against themselves*. Oxford: Oxford University Press.
- Murray, A. (2000). *Suicide in the Middle Ages. Vol. II: The Curse on Self-Murder*. Oxford: Oxford University Press.
- Murray, S. (2008). *The relationship between life satisfaction, religiosity and suicidal tendencies amongst undergraduate students in South Africa*. Unpublished Honours project, University of Kwa Zulu-Natal, Durban, South Africa.
- Naidoo, S. S., & Schlebusch, L. (2014). Sociodemographic characteristics of persons committing suicide in Durban, South Africa: 2006-2007. *African Journal of Primary Health Care and Family Medicine*. (Online), 6(1), 1-7.
- National Health Council (2013). *National mental health policy framework and strategic plan 2013-2020*. Retrieved on 1 September 2016 from <https://www.health-e.org.za/wp-content/uploads/2014/10/National-Mental-Health-Policy-Framework-and-Strategic-Plan-2013-2020.pdf>
- Nelson, K., & Schulz, S. (2012). Treatment advances in borderline personality disorder. *Psychiatric Annals*, 42(2), 59-64.
- Nepon, Josh., Belik, S.L., Bolton, J., & Sareen, J. (2010). The relationship between anxiety disorders and suicide attempts: Findings from the National Epidemiologic Survey on alcohol and related conditions. *Depression and Anxiety*, 27(9), 791-798.
- Neuman, W. L. (2011). *Social Research Methods: Qualitative and Quantitative Approaches*. 7th edition. Boston: Allyn and Bacon.
- Nickerson, A. B., & Slater, E. D. (2009). School and community violence and victimization as predictors of adolescent suicidal behavior. *School Psychology Review*, 38(2), 218-232.
- Nimeus, A., Traskman-Bendz, L., & Alsen, M. (1997). Hopelessness and suicidal behavior. *Journal of Affective Disorders*, 42, 137-144.

- Nock, M. K. (2009). Why do people hurt themselves? New insights into the nature and functions of self-injury. *Current Directions in Psychological Science*, 18(2), 78-83.
- Nock, M. K., Borges, G., Bromet, E. J., Alonso, J., Angermeyer, M., Beautrais, A. ... Williams, D. (2008). Cross-national prevalence and risk factors for suicidal ideation, plans, and attempts. *British Journal of Psychiatry*, 192, 98-105.
- Nock, M. K., Guilherme, B., Bromet, E. J., Cha, C. B., Kessler, R. C., & Lee, S. (2008). Suicide and suicidal behavior. *Epidemiologic Reviews*, 30(1), 133-144.
- Nock, M. K., Joiner, T. E., Gordon, K. H., Lloyd-Richardson, E., & Prinstein, M. J. (2006). Non-suicidal self-injury among adolescents: Diagnostic correlates and relation to suicide attempts. *Psychiatry Research*, 144(1), 65-72.
- Nolen-Hoeksema, S., Larson, J., & Grayson, C. (1999). Explaining the gender difference in depressive symptoms. *Journal of Personality and Social Psychology*, 77(5), 1061-1072.
- O'Carroll, P. W. (1989). A consideration of the validity and reliability of suicide mortality data. *Suicide and Life-Threatening Behavior*, 19(1), 1-16.
- O'Carroll, P., Berman, A. L., Maris, R. W., Moscicki, E. K., Tanney, B. L., & Silverman, M. M. (1996). Beyond the Tower of Babel: A nomenclature for suicidology. *Suicide and Life-Threatening Behavior*, 26(3), 237-252.
- O'Connell, H., Chin, A.V., Cunningham, C., & Lawlor, B. A. (2004). Recent developments: Suicide in older people. *British Medical Journal*, 329, 895-899.
- O'Connor, R. C. (2003). Suicidal behavior as a cry of pain: Test of a psychological model. *Archives of Suicide Research*, 7, 297-308.
- O'Connor, R., Connery, C. H., & Cheyne, W. M. (2000). Hopelessness: The role of depression, future directed thinking and cognitive vulnerability. *Psychology, Health & Medicine*, 5(2), 155-161.

- O'Connor, R., & Sheehy, N. (2000). *Understanding suicidal behavior*. London: British Psychological Society.
- Ogundipe, L. O. (1999). Suicide attempts vs. deliberate self-harm. *British Journal of Psychiatry*, *175*, 90. doi: 10.1192/bjp.175.1.90a
- Oh, D. J., Park, J. Y., Oh, M., Kim, K., Hong, J., Kim, T.... Kim, K. W. (2015). Suicidality-based prediction of suicide attempts in a community-dwelling elderly population: Results from the Osan Mental Health Survey. *Journal of Affective Disorders*, *184*, 286-292.
- O'Keefe, V. M., Wingate, L. R., Tucker, R. P., Rhoades-Kerswill, S., Slish, M. L., & Davidson, C. L. (2014). Interpersonal suicide risk for American Indians: Investigating thwarted belongingness and perceived burdensomeness. *Cultural Diversity and Ethnic Minority Psychology*, *20*(1), 61-67.
- O'Mahony, S., Goulet, J., Kornblith, A., Abbatiello, G., Clarke, B., Kless-Siegel, S. ... Payne, R. (2005). Desire for hastened death, cancer pain and depression: Report of a longitudinal observational study. *Journal of Pain and Symptom Management*, *29*, 446-457.
- Oostveen, T., Knibbe, R., & De Vries, H. (1996). Social influences on young adults' alcohol consumption: Norms, modeling, pressure, socializing, and conformity. *Addictive Behaviors*, *21*(2), 187-197.
- Osman, A., Bagge, C.L., Gutierrez, P.M., Konick, L.C., Kopper, B.A., & Barrios, F.X. (2001). The suicidal behaviors questionnaire-revised (SBQ-R): Validation with clinical and non-clinical samples. *Journal of Consulting and Clinical Psychology*, *51*, 276-286.
- Oquendo, M. A., & Baca-Garcia, E. (2014). Suicidal behavior disorder as a diagnostic entity in the DSM-5 classification system: advantages outweigh limitations. *World Psychiatry*, *13*(2), 128-130.

