

**Better Together: Integrating Constructs Across the Hopelessness, Interpersonal,
and Three-Step Theories of Suicide to Predict Suicidal Ideation**

A Thesis Submitted in Partial Fulfilment of the Requirements for the Degree
of Master of Science in Psychology
at the University of Canterbury

by L. J. Watson

2023

Acknowledgments

Firstly, I would like to acknowledge my primary supervisor, Seth Harty. Seth, thank you for your encouragement, your confidence in me, your advocacy for me, and your statistical pragmatism. It has been a pleasure to engage in research under your tutelage over the last several years and I have enjoyed learning from you how to find the moments where research feels like a thrilling adventure. I would also like to extend my thanks to my secondary supervisor Katharina Naswall, your knowledge and patience were invaluable when the statistics didn't seem to make sense, as well as to Damien Scarf, thank you for your overall support of the Young Males Wellbeing Project. Thank you to Taylor Jane Cox, for welcoming me into the area of suicidology, and for your mentorship in my clinical journey. I would also like to recognize the Vic Davis Trust, University of Canterbury Master's Scholarship and Bings Scholarship for their generous financial support which has allowed me to undertake this research. To all the individuals who completed the study, thank you. A very special thanks to Mum, Dad, and Grace; for all the frozen meals, pep-talks, walks, and prayers. I have had the privilege of pursuing this goal because of how you have each shaped and inspired me. Your unwavering care for me through this endeavour means that the completion of this thesis is your success too. And lastly, the greatest thanks to God, the one to whom I belong, who gives my life meaning, who is my hope.

Abstract

Suicide deaths, which disproportionally comprise men, are a serious, global public health issue. While there is a wealth of theory within suicidology, current limitations within the field necessitate further study to inform clinical practice as it pertains to assessing, preventing and reducing suicidality. The current study endeavoured to replicate and expand a model integrating components from the Hopelessness Theory, Interpersonal Theory, and Three-Step Theory of Suicide. In a sample of $n = 440$ males between the ages of 18-30, this study examined the relationships between hopelessness, thwarted belongingness, perceived burdensomeness and meaning in life as precipitants of suicidal ideation. Results showed that perceived burdensomeness partially mediated the relationship between hopelessness and suicidal ideation, while thwarted belongingness did not. The mediation of hopelessness on suicidal ideation by perceived burdensomeness was not moderated by the composite meaning in life. Interestingly, presence of and search for meaning differentially moderated the mediational model. Findings showed that under typical circumstances presence of meaning constituted a protective factor for suicidal ideation, while search for meaning was demonstrated to be a risk factor. Conversely, under adverse social circumstances (i.e. when perceived burdensomeness was high) presence of meaning constituted a risk factor, while search for meaning offered resilience against suicidal ideation. These findings have broad implications for future research on risk and resiliency for suicidal ideation and the integration of theories of suicide, as well as practical applicability for suicide prevention.

Keywords: suicidal ideation; Interpersonal-Theory of Suicide; Three-Step-Theory of Suicide; Hopelessness Theory of Suicidality; meaning in life

Table of Contents

Acknowledgments.....	i
Abstract.....	ii
Table of Contents.....	iii
List of Figures.....	v
List of Tables.....	vi
Glossary.....	vii
Introduction.....	1
The Development of Suicide Research.....	1
Critiques of Suicidology.....	2
Lack of Progress.....	2
Lack of Integration.....	3
Conceptual Overlap.....	4
Lack of Attention to Resilience.....	7
The Impact of Problems in Suicidology.....	8
Key Theories and Constructs.....	8
Suicidal Ideation.....	8
Hopelessness and the Hopelessness Theory of Suicidality.....	9
The Interpersonal Theory of Suicide.....	11
The Three-Step Theory of Suicide.....	13
Meaning in Life.....	15
The Present Study.....	19
Variables of Interest.....	19
Hypotheses.....	21
Population of Interest.....	22
Method.....	23
Participants.....	23
Measures.....	23
Procedure.....	25
Data Analytic Plan.....	25
Results.....	29
Descriptive Statistics.....	29
Hypotheses Testing.....	33
Testing Hypotheses 1: Mediated Regression Analysis.....	33
Testing Hypotheses 2: Mediated Regression Analysis.....	36
Testing Hypothesis 3: Model Comparison.....	37

Testing Hypothesis 4: Moderated Mediation Regression Analysis	37
Post-hoc Moderated Mediation Regression Analysis	40
Exploring the Presence of Meaning in Life.....	40
Exploring the Search for Meaning in Life.....	44
Discussion.....	47
Aims of the Current Study	47
Hypothesis Outcomes.....	47
Suicidal Ideation.....	48
Replication of Kleiman et al., (2014).....	49
Using Interpersonal Needs as a Composite.....	50
Meaning in Life as a Moderator	51
Results from the Current Study	51
Congruence with Prior Literature	52
Further Examination of MIL as a Moderator	52
Presence of Meaning in Life as a Moderator	53
Results from the Current Study	53
Congruence with Prior Literature	53
Interpretation of the Findings from the Current Study	54
Search for Meaning in Life as a Moderator	55
Results from the Current Study	55
Congruence with Prior Literature	56
Interpretation of the Findings from the Current Study	57
Potential Confounding Factors that Influence Presence and Search for Meaning.....	58
Age	58
Culture.....	58
Implications for the Field of Research	60
Applications for Suicide Prevention and Intervention	61
Limitations	64
Further Research	66
Conclusion.....	69
References.....	70
Appendix A Suicide Severity Rating Scale- Modified.....	83

List of Figures

Figure 1 Model 1	27
Figure 2 Model 2.....	28
Figure 3 Models 3a, 3b and 3c	28
Figure 4 Conditional Effects of Perceived Burdensomeness on Suicidal Ideation	
at Different Levels of Presence of Meaning in Life	43
Figure 5 Conditional Effects of Perceived Burdensomeness on Suicidal Ideation.....	
at Different Levels of Search for Meaning in Life	46

List of Tables

Table 1 Descriptive Statistics for Demographic Variables	29
Table 2 Descriptive Statistics for Study Variables.....	31
Table 3 Pearson Product-Moment Correlation Matrix	32
Table 4 Coefficients Estimating Perceived Burdensomeness, Thwarted Belongingness	
and Suicidal Ideation.....	34
Table 5 Mediation Estimates	35
Table 6 Coefficients Estimating Interpersonal Needs, and Suicidal Ideation	36
Table 7 Coefficients Estimating Perceived Burdensomeness, and Suicidal Ideation	38
Table 8 Moderated Mediation Estimates.....	39
Table 9 Coefficients Estimating Perceived Burdensomeness, and Suicidal Ideation.....	41
Table 10 Conditional Effects of Perceived Burdensomeness on Suicidal Ideation at	
Different Levels of Presence of Meaning in Life	42
Table 11 Coefficients Estimating Perceived Burdensomeness, and Suicidal Ideation	44
Table 12 Conditional Effects of Perceived Burdensomeness on Suicidal Ideation at	
Different Levels of Search for Meaning in Life	45

Glossary

Suicide. Self-initiated action of injurious behaviour accompanied by intent to die that eventuates in fatality.

Suicide attempt. Self-initiated action of potentially injurious behaviour accompanied by intent to die that does not eventuate in fatality.

Suicidal behaviour. Behaviours that may occur as a result of suicidal distress, including but not limited to suicide attempts and death by suicide.

Suicidality. A broad concept that includes many suicide-related experiences such as suicidal ideation, communication, and behaviours.

Suicidal ideation. Thoughts about suicide.

Passive suicidal ideation. Thoughts about suicide, death, or not wanting to be alive that do not capture a current desire to engage in suicidal behaviours. For example, 'I wish I was dead' or 'There's no reason to live anymore'.

Active suicidal ideation. Thoughts about suicide characterized by a current desire to engage in suicidal behaviours. For example, thoughts like 'I want to kill myself', or making details plans to attempt suicide.

Introduction

Suicide is a pervasive, yet preventable problem. Despite a small reduction in the global suicide rate across the 21st century it remains a leading cause of death (United Nations, 2019; World Health Organisation, 2014). In Aotearoa, New Zealand the suicide rate has increased by 3% in the past decade (2008 - 2018) and the number of deaths caused by suicide has risen by 21% (Te Whatu Ora, 2022). An estimated 150,000 New Zealanders have thoughts about ending their life, 50,000 plan to act, and 20,000 attempt to end their life each year (Government Inquiry into Mental Health and Addiction, 2018).

The Development of Suicide Research

Effective responses to this crisis require the identification of both risk and protective factors for suicide and an understanding of how these factors can be targeted to promote better outcomes. Research has identified a number of psychological, neurobiological, psychosocial, social, and demographic risk factors (for a review see Beautrais et al., 2005). For example, major depression, impulsivity, dysregulated serotonin systems, historic abuse or neglect and unemployment are several of many known risk factors (Beautrais et al., 2005).

As this knowledge base has increased, a number of theories of suicide have been developed to explain the biological, cognitive, behavioural, emotional, social and economic circumstances related to suicidality (Joiner, 2005; Rudd, Trotter & Williams, 2009).

As early as 1621 when Robert Burton posited that excess black bile causes suicide, literature has reflected the proposed biological causes of suicide (Joiner, 2005). Emile Durkheim's (1897) seminal work on dysregulated social integration and moral regulation paved the way for social and societal level conceptualizations of causality, and marked the first testable, comprehensive theory of suicide (Joiner, 2005). During the 20th century, psychological theories such as Beck's Cognitive Theory, Psychache, and the Hopelessness

Theory of Suicide (HT) were developed and helped to direct both research and clinical practice (Joiner, 2005; Rudd, Trotter & Williams, 2009).

Existing theories have endeavoured to explain suicidality as a broad, singular concept with risk factors and causal pathways that operate on all aspects of suicidal ideation (SI), intent, and behaviour (Klonsky & May 2015). The beginning of the 21st century saw a pivotal, conceptual shift in the development of suicide theory with the emergence of the ideation-to-action framework underlying Joiner's (2005) Interpersonal Theory of Suicide (IPTS), and elucidated by Klonsky and May (2015). The ideation-to-action framework posits that the processes by which an individual arrives at an experience of SI are distinct from the processes by which an individual engages in suicidal behaviour (Klonsky & May, 2015). This is crucial given that, while many people experience suicidal thoughts, the proportion of people who go on to attempt to end their life is much lower (Klonsky & May, 2014; Nock et al, 2008). As a result, research is beginning to step-back and work to understand the context, components, antecedents, and consequences of specific constructs related to suicide in what has been dubbed a "new generation" of suicide theory (Elledge et al., 2019; Klonsky & May, 2015 p.115). The IPTS, Three-Step Theory (3ST), Motivational-Volitional Model and Fluid Vulnerability Theory are four of the most prominent theories that have come into fruition following this critical progression (Klonsky, Saffer & Bryan, 2018).

Critiques of Suicidology

Lack of Progress

While the ideation-to-action framework represents a move toward a more nuanced understanding of suicidality (Klonsky, Saffer & Bryan, 2018), the stability in the incidence of suicidality indicates that further research is needed (Franklin et al., 2017). A recent meta-analysis on 50 years of research into risk factors found that our ability to predict suicidal thoughts and behaviours had not improved over time and was only slightly better than chance

(Franklin et al., 2017). Similarly, Belsher and colleagues (2019) conducted a systematic review of research on suicide prediction models that utilized predictive algorithms in big-data sources; finding that their accuracy of predicting future suicide attempt or mortality was almost zero. Therefore, it is not just further research, but quality research conducive in furthering our ability to explain and predict suicidality that is needed to ensure the progression of suicidology and its subsequent clinical utility. Identifying, understanding and rectifying the factors acting as barriers to further progress will likely have benefit in facilitating this progress.

Lack of Integration

Historically, researchers have favoured examination of individual, rather than combined effects of predictive factors of suicidality (Cramer & Kapusta, 2017; Franklin et al., 2017). While this process allows for examination of hypothesized factors necessary in theory building, it has contributed to a lack of integration between constructs and across theories (Cramer & Kapusta, 2017). In addition, the field has largely focussed on distal factors for suicidality (Glenn et al., 2017). This has provided valuable insight into the long-term predisposing and precipitating factors for suicidality, however, proximal factors, as well as a temporal understanding of the interplay between distal and proximal factors are less well understood at present (Glenn et al., 2017). Overall, there is insufficient knowledge about how key concepts within suicide science interact with other established risk and protective factors to explain suicidality (Barzilay and Apter, 2014; Millner, Robinaugh & Nock, 2020). Further research that focusses on integrating constructs related to suicidality from across domains and theories is therefore warranted.

Some scholars have begun to explore this, and the IPTS in particular has been at the forefront of this investigation. De Beurs et al. (2019) found that a combination of constructs from the IPTS and Integrated Motivational-Volitional (IMV) model explained greater variance in SI than either one theory alone. They also found that all constructs were interrelated (De

Beurs et al., 2019). Fulginiti and colleagues (2020) explored the integration of Minority Stress Theory and the IPTS and found sexual minority stress had an indirect effect of suicidality via IPTS factors. Zhang (2016) proposed an untested two-factor model which integrates strain theory and the IPTS. Kleiman and colleagues (2014a; 2014b) also demonstrated that IPTS constructs could be integrated with constructs from the Hopelessness Theory of Suicidality. Notably, Beach (2021) examined the relationships between IPTS and 3ST variables. While works such as these are promising, there remains a paucity of literature in this area (Mason, 2021).

Conceptual Overlap

Paradoxically, while progress in explaining and predicting suicidality has been inhibited by a lack of integration; theories of suicide are also imbued with large conceptual overlap (Barzilay & Apter, 2014; Millner, Robinaugh & Nock, 2020). There has been a proliferation of theories of suicide (Mason, 2021), and while they are not wholly novel, they are treated as such. Methodological limitations also appear to have undermined the validity of propositions set forth by theories regarding the distinctiveness of their constructs. Together, resulting in a lack of directionality and clarity with which forward progress is necessary for suicidology.

Terminological Saturation. Propositions regarding nomenclature for suicide-related thoughts and behaviours have been put forth over the last 50 years, to address the lack of consensus about definitions of key concepts, proliferation of terms, and resulting confusion in clinical practice which has caused problems likened to the ‘Tower of Babel’ by suicidologists (O’Carroll et al., 1996; Silverman et al., 2007a, Silverman et al., 2007b). However, concepts thought to be associated with, and/or predictive of suicidality appear to have followed a comparable trajectory of ambiguity and terminological saturation. Psychache, hopelessness, defeat, and entrapment- all core concepts of various popularized theories of suicide- are not

independent terms (Barzilay & Apter, 2014; DeLisle & Holden, 2009). Further, recent research indicates that hopelessness, defeat and entrapment may be best captured by a single, general factor (Oakey-Frost et al., 2022). See Figure 1 in Millner, Robinaugh & Nock (2021) for an illustration of the overlap between concepts in suicidology. Additionally, there is often a lack of consensus regarding definitions of these distinct terms across suicide literature. For example, hopelessness as proposed by early HT was thought to be a lack of positive expectancies for the future, while hopelessness within Escape Theory was defined as the failure to expect a future at all, and other scholars have gone on to define it as the presence of negative expectancies or a combination of these characteristics (Cornette, Abramson & Bardone, 2002; Horwitz et al., 2017; Huen et al., 2015). Given the overlap between constructs subsumed within theories of suicide, theories of suicide themselves also overlap. Zhang (2016) remarked that the IPTS 'is merely an operationalization of Durkheim's theory and does not add any new information to the root or ultimate cause of suicide', thus implying that the IPTS has refurbished longstanding theory with new jargon.

Conversely, at times terms are considered synonymous with others when they represent overlapping but distinct concepts. Within the Cry of Pain model of suicidal behaviour, hopelessness and 'no rescue' are both used interchangeably in literature to represent one construct in the model though they have different meanings and implications (Johnson, Gooding & Tarrier, 2008).

Methodological Limitations. Even when concepts within theory are well defined and distinguished from other concepts, scholars have methodologically undermined their own propositions in using measures that do not capture the distinct concept well. The IPTS suggests that it is hopelessness regarding perceived burdensomeness (PB) and thwarted belongingness (TB), and not hopelessness as a general construct, that leads to SI (Joiner, 2005). Yet it is only in recent years that measures of interpersonal hopelessness have been developed, and all

previous research on the IPTS (and still much of the literature today) uses a broad measure of hopelessness such as the Beck Hopelessness Scale when this fails to reflect what the IPTS specifically proposed (Naidoo, 2016; Tucker et al, 2018). Similarly, the 3ST uses the term ‘connectedness’ and defines it in a much broader manner than seen in literature on social connectedness. The 3ST authors remark that “connectedness most often means connection to other people; however...[it] can also refer to one’s attachment to a job, project, role, interest, or any sense of perceived purpose or meaning that keeps one invested in living” (Klonsky & May, 2015). We would argue that this definition of connectedness is more in line with conceptualizations of meaning in life (MIL) than social connectedness... nevertheless in testing the 3ST the authors used the belongingness subscale of the Interpersonal Needs Questionnaire as the measure of connectedness, a measure which was designed to assess TB as part of the IPTS (even as they go on to detail how connectedness within the 3ST is distinct from IPTS concepts). Similarly, Klonsky and May (2015) defined 3ST pain as broader than psychache (Schniedman’s term for psychological pain) but used a psychache psychometric to measure pain. The process of using arguably ill-suited, proxy measures of theoretical constructs, limits the ability to test suicide theory in a manner that is valid, and in turn, to understand whether the constructs within a theory do indeed explain suicidality.

In sum, it appears that theories and concepts are coming into fruition that largely already exist or indicate valid distinctiveness and yet are treated as though they already exist in the way they are tested. This proliferation of ideas has not been met with a subsequent increase in clinical utility, and conversely may be a cause of the lack of progress faced in the field (Klonsky, May & Saffer, 2016; Mason, 2021). There is a need then, for research that favours currently known theories of suicide. Research that tests the hypotheses put forth by theories using appropriate methodology. Research that explores how constructs within theories relate to other established constructs so that definitions may be refined. Research that focusses on

replication, integration and adaptation. With increased value placed in quality rather than quantity of ideas, the knowledge base of suicidology is likely to gain forward momentum.

Lack of Attention to Resilience

Most theories take a risk-focused, deficits-based approach to understanding suicide. While understanding risk has been vital for building theory, this work is limited in that it cannot consider how some factors influence individuals to cope with adversity positively (Huen et al., 2015). Such knowledge is valuable for understanding how to prevent suicide. Within suicidology, the positive psychology research aims to build understanding of the relationships between positive, buffering factors and adverse outcomes such as risk factors for suicide, and suicidality itself (Huen et al., 2015; Seligman & Csikszentmihalyi, 2000). Recent research on protective and resilience factors for suicidality has found that social connectedness, social support, faith, MIL, grit, gratitude, employment, and relationship status are associated with lower risk of SI (Beautrais, 2005; Hiesel, Neufeld & Flett, 2016; Johnson et al., 2011; Kleiman et al., 2013a; Kleiman et al., 2013b; McLaren & Challis, 2009). While there is research emerging that emphasises resiliency factors associated with suicide, these have yet to become entrenched in literature or used theoretically. The 3ST is the only theory of suicide known to these authors to date to utilize a resiliency factor as a core component of its model (Johnson et al., 2011). However, as discussed, the 3ST tested this resiliency factor using a deficits-based measure of risk, where an absence of the risk factor was used as a proxy for resilience.

There is a young but promising body of work however, that explores resilience factors in relation to IPTS variables (Espinosa-Salido et al., 2020). Specifically, hope, optimism and affiliative humour have each been demonstrated to moderate the relationship between PB and suicide and TB and suicide, with social support from friends also implicated (Hollingsworth, 2012; Hollingsworth et al., 2014; Rasmussen & Wingate, 2011; Tucker et al., 2013). Therefore, further research on how resiliency can be explored in relation to, and integrated into theories

of suicidality would be of benefit to the field. The 3ST and IPTS are uniquely positioned to be considered for such work.

The Impact of Problems in Suicidology

Altogether, it appears that suicide theory is currently hampered by a counterproductive cycle of isolated construct and theory generation and inadequate testing, refinement and integration, followed by stagnation and replacement of ideas (Millner, Robinaugh & Nock, 2020). These limitations of suicide research have reduced the progression of suicidology in predicting suicidality and impacted the ecological validity of theory in being useful to those that work to support individuals at risk of suicide (Cramer & Kapusta, 2017; Millner, Robinaugh & Nock, 2020). Mason (2021) emphasized that current theories of suicide do not have the clarity necessary to inform clinical practice as it pertains to assessing, preventing and reducing suicidality- the very purposes for which they ought to function. Therefore, there is a need within suicidology to integrate components of theories, refine concepts, and incorporate resilience within theory (Barzilay and Apter, 2014; Brent, 2011). As such, the current study integrated factors from three previously developed theories of suicide; the HT, IPTS and 3ST. The factors chosen for integration were HT's hopelessness, IPTS's PB and TB and 3ST's connectedness. These factors represent a selection of both distal and proximal factors, as well as risk and resilience factors for SI, which is the focus of this study.

Key Theories and Constructs

Suicidal Ideation

Suicidal ideation can be understood as an individual's thoughts about death and/or partaking in suicide-related behaviours; such as having plans to take one's own life or intent to die (Crosby, Ortega & Melanson, 2011; Jobes & Joiner, 2019). Suicidal ideation can be considered a passive experience (having thoughts such as; 'I wish I was dead' or 'there's no reason to be alive anymore') or an active experience- characterized by a current desire to

engage in suicidal behaviours (having thoughts such as ‘I want to kill myself’, or making details plans to attempt suicide) (Van Orden, 2010). Research has demonstrated that there is a large degree of inter-individual variation in the experience of SI, particularly regarding the severity and fluctuation of suicidal thoughts across time (Kleiman, Turner & Fedor, 2018). At the intra-individual level, SI has been found to vary substantially over short periods of time, because of the typically brief and episodic nature of such thoughts (Kleiman et al., 2017; Kleiman & Nock, 2018).

Franklin et al.’s (2017) meta-analysis found that SI was a leading predictor of future suicide deaths. This fits with the ideation-to-action paradigm of suicide which posits that SI is a key proximal experience on the trajectory towards suicidal behaviours (Kleiman, 2020). Thus, there is a need to better understand and target SI for the prevention of more severe aspects of suicidality (Jobes & Joiner, 2019; Kleiman, 2020).

Suicide attempts and deaths are often the focus of research and intervention, while ideation – experienced by a higher proportion of individuals – often receives inadequate attention (Jobes & Joiner, 2019). Around 9% of adults globally report having seriously considered suicide in their lifetime, while in New Zealand the lifetime prevalence has been found to be as high as approximately 15% (Beautrais et al., 2006; Nock et al., 2008). So, regardless of later suicidal behaviours – of which many who experience ideation will not go on to have- ideation itself is a distressing, impairing and unfortunately common phenomenon that is unequivocally worth addressing (Kleiman, 2020).

Hopelessness and the Hopelessness Theory of Suicidality

Defining Hopelessness. Hopelessness can be defined as a cognitive orientation characterized by the presence of negative expectancies and the absence of positive expectancies regarding the self, the future, and the world (Beck et al., 1974, Becker-Weidman et al., 2009). Empirical work supports hopelessness as a dynamic construct comprising both state and trait

components (Baryshnovik et al., 2018; Burr et al., 2018; Young et al. 1996). Hopelessness as operationalized by this work (and others that utilize the Beck Hopelessness Scale as in the current study) captures an individual's current hopeless cognitions as well as any stable, underlying hopeless beliefs (Beck et al., 1990; Blackburn, Jones & Lewin, 1986).

Hopelessness and Suicidality. Hopelessness is one of the strongest predictors of suicidal thinking and intent, as well as suicide attempt and completion (Beck et al., 1990; Beck et al., 1985; Weishaar & Beck, 1992; Wetzel et al., 1980). Recent meta-analyses have found that hopelessness is the strongest predictor of future SI after prior SI, and the best predictor of suicide death (Franklin et al., 2017; Ribeiro et al., 2018). Hopelessness has been shown to be a significant warning sign of SI and risk factor in both the near term (hours-days), medium term (months) and long term (5-10 years) (Beck et al., 1990; Kuo et al., 2004; Qiu et al, 2017; Ribeiro et al, 2018; Roeder & Cole, 2019; Rudd et al., 2006). The association between hopelessness and suicide has been observed in children, adolescents and adults and in both clinical and non-clinical populations (Beck et al., 1985; Nock & Kazdin, 2002; Sueki, 2020; Thompson et al., 2005).

Given congruent evidence of its relationship with suicidality, hopelessness has been included in numerous causal models of suicide including the IPTS, the HT, the 3ST and the Cognitive Model of Suicidal Behaviour (Abramson et al., 2000; Joiner, 2005; Klonsky & May, 2015; Van Orden et al., 2010; Wenzel & Beck, 2008).

The Hopelessness Theory of Suicidality. This theory proposes that negative inferential style leads to hopelessness and later hopeless depression and/or suicide (Abramson et al., 2000; Abramson et al., 1989). Negative inferential style is a tendency toward a perception of experienced negative events as due to inevitable, negative causes, that have inevitable, negative consequences, and imply negative characteristics of the self (Abramson et al., 1989). Research indicates that hopelessness typically develops when individuals rely on the negative

appraisals of these experiences to form expectancies (Morselli, 2016). This cognitive bias is compounded by blocked goal-directed processes, such that the individual perceives they are unable to make progress or move on from blocked goals (Marchetti et al., 2019). Hopelessness is reinforced as further negative events occur, and the individual perceives such events as unrelenting and uncontrollable (Morselli, 2016). This results in feelings of helplessness as well as thoughts of giving up on having goals and hopes for the future (Marchetti, 2018; Marchetti et al., 2019). The current study utilizes hopelessness as the HT construct to be integrated with constructs from the IPTS and 3ST.

The Interpersonal Theory of Suicide

The IPTS. The IPTS proposes that PB or TB alone are sufficient to cause passive SI (Van Orden et al., 2010). The IPTS puts forth that other empirically established risk factors impact SI via their influence on PB and/or TB (Joiner, 2005). Further, the synergy hypothesis details that when PB and TB are present together and later compounded by a hopelessness about one's perceived interpersonal state, this results in active SI (Joiner, 2005). Joiner (2005) adds that while PB, TB, and hopelessness regarding these states contribute to SI, suicidal behaviour manifest once the acquired capability for suicide reaches a threshold, which is caused by a separate process of fearlessness regarding death and increased pain tolerance.

Defining Perceived Burdensomeness and Thwarted Belongingness.

The scholars behind the IPTS propose that PB and TB are “dynamic, cognitive-affective states” that are impacted by both individual and sociocultural factors (Van Orden et al., 2010). Perceived burdensomeness is one's sense of themselves as so inadequate that their presence adds a heaviness to the people around them that they are close to (Joiner, 2005). People who experience PB think that they are a liability to others and engage in thoughts of self-hatred (Van Orden et al., 2010). Thwarted belongingness can be defined as the perception one does not belong, or that social connections cannot be obtained or maintained (Joiner, 2005). In

particular, individuals experiencing TB may report a sense of loneliness and perceive a lack of reciprocally-caring relationships (Van Orden et al., 2010).

Empirical Work on the IPTS. The IPTS is one of the most widely accepted and studied theories of suicide to date (Forkmann et al., 2020). The first meta-analysis of IPTS literature which examined 143 samples and 60,000 participants concluded that data was supportive of the theory, despite finding mixed results (Chu et al., 2017). For example, the interaction of PB and TB was significantly associated with SI; but while the interaction between PB, TB, and hopelessness accounted for significant variance in ideation, only a small amount of variance could be accounted for by heterogeneity rather than chance (Chu et al., 2017). Further, theory-inconsistent models were at times more useful in predicting suicide risk than theory-consistent models, and overall effect sizes for significant theory-consistent models were weak to moderate- indicative of modest clinical significance (Chu et al., 2017; Hjelmeland & Knizek, 2019). An earlier systematic review of the IPTS by Ma and colleagues (2016) also demonstrated mixed results. There have also been several studies conducted on samples from Aotearoa, New Zealand which similarly found mixed results. Mason et al. (2021) found that there was no evidence for the PB, TB and fearlessness of death interaction in a New Zealand sample of young adult males. Lin and Linscott (2022) found that PB significantly predicted active SI cross-sectionally and TB significantly predicted active SI longitudinally. Interestingly, research has also shown that PB has been more strongly associated with SI than TB (Baertschi et al., 2017; Chu et al., 2017; Fulginiti et al., 2020). This has cast doubt over the IPTS proposition that TB and PB are equally important, and both independently sufficient to cause passive SI (Van Orden et al., 2010).

Overall, there is a paucity of empirical work that has explored the IPTS in full because research has typically used general hopelessness as a proxy for the interpersonal hopelessness referred to in the IPTS (Chu et al., 2017; Tucker et al., 2018). This may have led to the mixed

results found to date (Chu et al., 2017; Tucker et al., 2018). Tucker et al. (2018) and Naidoo (2016) are the only two works known to these authors to use measures of interpersonal hopelessness to test the IPTS, and both found support for the effect of the perceived burdensomeness, TB, and hopelessness interaction on SI.

Research on the IPTS is still moving forward. Reviews have identified several current research needs including work on non-student populations, better assessment of IPTS hopelessness and a need to explore the mediation of IPTS factors between distal risk factors and suicide (Chu et al., 2017; Ma et al., 2016).

The Three-Step Theory of Suicide

Introducing The Three-Step Theory of Suicide. In the first step of the 3ST, it is posited that pain (broadly defined but including psychological/emotional and physical pain) and hopelessness together lead to SI (Klonsky et al., 2021; Klonsky & May, 2015). Secondly, the discrepancy between an individual's pain and connectedness influences their degree of active ideation, where higher connectedness relative to pain results in moderate ideation rather than strong ideation and intent; in other words- connectedness buffers against SI (Klonsky & May, 2015). Thirdly, in a process similar to the IPTS, the causal pathway to suicidal behaviour in the 3ST is suicide capacity; which is proposed to be related to dispositional, acquired and practical factors such as blood phobia, habituation, and access to means respectively (Klonsky & May, 2015). Like the IPTS, the 3ST puts forth that other empirically established risk factors impact suicidality via their influence on the factors within the 3ST; pain, hopelessness, connectedness and suicide capacity (Klonsky et al., 2021).

Empirical Work on the 3ST. The 3ST has received little evaluative research since its conception in 2015, particularly compared to the IPTS (Klonsky, Saffer & Bryan, 2018). However, the research available to date largely supports the 3ST- for a review see Klonsky et al. (2021). Thus far the 3ST has been tested in full across two community samples (Klonsky

and May, 2015; Pachkowski et al., 2021), a psychiatric inpatient sample (Tsai et al., 2020), and in university students in the UK (Dhingra et al., 2018) and China (Yang et al., 2018).

The interaction of psychological pain and hopelessness (nb., the 1st step in the 3ST does define pain more broadly) has been demonstrated as significantly associated with SI across these samples (Dhingra et al., 2018; Klonsky and May, 2015; Pachkowski et al., 2021; Tsai et al., 2020; Yang et al., 2018). Markedly, in Tsai et al. (2021) psychological pain and hopelessness interacted to predict 68% of variance in current suicidal desire. Further, three of four studies which compared the 3ST and IPTS found that the interaction of psychological pain and hopelessness accounted for a greater percentage of variance in SI than PB and TB (Dhingra et al., 2018; Klonsky and May, 2015; Tsai et al., 2020; Yang et al., 2018). There is also strong support for the role of connectedness as part of the 2nd step of the 3ST; with each study demonstrating that a pain-connectedness differential was strongly associated with greater SI (Dhingra et al., 2018; Klonsky and May, 2015; Pachkowski et al., 2021; Tsai et al., 2020; Yang et al., 2018). Due to practical and ethical limitations, the last step of the 3ST has been less directly studied, however, overall suicide capability has been demonstrated to distinguish those with a history of suicide attempts from those with ideation but no history of attempts (Dhingra et al., 2018; Klonsky et al., 2021; Klonsky & May, 2015; Yang et al., 2018). There is also some support for the validity of the 3ST as a tool for predicting future SI and attempt (Pachkowski et al., 2021; Tsai et al., 2020).

There has been little criticism of the 3ST. The primary limitation raised is that early tests of the 3ST have been constrained by a lack of psychometric tools to test 3ST constructs (Klonsky et al., 2021). As discussed above, pain is most often measured using a scale for psychache (psychological pain), and connectedness is most often measured using the TB subscale of the IPTS' Interpersonal Needs Questionnaire; which captures interpersonal disconnectedness but not the broader connectedness the 3ST describes (Klonsky et al., 2021).

Meaning in Life

Defining Meaning in Life. Victor Frankl pioneered MIL as a psychological construct in his seminal work that sought to explain how some individuals imprisoned in Nazi concentration camps maintained a will to live, and what the positive ramifications of maintaining MIL were (Frankl, 1959). Meaning in life is understood to be a basic human need, which fluctuates over hours and days (Baumeister, 1991; Frankl, 1963). Both the presence of MIL (MIL-P), and the search for MIL (MIL-S) are considered important components of MIL (Steger et al., 2006).

The Presence of Meaning in Life. The presence of meaning is the extent to which an individual perceives their existence has coherence, purpose, and significance (Martela & Steger, 2016). It reflects a network of relations, appraisals, ambitions and reflections that allow us to understand our experiences, motivate us to pursue desired future outcomes, and afford a sense that our lives have worth (Martela & Steger, 2016). Individuals rely on various sources to develop and reinforce meaning; such as social connection, contribution, religion, autonomy, and performance (Zhang et al., 2018).

The Search for Meaning in Life. Search for meaning in life reflects the active effort individuals expend to develop and strengthen their sense of MIL (Steger et al., 2008a). It is coloured by a ‘thoughtful openness to ideas about life’ (Steger et al., 2008a). Further, MIL-S has been understood as a process whereby individuals reconcile incongruence between their stable sense of meaning, and the meaning posed by their current situation (Park, 2010). Frankl emphasized that the ‘will to meaning’ i.e. the drive to search for meaning is vital for survival, wellbeing, and endurance of adversity (Wong, 2012).

Relations between Presence and Search for Meaning. Theoretical and empirical work has explored the relation between MIL-P and MIL-S, which are independent but related constructs (Costanza 2020b). The search-to-presence model puts forth that increased MIL-S

should result in finding more meaning- thus increased MIL-P. The presence-to-search model puts forth that sufficient MIL-P results in lower MIL-S, while insufficient MIL-P motivates a higher degree of MIL-S. These assumptions are not mutually exclusive (Newman et al., 2018). There appears consistent empirical support for the presence-to-search model (Baños et al., 2022; Steger et al., 2008a, 2008b) and mixed support for the search-to-presence model (Baños et al., 2022; Steger & Kashdan, 2007; Newman et al., 2018).

Meaning in Life in Literature. Presence of meaning in life is consistently related to subjective wellbeing (Li et al., 2021). Whether or not MIL-S is beneficial or harmful to subjective wellbeing is not well understood due to mixed evidence (Li et al., 2021). Alternatively, there is some evidence that MIL-S can be adaptive and maladaptive under different intrapersonal and interpersonal conditions (Chu & Fung, 2021; Newman et al., 2018; Steger et al., 2008a, 2008b).

There is an empirical link between MIL and SI (Harlow et al., 1986). Braden (2015) reported that MIL was significantly, inversely associated with SI in depressed veterans. A longitudinal study with older adults demonstrated that MIL had significant unique variance in predicting SI (Heisel, 2016). Sun et al. (2022a) recently found MIL was significantly negatively associated with SI in a sample of depressed patients in Taiwan.

MIL has also emerged as a promising factor at the intersection of IPTS and more general factor-focussed suicide research. Perceived burdensomeness was shown to predict low MIL in older adults two months later (Van Orden et al., 2012a). Further, MIL-P has been shown to partially mediate the relationship between PB, TB and SI- indicating its compatibility with the IPTS (Kleiman & Beaver, 2013). Marco et al. (2021) similarly found that MIL was a moderator between each of TB and PB and lifetime frequency of self-harm. In addition, experimentally induced MIL-P conferred resilience to PB (Collins et al., 2018). As such, MIL

has been implicated in resilience against SI and related constructs, so should be considered as a plausible theoretical construct for theories of suicide.