- Oquendo, M. A., Baca-Garcia, E., Mann, J. J., & Giner, J. (2008). Issues for DSM-5: Suicidal behavior as a separate diagnosis on a separate axis. *American Journal of Psychiatry*, *165*(11), 1383-1384.
- Oquendo, M. A., Dragatsi, D., Harkavy-Friedman, J., Dervic, K., Currier, D., Burke, A. K. ...Mann, J. J. (2005). Protective factors against suicidal behavior in Latinos. *Journal of Nervous & Mental Disease*, *193*(7), 438-443.
- Ortin, A. Lake, A. M., Kleinman, M., & Gould, M. S. (2012). Sensation seeking as risk factor for suicidal ideation and suicide attempts in adolescence. *Journal of Affective Disorders*, *143*, 214-222.
- Osvath, P., Kelemen, G., Erdos, M. B., Voros, V., & Fekete, S. (2003). The main factors of repetition: review of some results of the Pecs Center in the WHO/ EURO Multicentre Study on suicidal behavior. *Crisis*, *24*, 151-154.
- Owens, C., & Lambert, H. (2012). Mad, bad or heroic? Gender, identity and accountability in lay portrayals of suicide in late twentieth-century England. *Culture Medicine and Psychiatry*, *36*(2), 348-371.
- Owen, R., Gooding, P., Dempsey, R., & Jones, S. (2015). A qualitative investigation into the relationships between social factors and suicidal thoughts and acts experienced by people with a bipolar disorder diagnosis. *Journal of Affective Disorders*, *176*, 133-140.
- Ozbay, F., Johnson D. C., Dimoulas, E., Morgan, C. A., Charney, D., & Southwick, S. (2007). Social support and resilience to stress: From neurobiology to clinical practice. *Psychiatry*, *4*(5), 35-40.
- Parkes, C. M. (1998). Bereavement in adult life. *British Medical Journal*, *316*, 856-859.
- Patel, C. J., Ramgoon, S., & Paruk, Z. (2009). Exploring religion, race and gender as factors in the life satisfaction and religiosity of young South African adults. *South African Journal of Psychology*, *39*(3), 266-274.

- Pattison, E. M., & Kahan, J. (1983). The deliberate self-harm syndrome. *American Journal of Psychiatry*, *140*, 867-872.
- Pfeiffer, P.N., Brandfon, S., Garcia, E., Duffy, S., Ganoczy, D., Kim, H. M., & Valenstein, M. (2014). Predictors of suicidal ideation among depressed veterans and the Interpersonal Theory of suicide. *Journal of Affective Disorders*, *152-154*, 277-281.
- Phillips, M. R., Yang, G., Zhang, Y., Wang, L., Ji, H., & Zhou, M. (2002). Risk factors for suicide in China: a national case-control psychological autopsy study. *Lancet*, *360(9347)*, 1728-1736.
- Phillips, M. R., Li, X., & Zhang, Y. (2002). Suicide rates in China, 1995-99. *Lancet*, *359*, 835-840.
- Pienaar, J., Rothmann, S., & van der Vijver, F. J. R. (2007). Occupational stress, personality traits, coping strategies, and suicide ideation in the South African Police Service. *Criminal Justice and Behavior*, *34(2)*, 246-258.
- Pillay, A. L., & Schlebusch, L. (1987). Parasuicide among Indian adolescents: Some cultural perspectives. *South African Journal of Psychology*, *17(3)*, 107-110.
- Ping, Q., & Merete, N. (2005). Suicide risk in relation to psychiatric hospitalization: Evidence based on longitudinal registers. *Archives of General Psychiatry*, *62*, 427-432.
- Platt, S. (1984). Unemployment and suicidal behavior: A review of the literature. *Social Science and Medicine*, *19(2)*, 93-115.
- Popovic, D., Benabarre, A., Crespo, J. M., Goikolea, J. M., Gonzalez-Pinto, A., Gutierrez-Rojas, L. ... Vieta, E. (2014). Risk factors for suicide in schizophrenia: systematic review and clinical recommendations. *Acta Psychiatrica Scandinavica*, *130*, 418-426.
- Pridemore, W. A. (2006). Heavy drinking and suicide in Russia. *Social Forces*, *85(1)*, 413-430.

- Prinstein, M. J. (2008). Introduction to the special section on suicide and non-suicidal self-injury: A review of unique challenges and important directions for self-injury science. *Journal of Consulting and Clinical Psychology, 76*, 1-8.
- Ramgoon, S., Bachoo, S., Patel, C., & Paruk, Z. (2006). Could a healthy ego identity serve as a protective factor against suicidal tendencies? A pilot study. *Journal of Child and Adolescent Mental Health, 18*, 49-54.
- Ramon S. (1980). Attitudes of doctors and nurses to self-poisoning patients. *Social Science and Medicine, 14*, 317-324.
- Rancans, E., Salander Renberg, E., & Jacobsson, L. (2001). Major demographic, social and economic factors associated to suicide rates in Latvia 1980-98. *Acta Psychiatrica Scandinavica, 103*, 275-281.
- Ranjbar, M., Bayani, A.A., & Bayani, A. (2013). Social problem solving ability predicts mental health among undergraduate students. *International Journal of Preventive Medicine, 4*, 1337-1341.
- Rasic, D. T., Belik, S. L., Bolton, J. M., Chochinov, H. M., & Sareen, J. (2008). Cancer, mental disorders, suicidal ideation and attempts in a large community sample. *Psycho-Oncology, 17*, 660-667.
- Ream, G.L. (2015). The Interpersonal–Psychological theory of suicide in college student suicide screening. *Suicide and Life-threatening Behavior, 46* (2), 239–247.
- Rey-Gex, C., Narring, F., Ferron, C., & Michaud, P. A. (1998). Suicide attempts among adolescents in Switzerland: Prevalence, associated factors and comorbidity. *Acta Psychiatrica Scandinavica, 98*, 28-33.
- Reynolds, W. M. (1987). *Suicidal Ideation Questionnaire*. Odessa, FL: Psychological Assessment Resources.

- Ribeiro, J. D., & Joiner, T. E. (2009). The Interpersonal-Psychological Theory of suicidal behavior: current status and future directions. *Journal of Clinical Psychology, 65*(12), 1291-1299.
- Robins, E., & Guze, S. B., (1970). Establishment of diagnostic validity in psychiatric illness: Its application to schizophrenia. *American Journal of Psychiatry, 126*, 983-987.
- Robins, L.N., West, P.A., & Murphy, G. E. (1977). The high rate of suicide in older white men: A study testing ten hypotheses. *Social Psychiatry, 12*(1), 1-20.
- Romanowicz, M., O'Connor, S. S., Schak, K. M., Swintak, C. C., & Lineberry, T. W. (2013). Use of the Suicide Status Form-II to investigate correlates of suicide risk factors in psychiatrically hospitalized children and adolescents. *Journal of Affective Disorders, 151*, 467-473.
- Ross, S., & Heath, N. (2002). A study of the frequency of self-mutilation in a community sample of adolescents. *Journal of Youth and Adolescence, 31*(1), 67-77.
- Rossellini, A. J., & Bagge, C. L. (2014). Temperament, hopelessness, and attempted suicide: Direct and indirect effects. *Suicide and Life-Threatening Behavior, 44*(4), 353-361.
- Rossotto, E., Yager, J., & Rorty, M., (1998). The Impulsive behavior scale. In: Vanderlinden, J., Vandereycken, W. (Eds.), *Trauma, Dissociation, and Impulse Dyscontrol in Eating Disorders*. Levittown, PA: Brunner/Mazel.
- Rudd, M. D. (2000). The suicidal mode: A cognitive-behavioral model of suicidality. *Suicide & Life-Threatening Behavior, 30*(1), 18-33.
- Rudd, M. D., Joiner, T. E., & Rajab, M. H. (1995). Help negotiation after acute suicidal crisis. *Journal of Consulting and Clinical Psychology, 63*(3), 499-503.
- Rudd, M. D., Joiner, T., & Rajab, M. H. (2004). *Treating suicidal behavior: An effective, time-limited approach* (2nd Edition). NY: Guilford.