Meaning in Life and the 3ST. While MIL is missing from current theories of suicide, the 3ST puts forth the broad term ‘connectedness’ which we argue may be well captured by the already established concept of MIL. Klonsky and May (2015) explain that “connectedness most often means connection to other people; however...[it] can also refer to one’s attachment to a job, project, role, interest, or any sense of perceived purpose or meaning that keeps one invested in living”. Social connectedness is just one facet of this definition, though empirical literature has thus far neglected the gestalt, opting to use measures of low belongingness, and social connectedness to measure this construct. Social connectedness and MIL are highly related to one another. Correlational, longitudinal and experimental studies have shown that connectedness and a sense of belonging predict MIL (Lambert, 2013; Stavrova & Luhmann, 2015). Notably, when individuals are asked to consider what constitutes MIL, most refer to their relationships- suggesting that a large part of imbuing MIL comes from connection to other people (Stillman & Lambert, 2013). This has also been found for people experiencing acute SI and behaviour, whereby 72% report relationships being a current or potential source of MIL, with family being particularly important, while profession, education, leisure and spirituality were raised by less than 10% of the sample (Costanza et al., 2020a). Thus, the 3ST vernacular of connectedness may be captured well by MIL because it encompasses the importance of relationships with others while also allowing for connection to alternate sources of meaning, such as careers, hobbies, life goals, priorities and values.

Empirical evidence has shown that while there are a large number of sources of MIL, the individual perceives the most accessible and MIL-affirming sources as the most important to them (Zhang et al., 2018). For example, social connectedness is related with the propensity to use social connectedness as the primary source of MIL (Zhang et al., 2018). Zhang and

colleagues (2018) found that experimental manipulation of social exclusion decreased both MIL and the importance individuals placed on social connectedness as a source of MIL. Further, their findings indicated a compensatory process at work, where socially excluded participants attempted to based MIL on autonomy, and participants who were provided with information on the benefits of autonomy were able to reaffirm their MIL even after threats of exclusion (Zhang et al., 2018). Therefore, conceptualizing 3ST connectedness as MIL may work particularly well when integrating it with IPTS variables, because it will enable the examination of whether MIL offers resilience to those that think they are socially disconnected, and a burden to others.

This exploration has theoretical relevance, as it implicitly relies on Hiene et al.'s (2006) meaning maintenance model. The meaning maintenance model asserts that 'meaning is relation' between people, places, objects and ideas (Hiene et al., 2006). It supposes that people endeavour to grasp and apply meaning within common sources, the most commonly sought being relationships between the self and the external world, and interpersonal relationships in particular (Hiene et al., 2006). The model posits that humans have an innate ability to reflect on expected relationships between people, places, objects and ideas, and can subsequently identify when such relationships go awry (Hiene et al., 2006). In this instance, Hiene et al. (2006) put forth a fluid compensation mechanism whereby people find violations or lack of meaning distressing, and tend to restructure their sense of meaning, reaffirming alternative frameworks across domains to restore it. Hiene et al. (2006) state that the need for meaning is powerful enough that if unmet may cause sufficient distress to cause suicidality.

There is only one work known to these authors to date to explore 3ST connectedness through the lens of MIL. Beach (2021) integrated components of the IPTS and 3ST in a sample of older adults in the community. This research demonstrated that MIL (as a measure of 3ST connectedness) was a significant moderator of relationships between each of the individual risk

factors- hopelessness (as an IPTS component), PB and TB- and passive SI (Beach, 2021). Thus, this is an opportune moment to explore MIL as a resilience factor for SI in a model using HT's hopelessness, and the IPTS's PB and TB.

The Present Study

Variables of Interest

The present study takes an integrative, mediational, ideation-to-action, and resilience-inclusive approach to suicide theory.

Replication of Kleiman, Law and Anestis (2014). First, we hope to partially replicate the findings of Kleiman, Law and Anestis (2014) in a sample of young adult males, a unique and understudied population. These authors integrated parts of HT and IPTS and found that the effect of negative cognitive style on SI was mediated by PB (fully mediated) and TB (partially mediated) (Kleiman, Law & Anestis, 2014). More specifically, they found that in a model with both PB and TB, only PB mediated the relationships between negative cognitive style and SI. We aim to test the replicability of this particular result (Model 1). Replication would emphasise the utility in integrating components of suicide theories and provide evidence of generalizability of the results across populations, given their study was conducted with participants at increased risk of suicide, and a largely female population in the United States of America. In addition, we hope to highlight how suicidology may benefit from deepening our knowledge of what we know, rather than charging ahead to develop "brand new" models and theories.

Our methodology differs in several ways from Kleiman, Law and Anestis (2014). Kleiman, Law and Anestis (2014) utilized two time points, finding that the independent variables in their model (measured at time 1) predicted SI 6-8 weeks later (time 2). The current study is purely cross-sectional. Therefore, we rely on the findings from Kleiman, Law and Anestis (2014) to inform the temporal relationships between study variables in our models.

Additionally, Kleiman, Law and Anestis (2014) used negative cognitive style as the distal HT component in their model, while the current work uses hopelessness as the distal HT component. Negative cognitive style and hopelessness are highly similar in that they refer to intrapersonal tendencies toward negative appraisals about personal experiences, the world, and the self. Where negative inferential style is typified by negative appraisals of an individual's past or present experiences (Abramson et al., 1989), hopelessness reflects an advanced process whereby an individual's frequent negative appraisals of their past and present experiences inform negative expectations about their future (Morselli, 2016). As such, these concepts may be distinguished by their temporal relations. Although negative cognitive style within HT is a distal vulnerability factor that facilitates the development of hopelessness in conjunction with proximal events- there is still value in examining hopelessness as a distal factor to TB and perceived burdensomeness; which the IPTS propose are the 'most proximal mental states that precede SI' (Van Orden, 2012). It makes sense temporally that if hopelessness is a diffuse cognitive orientation related to negative beliefs of the self, others, the world and the future; that PB and TB are two ideation specific appraisals that subsequently become salient. Further, Kleiman and colleagues (2014b) suggest that in an 'etiological chain of SI' hopelessness may mediate the relationship between negative cognitive style and TB and PB. This indicates their perception that hopelessness may occur prior to IPTS variables. Lastly, where Kleiman, Law and Anestis utilized AMOS software for structural equation modelling to test their models, the current study used SPSS PROCESS. Hayes and colleagues (2017) assert that model estimation using PROCESS for regression-based path analysis generates results largely identical to programs that use structural equation modelling when the models contain observed variables alone, as is the case for the models tested in this study

Testing an Alternate Model. We also aimed to explore an alternate model where interpersonal needs -the composite measure of PB and TB is used as a single mediator between

hopelessness and SI (Model 2). Thus, integrating components of the HT and IPTS in a different way, as is important when using path analysis to test theory. This would enable a partial test of the second/synergy hypothesis proposed by the IPTS that “The simultaneous presence of TB and perceived burdensomeness, when perceived as stable and unchanging (i.e., hopelessness regarding these states), is a proximal and sufficient cause of active suicidal desire” (Van Orden et al, 2010). To be clear, this study does not seek to fully test the synergy hypothesis of the IPTS, because we are not utilizing the construct of interpersonal hopelessness (hopelessness regarding IPTS variables). While we do include the variable hopelessness, it is conceptualized as a more general, distal factor with its theoretical base in HT. The aim is simply to understand how PB and TB operate both as separate factors and in conjunction to predict SI. It is important to test a model where both factors simultaneously lead to SI, especially given that IPTS puts forth that this compound effect (alongside interpersonal hopelessness) causes active suicidal desire rather than passive SI (Van Orden et al, 2010). Therefore, the composite measure may allow for a more parsimonious model for predicting severe SI.

Integrating the 3ST. Kleiman and colleagues (2014) also noted that future research could expand their model by adding components from other theories. Adding MIL to the model allows for a nuanced integration of three theories of suicide, HT, IPTS and the 3ST, where MIL is proposed to be a measure of what Klonsky and May (2015) have dubbed connectedness. This also enables an exploration of resiliency to SI (Model 3).

Hypotheses

Model 1 (See Figure 1) tested the effect of hopelessness on SI via TB and PB. We expected that the effect of hopelessness on SI would be fully mediated by PB and not TB, in a replication of findings by Kleiman, Law and Anestis (2014) (Hypothesis 1). Model 2 (See Figure 2) tested the effect of hopelessness on SI via interpersonal needs, the IPTS composite measure of TB and PB. We expected that interpersonal needs would fully mediate the relationship

between hopelessness and SI (Hypothesis 2). Based on IPTS theory, we expected that Model 2 would have the strongest effect on SI (Hypothesis 3). Model 3 (See Figure 3) was to be based upon the best fitting mediational model i.e. Model 1 or Model 2, where either PB and TB would be tested as mediators, or interpersonal needs would be used as the sole mediator of the relationship between hopelessness and SI. Model 3 was then to be extended so that MIL (as a proxy for 3ST connectedness) could be tested as a moderator of the mediation. We expected that MIL would moderate the indirect effect of hopelessness on SI and the direct relationship between the identified IPTS variable(s) and SI (Hypothesis 4).

Population of Interest

Suicide is the second-leading cause of mortality for individuals aged 15 to 29 globally (World Health Organisation, 2019) and the leading cause of death for individuals between 15-25 years old in Aotearoa, New Zealand (Government Inquiry into Mental Health and Addiction, 2018). Globally, the male-female ratio for suicide deaths is disproportionate (World Health Organisation, 2019). In 2019, 69% of individuals who died by suicide worldwide were men, with 15% of suicides being men aged between 15 and 29 years old (Global Burden of Disease Collaborative Network, 2020). Similarly, 72% of deaths by suicide in Aotearoa in 2019-2020 were males, and 21% were males between the ages of 15 and 30 (Office of the Chief Coroner of New Zealand, 2020). Despite being over-represented in these statistics, males, and young adult males in particular are often 'invisible' when it comes to their mental health. Reasons for this 'invisibility' include; low rates of health service enrolment and utilization, a lack of empirical evidence exploring men's patterns of seeking and mobilizing support, mental health status being seen among men as relatively taboo and differences in societal expectations of how men and women should cope with adversity (Ipsos New Zealand, 2022; McKenzie, 2018; World Health Organisation, 2014). For these reasons, the present work uses a young-adult male sample. Additionally, Kleiman (2020) emphasises the importance of studying SI

outside of healthcare contexts, to capture the experiences of those that do not seek help from health professionals. Given poor rates of health-seeking behaviour among men, we reason that data from our community sample of young-adult men will therefore help to address this gap in research (McKenzie, 2018).

Method

Participants

Recruitment took place between December 2019 and April 2020. Participants were 440 individuals who self-identified as male (or other, e.g., transgender male), aged between 18-30 years old from across Aotearoa, New Zealand. The mean age was 23 ($M = 22.74$, $SD = 3.46$). A total of 50 participants, who were included in the initial exploration of demographic/descriptive statistics, were removed for the remainder of the analyses due to missing data for key study variables.

Measures

The Suicide Severity Rating Scale (SSRS)- Modified

Suicidal ideation was measured using The Suicide Severity Rating Scale (SSRS). The SSRS is a revised form of the Columbia-Suicide Severity Rating Scale (C-SSRS) and contains 5 self-report items that assess lifetime tendencies toward SI (e.g. *“In your lifetime, have you ever wished you were dead or would go to sleep and never wake up”*) as well as planning, and past attempts (Mortier et al., 2018). Individuals were asked to answer ‘Yes’ or ‘No’ to each item, with each ‘Yes’ given a score of 1. Posner and colleagues (2011) demonstrated that the C-SSRS has good reliability and validity. In order to explore SI in this project rather than suicidality more broadly, the fifth item (*“In your lifetime, have you made a suicide attempt (i.e. purposely hurt yourself with at least some intention to die?)*) was removed. Thus, total scores for the SI measure range from 0 to 4, with higher scores reflecting a lifetime history of both

passive and active SI. The adapted SSRS measure was shown to have good reliability in the present study ($\alpha = 0.84$).

The Beck Hopelessness Scale (BHS)

The BHS is considered a gold standard tool for measuring hopelessness within suicide research (Kliem et al., 2018). This measure includes 20 true-false items (e.g. “*my future seems dark to me*”) which assess hopelessness through self-report of negative feelings about the future, loss of motivation and negative future expectations (Beck et al., 1974). The total hopelessness score is represented by the sum of scores across items, ranging from 0 to 20, where higher scores reflect greater hopelessness (Beck et al., 1974). Widely accepted norms for this measure suggest that scores between 0 and 3 signify a normal level of hopelessness, scores between 4 and 8 signify mild hopelessness, scores from 9 to 14 signify moderate hopelessness and scores over 14 signify severe hopelessness (Beck & Robert, 1993). The Cronbach’s alpha coefficient for the present study was .91.

Meaning in Life Questionnaire (MLQ-10)

Meaning in Life was measured using the Meaning in Life Questionnaire, which measures the perceived presence of and search for MIL with 10-items (Steger et al., 2006). Five items such as ‘*I have discovered a satisfying life purpose*’ comprise the Presence of Meaning subscale measuring MIL-P, while five items such as ‘*I am searching for meaning in my life*’ make up the Search for Meaning subscale which measures MIL-S. Individuals were asked to assess items on a 7-point Likert Scale from 1 (absolutely untrue) to 7 (absolutely true) (Steger et al., 2006). Higher scores on the composite measure indicate stronger MIL, while higher scores on the Presence of Meaning subscale and Search for Meaning subscale reflect higher MIL-P and MIL-S, respectively. Research has shown the high validity and reliability of

this measure (Naghiyae, Bahmani & Asgari, 2020; Steger et al, 2006). The Cronbach's alpha coefficient for the present study was .76.

The Interpersonal Needs Questionnaire (INQ-15)

Perceived burdensomeness and TB were measured using the Interpersonal Needs Questionnaire (INQ), a 15 item self-report scale developed to test the Interpersonal Theory of Suicide (Van Orden et al., 2012). Six items measured PB (e.g. *“these days, I think my death would be a relief to the people in my life”*) and nine items measured TB (e.g. *“these days, I feel disconnected from other people”*). Individuals were asked to assess items on a 7-point Likert Scale from 1 (not true at all for me) to 7 (very true for me). Higher scores on the composite measure indicate stronger interpersonal needs, while higher scores on the TB and PB subscales reflect higher TB and PB, respectively. The 15-item version of INQ has been shown to demonstrate good validity and reliability (Van Orden et al., 2012). The Cronbach's alpha coefficient for the present study was .94.

Procedure

The questionnaire was hosted on Qualtrics. Participants accessed the questionnaire via a secure online link or QR code provided on advertisements. Before engaging in the questionnaire, participants read information about the study and electronically signed a consent form. Once the individual had consented to participate, they were taken to a separate webpage to complete the questionnaire. The questionnaire took approximately 20 minutes to complete. A resource sheet was provided at the end of the questionnaire which outlined national helplines and resources.

Data Analytic Plan

Data was analysed using IBM SPSS Statistics version 27.0.1 and PROCESS version 4.0 (Hayes, 2013). First, Cronbach's Alpha was calculated for all study variables, but

particularly for the adapted SSRS, to assess the reliability of the measures used. Descriptive statistics were computed on relevant demographic and study variables. A Pearson product-moment correlation was then constructed as an initial examination of the relationships between variables.

Across all models significance was tested by estimating bias-corrected 95% confidence intervals through the use of bootstrapping procedures (with 5,000 iterations). As seen in Figure 1, mediational analyses were conducted using PROCESS Model 4 to test the mediating roles of PB and TB on the relationship between hopelessness and SI (Model 1). This procedure produces path coefficients along with p values for the total (c) and direct effects (c') of hopelessness on SI, along with the bootstrapped estimate of the indirect (ab) effects. As seen in Figure 2, mediational analyses were also conducted using PROCESS Model 4 with an alternate model (Model 2) to test the mediating role of interpersonal needs (the composite measure of PB and TB) on the relationship between hopelessness and SI. To ascertain the best fitting model, comparisons were made between significance and magnitude of indirect effects, as well as the proportion of variance in SI. Parsimony was also considered as a guiding principle. The parsimony principle states that when two similar models fit the data appropriately, the simpler model with fewer parameters is favoured over the more complex models with more parameters.

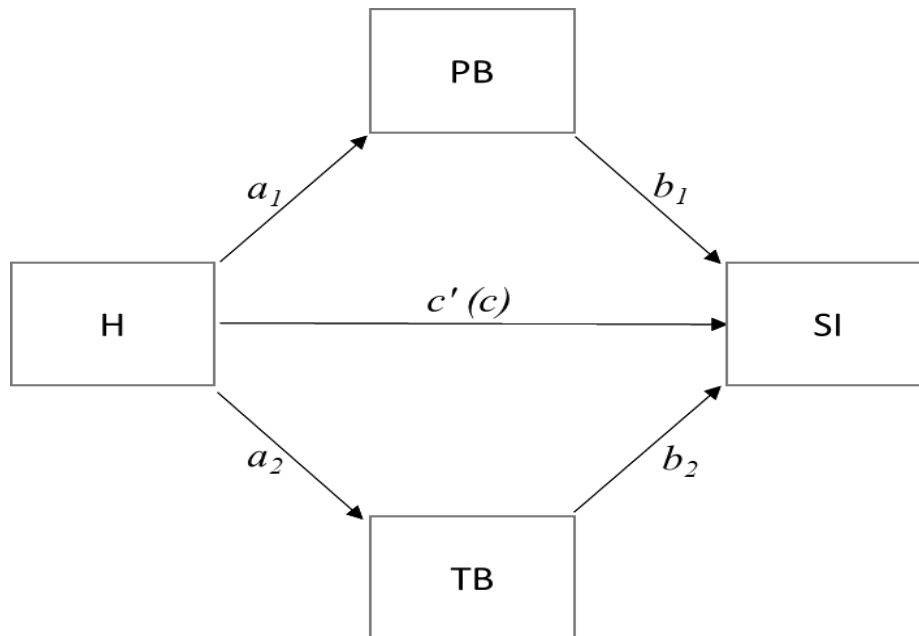
As seen in Figure 3, moderated-mediational analysis based on the results from tests above examined the extent to which MIL (d) influenced the relations between PB and SI (Model 3a). PROCESS Model 14 was used to construct the second stage moderation model. In conjunction with the significant testing described above, an index of moderated mediation was used to test the significance of the moderated mediation, i.e., the difference of the indirect effects across levels of MIL (Hayes, 2015). Interactions were also probed by testing the

conditional effects of the mediator at three levels of the moderator, one standard deviation below the mean, at the mean, and one standard deviation above the mean.

Based on these results, exploratory post hoc analyses were conducted using PROCESS Model 14 and examined the independent roles of MIL-P (Model 3b) and MIL-S (Model 3c) within the moderated mediational model.

Figure 1

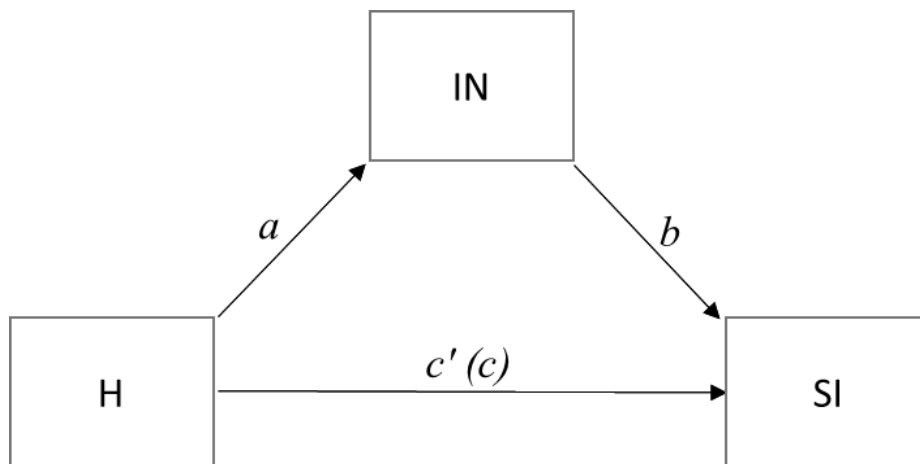
Model 1



Note. H = Hopelessness, PB = Perceived Burdensomeness, TB = Thwarted Belongingness, SI = Suicidal Ideation

Figure 2

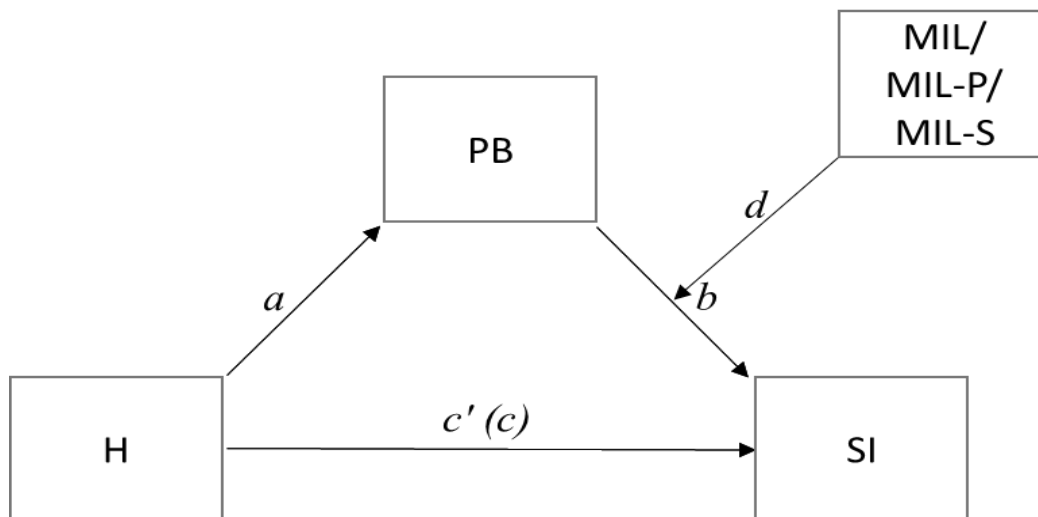
Model 2



Note. H = Hopelessness, IN = Interpersonal Needs, SI = Suicidal Ideation

Figure 3

Model 3a, 3b and 3c



Note. H = Hopelessness, PB = Perceived Burdensomeness, MIL = Meaning in Life, MIL-P = Presence of Meaning in Life, MIL-S = Search for Meaning in Life, SI = Suicidal Ideation, Where Model 3a utilizes MIL, Model 3b utilizes MIL-P and Model 3c utilizes MIL-S

Results

Descriptive Statistics

As can be seen in Table 1, frequency analysis revealed that participants most often identified as urban, single, NZ European men with at least some tertiary credit and employed at least part time.

Table 1

Descriptive Statistics for Demographic Variables Showing Numbers and Percentages Across Overall Sample

Demographic Characteristic	Number	Percentage
Gender		
Male	438	99.5
Other (e.g., Transgender Male)	2	.5
Ethnicity		
New Zealand European	384	87.3
Māori	40	9.1
Samoan	3	.7
Cook Islands Māori	1	.2
Tongan	1	.2
Chinese	10	2.3
Indian	6	1.4
Other	53	12
Relationship Status		
Married	19	4.3
Divorced	1	.2
Separated	7	1.6
In a de facto relationship	27	6.1
In a relationship (e.g., girlfriend)	136	30.9
Single, never married	250	56.8
Geographic location		
Urban	333	75.7
Rural	107	24.3
Education Level		
None completed	1	.2
Some high school, no NCEA certificate	7	1.6
NCEA Level 1	11	2.5
NCEA Level 2	14	3.2

Demographic Characteristic	Number	Percentage
NCEA Level 3/University Entrance	95	21.6
Some tertiary credit, no degree	115	26.1
Trade/technical/vocational diploma	36	8.2
Associate Degree	2	.5
Bachelor's Degree	127	28.9
Master's Degree	25	5.7
Professional Degree	6	1.4
Doctorate degree	1	.2
Employment Status		
Employed for wages, full time	156	35.5
Employed for wages, part-time	101	23
Self-employed	29	6.6
Out of work, looking for work	29	6.6
Out of work, not looking for work	14	3.2
Student	203	46.1
Military	3	.7
Unable to work	4	.9
Mental Health Diagnosis		
Yes	136	30.9
No	304	69.1
Mental Health Diagnosis Defined		
Attention Deficit Hyperactivity Disorder	20	4.5
Disorder		
Specific Learning Disorder	28	6.4
Anxiety Disorder	76	17.3
Depressive Disorder	78	17.7
Bipolar Disorder	5	1.1
Personality Disorder	2	.5
Substance Use Disorder	8	1.8
Psychotic Disorder	3	.7
Other (e.g., Autism)	15	3.4
Mental Health Intervention		
Currently taking medication	43	9.8
Currently receiving treatment (not medication)	28	6.4

Note. For Ethnicity, Employment Status, and Mental Health Diagnosis Defined, categories are not exclusive, so will not add to 100%.

In this sample of young adult males, the average score on the measure of lifetime SI was 2.20 (see Table 2). Frequency analysis showed that 24% of the sample reported no experience of SI, while the remaining 76% reported at least some experience of SI across their lifetime. Further, 50% of the sample reported having experienced active suicidal ideation

(including having had thoughts about how they might kill themselves) and 32% of the sample endorsed all items, reflecting a history of both passive and active SI, including intention to act upon thoughts of killing oneself. Interestingly, the kurtosis statistic indicates the distribution of this measure was found to be too flat and thus not normally distributed.

Table 2

Descriptive Statistics for Study Variables

Variable	<i>M</i>	<i>SD</i>	Minimum- Maximum	Skew (<i>SE</i>)	Kurtosis (<i>SE</i>)
Suicidal Ideation	2.20	1.58	.00 - 4.00	-.22 (.12)	-1.50 (.24)
Hopelessness	5.9	5.17	.00 - 20.00	.97 (.12)	.02 (.23)
Interpersonal Needs	40.15	19.29	15.00 - 105.00	.72 (.12)	-.15 (.25)
Perceived Burdensomeness	11.75	8.14	6.00 – 42.00	1.68 (.12)	2.38 (.25)
Thwarted Belongingness	28.39	13.07	9.00 – 63.00	.31 (.12)	-.81 (.24)
Meaning in Life	43.52	9.71	10.00 – 70.00	-.58 (.12)	.88 (.24)
Presence of Meaning in Life	20.61	7.17	5.00 – 35.00	-.13 (.12)	-.63 (.24)
Search for Meaning in Life	22.91	7.04	5.00 – 35.00	-.55 (.12)	-.06 (.24)

Note. *M* = Mean, *SD* = Standard Deviation, *SE* = Standard Error

Results of a Pearson product-moment correlation revealed that all explanatory variables were significantly associated with SI. As can be seen in Table 3, correlation coefficients for the associations between SI and hopelessness, interpersonal needs, PB and TB signified strong, inverse relationships. The correlation coefficient for SI and MIL reflects a statistically significant but negligible, positive relationship. Suicidal ideation and MIL-P were found to

have a moderate positive relationship, while MIL-S had a statistically significant but negligible, negative relationship.

Additionally, the subscales that comprise the INQ were found to have a strong positive association. Strong positive associations were also found between MIL, and the two subscales MIL-P and MIL-S. However, there was no relationship between MIL-P and MIL-S.

Table 3

Pearson Product-Moment Correlation Matrix

Variable	H	IN	PB	TB	MIL	MIL-P	MIL-S	SI
H								
IN	.77***							
PB	.72***	.85***						
TB	.69***	.95***	.63***					
MIL	-.43***	-.31***	-.22***	-.32***				
MIL-P	-.66***	-.53***	-.43***	-.51***	.69***			
MIL-S	.08	.11*	.14**	.08	.68***	-.07		
SI	.51***	.47***	.45***	.41***	-.14***	-.33***	.15**	

Note. * indicates $p < .05$, ** indicates $p < .01$, *** indicates $p < .001$. H = Hopelessness, IN = Interpersonal Needs, PB = Perceived Burdensomeness, TB = Thwarted Belongingness, MIL = Meaning in Life, MIL-P = Presence of Meaning in Life, MIL-S = Search for Meaning in Life, SI = Suicidal Ideation

Hypotheses Testing

Testing Hypotheses 1: Mediated Regression Analysis

Statistical assumption checks for regression analysis were run. Despite the non-normal distribution of SI, the plotted regression standardized residuals for hopelessness and interpersonal needs on SI appeared normally distributed. All assumptions were acceptable.

To test hypothesis 1 that the effect of hopelessness on SI would be mediated by PB and not TB, a mediated regression analysis was conducted where the effect of hopelessness on SI was mediated by both PB and TB (Model 1, as seen in Figure 1). As shown in Table 4, hopelessness positively predicted SI (c). Hopelessness was positively associated with PB (a_1) and PB, in turn, was positively associated with SI (b_1). Analysing the indirect effects (a_1b_1), results revealed that PB partially mediated the relationship between hopelessness and SI. For indirect effects see Table 5. Results also revealed that while hopelessness was positively associated with TB (a_2), TB was not significantly associated with SI (b_2). As such, TB did not mediate the relationship between hopelessness and SI (a_2b_2). Nevertheless, the results also suggested that even after accounting for PB and TB, hopelessness still had a positive relationship with SI (c'). Altogether, hopelessness, PB and TB accounted for 28% of variation in SI.

Table 4

Unstandardized OLS Regression Coefficients Estimating Perceived Burdensomeness, Thwarted Belongingness and Suicidal Ideation

	Perceived Burdensomeness		Thwarted Belongingness		Suicidal Ideation	
	B (SE)	CI	B (SE)	CI	B (SE)	CI
Total					<i>c</i>	.15*** (.01) .13, .18.
Hopelessness	<i>a₁</i>	1.12*** (.06) 1.01, 1.23	<i>a₂</i>	1.74*** (.09) 1.56, 1.92	<i>c'</i>	.11*** (.02) .06, .15
Perceived Burdensomeness					<i>b₁</i>	.03* (.01) .00, .05
Thwarted Belongingness					<i>b₂</i>	.01 (.01) -.00, .02
Constant	<i>i_M</i>	5.18*** (.43) 4.33, 6.04	<i>i_M</i>	18.18*** (.72) 16.76, 19.60	<i>i_Y</i>	1.00*** (.17) .67, 1.33

Note. * indicates $p < .05$, ** indicates $p < .01$, *** indicates $p < .001$, CI at 95%

Table 5

Mediation Estimates

Model	Total Effect	Direct Effect	Mediation	Indirect effect	Confidence	Conclusion
	(c)	(c')		(ab) [SE]	Interval	
Model 1	.15***	.11***	H -> PB -> SI	.03*** [.01]	.01, .05	Partial Mediation
			H -> TB -> SI	.02 [.01]	- .01, .04	No Mediation
Model 2	.15***	.12***	H -> IN > SI	.04*** [.02]	.01, .08	Partial Mediation

Note. *** indicates significant total and direct effects whereby $p < .001$ or significant indirect effects whereby the 95% CI does not contain zero.

H = Hopelessness, IN = Interpersonal Needs, PB = Perceived Burdensomeness, TB = Thwarted Belongingness

Testing Hypotheses 2: Mediated Regression Analysis

To test hypothesis 2 that interpersonal needs (the composite measure of PB and TB) would mediate the relationship between hopelessness and SI, an alternate mediated model was constructed with interpersonal needs as a mediator of the relationship between hopelessness and SI (Model 2, as seen in Figure 2). Results show (see Table 6) that hopelessness had a significant, positive, total effect on SI (c). Hopelessness was positively associated with interpersonal needs (a). Interpersonal needs, in turn, was positively associated with SI (b). Analysing the indirect effects (ab), results revealed that interpersonal needs partially mediated the relationship between hopelessness and SI (see Table 5). However, the results also suggest that even after accounting for the mediating role of interpersonal needs, hopelessness still had a positive relationship with SI (c'). Together hopelessness and interpersonal needs accounted for 28% of variation in SI.

Table 6

Unstandardized OLS Regression Coefficients Estimating Interpersonal Needs, and Suicidal Ideation

		Perceived Burdensomeness		Suicidal Ideation	
		B (SE)	CI	B (SE)	CI
Total				c .15*** (.01)	.13, .18
Hopelessness	a	2.86*** (.12)	2.62, 3.09	c' .11*** (.02)	.07, .15
Interpersonal Needs				b .02** (.01)	.00, .03
Constant	i_M	23.36*** (.94)	21.52, 25.21	i_Y .97*** (.16)	.64, 1.29

Note. * indicates $p < .05$, ** indicates $p < .01$, *** indicates $p < .001$, CI at 95%

Testing Hypothesis 3: Model Comparison

To ascertain the best fitting model and test hypothesis 3, that Model 2 would more strongly explain SI than Model 1, we compared the total effects, indirect effects and R-Squared scores for Model 1 and 2, while also considering parsimony as a guiding principle. Both models were demonstrated to have the same total effect and accounted for the same proportion of variance in SI. The indirect effect for Model 2 was marginally greater (See Table 5). However, given that TB was not found to mediate the relationship between hopelessness and SI, it was decided that for the sake of parsimony, and because the remaining aim of the study was to examine the extent to which MIL moderated the relationship between the mediator and the dependent variable, TB was removed. Hopelessness remained the independent variable, PB the mediator variable, and SI the dependent variable.

Testing Hypothesis 4: Moderated Mediation Regression Analysis

In testing hypothesis 4, that MIL would moderate the relationship between the remaining IPTS variable(s) and SI, a moderated mediation regression was conducted, where MIL moderated the relationship between PB (the mediator between hopelessness and SI) and SI (Model 3a, as seen in Figure 3). Results can be seen in Tables 7 and 8.

Table 7

Unstandardized OLS Regression Coefficients Estimating Perceived Burdensomeness, and Suicidal Ideation

	Perceived Burdensomeness			Suicidal Ideation		
		B (SE)	CI	B (SE)	CI	
Hopelessness	<i>a</i>	1.12*** (.06)	1.01, 1.23	<i>c'</i>	.13*** (.02)	.09, .17
Perceived Burdensomeness				<i>b</i>	.03 (.04)	-.04, .10
Meaning in Life					.02 (.01)	-.01, .04
MIL X PB					-.00 (.00)	-.00, .00
Constant	<i>i_M</i>	5.19*** (.43)	4.33, 6.04	<i>i_Y</i>	.45 (.54)	-.61, 1.51

Note. * indicates $p < .05$, ** indicates $p < .01$, *** indicates $p < .001$. CI at 95%. MIL X PB = the interaction of Meaning in Life and Perceived Burdensomeness

Table 8*Moderated Mediation Estimates*

Model	Direct Effect (c')	Mediation H-> PB -> SI	Indirect effect (ab) [SE]	Confidence Interval	Conclusion
Model 3a	.13***				
		MIL Low	.03*** [.01]	.01, .06	Partial Mediation
		MIL Average	.03*** [.01]	.01, .06	Partial Mediation
		MIL High	.03*** [.01]	.00, .06	Partial Mediation
Model 3b	.13***				
		MIL-P Low	.03*** [.01]	.00, .05	Partial Mediation
		MIL-P Average	.04*** [.01]	.02, .07	Partial Mediation
		MIL-P High	.06*** [.02]	.03, .09	Partial Mediation
Model 3c	.12***				
		MIL-S Low	.06*** [.02]	.03, .09	Partial Mediation
		MIL-S Average	.04*** [.01]	.02, .06	Partial Mediation
		MIL-S High	.02 [.01]	-.00, .04	No Mediation

Note. *** indicates significant direct effects whereby $p < .001$ or significant indirect effects

whereby the 95% CI does not contain zero. H = Hopelessness, PB = Perceived

Burdensomeness, MIL = Meaning in Life, MIL-P = Presence of Meaning in Life, MIL-S =

Search for Meaning in Life, SI = Suicidal Ideation

In terms of direct effects, hopelessness positively affected PB (*a*). However, in this model PB no longer had a significant direct effect on SI (*b*). Although PB did not directly affect SI, hopelessness continued to affect SI via PB. As seen in Table 8, PB was found to partially mediate the relationship between hopelessness and SI (*ab*) when MIL was low (-1 *SD*), moderate (*M*), and high ($+1$ *SD*). The direct effect of MIL on SI was positive but not significant. Hopelessness had a significant, positive, direct effect on SI (*c'*), even after accounting for the mediating role of PB, and the effect of MIL.

For the path between PB and SI, the interaction between PB and MIL was not significant. Further, the index of moderated mediation was not significant, Index = $-.00$, SE = $.00$ CI $-.00$ to $.00$. This indicates that MIL was not conditioning the indirect effect of hopelessness on SI through perceived burdensomeness, or the effect of PB on SI, and as such there is no evidence of moderated mediation within this model.

Post-hoc Moderated Mediation Regression Analysis

Given the results of the initial moderated mediation, the intercorrelations between MIL, MIL-P, MIL-S and SI, and previous literature on the differing effects of MIL-P and MIL-S as components of MIL; further exploration was undertaken. The aim of this exploratory post-hoc analyses was to examine the MIL subscales MIL-P and MIL-S as independent moderators of the relationship between PB and SI (Models 3b and 3c as seen in Figure 3).