- Ruhm, C. J. (2000). Are recessions good for your health? *Quarterly Journal of Economics*, *115*(2), 617-650.
- Rush, A. J., Beck, A. T., Kovacs, M., Weissenburger, J., & Hollon, S. D. (1982). Comparison of the effects of cognitive therapy and pharmacotherapy on hopelessness and self-concept. *American Journal of Psychiatry*, *139*, 862-866.
- Sabbath, J. C. (1969). The suicidal adolescent: The expendable child. *Journal of the American Academy of Child Psychiatry*, *8*, 272-285.
- Samaraweera, S., Sumathipala, A., Siribaddana, S., Sivayogan, S., & Bhugra, D. (2008). Completed suicide among Sinhalese in Sri Lanka: A psychological autopsy study. *Suicide and Life-Threatening Behavior*, *38*, 221-228.
- Saragovi, C., Koestner, R., Dio, L. D., & Aube', J. (1997). Agency, communion, and well-being: Extending Helgeson's (1994) model. *Journal of Personality and Social Psychology*, *73*, 593-609.
- Schafer, J. L., & Olsen, M. K. (1998). Multiple imputation for multivariate missing-data problems: A data analyst's perspective. *Multivariate Behavioral Research*, *33*, 545-571.
- Schlebusch, L. (2005) *Suicidal Behaviour in South Africa*. Pietermaritzburg: University of KwaZulu-Natal Press.
- Schlebusch, L., & Bosch, B. A. (eds) (2000). *Suicidal Behaviour 4: Proceedings of the Fourth Southern African Conference on Suicidology*. Durban: Department of Medically Applied Psychology, Faculty of Medicine, University of Natal.
- Schlebusch, L., & Vawda, N. (2010). HIV-infection as a self-reported risk factor for attempted suicide in South Africa. *African Journal of Psychology*, *13*(4), 280-283.
- Schlebusch, L., Vawda, N. B. M., & Bosch, B. A. (2003). Suicidal behavior in Black South Africans. *Crisis*, *24*, 24-28.

- Schneider, B., Grebner, K., Schnabel, A., Hampel, H., Georgi, K., & Seidler, A. (2011). Impact of employment status and work-related factors on risk of completed suicide. A case-control psychological autopsy study. *Psychiatry Research, 190*(2-3), 265-70.
- Schotte, D., & Clum, G. (1982). Suicide ideation in a college population: A test of a model. *Journal of Consulting and Clinical Psychology, 50*, 690-696.
- Schwartz, C., & Sendor, M. (2000). Helping others helps oneself: Response shift effects in peer support. In K. Schmaling (Ed.). *Adaptation to changing health: response shift in quality-of-life research* (pp. 43-70). Washington, DC: American Psychological Association.
- Seedat, S., Stein, D. J., Jackson, P. B., Heeringa, S. G., Williams, D. R., & Myer, L. (2009). Life stress and mental disorders in the South African Stress and Health study. *South African Medical Journal, 99*(5), 375-382.
- Shaughnessy, J. J., & Zechmeister, E. B. (1990). *Research Methods in Psychology* (2nd ed.). NY: McGraw-Hill.
- Shiffman, S., & Stone, A. A. (1998). Introduction to the special section: Ecological momentary assessment in health psychology. *Health Psychology, 17*(1), 3-5.
- Shilubane, H. N., Ruiters, R. A. C., Bos, A. E. R., van den Borne, B., James, S., & Reddy, P. S. (2012). Psychosocial determinants of suicide attempts among black South African adolescents: a qualitative analysis. *Journal of Youth Studies, 15*(2), 177-189.
- Shiner, M., Scourfield, J., Fincham, B., & Langer, S. (2009). When things fall apart: Gender and suicide across the life-course. *Social Science and Medicine, 69*, 738-746.
- Shneidman, E. (1981). Psychotherapy with suicidal patients. *Suicide and Life-Threatening Behavior, 11*(4), 341-348.
- Shneidman, E. (1985). *Definition of suicide*. New York: Wiley.

- Shneidman, E. S. (1993). *Suicide as psychache: A clinical approach to self-destructive behavior*. Northvale, NJ: Aronson.
- Shneidman, E. S. (1995). *Definition of suicide*. New York: Wiley.
- Shneidman, E. S. (1996). *The suicidal mind*. New York: Oxford University Press.
- Silva, C., Ribeiro, J. D., & Joiner, T. E. (2015). Mental disorders and thwarted belongingness, perceived burdensomeness, and acquired capability for suicide. *Psychiatry Research, 226*, 316-327.
- Silverman, M. M., Berman, A. L., Sanddal, N. D., O'Carroll, P. W., & Joiner, T. E. (2007a). Rebuilding the Tower of Babel: A revised nomenclature for the study of suicide and suicidal behaviors. Part 1: Background, rationale, and methodology. *Suicide and Life-Threatening Behavior 37*(3) 248-263.
- Silverman, M. M., Berman, A. L., Sanddal, N. D., O'Carroll, P. W., & Joiner, T. E. (2007b). Rebuilding the Tower of Babel: A revised nomenclature for the study of suicide and suicidal behaviors. Part 2: Suicide-related ideations, communications, and behaviors. *Suicide and Life-Threatening Behavior, 37*(3), 264-277.
- Simlot, R., McFarland, K., & Lester, D. (2013). Testing Joiner's theory of suicide in Jain inmates: An exploratory study. *Psychological Reports: Sociocultural Issues in Psychology, 112*(1), 100-105.
- Simon, R. I. (2014). Passive suicidal ideation: Still a high-risk clinical scenario. *Current Psychiatry, 13*(3), 13-15.
- Simons, J. S., & Gaher, R. M. (2005). The Distress Tolerance Scale: Development and validation of a self-report measure. *Motivation and Emotion, 29*(2), 83-102.
- Skeer, M. R., McCormick, M. C., Normand, S.-L., Mimiaga, M. J., Buka, S. L., & Gilman, S. E. (2011). Gender differences in the association between family conflict and adolescent substance use disorders. *Journal of Adolescent Health, 49*, 187-192.