Exploring the Presence of Meaning in Life

MIL-P was examined as a moderator of the direct relationship between PB and SI and the indirect relationship between hopelessness and SI via PB.

Table 9

Unstandardized OLS Regression Coefficients Estimating Perceived Burdensomeness, and Suicidal Ideation

	Perceived Burdensomeness			Suicidal Ideation		
		B (SE)	CI		B (SE)	CI
Hopelessness	<i>a</i>	1.12*** (.06)	1.01, 1.23	<i>c'</i>	.12*** (.02)	.07, .16
Perceived Burdensomeness				<i>b</i>	-.00 (.02)	-.05, .04
Presence of Meaning					-.03 (.02)	-.06, .00
MIL-P X PB					.00 (.00)	-.00, .00
Constant	<i>i_M</i>	5.19*** (.43)	4.33, 6.04	<i>i_Y</i>	1.71*** (.41)	.90, 2.52

Note. * indicates $p < .05$, ** indicates $p < .01$, *** indicates $p < .001$. CI at 95%. MIL-P X PB

= the interaction of Presence of Meaning in Life and Perceived Burdensomeness

As seen in Table 9, the path from hopelessness to PB was significant (*a*). The path from PB to SI (*b*) was negative and not significant. Again, though PB did not directly affect SI, hopelessness continued to affect SI via PB. As shown in Table 8, the (positive) conditional indirect effect (*ab*) for high values (+ 1 *SD*) of MIL-P was the strongest, it was weaker but still significant for medium values (*M*) of MIL-P, and for small values (- 1 *SD*) of MIL-P. Therefore, indicating that partial mediation of the relationship between hopelessness and SI by PB occurs at all levels of MIL-P. Still, the direct effect from hopelessness to SI (*c'*) remained significant after accounting for PB and MIL-P. The direct effect of MIL-P on SI was negative but not significant.

While the path for the interaction between PB and MIL-P only approached significance ($B = .00$, $SE = .00$, $p = 0.07$, $CI: -.00, .00$) the index of moderated mediation was significant,

given that the confidence interval did not contain zero (Index = .00, SE = .00, CI: .00 – .00). This result provides evidence for a moderated mediation whereby MIL-P has a moderating effect on the indirect effect of hopelessness on SI via PB. As shown in Table 10, and illustrated in Figure 4, the (positive) conditional, direct effect of PB on SI was strongest for high values of MIL-P, and weaker but still significant for medium and small values of MIL-P.

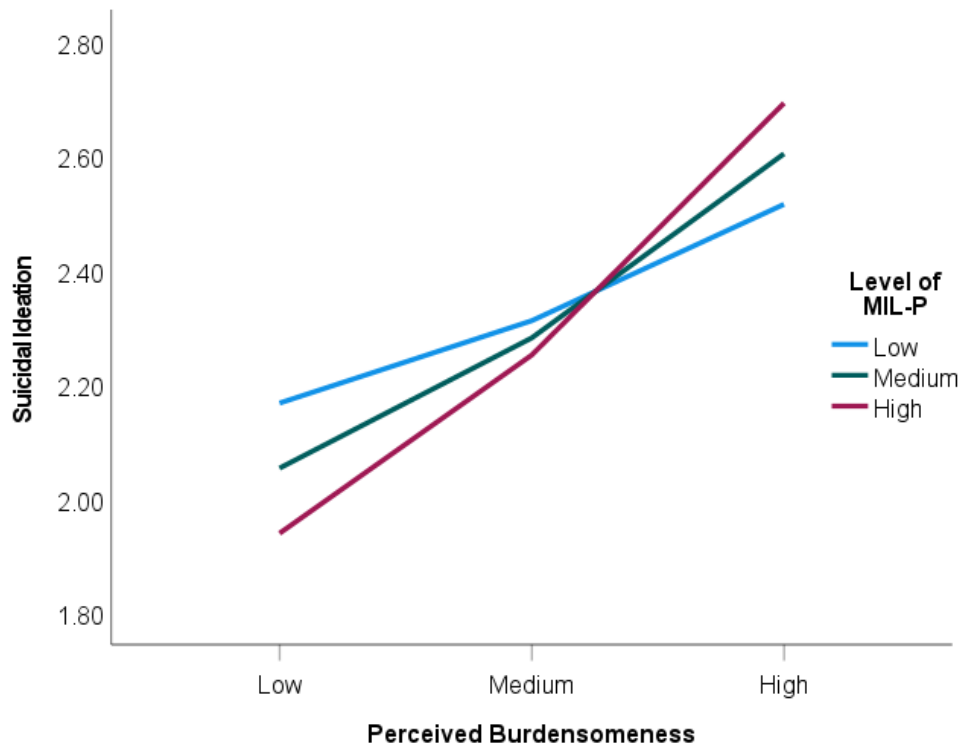
Table 10

Conditional Direct Effects of Perceived Burdensomeness on Suicidal Ideation at Different Levels of Presence of Meaning in Life

MIL	B	SE	p	CI
One <i>SD</i> below mean	.03	.01	< .05	.00, .05
At the mean	.04	.01	< .01	.01, .06
One <i>SD</i> above mean	.05	.02	< .01	.02, .09

Figure 4

Conditional Direct Effects of Perceived Burdensomeness on Suicidal Ideation at Different Levels of Presence of Meaning in Life



Note. MIL-P = Presence of Meaning in Life. Low = 1 Standard Deviation below the mean, Medium = at the mean, High = 1 Standard Deviation above the mean.

As seen in Figure 4, high MIL-P had the steepest slope, such that the positive relationship between PB and SI was the strongest at high levels of MIL-P. The conditional direct effect of PB on SI when MIL-P was high was strong enough that at low levels of PB, high MIL-P was associated with less SI than low or average MIL-P, but at high levels of PB, high MIL-P was associated with greater SI than low or average MIL-P.

Exploring the Search for Meaning in Life

Another alternate moderated mediation model was constructed where MIL-S moderated the relationship between PB and SI (where PB was a mediator between hopelessness and SI).

Table 11

Unstandardized OLS Regression Coefficients Estimating Perceived Burdensomeness, and Suicidal Ideation

	Perceived Burdensomeness			Suicidal Ideation		
		B (SE)	CI		B (SE)	CI
Hopelessness	<i>a</i>	1.12*** (.06)	1.01, 1.23	<i>c'</i>	.12*** (.02)	.08, .15
Perceived Burdensomeness				<i>b</i>	.09** (.03)	.03, .15
Search for Meaning					.05** (.02)	.02, .08
MIL-S X PB					-.00* (.00)	-.00, -.00
Constant	<i>i_M</i>	5.19*** (.43)	4.33, 6.04	<i>i_Y</i>	-.04 (.39)	-.80, .72

Note. * indicates $p < .05$, ** indicates $p < .01$, *** indicates $p < .001$. CI at 95%. MIL-S X PB

= the interaction of Search for Meaning in Life and Perceived Burdensomeness

As shown in Table 11, the path from hopelessness to PB (*a*) was significant. The path from PB to SI (*b*) was this time positive and significant. The (positive) conditional indirect effect (*ab*) for high values (+ 1 *SD*) of MIL-S was the weakest and not significant (see Table 8). When MIL-S was average (*M*) the conditional indirect effect became stronger and significant, and this trend followed for smaller values (- 1 *SD*) of MIL-S. The direct effect

from hopelessness to SI (c') remained significant. The direct effect of MIL-S on SI was positive and significant.

For the path between PB and SI, the interaction between PB and MIL-S was significant. Further, the index of moderated mediation was significant, given that the confidence interval did not contain zero, Index = -.00, SE: .00, CI: -.00 to -.00. This result provides evidence for a moderated mediation whereby the MIL-S has a moderating effect on the indirect effect of hopelessness on SI via PB. As shown in Table 12, and illustrated in Figure 5, the (positive) conditional, direct effect of PB on SI was weakest for high values of MIL-S and was not significant. When MIL-S was average the conditional effect became stronger and significant, and this trend followed for smaller values of MIL-S.

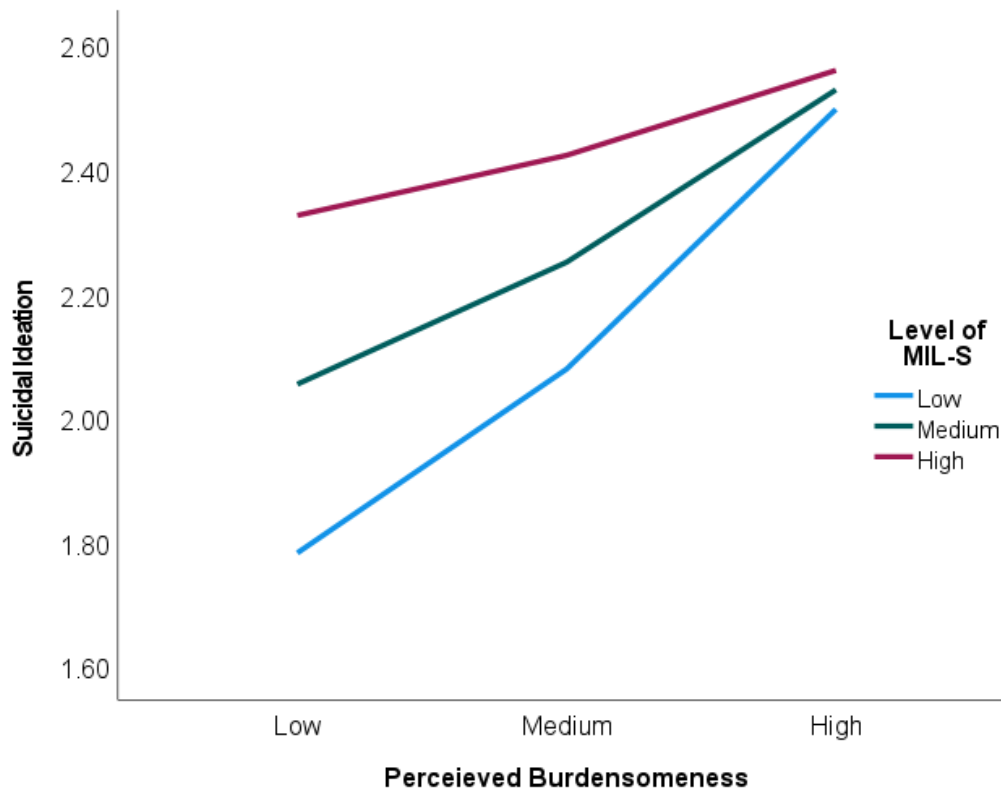
Table 12

Conditional Direct Effects of Perceived Burdensomeness on Suicidal Ideation at Different Levels of Search for Meaning in Life

MIL	<i>B</i>	<i>SE</i>	<i>p</i>	CI
One <i>SD</i> below mean	.05	.02	< .01	.02, .08
At the mean	.03	.01	< .05	.01, .06
One <i>SD</i> above mean	.02	.01	.20	-.01, .04

Figure 5

Conditional Direct Effects of Perceived Burdensomeness on Suicidal Ideation at Different Levels of Search for Meaning in Life



Note. MIL-P = Presence of Meaning in Life. Low = 1 Standard Deviation below the mean, Medium = at the mean, High = 1 Standard Deviation above the mean.

As seen in Figure 5, low MIL-S had the steepest slope given that the positive relationship between PB and SI was the strongest at low levels of MIL-S. As such, while the effect of high MIL-S was greatest when PB was low, it was minimal when PB was high. Regardless, high MIL-S was more strongly associated with SI than low and average MIL-S at every level of PB.

Discussion

Aims of the Current Study

Progress in suicidology is currently impeded by a counterproductive cycle of risk-focussed, isolated construct and theory generation, inadequate testing, refinement, and integration, and subsequent stagnation and replacement of ideas (Millner, Robinaugh & Nock, 2020). The current study sought to address some of the current limitations in literature on SI by taking an integrative, replication-focussed, mediational, resilience-inclusive approach that considers ideation-to-action and positive psychology conceptual frameworks. This study examined the relation between hopelessness and SI by exploring the mediating roles of PB and TB, and the degree to which the mediation is influenced by MIL. These constructs were drawn from several, prominent, contemporary theories of suicide; the HT, IPTS and 3ST.

Hypothesis Outcomes

We expected that for Model 1, the effect of hopelessness on SI would be fully mediated by PB and not by TB, in a replication of findings by Kleiman, Law and Anestis (2014). Results demonstrated that PB partially mediated the relationship between hopelessness and SI, while TB did not. Thus, hypothesis 1 was partially supported. Based on current literature we expected that for Model 2, interpersonal needs would mediate the relationship between hopelessness and SI. Findings revealed that interpersonal needs partially mediated this relationship. Thus, hypothesis 2 was partially supported. We also expected that Model 2 would have a stronger effect on SI than Model 1 (Hypothesis 3). Results demonstrated that differences were negligible. Further, an alternate model without TB was considered most parsimonious. Therefore, our findings failed to provide support for hypothesis 3. As such, the remainder of our analyses excluded TB. Based on current literature, we expected that in an extended mediation model, MIL would moderate the relationship between PB and SI. Results did not

demonstrate evidence of moderated mediation within this model, failing to provide support for hypothesis 4.

In addition to the above hypotheses, this study explored how MIL-P and MIL-S differentially moderated the relationship between PB and SI (where PB was a mediator between hopelessness and SI). Evidence was found for a moderated mediation where as MIL-P increased, the indirect effect of hopelessness on SI via PB became stronger. Results also revealed a moderated mediation where as MIL-S increased, the indirect effect of hopelessness on SI via PB became weaker.

Suicidal Ideation

The proportion of respondents in this study who reported having had at least some experience of SI, and who endorsed a history of both passive and active SI, was unexpectedly high. It was higher than other recent data in Aotearoa, New Zealand, that indicated 40% of 18 – 35-year-olds seriously considered suicide or self-harm in the past year (Ipsos New Zealand, 2022). It was also higher than recent data that indicated 6% of New Zealanders reported SI during the 2020 Covid-19 Lockdown- with the vast majority having also experienced similar ideation in the 12 months prior (Every-Palmer et al., 2020). However, the current study utilized a lifetime measure of SI which is also likely to reflect a higher rate of SI than a measure of current SI. For example, over 34% of participants in a sample of New Zealand adolescents reported lifetime history of SI, while 28% reported SI in the past year, and just 3% reported serious SI in the last two weeks (Robinson et al., 2021). Though it should be noted that Robinson et al. (2021) measures serious SI, which likely does not capture all aspects of current passive and active SI. The lifetime prevalence of SI has been shown to vary widely globally but has been shown to be high in Aotearoa, New Zealand (Weissman, et al, 1999). Data from the late 1980's on a sample from Aotearoa, New Zealand revealed an overall lifetime prevalence per 19%, and 15% for males specifically (Weissman et al, 1999). This elevated

level of SI among our young-adult male sample is a concern, particularly given that research has shown that SI is predictive of suicide death (Franklin et al., 2017).

The finding that hopelessness had a significant relationship with SI, regardless of other factors across models, supports the wealth of literature on this relationship (Beck et al., 1990; Franklin et al., 2017; Ribeiro et al., 2018; Sueki, 2020).

Replication of Kleiman et al., (2014)

Our Model 1 results provided a partial replication of Kleiman et al. (2014). The finding that TB did not mediate the relationship between hopelessness and SI in the presence of PB was fully replicated. Where in Kleiman et al. (2014) PB fully mediated the relationship between hopelessness and SI, in the current study PB only partially mediated the relationship. These findings provide some evidence that people who experience hopelessness are more likely to have thoughts about suicide because they tend to hold beliefs about themselves as a burden to others, irrespective of any perceived lack of belonging. At the same time, hopelessness likely still contributes significantly to SI.

This finding is congruent with other literature that suggests PB is a more consistently supported and potent factor than TB (Baertschi et al., 2017; Chu et al., 2017; Fulgitini et al., 2020; Ma et al., 2016). Lin and Linscott (2022) also found that TB did not exert sufficient direct influence on active SI cross sectionally and longitudinally. This is an important finding given that IPTS theory assumes that TB and PB are equally important, and that TB alone is sufficient to cause passive SI (Van Orden et al., 2010). Nevertheless, TB has been shown to be associated with SI in less parsimonious models, whereby it mediates the relationship between minority stress and PB to predict SI (Fulgitini et al., 2020), is in the presence of extremely elevated levels of PB (Van Orden et al., 2008) or is mediated and moderated by PB (Lin & Linscott, 2022). In addition, Lin and Linscott (2022) also found that TB did not significantly

predict active SI cross sectionally but became significant longitudinally (at 4 weeks). Therefore, TB may not be as important and necessary in explaining SI as the IPTS proposes, however there is still merit in exploring the conditions under and populations for which it does exert a significant effect. Research on models that include gender suggest that TB is a stronger predictor of SI in males than females (Christensen et al., 2013), though the present study did not support TB as a predictor of SI in young adult males, and studies with predominantly female samples have shown mixed results (Kleiman et al., 2014; Lin & Linscott, 2022, Mason et al., 2021). Chu and colleagues (2017) found that the relationship between TB and SI was stronger among older samples. Additionally, Hill and colleagues (2015) found that the version of the INQ used had an effect on whether TB would be found as a predictor of SI.

Our results differ from findings on a similar sample of young adults in Aotearoa, New Zealand, where no evidence was found for PB and TB as associates of suicide risk in a multiple regression (Mason et al., 2021). This difference may be due to their predominantly female sample, or because their outcome measure captured suicide risk, rather than SI specifically.

Using Interpersonal Needs as a Composite

While TB did not mediate the relationship between hopelessness and SI, it is notable that hopelessness had a significant direct effect on TB. Therefore, the author considered it reasonable to pursue examination of Model 2 which contained the variable interpersonal needs, as the composite of PB and TB. Regarding Model 2, our findings provide some evidence that people who experience hopelessness are more likely have passive or active thoughts about suicide because they tend to hold negative beliefs about their unmet interpersonal needs such as the need to belong and demonstrate social competence. At the same time, hopelessness alone still contributes significantly to SI. Given that Model 2 was not definitively more appropriate in explaining SI, or more parsimonious than a version of Model 1 without TB, the synergy hypothesis of the IPTS was not supported by our data. Our findings did not support that the

simultaneous presence of TB and PB was a sufficient cause of active/strong SI. This may be because this model was not a full test of the synergy hypothesis, given that it did not include interpersonal hopelessness as a concurrent predictor.

Meaning in Life as a Moderator

Results from the Current Study

Model 3 examined the associations between hopelessness, PB, MIL and SI. Our results indicated that MIL dampened or conferred resiliency for the direct effect of PB on SI such that when MIL was added to the model (in an extension of previously tested models) PB was no longer associated with SI. However, MIL did not confer resiliency against the effect of hopelessness on SI, either directly, or indirectly via PB. Therefore, while MIL buffered against the direct effect of PB on SI, PB was still implicated as a risk factor for SI due to its mediation of the relationship between hopelessness and SI. Together these results emphasize that hopelessness is a potent factor associated with SI even after accounting for PB and MIL.

Hopelessness was also demonstrated to be an important associate of SI regardless of the level of MIL. Our finding that MIL was not conditioning the indirect effect of hopelessness on SI through perceived burdensomeness, or the direct effect of PB on SI, was unexpected. It may be that moderation of the indirect effect could not occur given that MIL (irrespective of the degree of MIL) weakened the relation between PB and SI, as discussed above. As can be seen in Table 3, the correlations between MIL and PB, and between MIL and SI are negative and significant, but slight. This may explain why the current study demonstrated that while MIL weakened the relationship between PB and SI, neither MIL, PB nor their interaction were found to have a significant effect on SI.

Congruence with Prior Literature

Previous empirical work has demonstrated that MIL is a protective and resilience factor for SI (Braden, 2015; Harlow et al., 1986, Heisel, 2016) and a recent systematic review indicates that literature overall supports this finding (Costanza et al., 2019). In contrast, the current study failed to find a significant, negative effect of MIL on SI, indicating that MIL was not operating as a direct protective factor against SI. These findings are similar to a recent study by Sun et al. (2022a) of adult patients presenting with depression and SI in Taiwan. Using path analysis, Sun et al. (2022a) found that MIL did not have a significant direct effect on SI, in a model than included hopelessness and depression. However, an indirect path from MIL to SI via depression was significant. This emphasizes that hopelessness is a very powerful predictor, and risk factor for SI.

Our findings were divergent to other work, such as Beach (2021) which found that MIL moderated the relationship between PB and passive SI, such that when MIL was high, there was a weaker association between PB and SI. This is relevant given that their outcome variable was passive SI, where our measure captured both passive and active SI. Beach (2021) used the Perceived MIL subscale of the Geriatric Scale for Suicide Ideation, and had a sample of older-adults. Therefore, it may be that MIL did not moderate the effect of hopelessness on SI through PB in the current study because of the opposing effects contained within the subscales of the composite MIL as measured by the MLQ, which is further discussed below. Age could be another factor also worth consideration, given that a majority of studies that demonstrate MIL to be a resilience or protective factor are on sample of older adults. This is also discussed below.

Further Examination of MIL as a Moderator

Given a lack of evidence for MIL as a moderator within our model, and the direction of correlations between variables (where MIL and MIL-P were negatively associated with SI, MIL-S was positively associated with SI, and MIL-P and MIL-S were not associated), further

exploration was warranted regarding how MIL-P and MIL-S differentially moderated the relationship between hopelessness and SI via perceived burdensomeness.

Presence of Meaning in Life as a Moderator

Results from the Current Study

The presence of meaning, which is the degree to which an individual appraises that their life makes sense, has purpose and holds significance; is an important component of MIL. The current study failed to find a significant, negative effect of MIL-P on SI, indicating that MIL-P was not operating as a protective factor against SI. Results demonstrated a moderated mediation where as MIL-P increased, the indirect effect of hopelessness on SI via PB became stronger. Similarly, as MIL-P increased, the direct effect of PB on SI increased. These results were particularly unexpected. They suggest that in our sample of young adult males from Aotearoa, New Zealand, MIL-P exacerbated the risk conferred by hopelessness and PB on SI. However, further analyses of the conditional effects of PB on SI at different levels of MIL-P revealed that MIL-P exerted differing effects depending on the individual's level of PB. When PB was low, MIL-P appeared protective, such that individuals reporting high levels of MIL-P also reported less SI than those with low or average MIL-P. When PB was high, MIL-P operated as a risk factor, whereby individuals reporting high MIL-P experienced greater SI than those with low or average MIL-P.

Congruence with Prior Literature

Constanza and colleagues' (2019) systematic review of research from 1980 to 2019 found just 5 previous articles that explored the two distinct MIL constructs in relation to suicidality. They concluded that MIL-P was consistently protective against SI (Costanza et al., 2019). Works published following their review have been consistent with this conclusion (Costanza et al., 2020b; Lew et al., 2020). Empirical work has also demonstrated that the protection against SI afforded by MIL-P occurs longitudinally (Kim et al., 2017; Kleiman &

Beaver, 2013). Of relevance to the current study, MIL-P has been shown to suppress the relationship between PB and SI, and between hopelessness and suicidal behaviour. (Kleiman & Beaver, 2013; Lew et al., 2020). Evidently, our results stand in direct contrast to these findings, and mark the first study known by the author to report that MIL-P did not operate as a protective factor for SI, and further, was shown to intensify the risk conferred by hopelessness and PB on SI.

Interpretation of the Findings from the Current Study

Given the surprising nature of these findings, there is insufficient literature with which to interpret them. Therefore, only a tentative formulation of their meaning can be considered. The presence-to-search hypothesis proposes that sufficient MIL-P results in lower MIL-S (Steger et al., 2008a). In line with this theory, it may be that those with high MIL-P and low PB also experience low MIL-S, mitigating the likelihood of MIL-S exerting an effect as a risk factor.

The confluence of interpersonal relationships and the fulfilment of MIL may be also implicated. As discussed, most people credit relationships as a central source of MIL (Costanza et al., 2020a; Stillman & Lambert, 2013). Perhaps those who do not perceive themselves as a burden to others and report high MIL-P, are more likely motivated to, and capable of having their MIL-P validated or satisfied by quality, reciprocal relationships. It may be then that such circumstances consequently buffer against SI.

In contrast, if individuals who have a strong MIL-P characterized by interpersonal relationships, develop beliefs about themselves as a liability to others, their thwarted ability to attain what makes life meaningful to them may cause distress, amplifying the relationship between PB and SI. On the other hand, for those with low MIL-P, high PB may be less distressing because its ramifications would be less likely to threaten the persons understanding

of their reasons for being alive. Alternatively, it may be that those low in MIL-P but high in PB are consequently searching for meaning; in line with both the presence-to-search hypothesis and the fluid compensation mechanism within Heine et al.'s (2006) meaning making model. This subsequent process of searching (when PB is high specifically) may then afford resilience against SI, which is corroborated by our findings regarding MIL-S, discussed below.

Search for Meaning in Life as a Moderator

Results from the Current Study

The search for MIL reflects the effort individuals exert to build and bolster their sense of MIL. The study found a direct, positive effect of MIL-S on SI, indicating that those who score highly on MIL-S are more likely to experience SI than those lower on the measure. Therefore, MIL-S was demonstrated to be a risk factor for SI in our sample.

However, results demonstrated a moderated mediation where as MIL-S increased, the indirect effect of hopelessness on SI via PB became weaker. The moderation was strong enough that at high levels of MIL-S, PB no longer mediated the relation between hopelessness and SI. This suggests that MIL-S operated as a resilience factor, buffering the effect of hopelessness on SI via PB. Additionally, as MIL-S increased, the direct effect of PB on SI decreased, and at high levels of MIL-S, PB no longer exerted a significant effect on SI. This provides further evidence for MIL-S as a resilience factor. These results were unexpected.

Further analyses of the conditional effects of PB on SI at different levels of MIL-S revealed that high MIL-S was consistently related to greater SI, though the strength of the effect differed depending on the individual's level of PB. When PB was low, the level of MIL-S had the most impact on the relationship between PB and SI. For those low in PB, high MIL-S was more highly associated with SI than average or low MIL-S. This suggests that high MIL-S is a risk factor for SI for young adult males who either have no or minimal reported experiences of

PB. When PB was high, while high MIL-S still appeared to be most strongly associated with SI, the difference between levels of MIL-S was much smaller. It appeared as if under the condition of high PB, high MIL-S was neutralized, losing its effect as a risk factor.

Altogether, our results suggest that MIL-S may be a risk factor and a resilience factor under differing circumstances. On its own MIL-S appears to be a risk factor for SI, and it remains a risk factor in the absence of, or at low levels of PB. However, when MIL-S is particularly high it confers resilience against the effects of negative cognitions and beliefs on SI. Further, when PB was particularly high, the risky effect of MIL-S was neutralized.

Congruence with Prior Literature

Constanza and colleagues' (2019) systematic review found that data regarding the direction of impact of MIL-S on SI was mixed but tended to indicate a non-protective impact. Our finds add to these mixed results. Kleiman and Beaver (2013) found that MIL-S predicted decreased SI over time, despite having no bivariate relationship. These findings are particularly interesting because MIL-S in life conferred suicide resiliency above and beyond the effects of risk factors such as psychopathology and PB, and protective factors such as social support. Further, MIL-S did not mediate the effect of PB on SI (Kleiman & Beaver, 2013). Lew et al. (2020) found that MIL-S was negatively correlated with SI, so that higher MIL-S was associated with lower SI- incongruent with our bivariate findings. They also found that while MIL-S did not suppress the relationship between hopelessness and suicidal behaviour, it did suppress the relationship between future dispositions (as an alternative hopelessness measure to the BHS) and suicidal behaviour, exerting a resiliency effect (Lew et al., 2020).

In contrast, Lu et al. (2018) found that MIL-S was not significantly related to SI. All other empirical works demonstrated that MIL-S was a risk factor for suicidality. Kim et al. (2017) showed that MIL-S predicted suicidality. Sinclair et al. (2016) found that MIL-S did

not negatively mediate the relationship between psychopathology and SI. Costanza (2020b) also found that higher search for of meaning was not associated with lower SI.

Interpretation of the Findings from the Current Study

Again, the unexpected nature of these findings means that there is a paucity of literature from which to contextualize them. Therefore, the authors' tentative hypothesis about their meaning should be considered with caution. Both the presence-to-search hypothesis (Steger et al., 2008a) as well as the satiability concept within Heine et al.'s (2006) meaning making model posit that when an individual's identified psychosocial need is met, they are not driven to further strive or search for it. As such, it may be that low MIL-S is protective when PB is low because social relationships are more likely an accessible, satiating source of meaning for those who feel they can participate and contribute interpersonally. Therefore, such people may be more likely to have a higher sense of MIL-P and may not feel the need to search further for a greater sense of lifes' coherence, purpose and significance. Conversely, it may stand that some individuals low in PB are dissatisfied or disillusioned by their healthy social circumstances, continuing to search for greater or alternate sources of meaning, which may be less accessible to them, or impossible to attain (due to an overly high internal standard for meaning), causing distress and greater likelihood of SI.

The search-to-presence model details that searching for meaning should result in finding meaning. In addition, the fluid compensation assumption within the meaning maintenance model proposes that people find violations in or lack of meaning distressing, and tend to restructure their sense of meaning, searching for and reaffirming alternative frameworks across domains to restore it. Therefore, it may be that for those high in PB, high search may become adaptive, given that it would enable individuals to consider alternate sources of meaning beyond ones which are currently less accessible to them i.e. social relationships where

one can valuably participate. Thus, strengthening the persons MIL-P and providing a buffer against SI.

Potential Confounding Factors Influencing the Differing Roles of Presence and Search for Meaning

Age

The process of searching for, and discovering MIL takes time (Li et al., 2021). Findings from Costanza et al (2020a) suggest that MIL-P in life is not a personality/trait factor, but a dynamic variable that develops over a long period of time. Research has shown that younger individuals report higher MIL-S than older individuals, while older individuals have greater MIL-P than younger individuals (Baños et al., 2022; Steger et al., 2009). This in line with developmental theories that propose it is normative and adaptive for MIL-S to be higher in earlier life stages such as emerging adulthood (Erikson, 1968). Further, MIL-P has been demonstrated to have positive effects on wellbeing across the lifespan but the negative effect of MIL-S on wellbeing appears to develop with age (Li et al., 2021; Steger et al., 2009). Similarly, Bronk et al. (2009) found that search for purpose in life was only associated with increased life satisfaction during adolescence and young-adulthood, and not in adulthood.

Our finding that MIL-S under some circumstances offered suicide resiliency, was in line with work by Lew et al. (2020) and Kleiman and Beaver (2013). All three samples were comprised of young adult participants. All other articles known by the author to date which did not support MIL-S as protective, were conducted on various adult populations.

Culture.

Interestingly, some literature suggests that MIL-P and MIL-S may exert different effects across cultures. The dialectic model of MIL (Steger et al., 2008b) proposes that MIL-P has a more significant role for people in individualistic than collectivist cultures, due to the

tendency for people in individualistic cultures to view MIL-P as a positive marker of self-image, and MIL-S as an indicator of low self-image. People from individualistic cultures are driven to focus on maintaining the sense that their lives have meaning as a way to reinforce a positive self-concept (Heine et al., 2001; Steger et al., 2008b). Conversely, the model proposes that MIL-S has a more significant role for people in collectivist cultures due to a tendency to view MIL-S as a positive marker of the process of self-improvement. People from collectivist cultures, place less value on self-image, and greater value in the continual process of striving to enhance the self (Heine et al., 2001).

Steger et al. (2008b) found a stronger relation between MIL-P and subjective wellbeing among participants from the US than Japan. They also found that the relationship between MIL-S and subjective wellbeing was negative for US participants, but positive for participants from Japan (Steger et al. 2008b) A meta-analysis by Li and colleagues (2021) also supported this model, finding that MIL-P had a greater positive impact on subjective wellbeing for those from individualistic countries and MIL-S was more greatly associated with subjective wellbeing for individuals from collectivistic countries.

However, research to date on the impact of MIL-S on SI specifically is mixed, as discussed. Further, the findings seem mixed across countries at different degrees of individualism. Research discussed above that supported MIL-S as a resiliency factor for SI included an American sample, Chinese sample, and under some circumstances, in our sample from Aotearoa, New Zealand; which generally tends toward individualism (Hofstede, 2001). Research that supported a non-protective impact contained populations from Taiwan, US and Switzerland.

Implications for the Field of Research

Importance of Cross-Theoretical Examination

Our findings have broad implications for suicide theory. Regarding the IPTS in particular, our study supported PB as a key component related to SI, but not TB, in line with previous literature. Our results also emphasize that despite the recent proliferation of theories of suicide, older theories, such as the HT, still have clear value to the field. In terms of the 3ST, our study offers some initial evidence of connectedness as a resilience factor for SI in the presence of PB, no doubt a form of psychosocial pain.

This work is the first study known to the author that combined components from all three of the HT, IPTS and 3ST. Our findings highlight the value in integrating key predictors of suicide across theory, with the overarching aim of being able to intervene to prevent suicide in a more nuanced manner, and at an earlier stage, where interventions may be able to target hopelessness, PB, MIL, and SI.

Additionally, our study showed that integrating distal factors like hopelessness and proximal factors like PB is of benefit in providing insight into the trajectory toward SI, (though longitudinal work would add value by testing the temporal nature of relations within this study which is discussed below).

Importance of Moving Beyond Putative Risk and Protective Factors

This study has highlighted the importance of exploring established risk and resilience factors, and in continuing to elucidate conditions under which risk factors might offer resilience, and resilience factors might confer risk. Our results therefore emphasise a need for a dialectical, dynamic approach to thinking about constructs related to suicide, rather than attempting to categorize concepts as either risk or protective factors. For example, our examination of MIL as a 3ST component as a precipitant of suicidal ideation within a suicide-

resiliency framework adds to literature that balances out the largely risk-based focus on hopelessness, interpersonal needs, and suicide.

Importance of Continued Research on Young-Adult Males

Another primary aim of this study was to provide further research on SI and its precipitants in young-adult males. Concerningly, an elevated lifetime prevalence of SI was found in our sample, necessitating further focus on this cohort, who are both understudied and at increased risk of suicide. Our findings also indicated that hopelessness and PB were relevant precipitants of SI for young-adult males.

Applications for Suicide Prevention and Intervention

Suicide prevention in Aotearoa, New Zealand is faced with under-resourcing and a lack of effective implementation, yet the Government has recommended a goal of a 20% reduction in suicide rates by 2030 (Government Inquiry into Mental Health and Addiction, 2018; Soulié et al., 2020). Similarly, The United Nations have called for a worldwide reduction of non-communicable diseases (including suicide) of one-third by 2030 (United Nations, 2015). Reaching these goals necessitates the application of rigorous empirical work on suicide and its antecedents. Our study indicates that the adaptation and development of assessments and interventions to identify and prevent hopelessness and PB as well as to address MIL-P and MIL-S, may be of benefit.

Assessment of Suicidality

Suicide risk assessments undertaken by clinicians often contain formalized, structured procedures for identifying evidence-based risk factors for suicide. Psychometrics such as the Suicide Severity Rating Scale, the Beck Scale for Suicidal Ideation, and Beck Hopelessness Scale are commonly used to assess the presence and degree of suicidality. However, our findings imply that understanding how a client perceives the current value or burden they add

to their interpersonal relationships may be important dimension to consider. Research by Levi-Belz and Gamliel (2016) indicates that this may already be implicit in clinician's assessment of suicide risk, so explicitly assessing PB may be a simple, intuitive way to improve suicide assessment. Assessment with a strengths-based element or foundation should carefully consider the client's overall social circumstances and beliefs, with the understanding that in the context of perceived burdensomeness, MIL-P may switch from a protective factor to a risk factor, while MIL-S may switch from a risk factor to a resilience factor for SI.

Treatment of Suicidality

Suitable Treatment Targets. Regarding treatment of clients experiencing SI, the practice of suicide prevention may benefit from deeper consideration of interventions that address the clinical phenomena in this study. Because hopelessness, PB, and MIL all have dynamic, state-like qualities (not precluding any trait-like qualities), they are amenable to change, making them suitable treatment targets. Further, given that hopelessness, PB, and MIL are specific clusters of perceptions, cognitions or beliefs- they can be identified and altered through previously established and evidence-based psychotherapeutic treatments.