- Skegg, K. (2005). Self-harm. *Lancet*, 366, 1471-1483.
- Slap, G., Goodman, E., & Huang, B. (2001) Adoption as a risk factor for attempted suicide during adolescence. *Pediatrics*, 108(2), E30 10.1542/peds.108.2.e30. Retrieved from <http://www.pediatrics.org/cgi/content/full/108/2/e30>.
- Smith, P. N., & Cukrowicz, K. (2010). Capable of suicide: A functional model of the acquired capability component of the Interpersonal-Psychological Theory of suicide. *Suicide and Life-Threatening Behavior*, 40(3), 266-275.
- Solomon, R. L. (1980). The Opponent-process Theory of acquired motivation: The costs of pleasure and the benefits of pain. *American Psychologist*, 35(8), 691-712.
- Sørli, T., Sørgaard, K. W., Bogdanov, A., Bratlid, T., & Rezvy, G. (2015). Prevalence and characteristics of suicide attempters and ideators among acutely admitted psychiatric hospital patients in northwest Russia and northern Norway. *BMC Psychiatry*, 15,187. doi: 10.1186/s12888-015-0545-3.
- South African Depression and Anxiety Group. (2015). *Teen suicide*. Retrieved from http://www.sadag.org/index.php?option=com_content&view=article&id=1840&Itemid=153
- Stack, S. (2000). Suicide: A 15-year review of the sociological literature. Part I: Cultural and economic factors. *Suicide and Life Threatening Behavior*, 30, 145-162.
- Stack, S., & Wasserman, I. (2007). Economic strain and suicide risk: a qualitative analysis. *Suicide and Life Threatening Behavior*, 37, 103-112.
- Stark, K., Joubert, G., Struwig, M., Pretorius, M., van der Merwe, M., Botha, H...Krynauw, D. (2010). Suicide cases investigated at the state mortuary in Bloemfontein, 2003-2007, *South African Family Practice*, 52, 332-335.

- Starr, L. R., & Davila, J. (2012). Cognitive and interpersonal moderators of daily co-occurrence of anxious and depressed moods in generalized anxiety disorder. *Cognitive Therapy Research, 36*(6), 655-669.
- Statistics South Africa (2011) *Census 2011: Census in brief*. Retrieved from http://www.statssa.gov.za/census/census_2011/census_products/Census_2011_Census_in_brief.pdf
- Statistics South Africa (2013). *Mortality and causes of death in South Africa, 2010: Findings from death notification*. Retrieved from <http://www.statssa.gov.za/publications/P03093/P030932010.pdf>.
- Statistics South Africa (2016). *Employment, unemployment, skills and economic growth. An exploration of household survey evidence on skills development and unemployment between 1994 and 2014*. Retrieved from http://www.statssa.gov.za/presentation/Stats%20SA%20presentation%20on%20skills%20and%20unemployment_16%20September.pdf
- Stegg, S., Haigh, M., Webb, R. T., Kapur, N., Awenat, Y., Gooding, P.... Cooper, J. (2016) The exacerbating influence of hopelessness on other known risk factors for repeat self-harm and suicide. *Journal of Affective Disorders, 190*, 522-528.
- Steiner, H., Erickson, S. J., Hernandez, N. L., & Pavelski, R. (2002). Coping styles as correlates of health in high school students. *Journal of Adolescent Health, 30*(5), 326-335.
- Stephens, J. H., Pascal, R., & McHugh, P. R. (1999). Suicide in patients hospitalized for schizophrenia: 1913-1940. *Journal of Nervous and Mental Disease, 187*, 10-14.
- Stroebe, M., Schut, H., & Stroebe, W. (2007) Health outcomes of bereavement. *Lancet, 370*, 1960-1973.

- Strohmeier, C. W., Rosenfield, B., DiTomasso, R. A., & Ramsay, J. R. (2016). Assessment of the relationship between self-reported cognitive distortions and adult ADHD, anxiety, depression, and hopelessness. *Psychiatry Research, 238*, 153-158.
- Sudak, D. M. (2012). Cognitive behavioral therapy for depression. *Psychiatric Clinics of North America, 35*, 99-110.
- Suzuki, T. (2008). Economic modelling of suicide under income uncertainty: For better understanding of middle-aged suicide. *Australian Economic Papers, 47*(3), 296-310.
- Tarrier, N., Barrowclough, C., Andrews, B., & Gregg, L. (2004). Risk of non-fatal suicide ideation and behavior in recent onset schizophrenia: The influence of clinical, social, self-esteem and demographic factors. *Social Psychiatry and Psychiatric Epidemiology, 39*(11), 927-937.
- Tavakol, Mohsen., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education, 2*, 53-55.
- Thibodeau, M. A., Welch, P. G., Sareen, J., & Asmundson, G. J. G. (2013). Anxiety disorders are independently associated with suicide ideation and attempts: Propensity score matching in two epidemiological samples. *Depression and Anxiety, 30*, 947-954.
- Thompson, E. A., Mazza, J. J., Herting, J. R., Randell, B. P., & Eggert, L. L. (2005). The mediating roles of anxiety, depression, and hopelessness on adolescent suicidal behaviors. *Suicide and Life-Threatening Behavior, 35*(1), 14-34.
- Thompson, M.E., Mazza, J.H., Herting, J.R., Randell, B. P., & Eggert, L.L. (2005). The mediating roles of anxiety, depression and hopelessness on adolescent suicidal behaviours. *Suicide and Life -Threatening behavior, 35*(1), 14-21.
- Thompson, M. P., & Vardaman, P. J. (1997). The role of religion in coping with the loss of a family member to homicide. *Journal for the Scientific Study of Religion, 36*(1), 44-51.

- Thong, J. Y., Su, A. H., Chan, Y. H., & Chia, B. H. (2008). Suicide in psychiatric patients: Case-control study in Singapore. *Australian and New Zealand Journal Of Psychiatry*, 42(6), 509-519.
- Tidemalm, D., Långström, N., Lichtenstein, P., & Runeson, B. (2008). Risk of suicide after suicide attempt according to coexisting psychiatric disorder: Swedish cohort study with long term follow-up. *British Medical Journal*, 337, a2205.
- Togay, B., Noyan, H., Tasdelen, H., & Ucok, A. (2015). Clinical variables associated with suicide attempts in schizophrenia before and after the first episode. *Psychiatry Research*, 229, 252-256.
- Townsend, E. (2007). Suicide terrorists: Are they suicidal? *Suicide and Life-Threatening Behavior*, 37(1), 35-49.
- Truant, G. S., O'Reilly, R., & Donaldson, L. (1991). How psychiatrists weigh risk factors when assessing suicide risk. *Suicide and Life-Threatening Behavior*, 21(2), 106-114.
- Turner, B. (2014). The DSM V offers suicidal behavior disorder as a condition for further study that seems to medicalize suicide attempt. Thoughts? Retrieved from https://www.researchgate.net/post/s_Thoughts?
- Uhmann, S., Beesdo-Baum, K., Becker, E. S., & Hoyer, J. (2010). Specificity of interpersonal problems in generalized anxiety disorder versus other anxiety disorders and depression. *Journal of Nervous and Mental Disease*, 198, 846-851.
- UN AIDS (2016). *HIV and AIDS estimates: 2015*. Retrieved from <http://www.unaids.org/en/regionscountries/countries/southafrica>.
- Valtonen, H. M., Suominen, K., Haukka, J., Mantere, O., Leppamaki, S., Arvilommi, P., & Isometsa, E. T. (2008). Differences in incidence of suicide attempts during phases of bipolar I and II disorders. *Bipolar Disorders*, 10(5), 588-596.

- Van Olphen, J., Shulz, A., Israel, B., Chatters, A., Klem, L., Parker, E., & Williams, D. (2003). Religious involvement, social support, and health among African-American women on the east side of Detroit. *Journal of General Internal Medicine, 18*, 549-557.
- Van Orden, K. A., Cukrowicz, K. C., Witte, T. K., & Joiner, T. E. (2012). Thwarted belongingness and perceived burdensomeness: Construct validity and psychometric properties of the Interpersonal Needs Questionnaire. *Psychological Assessment, 24*(1), 197-215.
- Van Orden, K. A., Lynam, M. E., Hollar, D., & Joiner, T. E. (2006). Perceived burdensomeness as an indicator of suicidal symptoms. *Cognitive Therapy and Research, 30*, 457-467.
- Van Orden, K. A., Witte, T. K., Cukrowicz, K. C., Braithwaite, S. R., Selby, E. A., & Joiner, T. E. (2010). The Interpersonal Theory of suicide. *Psychological Review, 117*(2), 575-600.
- Van Orden, K. A., Witte, T. K., Gordon, K. H., Bender, T. W., & Joiner, T. E. (2008). Suicidal desire and the capability for suicide: Tests of the Interpersonal-Psychological Theory of suicidal behavior among adults. *Journal of Consulting and Clinical Psychology, 76*(1), 72-83.
- Van Praag, H. M. (2009). The role of religion in suicide prevention. In D. Wasserman & C. Wasserman (eds.). *Oxford Textbook of Suicidology and Suicide Prevention*. Oxford: Oxford University Press.
- Värnik, A. (1997). *Suicide in the Baltic countries and in the former republics of the USSR*. Unpublished doctoral dissertation, Karolinska Institut, Stockholm.
- Värnik, P. (2012). Suicide in the World. *International Journal of Environmental Research and Public Health, 9*(3), 760-771.

- Wade, N. L. (1987). Suicide as a resolution of separation-individuation among adolescent girls. *Adolescence*, 22, 169-177.
- Wang, Y., Jiang, N., Cheung, E. F. C., Sun, H., & Chan, R. C. K. (2015). Role of depression severity and impulsivity in the relationship between hopelessness and suicidal ideation in patients with major depressive disorder. *Journal of Affective Disorders*, 183, 83-89.
- Wassenaar, D. R., Pillay, A. L., Descoins, S., Goltman, M. & Naidoo, P. (2000). Patterns of suicide in Pietermaritzburg 1982-1996: Race, gender and seasonality. In L. Schlebusch & B. Bosch (Eds.). *Suicidal Behaviour 4: Proceedings of the Fourth Southern African Conference on Suicidology*. Durban: Department of Medically Applied Psychology, Faculty of Medicine, University of Natal.
- Wassenaar, D. R., & Mamotte, N. (2012). The use of students as participants in a study of eating disorders in a developing country: Case study in the ethics of mental health research. *Journal of Nervous & Mental Disease*, 200(2), 265-270.
- Wei, M., Mallinckrodt, B., Larson, L. M., & Zakalik, R. A. (2005). Adult attachment, depressive symptoms, and validation from self versus others. *Journal of Counseling Psychology*, 52, 368-377.
- Weir E. (2001). Suicide: The hidden epidemic. *Canadian Medical Association Journal*, 165(5), 634-636.
- Wenzel, A., & Beck, A. T. (2008). A cognitive model of suicidal behavior: Theory and treatment. *Applied and Preventive Psychology*, 12(4), 189-201.
- West, M. E., & Boonzaier, E. A. (1989). Population groups, politics and medical science. *South African Medical Journal*, 76(5), 185-186.
- West, M., & George, C. (2002). Attachment and dysthymia: The contributions of preoccupied attachment and agency of self to depression in women. *Attachment and Human Development*, 4, 278-293.

- Westefeld, J. S., Range, L. M., Rogers, J. R., Maples, M. R., Bromley, J. L., & Alcorn, J. (2000). Suicide: An overview. *The Counseling Psychologist, 28*(4), 445-510.
- Weyrauch, K. F., Roy-Byrne, P., Katon, W., & Wilson, L. (2001). Stressful life events and impulsiveness in failed suicide. *Suicide and Life-Threatening Behavior, 31*, 311-319.
- Whiteside, S. P., & Lynam, D. R. (2001). The five factor model and impulsivity: Using a structural model of personality to understand impulsivity. *Personality and Individual Differences, 30*, 669-689.
- Whitlock, J., Eckenrode, J., & Silverman, D. (2006). Self-injurious behaviors in a college population. *Pediatrics, 117*(6), 1939-1948.
- Whitlock, J., & Knox, K. L. (2007). The relationship between self-injurious behavior and suicide in a young adult population. *Archives of Pediatrics and Adolescent Medicine, 161*, 634-640.
- Whittemore, R., Chase, S. K., & Mandle, C. L. (2001). Pearls, pith, and provocation: Validity in qualitative research. *Qualitative Health Research, 11*(4), 522-537.
- Wilkinson, P., Kelvin, R., Roberts, C., Dubicka, B., & Goodyer, I. (2011). Clinical and psychosocial predictors of suicide attempts and nonsuicidal self-injury in the Adolescent Depression Antidepressants and Psychotherapy Trial (ADAPT). *American Journal of Psychiatry, 168*, 495-501.
- Wilson, K. G., Curran, D., & McPherson, C. J. (2005). A burden to others: A common source of distress for the terminally ill. *Cognitive Behavior Therapy, 34*, 115-123.
- Woods, A. M., Zimmerman, L., Carlin, E., Hill, A., & Kaslow, N. J. (2013). Motherhood, reasons for living, and suicidality among African American women. *Journal of Family Psychology, 27*(4), 600-606.

- World Health Organization (2012a). *Management of patient information. Trends and challenges in Member States*. Retrieved from http://apps.who.int/iris/bitstream/10665/76794/1/9789241504645_eng.pdf
- World Health Organization (2012b). *Suicide Prevention (SUPRE)*. Retrieved from http://www.who.int/mental_health/prevention/suicide/country_reports/en/index.html
- World Health Organization. (2014a). *First WHO report on suicide prevention*. Retrieved from <http://www.who.int/mediacentre/news/releases/2014/suicide-prevention-report/en/>
- World Health Organization (2014b). *Preventing Suicide: A global imperative*. Luxembourg: Retrieved from http://apps.who.int/iris/bitstream/10665/131056/8/9789241564878_eng.pdf?ua=1&ua=1
- World Health Organization (2016). *Global Health Observatory (GHO) data*. Retrieved from http://www.who.int/gho/mental_health/suicide_rates/en/
- Yates, T. M., Luthar, S.S., & Tracy, A. J. (2008). Nonsuicidal self-injury among “privileged” youths: Longitudinal and cross-sectional approaches to developmental process. *Journal of Consulting and Clinical Psychology, 76*(1), 52-62.
- Yim, P. H., Yip, P. S., Li, R. H., Dunn, E. L., Yeung, W. S., & Miao, Y. K. (2004). Suicide after discharge from psychiatric inpatient care: A case control study in Hong Kong. *The Australian and New Zealand Journal of Psychiatry, 38*, 65-72.
- You, S., Van Orden, K. A., & Conner, K. R. (2011). Social connections and suicidal thoughts and behavior. *Psychology of Addictive Behaviors, 25*(1), 180-184.
- Zanarini, M. C., Young, L., Frankenburg, F. R., Hennen, J., Reich, D. B., Marino, M. F., & Vujanovic, A. A. (2002). Severity of reported childhood sexual abuse and its relationship to severity of borderline psychopathology and psychosocial impairment among borderline inpatients. *Journal of Nervous and Mental Disease, 190*(6), 381-387.

- Zeigler-Hill, V., & Abraham, J. (2006). Borderline personality features: Instability of self-esteem and affect. *Journal of Social and Clinical Psychology, 25*(6), 668-687.
- Zetterqvist, M., Lundh, L. G., Dahlström, O., & Svedin, C. G. (2013). Prevalence and function of non-suicidal self-injury (NSSI) in a community sample of adolescents, using suggested DSM-5 criteria for a potential nssi disorder. *Journal of Abnormal Child Psychology, 41*, 759-773.
- Zhang, J., Lester, D., Zhao, S., & Zhou, C. (2013). Suicidal ideation and its correlates: testing the Interpersonal Theory of suicide in Chinese students. *Archives of Suicide Research, 17*(3), 236-41.
- Zilboorg, G. (1936). Suicide among civilized and primitive races. *American Journal of Psychiatry, 92*, 362-373.
- Zonda, T. (2006). One-hundred cases of suicide in Budapest: A case controlled psychological autopsy study. *Crisis, 27*, 125-129.
- Zulu, S. (2010). *An exploration of the interrelationships between intimacy resolution, coping styles, and suicidal attitudes among a sample of university students*. Unpublished Masters dissertation, University of KwaZulu-Natal, Durban.
- Zupello, S. (2016). *Facebook releases suicide prevention tools*. Retrieved on 14 September 2016 from <https://www.good.is/articles/facebook-suicide-prevention>



20 April 2015

Mrs Sarojini Naidoo
8 Sanderson Road
Cowies Hill
3610
Naidoos15@ukzn.ac.za

Dear Mrs Naidoo

PROTOCOL: Testing the Interpersonal-Psychological theory of suicidal behaviour in the South African context. REF: BE138/14

EXPEDITED APPLICATION

A sub-committee of the Biomedical Research Ethics Committee has considered and noted your application received on 02 April 2014.

The study was provisionally approved pending appropriate responses to queries raised. Your responses received on 01 April 2015 to queries raised on 18 November 2014 have been noted by a sub-committee of the Biomedical Research Ethics Committee. The conditions have now been met and the study is given full ethics approval for all sites for which permission has been granted.

This approval is valid for one year from 20 April 2015. 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 (2004), 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/Biomedical-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 May 2015.

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

Biomedical Research Ethics Committee

Professor J Tsoka-Gwegweni (Chair)

Westville Campus, Govan Mbeki Building

Postal Address: Private Bag X64001, Durban 4000

Telephone: +27 (0) 31 260 2486 Facsimile: +27 (0) 31 260 4809 Email: brec@ukzn.ac.za

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

244

1910 - 2010

100 YEARS OF ACADEMIC EXCELLENCE



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 2604609
Email: BREC@ukzn.ac.za

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

23 November 2016

Mrs Sarojini Naidoo
8 Sanderson Road
Cowies Hill
3610
Naidoos15@ukzn.ac.za

Dear Mrs Naidoo

PROTOCOL: Testing the Interpersonal-Psychological theory of suicidal behaviour in the South African context. REF: BE138/14

RECERTIFICATION APPLICATION APPROVAL NOTICE

Approved: 16 April 2016
Expiration of Ethical Approval: 15 April 2017

I wish to advise you that your application for Recertification received on 16 November 2016 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 by a full Committee at its meeting taking place on 13 December 2016.

Yours sincerely

Mrs A Marimuthu
Senior Administrator: Biomedical Research Ethics

Information Sheet and Consent to Participate in Research

Date: 29 October 2014

Appendix B

Dear Patient

My name is Sarojini Naidoo from 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 PhD study that involves research on suicide. The aim and purpose of this research is to investigate the relevance of the Interpersonal- Psychological theory of suicide in the South African context. The study is expected to enrol approximately 500 participants from the greater Durban area (approximately 250 from the general population and approximately 250 from State hospital outpatient clinics, university psychology clinics and private outpatients. It will involve the completion of six questionnaires that will tap into various areas of your emotional wellbeing. The duration of your participation (if you choose to enrol and remain in the study) is expected to be 30 to 40 minutes.

Please note that your participation is entirely voluntary and that should you wish to withdraw from the study at any point in time, you may do so without penalty or consequences ie. neither your medication and/or counselling will be denied because you have withdrawn your participation. If you experience distress whilst participating in the study, the person administering the questionnaires (who is a counsellor) will debrief and counsel you or refer you for follow-up counselling.

Please note that there are no financial incentives for participating in the study, neither will you incur any financial cost.

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.

We hope that the study will lead to a more comprehensive understanding of who is most at risk for suicidal behavior. Therefore, whilst the study may provide no immediate or direct benefit to you, it is hoped that it will assist future efforts to prevent suicidal behavior.

This study has been ethically reviewed and approved by the UKZN Biomedical research Ethics Committee (approval number BE138/14)

In the event of any problems or concerns/questions you may contact the researcher at (provide contact details) or the UKZN Biomedical Research Ethics Committee, contact details as follows:

BIOMEDICAL RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus
Govan Mbeki Building
Private Bag X 54001
Durban
4000
KwaZulu-Natal, SOUTH AFRICA
Tel: 27 31 2604769 - Fax: 27 31 2604609
Email: BREC@ukzn.ac.za

CONSENT (Edit as required)

I (Name) have been informed about the study entitled Testing the Interpersonal theory of suicide in the South African context by Sarojini Naidoo (or research assistant).

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

I have been given an opportunity to answer 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 any 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 the Discipline of Psychology, Howard College, UKZN (Tel : 0312607615)

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 researchers then I may contact:

BIOMEDICAL RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus
Govan Mbeki Building
Private Bag X 54001
Durban
4000
KwaZulu-Natal, SOUTH AFRICA
Tel: 27 31 2604769 - Fax: 27 31 2604609
Email: BRECE@ukzn.ac.za

Signature of Participant

Date

**Signature of Witness
(Where applicable)**

Date

Clinician protocol for Rating and Managing Suicide Risk (adapted from Van Orden et al., 2008)

DSM-5 diagnosis (primary): _____

Use the symptomatic presentation below to rate the level of suicide risk of the patient. Then please ensure you complete the actions listed (see footnotes on pages 1 and 2)

Risk	Symptomatic presentation	Actions
Low	No current identifiable suicide symptoms Multiple attempter with no other Notable risk factors ⁱ A single attempter with suicide ideation of limited intensity and duration No or mild symptoms of the Resolved Plans and preparation factor ⁱⁱ	Give emergency numbers ^{iv} Create a 'Reasons for Living' card ^v Complete a suicide contract Document and monitor risk ^{vi}
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 ⁱⁱⁱ (but mild or no Resolved plans and preparation) and at least TWO notable risk factors	Actions listed above Activate support systems ^{vii} Midweek phone check ins
High	A multiple attempter with any two or more Notable risk factors A single attempter with moderate to severe symptoms of the Resolved Plans and Preparation factor and at least ONE Notable 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 Notable risk factors	Actions listed above Consult supervisor before client leaves to consider options Client to be accompanied and monitored at all times If hospitalization is not warranted, follow steps from Moderate category

ⁱ Notable Risk factors: DSM-5 pathology, history of physical/sexual abuse, hopelessness about current situation, interpersonal problems that involve loss or disruption (e.g., death of loved one, termination of intimate relationship), serious physical illness.

ⁱⁱ Resolved Plans and Preparation factor: courage to make attempt, competence to engage in attempt, specific plan, preparation to engage in plan, informing others of decision to engage in suicidal act, availability of means (firearms, medication), suicide notes

ⁱⁱⁱ Suicidal desire and Ideation factor: wish to die, frequency of ideation, wish not to live, passive attempt, desire for attempt, talk of suicide, morbid preoccupation with suicides of others

Actions to take:

iv Give 24 hour telephone numbers of Lifeline **(0861 322 322)**, SADAG Suicide hotline (**0800 567 567**) and local hospital

v Work with patient to creast list of reasons why they would want to live: parents. children, partner, friends, pets. List must be kept on patient's person at all times

vi Document nature of risk in patient file. Monitor at each contact with patient

vii Support systems may be parents, partner, children, friends or others that patient trusts. Break confidentiality if it is necessary to protect patient.

DEMOGRAPHIC QUESTIONNAIRE

Appendix D

1. Age: _____ years
2. Sex: Male Female
3. Race: Black Indian White Coloured Other
4. Marital status: Single (never married) Married/domestic partnership
Divorced Widowed Separated
5. Do you have children? Yes No
6. Religion: (tick one) Hindu Christian Muslim Buddhist Shembe
Other Please specify _____
7. Highest level of education: No formal schooling Primary school
High school Diploma/degree Postgraduate diploma/degree
8. Employment status: Employed Unemployed but looking for work
Unemployed but not looking for work Homemaker Student Retired
Other Please specify _____
9. Where do you live most of the time? Home University Residence Hostel
Other Please specify _____
10. Who do you live with? Alone Partner Parent/s Sibling Child
Other Please specify _____

INQ & IH Scales

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** columns

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

	How true is this of how you feel currently?	Do you believe that things will get better or worse 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

Life Events Scale (PPES)

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

		Never	Once	2-3 times	4-20 times	More than 20 times
1	Have you participated in contact sports (e.g., tackle football, hockey, wrestling, judo)?	1	2	3	4	5
2	Did you get a tattoo?	1	2	3	4	5
3	Did you get a piercing?	1	2	3	4	5
4	Have you shot a gun?	1	2	3	4	5
5	Have you tied a noose?	1	2	3	4	5
6	Have you intentionally hurt animals?	1	2	3	4	5
7	Have you been in physical fights?	1	2	3	4	5
8	Have you jumped from high places (e.g., cliffs, roofs, balconies)?	1	2	3	4	5
9	Have you been stabbed?	1	2	3	4	5
10	Have you been shot?	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 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 there been 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 vendor?	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>1 0 I have a moderate to strong wish to live.</p> <p>1 I have a weak wish to live.</p> <p>2 I have no wish to live.</p> <p>2 0 I have no wish to die.</p> <p>1 I have a weak wish to die.</p> <p>2 I have a moderate to strong wish to die.</p> <p>3 0 My reasons for living outweigh my reasons for dying.</p> <p>1 My reasons for living or dying are about equal.</p> <p>2 My reasons for dying outweigh my reasons for living.</p>	<p>4 0 I have no desire to kill myself.</p> <p>1 I have a weak desire to kill myself.</p> <p>2 I have a moderate to strong desire to kill myself.</p> <p>5 0 I would try to save my life if I found myself in a life-threatening situation.</p> <p>1 I would take a chance on life or death if I found myself in a life-threatening situation.</p> <p>2 I would not take the steps necessary to avoid death if I found myself in a life-threatening situation.</p> <p style="border: 1px solid black; padding: 5px;">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>
--	--

_____ Subtotal Part 1

<p>20 0 I have never attempted suicide.</p> <p>1 I have attempted suicide once.</p> <p>2 I have attempted suicide two or more times.</p> <hr/> <p style="text-align: center;">If you have previously attempted suicide, please continue with the next statement group.</p> <hr/> <p>21 0 My wish to die during the last suicide attempt was low.</p> <p>1 My wish to die during the last suicide attempt was moderate.</p> <p>2 My wish to die during the last suicide attempt was high.</p>

_____ Subtotal Part 2

_____ Total Score



Copyright © 1991 by Aaron T. Beck. All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the publisher.

BSS is a registered trademark of The Psychological Corporation

The Psychological Corporation and the PSI logo are registered trademarks of The Psychological Corporation. Printed in the United States of America.

0154018485

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.





Beck Depression Inventory

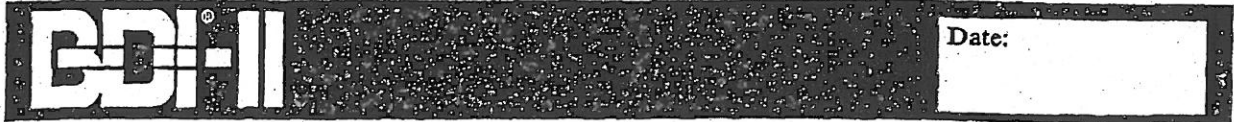
Baseline

V 0477

CRTN: _____ CRF number: _____

Page 14

patient initials: _____



Name: _____ Marital Status: _____ Age: _____ Sex: _____
Occupation: _____ Education: _____

Instructions: This questionnaire consists of 21 groups of statements. Please read each group of statements carefully, and then pick out the one statement in each group that best describes the way you have been feeling during the past two weeks, including today. Circle the number beside the statement you have picked. If several statements in the group seem to apply equally well, circle the highest number for that group. Be sure that you do not choose more than one statement for any group, including Item 16 (Changes in Sleeping Pattern) or Item 18 (Changes in Appetite).

<p>1. Sadness</p> <p>0 I do not feel sad.</p> <p>1 I feel sad much of the time.</p> <p>2 I am sad all the time.</p> <p>3 I am so sad or unhappy that I can't stand it.</p> <p>2. Pessimism</p> <p>0 I am not discouraged about my future.</p> <p>1 I feel more discouraged about my future than I used to be.</p> <p>2 I do not expect things to work out for me.</p> <p>3 I feel my future is hopeless and will only get worse.</p> <p>3. Past Failure</p> <p>0 I do not feel like a failure.</p> <p>1 I have failed more than I should have.</p> <p>2 As I look back, I see a lot of failures.</p> <p>3 I feel I am a total failure as a person.</p> <p>4. Loss of Pleasure</p> <p>0 I get as much pleasure as I ever did from the things I enjoy.</p> <p>1 I don't enjoy things as much as I used to.</p> <p>2 I get very little pleasure from the things I used to enjoy.</p> <p>3 I can't get any pleasure from the things I used to enjoy.</p> <p>5. Guilty Feelings</p> <p>0 I don't feel particularly guilty.</p> <p>1 I feel guilty over many things I have done or should have done.</p> <p>2 I feel quite guilty most of the time.</p> <p>3 I feel guilty all of the time.</p>	<p>6. Punishment Feelings</p> <p>0 I don't feel I am being punished.</p> <p>1 I feel I may be punished.</p> <p>2 I expect to be punished.</p> <p>3 I feel I am being punished.</p> <p>7. Self-Dislike</p> <p>0 I feel the same about myself as ever.</p> <p>1 I have lost confidence in myself.</p> <p>2 I am disappointed in myself.</p> <p>3 I dislike myself.</p> <p>8. Self-Criticalness</p> <p>0 I don't criticize or blame myself more than usual.</p> <p>1 I am more critical of myself than I used to be.</p> <p>2 I criticize myself for all of my faults.</p> <p>3 I blame myself for everything bad that happens.</p> <p>9. Suicidal Thoughts or Wishes</p> <p>0 I don't have any thoughts of killing myself.</p> <p>1 I have thoughts of killing myself, but I would not carry them out.</p> <p>2 I would like to kill myself.</p> <p>3 I would kill myself if I had the chance.</p> <p>10. Crying</p> <p>0 I don't cry anymore than I used to.</p> <p>1 I cry more than I used to.</p> <p>2 I cry over every little thing.</p> <p>3 I feel like crying, but I can't.</p>
--	--

THE PSYCHOLOGICAL CORPORATION
Harcourt Brace & Company
SAN ANTONIO
Orlando • Boston • New York • Chicago • San Francisco • Atlanta • Dallas
San Diego • Philadelphia • Austin • Fort Worth • Toronto • London • Sydney

Subtotal Page 1

Continued on Back

Copyright © 1996 by Aaron T. Beck
All rights reserved. Printed in the United States of America.

0154018392
NR15645



Beck Depression Inventory

Baseline

V 0477

CRTN: _____ CRF number: _____

Page 15

patient inits: _____

11. Agitation

- 0 I am no more restless or wound up than usual.
- 1 I feel more restless or wound up than usual.
- 2 I am so restless or agitated that it's hard to stay still.
- 3 I am so restless or agitated that I have to keep moving or doing something.

12. Loss of Interest

- 0 I have not lost interest in other people or activities.
- 1 I am less interested in other people or things than before.
- 2 I have lost most of my interest in other people or things.
- 3 It's hard to get interested in anything.

13. Indecisiveness

- 0 I make decisions about as well as ever.
- 1 I find it more difficult to make decisions than usual.
- 2 I have much greater difficulty in making decisions than I used to.
- 3 I have trouble making any decisions.

14. Worthlessness

- 0 I do not feel I am worthless.
- 1 I don't consider myself as worthwhile and useful as I used to.
- 2 I feel more worthless as compared to other people.
- 3 I feel utterly worthless.

15. Loss of Energy

- 0 I have as much energy as ever.
- 1 I have less energy than I used to have.
- 2 I don't have enough energy to do very much.
- 3 I don't have enough energy to do anything.

16. Changes in Sleeping Pattern

- 0 I have not experienced any change in my sleeping pattern.

- 1a I sleep somewhat more than usual.
- 1b I sleep somewhat less than usual.

- 2a I sleep a lot more than usual.
- 2b I sleep a lot less than usual.

- 3a I sleep most of the day.
- 3b I wake up 1-2 hours early and can't get back to sleep.

17. Irritability

- 0 I am no more irritable than usual.
- 1 I am more irritable than usual.
- 2 I am much more irritable than usual.
- 3 I am irritable all the time.

18. Changes in Appetite

- 0 I have not experienced any change in my appetite.

- 1a My appetite is somewhat less than usual.
- 1b My appetite is somewhat greater than usual.

- 2a My appetite is much less than before.
- 2b My appetite is much greater than usual.

- 3a I have no appetite at all.
- 3b I crave food all the time.

19. Concentration Difficulty

- 0 I can concentrate as well as ever.
- 1 I can't concentrate as well as usual.
- 2 It's hard to keep my mind on anything for very long.
- 3 I find I can't concentrate on anything.

20. Tiredness or Fatigue

- 0 I am no more tired or fatigued than usual.
- 1 I get more tired or fatigued more easily than usual.
- 2 I am too tired or fatigued to do a lot of the things I used to do.
- 3 I am too tired or fatigued to do most of the things I used to do.

21. Loss of Interest in Sex

- 0 I have not noticed any recent change in my interest in sex.
- 1 I am less interested in sex than I used to be.
- 2 I am much less interested in sex now.
- 3 I have lost interest in sex completely.

Subtotal Page 2

Subtotal Page 1

Total Score

NR15645

3 4 5 6 7 8 9 10 11 12 ABCDE