Suitable Treatments Modalities. Cognitive Behavioural Therapy, for example, could be utilized to help clients restructure and reframe unhelpful thoughts and beliefs like 'I am a burden to others'. Dialectical Behaviour Therapy, may be particularly useful in helping clients re-evaluate their PB mindfully, build skills for tolerating the distress that comes with perceived burdensomeness/adverse social circumstances, and enhance their interpersonal effectiveness. Both have been found to be efficacious for individuals with SI (Kothgassner et al., 2020; Méndez-Bustos et al., 2019; Rizvi & Fitzpatrick, 2021; Wu et al., 2022). More specifically, Hill and Pettit (2016) conducted an RCT of a brief web-based suicide prevention intervention called LEAP which used CBT principles to target PB among adolescents. They found that completion of the intervention was associated with significantly lower PB

compared to participants in the psychoeducational control condition, though no differences in SI was found between groups. Similarly, Allan et al. (2018) tested a preventative intervention that targeted PB and TB using psychoeducation and cognitive restructuring for people who did not have current SI. They found that the intervention reduced PB and in turn, the likelihood of SI six months later (Allan et al., 2018).

Interventions that target the clients search for and sense of meaning, such as Logotherapy, which was developed by Victor Frankl, and its successors, including Meaning Centred Therapy, are another promising avenue for addressing SI (Wong, 2012). Meaning oriented therapeutic work has been found to increase MIL and wellbeing, and reduce distress, hopelessness and SI (Guerrero-Torrelles et al., 2017; Lapierre et al., 2007; Sun, 2022b). Meaning Centred Men's Groups - a group-based intervention for SI among men facing retirement- has also demonstrated preliminary evidence of effectiveness in increasing MIL, and decreasing hopelessness and SI (Hiesel et al., 2020). It is likely that the social nature of this intervention also concurrently conferred suicide resiliency through implicitly addressing interpersonal needs and beliefs. However, given our results, clinicians should carefully determine whether engaging clients in meaning oriented interventions that facilitate MIL-S and increase MIL-P in life would represent a safe therapeutic goal for the individual client, or, if based on a broad assessment of psychosocial circumstances, has the potential to exacerbate SI.

The Scope for Community Prevention. Beyond clinical interventions by mental health practitioners; businesses, social groups and individuals can promote this emerging idea of “the social cure” which emphasizes that identity, meaning and behaviour are influenced deeply by group membership and social connectedness which are vital to general wellbeing (Jetten et al., 2017). Groups that are free from stigma, promote healthy norms and provide social support can operate as a “social cure”, enhancing belonging, MIL and myriad other

positive outcomes (Jetten et al., 2017). For example, studies with both Māori and non-Māori youth in Aotearoa, New Zealand demonstrated that new group memberships increase self-esteem, resilience, and hope (Arahanga-Doyle et al., 2019; Koni et al., 2019; Scarf et al., 2016). Further, an RCT found that PB could be reduced through pairing older adults with untrained peer companions (Van Orden et al., 2016, as cited in Allan et al., 2018). As such, the impact of grassroots community projects such should not be underestimated in their ability to reduce hopelessness, prevent and challenge people's appraisals of themselves being a burden to others, and prevent suicide in young adult males through these factors. Given, that PB was found to have a stronger association with SI than TB, groups that provide not only a sense of membership and belonging but allow for a sense of participation, contribution, and mana (authority, influence) may be best placed to prevent SI.

Limitations

Study Design

A clear limitation is the cross-sectional design of this study. While this method allows for inferences about the association between variables it does not permit causal or temporal inferences about the impact of hopelessness, PB, TB and MIL on SI. This study also utilized a measure of lifetime SI, given that the active lifetime measure bore a high proportion of missing data, which further constrains the interpretation of results.

Nonetheless, hopelessness has been shown to be a predictor of SI in several longitudinal studies across outpatient, inpatient, and community populations as well as youth, young adult and adult samples (Kuo et al., 2004; Qiu et al, 2017; Ribeiro et al, 2018; Roeder & Cole, 2019). Further, Roeder and Cole (2019) conducted longitudinal tests of our variables in a cohort of adolescents and young adults. They found that PB at time 1 was a significant independent predictor of active SI at time 2 even after controlling for SI at time 1 (Roeder & Cole, 2019). Therefore, the sequential relationships presupposed in the current study are plausible.

Interestingly, they also found that TB predicted hopelessness and PB over time. (Roeder & Cole, 2019). Similarly, Lin and Linscott's (2022) longitudinal study found that PB mediated and moderated the relationship between thwarted belonging and active SI. Lin and Linscott (2022) also found that TB did not significantly predict active SI cross sectionally but became significant longitudinally (at 4 weeks), while PB which significantly predicted active SI cross sectionally became insignificant longitudinally. Altogether, findings indicate a potential cognitive cascade preceding SI, where thwarted belonging takes time to exert its impact. As such, our cross-sectional study design limited our ability to determine these temporal relations, and our findings related to TB in particular should be interpreted with this consideration.

Another limitation is the approximation undertaken in measuring several theoretical constructs. In particular, the present study utilized MIL as a proxy for 3ST's connectedness. Full replication of the study by Kleiman et al. (2014) was also constrained by our use of hopelessness rather than negative cognitive style as the designated HT component.

Sample Restrictions

In addition, due to COVID-19 constraints, the recruitment phase of the study was closed earlier than desired. This ensured that measures were not impacted by any confounding variables related to Aotearoa, New Zealand's first nationwide lockdown in March 2020. However, this also meant that we were unable to recruit enough Māori males to make a representative sample. While Māori make up 16.5% of Aotearoa, New Zealand and 19% of males between 15 and 29 years-old; 9% of participants in this study identified as Māori (Statistics New Zealand, n.d.).

Lastly, this study comprised a sample of young-adult men. While the specificity of this cohort is a strength of the study, given the need for further research on this population within suicidology, the generalizability of results is limited.

Further Research

Further Integration, Expansion and Replication

The current study provides a springboard for future research across several domains. Work that aims to build upon suicide literature fruitfully would do well to focus on how already well-established theories of suicide may be integrated, adjusted, or tested across various populations and settings. Increased replication and exploration of current theories of suicide will enhance the ecological validity of such theories such that they become increasingly useful to those that work to support individuals at risk of suicide.

As such, a replication of the current study which includes age and culture as covariates would be of value. Further work testing Model 2 which included interpersonal needs could revise the INQ to add items that measure how stable and unchanging someone's perceptions of their interpersonal needs are, or add to the model recently developed measures of interpersonal hopelessness such as those by Tucker et al. (2018) and Naidoo (2016). Further, a replication that includes a different or developed measure of connectedness as more wholly conceptualized by the 3ST would allow for a fuller integration of the 3ST, HT and IPTS. While connectedness is arguably similar to MIL, connectedness captures purpose and significance, but not coherence, a third, key facet of MIL according to its widely used definition (Marco et al., 2021; Steger et al., 2008a). In conjunction, further investigation of the differing influence of presence and MIL-S on SI is warranted, particularly in relation conditions whereby each may represent risk factors as opposed to resilience factors for SI. This knowledge would be valuable given that meaning-enhancing treatments which often involve searching for meaning have been employed for suicidal clients, and an understanding of when this may be likely to increase risk is critical.

Towards a Greater Temporal Understanding

As discussed above, further longitudinal studies would be invaluable in testing the findings of the current study to assess whether they remain over longer periods of time. However, exploring the temporal associations between variables in this study should also include exploration of short-term changes and fluctuations in the variables. This is critical given SI and its precipitants are dynamic constructs (Bryan et al., 2019). Further, greater within-person variability of SI was associated with greater likelihood of later suicide attempt, and thus those most at risk of suicidal behaviour or death may be missed or poorly captured by variable-focussed, cross-sectional studies (Bryan et al., 2019).

Ecological Momentary Assessment (EMA) appears to be a promising research methodology to address this gap in suicide literature by using real-time monitoring methods (Kleiman & Nock, 2018). Research using EMA shows that SI within individuals tends to fluctuate significantly over time, with suicidal thoughts being sudden, brief experiences (Kleiman & Nock, 2018). In addition, established risk factors (including hopelessness and PB) that predict ideation over months/years have not been shown to predict changes in ideation over hours/days (Kleiman et al. 2017). Kleiman et al. (2017) used smart-phone based EMA to assess suicidal cognitions four times per day in community and inpatient samples, and found five distinct profiles of suicidal thinking coloured by varied degrees of intensity and variability of suicidal thoughts. As such, replication and extension of our findings with EMA methods could provide further clarity about the manner with which hopelessness, PB and MIL influence SI in the short-term, and what phenotype of SI is best explained by our model.

Integration Beyond Intrapersonal Factors

While the constructs used in this study have psychosocial aspects (PB, TB and MIL in particular), they are fundamentally intrapersonal because they reflect cognitions often about interpersonal circumstances. Hjelmeland and Knizek (2019) highlight the words of Boldt

(1988) from some thirty years prior “The suicidologist who limits his or her study to the individual’s psyche has a hand on only one part of the ‘suicidal elephant” (p. 101). Further studies could look to integrate interpersonal constructs into this model.

The fluid vulnerability theory of suicide (Rudd, 2006) fits well with this consideration. The fluid vulnerability theory is a diathesis-stress model of suicide (Rudd, 2006). It proposes that stressors and predispositions factors (stable, baseline risk) can lead to acute risk which activates the ‘suicidal mode’ i.e. an active suicidal episode (Rudd, 2006). The suicidal mode is coloured by various risk and protective factors across cognitive, affective, behavioural and physiological domains which work together to maintain and mitigate risk moment by moment (Rudd, 2006). This theory fits well with the theories tested in the current study given that PB, hopelessness and MIL are captured by the cognitive domain of the suicidal mode in a suicidal belief system. Further research could therefore add components from other domains to our model.

Considering Cultural and Ethnic Factors

Further work using samples with increased ethnic representativeness should also consider how MIL, connectedness, PB and TB may be conceptualized and operationalized differently for Māori and other ethnic and social groups. For example, concepts such as whakapapa (genealogical connections), whakawhanaungatanga (relationship building) and whanau (family) are reported to afford Māori with a sense of belonging and connection to people, places and culture (Inclusive Aotearoa Collective, 2022; Rameka, 2018). Conversely, experiences of disconnection from te ao Māori, expectations from others, racism, and ongoing colonisation inhibit belonging (Inclusive Aotearoa Collective, 2022; Rameka, 2018). Utilizing matauranga Māori (Māori knowledge) to contextualize and critically assess these constructs and models is critical to ensure that assessment and treatment for Māori who experience suicidality does not perpetuate hopelessness, TB, and PB through poor practices.

Conclusion

The current study endeavoured to replicate and expand a model including hopelessness, TB, PB and MIL as precipitants of SI in young-adult males. To our knowledge, this is the first study that has looked to integrate components from all three of the HT, IPTS and 3ST. Results showed that PB partially mediated the relationship between hopelessness and SI. This mediation was not moderated by the composite MIL but interestingly, MIL-P and MIL-S differentially moderated the mediational model. Findings showed that under typical circumstances MIL-P constituted a protective factor for SI, while MIL-S was demonstrated to be a risk factor. Conversely, under adverse social circumstances characterized by PB, MIL-P constituted a risk factor, while MIL-S offered resilience against SI. These findings have broad implications for future exploratory work on risk and resiliency for SI as well as the integration of theories of suicidality, and practical applicability for health professions, businesses, policy-makers, and social groups engaged in suicide prevention.

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. https://doi.org/10.1007/0-306-47233-3_3
- Abramson, L., Metalsky, G., & Alloy, L. (1989, 03/31). Hopelessness Depression: A Theory-Based Subtype of Depression. *Psychological Review*, 96, 358-372. <https://doi.org/10.1037/0033-295X.96.2.358>
- Allan, N. P., Boffa, J. W., Raines, A. M., & Schmidt, N. B. (2018). Intervention related reductions in perceived burdensomeness mediates incidence of suicidal thoughts. *Journal of affective disorders*, 234, 282–288. <https://doi.org/10.1016/j.jad.2018.02.084>
- Baños, R.M., Desdentado, L., Vara, M.D. et al. How the COVID-19 Pandemic and its Consequences Affect the Presence of and Search for Meaning of Life: A Longitudinal Study. *J Happiness Stud* (2022). <https://doi.org/10.1007/s10902-022-00592-5>
- Baryshnikov, I., Rosenström, T., Jylhä, P., Koivisto, M., Mantere, O., Suominen, K., Melartin, T., Vuorilehto, M., Holma, M., Riihimäki, K., & Isometsä, E. T. (2018). State and trait hopelessness in a prospective five-year study of patients with depressive disorders. *Journal of affective disorders*, 239, 107–114. <https://doi.org/10.1016/j.jad.2018.07.007>
- Barzilay, S., & Apter, A. (2014). Psychological models of suicide. *Archives of suicide research : official journal of the International Academy for Suicide Research*, 18(4), 295–312. <https://doi.org/10.1080/13811118.2013.824825>
- Beach, V. L., Brown, S. L., & Cukrowicz, K. C. (2021). Examining the relations between hopelessness, thwarted interpersonal needs, and passive suicide ideation among older adults: does meaning in life matter?. *Aging & mental health*, 25(9), 1759–1767. <https://doi.org/10.1080/13607863.2020.1855102>
- Beautrais, A. L., Collings, S. C. D., Ehrhardt, P., et al. (2005). *Suicide prevention: a review of evidence of risk and protective factors, and points of effective intervention*. Wellington: Ministry of Health
- Beautrais, A. L., Wells, J. E., McGee, M. A., Oakley Browne, M. A., & New Zealand Mental Health Survey Research Team (2006). Suicidal behaviour in Te Rau Hinengaro: the New Zealand Mental Health Survey. *The Australian and New Zealand journal of psychiatry*, 40(10), 896–904. <https://doi.org/10.1080/j.1440-1614.2006.01909.x>
- Beck, A. T., Brown, G., Berchick, R. J., Stewart, B. L., & Steer, R. A. (1990, Feb). Relationship between hopelessness and ultimate suicide: a replication with psychiatric outpatients. *Am J Psychiatry*, 147(2), 190-195. <https://doi.org/10.1176/ajp.147.2.190>
- Beck, A. T., Steer, R. A., Kovacs, M., & Garrison, B. (1985, May). Hopelessness and eventual suicide: a 10-year prospective study of patients hospitalized with suicidal ideation. *Am J Psychiatry*, 142(5), 559-563. <https://doi.org/10.1176/ajp.142.5.559>
- Beck, A. T., Robert. A. (1993). BHS, Beck hopelessness scale: manual. Psychological Corp.

- Beck, A. T., Weissman, A., Lester, D., & Trexler, L. (1974). The measurement of pessimism: The Hopelessness Scale. *Journal of Consulting and Clinical Psychology*, 42(6), 861-865. <https://doi.org/10.1037/h0037562>
- Becker-Weidman, E. G., Reinecke, M. A., Jacobs, R. H., Martinovich, Z., Silva, S. G., & March, J. S. (2009). Predictors of Hopelessness Among Clinically Depressed Youth. *Behavioural and cognitive psychotherapy*, 37(3), 267-291. <https://doi.org/10.1017/S1352465809005207>
- Belsher B.E., Smolenski D.J., Pruitt L.D., et al. (2019) Prediction Models for Suicide Attempts and Deaths: A Systematic Review and Simulation. *JAMA Psychiatry*.76(6). 642–651. <https://doi.org/10.1001/jamapsychiatry.2019.0174>
- Blackburn, I.M., Jones, S., & Lewin, R., J., P. (1986). Cognitive style in depression. *British Journal of Clinical Psychology*, 25, 241-251
- Boldt, M. (1988). The meaning of suicide: Implications for research. *Crisis*, 9 (2), 93–108.
- Braden, A., Overholser, J., Fisher, L., & Ridley, J. (2015). Life meaning is associated with suicidal ideation among depressed veterans. *Death studies*, 39(1-5), 24–29. <https://doi.org/10.1080/07481187.2013.871604>
- Brent, D. A. (2011). Preventing youth suicide: time to ask how. *Journal of American Academy of Child and Adolescent Psychiatry*, 50(8), 738-740. <https://doi.org/10.1016/j.jaac.2010.09.017>
- Bronk, K. C., Hill, P. L., Lapsley, D. K., Talib, T. L., & Finch, H. (2009). Purpose, hope, and life satisfaction in three age groups. *The Journal of Positive Psychology*, 4(6), 500–510. <https://doi.org/10.1080/17439760903271439>
- Burr, E. M., Rahm-Knigge, R. L., & Conner, B. T. (2018). The Differentiating Role of State and Trait Hopelessness in Suicidal Ideation and Suicide Attempt. *Archives of suicide research : official journal of the International Academy for Suicide Research*, 22(3), 510–517. <https://doi.org/10.1080/13811118.2017.1366960>
- Chu, C., Buchman-Schmitt, J. M., Stanley, I. H., Hom, M. A., Tucker, R. P., Hagan, C. R., Rogers, M. L., Podlogar, M. C., Chiurliza, B., Ringer, F. B., Michaels, M. S., Patros, C., & Joiner, T. E. (2017). The interpersonal theory of suicide: A systematic review and meta-analysis of a decade of cross-national research. *Psychological bulletin*, 143(12), 1313–1345. <https://doi.org/10.1037/bul0000123>
- Chu, S.TW., Fung, H.HL. (2021) Is the Search for Meaning Related to the Presence of Meaning? Moderators of the Longitudinal Relationship. *J Happiness Stud* 22, 127–145. <https://doi.org/10.1007/s10902-020-00222-y>
- 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. <https://doi.org/10.1016/j.jad.2012.07.002>
- Collins, K. R. L., Legendre, M. N., Stritzke, W. G. K., & Page, A. C. (2018). Experimentally-enhanced perceptions of meaning confer resilience to the interpersonal adversity implicated in suicide risk. *Journal of behavior therapy and experimental psychiatry*, 61, 142–149. <https://doi.org/10.1016/j.jbtep.2018.07.004>
- Cornette, M.M, Abramson, L.Y. & Bardone, A.M, Towards and integrated theory of suicidal behaviours; Merging the hopelessness, self-discrepancy, and escape theories. In:

- Joiner, T.M, Rudd, D., editors. Suicide science: Expanding the boundaries. Boston, MA, Springer US, 2002 pp. 43-66
- Costanza, A., Prelati, M., & Pompili, M. (2019). The Meaning in Life in Suicidal Patients: The Presence and the Search for Constructs. A Systematic Review. *Medicina* (Kaunas, Lithuania), 55(8), 465. <https://doi.org/10.3390/medicina55080465>
- Costanza, A., Amerio, A., Odone, A., Baertschi, M., Richard-Lepouriel, H., Weber, K., Di Marco, S., Prelati, M., Aguglia, A., Escelsior, A., Serafini, G., Amore, M., Pompili, M., & Canuto, A. (2020). Suicide prevention from a public health perspective. What makes life meaningful? The opinion of some suicidal patients. *Acta bio-medica : Atenei Parmensis*, 91(3-S), 128–134. <https://doi.org/10.23750/abm.v91i3-S.9417>
- Costanza, A., Baertschi, M., Richard-Lepouriel, H., Weber, K., Pompili, M., & Canuto, A. (2020). The Presence and the Search Constructs of Meaning in Life in Suicidal Patients Attending a Psychiatric Emergency Department. *Frontiers in psychiatry*, 11, 327. <https://doi.org/10.3389/fpsy.2020.00327>
- Cramer, R. J., & Kapusta, N. D. (2017). A social-ecological framework of theory, assessment, and prevention of suicide. *Frontiers in Psychology*, 8, 1756. <https://doi.org/10.3389/fpsyg.2017.01756>
- Crosby, A. E., Ortega, L., & Melanson, C. (2011). Self-directed violence surveillance: Uniform definitions and recommended data elements, Version 1.0. Atlanta, GA: Centers for Disease Control and Prevention, National Center for Injury Prevention and Control.
- DeLisle, M.M., & Holden, R.R. (2009) Differentiating Between Depression, Hopelessness, and Psychache in University Undergraduates, *Measurement and Evaluation in Counseling and Development*, 42:1, 46-63. <https://doi.org/10.1177/0748175609333562>
- De Beurs, D., Fried, E. I., Wetherall, K., Cleare, S., O' Connor, D. B., Ferguson, E., O'Carroll, R. E., & O' Connor, R. C. (2019). Exploring the psychology of suicidal ideation: A theory driven network analysis. *Behaviour Research and Therapy*, 120, Article 103419. <https://doi.org/10.1016/j.brat.2019.103419>
- Dhingra, K., Klonsky, E. D., & Tapola, V. (2019). An Empirical Test of the Three-Step Theory of Suicide in U.K. University Students. *Suicide & life-threatening behavior*, 49(2), 478–487. <https://doi.org/10.1111/sltb.12437>
- Erikson, E. H. (1968). *Identity: Youth, and crisis*. Norton.
- Espinosa-Salido, P., Perez, M., Baca-Garcia, E., Ortega, M.P. (2020). Systematic Review of the Indirect Relationships of Thwarted Belongingness and Perceived Burdensomeness in Suicide. *Clínica y Salud*. 32. 000-000. <https://doi.org/10.5093/clysa2020a27>.
- Every-Palmer S, Jenkins M, Gendall P, Hoek J, Beaglehole B, et al. (2020) Psychological distress, anxiety, family violence, suicidality, and wellbeing in New Zealand during the COVID-19 lockdown: A cross-sectional study. *PLOS ONE* 15(11): e0241658. <https://doi.org/10.1371/journal.pone.0241658>
- Forkmann, T., Glaesmer, H., Paashaus, L., Rath, D., Schönfelder, A., Stengler, K., Juckel, G., Assion, H. J., & Teismann, T. (2020). Interpersonal theory of suicide: prospective examination. *BJPsych open*, 6(5), e113. <https://doi.org/10.1192/bjo.2020.93>

- Frankl, V.E. *Man's Search for Meaning. From Death Camp to Existentialism*, 1st ed.; Beacon Press: New York, NY, USA, 1959
- Frankl, V. E. (1963). *Man's search for meaning: An introduction to logotherapy*. Boston, MA: Beacon Press
- Franklin, J. C., Ribeiro, J. D., Fox, K. R., Bentley, K. H., Kleiman, E. M., Huang, X., Musacchio, K. M., Jaroszewski, A. C., Chang, B. P., & Nock, M. K. (2017). Risk factors for suicidal thoughts and behaviors: A meta-analysis of 50 years of research. *Psychological bulletin*, 143(2), 187-232. <https://doi.org/10.1037/bul0000084>
- Fulginiti, A., Goldbach, J.T., Mamey, M.R., Rusow, J., Srivastava, A., Rhoades, H., Schrage, S.M., Bond, D.W. and Marshal, M.P. (2020), Integrating Minority Stress Theory and the Interpersonal Theory of Suicide among Sexual Minority Youth Who Engage Crisis Services. *Suicide Life Threat Behav*, 50: 601-616. [https://doi-org.ezproxy.canterbury.ac.nz/10.1111/sltb.12623](https://doi.org.ezproxy.canterbury.ac.nz/10.1111/sltb.12623)
- Glenn, C. R., Cha, C. B., Kleiman, E. M., & Nock, M. K. (2017). Understanding Suicide Risk within the Research Domain Criteria (RDoC) Framework: Insights, Challenges, and Future Research Considerations. *Clinical psychological science : a journal of the Association for Psychological Science*, 5(3), 568–592. <https://doi.org/10.1177/2167702616686854>
- Guerrero-Torrelles, M., Monforte-Royo, C., Rodríguez-Prat, A., Porta-Sales, J., & Balaguer, A. (2017). Understanding meaning in life interventions in patients with advanced disease: A systematic review and realist synthesis. *Palliative medicine*, 31(9), 798–813. <https://doi.org/10.1177/0269216316685235>
- Harlow, L. L., Newcomb, M. D., & Bentler, P. M. (1986). Depression, self-derogation, substance use, and suicide ideation: lack of purpose in life as a mediational factor. *Journal of clinical psychology*, 42(1), 5–21. <https://doi.org/10.1002/1097-4679>
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford Press.
- Hayes A. F. (2015). An Index and Test of Linear Moderated Mediation. *Multivariate behavioral research*, 50(1), 1–22. <https://doi.org/10.1080/00273171.2014.962683>
- Hayes, A. F., Montoya, A. K., & Rockwood, N. J. (2017). The Analysis of Mechanisms and Their Contingencies: PROCESS versus Structural Equation Modeling. *Australasian Marketing Journal*, 25(1), 76–81. <https://doi.org/10.1016/j.ausmj.2017.02.001>
- Heisel, M. J., Neufeld, E., & Flett, G. L. (2016). Reasons for living, meaning in life, and suicide ideation: investigating the roles of key positive psychological factors in reducing suicide risk in community-residing older adults. *Aging & mental health*, 20(2), 195–207. <https://doi.org/10.1080/13607863.2015.1078279>
- Heidi Hjelmeland & Birthe Loa Knizek (2019) The emperor's new clothes? A critical look at the interpersonal theory of suicide, *Death Studies*, 44:3, 168-178, DOI: 10.1080/07481187.2018.1527796
- Heine, S. J., Kitayama, S., & Lehman, D. R. (2001). Cultural Differences in Self-Evaluation: Japanese Readily Accept Negative Self-Relevant Information. *Journal of Cross-Cultural Psychology*, 32(4), 434–443. <https://doi.org/10.1177/0022022101032004004>

- Hill, R. M., & Pettit, J. W. (2019). Pilot Randomized Controlled Trial of LEAP: A Selective Preventive Intervention to Reduce Adolescents' Perceived Burdensomeness. *Journal of clinical child and adolescent psychology : the official journal for the Society of Clinical Child and Adolescent Psychology, American Psychological Association, Division 53*, 48(sup1), S45–S56. <https://doi.org/10.1080/15374416.2016.1188705>
- 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 & life-threatening behavior*, 45(3), 302–314. <https://doi.org/10.1111/sltb.12129>
- Hofstede, G. (2001). *Culture's Consequences: Comparing Values, Behaviors, Institutions and Organizations across Cultures*. (2nd ed.). Thousand Oaks, CA: Sage Publications.
- Hollingsworth, D. W., Wingate, L. R., Tucker, R. P., O'Keefe, V. M., & Cole, A. B. (2016). Hope as a Moderator of the Relationship Between Interpersonal Predictors of Suicide and Suicidal Thinking in African Americans. *Journal of Black Psychology*, 42(2), 175–190. <https://doi.org/10.1177/0095798414563748>
- Hollingsworth, D. W. (2012). "What about your friends?" Social support moderates perceived burdensomeness and suicidal ideation relationship (Master's thesis, Oklahoma State University, Atlanta, Georgia. Retrieved from <https://hdl.handle.net/11244/14887>
- Horwitz, A. G., Berona, J., Czyz, E. K., Yeguez, C. E., & King, C. A. (2017). Positive and Negative Expectations of Hopelessness as Longitudinal Predictors of Depression, Suicidal Ideation, and Suicidal Behavior in High-Risk Adolescents. *Suicide and Life-Threatening Behavior*, 47(2), 168-176. <https://doi.org/10.1111/sltb.12273>
- Huen, J. M. Y., Ip, B. Y. T., Ho, S. M. Y., & Yip, P. S. F. (2015). Hope and Hopelessness: The Role of Hope in Buffering the Impact of Hopelessness on Suicidal Ideation. *PLoS one*, 10(6), e0130073. <https://doi.org/10.1371/journal.pone.0130073>
- Inclusive Aotearoa Collective (2022). *Belonging*. Retrieved from <https://inclusiveaotearoa.nz/belonging/>
- Ipsos New Zealand (2022). One in two New Zealanders reported having felt severely stressed and/or depressed in the past year, Retrieved from https://www.ipsos.com/en-nz/Mental_Health_2022
- Jobes, D. A., & Joiner, T. E. (2019). Reflections on Suicidal Ideation. *Crisis*, 40(4), 227–230. <https://doi.org/10.1027/0227-5910/a000615>
- Johnson, J., Gooding, P. and Tarrier, N. (2008), Suicide risk in schizophrenia: Explanatory models and clinical implications, *The Schematic Appraisal Model of Suicide (SAMS)*. *Psychology and Psychotherapy: Theory, Research and Practice*, 81: 55-77. <https://doi.org/10.1348/147608307X244996>
- Johnson, J., Wood, A.M, Gooding, P., Taylor, P.J., Tarrier, N. (2011). Resilience to suicidality: The buffering hypothesis. *Clinical Psychology Review*, 31(4), 563-591. <https://doi.org/10.1016/j.cpr.2010.12.007>.
- Joiner, T.E. (2005) *Why people die by suicide*. Harvard University Press, Cambridge, Mass
- Kim, H. M., Levine, D. S., Pfeiffer, P. N., Blow, A. J., Marchiondo, C., Walters, H., & Valenstein, M. (2017). Postdeployment Suicide Risk Increases Over a 6-month Period: Predictors of Increased Risk among Midwestern Army National Guard

- Soldiers. *Suicide & life-threatening behavior*, 47(4), 421–435.
<https://doi.org/10.1111/sltb.12303>
- Kliem, S., Lohmann, A., Mößle, T., & Brähler, E. (2018). Psychometric properties and measurement invariance of the Beck Hopelessness Scale (BHS): Results from a German representative population sample. *BMC Psychiatry*, 18(1), 110.
<https://doi.org/10.1186/s12888-018-1646-6>
- Kleiman E. M. (2020). Suicidal thinking as a valuable clinical endpoint. *EClinicalMedicine*, 23, 100399. <https://doi.org/10.1016/j.eclinm.2020.100399>
- Kleiman EM, Adams LM, Kashdan TB, Riskind JH. (2013a). Grateful individuals are not suicidal: Buffering risks associated with hopelessness and depressive symptoms. *Personality and Individual Differences*. 2013;55: 595–599.
<https://doi.org/10.1016/j.paid.2013.05.002>
- Kleiman EM, Adams LM, Kashdan TB, Riskind JH. (2013b) Gratitude and grit indirectly reduce risk of suicidal ideations by enhancing meaning in life: Evidence for a mediated moderation model. *Journal of Research in Personality*. 2013;47: 539–546.
<https://doi.org/10.1016/j.jrp.2013.04.007>
- Kleiman, E. M., & Beaver, J. K. (2013). A meaningful life is worth living: meaning in life as a suicide resiliency factor. *Psychiatry research*, 210(3), 934–939.
<https://doi.org/10.1016/j.psychres.2013.08.002>
- Kleiman, E. M., Law, K. C., & Anestis, M. D. (2014a). Do theories of suicide play well together? Integrating components of the hopelessness and interpersonal psychological theories of suicide. *Comprehensive psychiatry*, 55(3), 431–438.
<https://doi.org/10.1016/j.comppsy.2013.10.015>
- Kleiman, E. M., Riskind, J. H., Stange, J. P., Hamilton, J. L., & Alloy, L. B. (2014b). Cognitive and interpersonal vulnerability to suicidal ideation: a weakest link approach. *Behavior therapy*, 45(6), 778–790.
<https://doi.org/10.1016/j.beth.2014.05.003>
- Kleiman, E.M., Nock, M.K. (2018). Real-time assessment of suicidal thoughts and behaviors. *Current Opinion in Psychology*, 22, 33-37. <https://doi.org/10.1016/j.copsy.2017.07.026>.
- Kleiman, E. M., Turner, B. J., Fedor, S., Beale, E. E., Huffman, J. C., & Nock, M. K. (2017). Examination of real-time fluctuations in suicidal ideation and its risk factors: Results from two ecological momentary assessment studies. *Journal of abnormal psychology*, 126(6), 726–738. <https://doi.org/10.1037/abn0000273>
- Kleiman, E. M., Turner, B.J., Fedor, S., Beale, E.E., Picard, R.W., Huffman, J.C., and Nock, M.K. (2018). Digital Phenotyping of Suicidal Thoughts. *Depression and Anxiety*. <https://doi.org/10.1002/da.22730>.
- Klonsky, E. D., & May, A. M. (2014). Differentiating suicide attempters from suicide ideators: A critical frontier for suicidology research. *Suicide and Life-Threatening Behavior*, 1, 1–5. <https://doi.org/10.1111/sltb.12068>
- Klonsky, E., D., & May, A. M. (2015). The three-step theory (3ST): A new theory of suicide rooted in the "ideation-to-action" framework. *International Journal of Cognitive Therapy*, 8(2), 114- 129. <https://doi.org/10.1521/ijct.2015.8.2.114>

- Klonsky, E. D., Pachkowski, M. C., Shahnaz, A., & May, A. M. (2021). The three-step theory of suicide: Description, evidence, and some useful points of clarification. *Preventive medicine*, 152(Pt 1), 106549. <https://doi.org/10.1016/j.ypmed.2021.106549>
- Klonsky, E. D., Saffer, B. Y., & Bryan, C. J. (2018). Ideation-to-action theories of suicide: a conceptual and empirical update. *Current opinion in psychology*, 22, 38–43. <https://doi.org/10.1016/j.copsyc.2017.07.020>
- Kothgassner, O.D., Robinson, K., Goreis, A. et al. Does treatment method matter? A meta-analysis of the past 20 years of research on therapeutic interventions for self-harm and suicidal ideation in adolescents. *border personal disord emot dysregul* 7, 9 (2020). <https://doi.org/10.1186/s40479-020-00123-9>
- Kuo, W. H., Gallo, J. J., & Eaton, W. W. (2004). Hopelessness, depression, substance disorder, and suicidality--a 13-year community-based study. *Social psychiatry and psychiatric epidemiology*, 39(6), 497–501. <https://doi.org/10.1007/s00127-004-0775-z>
- Lambert, N. M., Stillman, T. F., Hicks, J. A., Kamble, S., Baumeister, R. F., & Fincham, F. D. (2013). To Belong Is to Matter: Sense of Belonging Enhances Meaning in Life. *Personality and Social Psychology Bulletin*, 39(11), 1418-1427. <https://doi.org/10.1177/0146167213499186>
- Lapierre, S., Dubé, M., Bouffard, L., & Alain, M. (2007). Addressing suicidal ideations through the realization of meaningful personal goals. *Crisis*, 28(1), 16–25. <https://doi.org/10.1027/0227-5910.28.1.16>
- Levi-Belz, Y., & Gamliel, E. (2016). The effect of perceived burdensomeness and thwarted belongingness on therapists' assessment of patients' suicide risk. *Psychotherapy research : journal of the Society for Psychotherapy Research*, 26(4), 436–445. <https://doi.org/10.1080/10503307.2015.1013161>
- Lew, B., Chistopolskaya, K., Osman, A. et al. Meaning in life as a protective factor against suicidal tendencies in Chinese University students. *BMC Psychiatry* 20, 73 (2020). <https://doi.org/10.1186/s12888-020-02485-4>
- Li, J.-B., Dou, K., & Liang, Y. (2021). The relationship between presence of meaning, search for meaning, and subjective well-being: A three-level meta-analysis based on the Meaning in Life Questionnaire. *Journal of Happiness Studies: An Interdisciplinary Forum on Subjective Well-Being*, 22(1), 467–489. <https://doi.org/10.1007/s10902-020-00230-y>
- Lin, C. C., & Linscott, R. J. (2022). Longitudinal mediation by perceived burden of the pathway from thwarted belonging to suicidal ideation. *Suicide & life-threatening behavior*, 52(6), 1193–1204. <https://doi.org/10.1111/sltb.12914>
- Lu, H. F., Sheng, W. H., Liao, S. C., Chang, N. T., Wu, P. Y., Yang, Y. L., & Hsiao, F. H. (2019). The changes and the predictors of suicide ideation and suicide attempt among HIV-positive patients at 6-12 months post diagnosis: A longitudinal study. *Journal of advanced nursing*, 75(3), 573–584. <https://doi.org/10.1111/jan.13883>
- 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. <https://doi.org/10.1016/j.cpr.2016.04.008>

- Mason, A. (2021). Distinct or overlapping: Reviewing the role of central concepts in contemporary models of suicide. *Journal of the New Zealand College of Clinical Psychologists*, 30(2), 29-36
- Mason, A.; Riordan, B.C.; Jang, K.; Collings, S.C., Scarf, D. (2021) A test of the three-way interaction of the Interpersonal Theory of Suicide in an Aotearoa New Zealand university sample. *New Zealand Journal of Psychology*, 50(2), 4-8.
- Marchetti, I. (2018). Hopelessness: A Network Analysis. *Cognitive therapy and research*, 43(3), 611- 619. <https://doi.org/10.1007/s10608-018-9981-y>
- Marchetti, I., Alloy, L., & Koster, E. (2019). Breaking the vise of hopelessness: Targeting its components, antecedents, and context. pre-print <https://doi.org/10.31219/osf.io/ryvwu>
- Marco, J.H.; Gallego-Hernández de Tejada, B.; Guillén, V.; Baños, R.M.; Pérez, S. Meaning in Life Buffers the Association between Perceived Burdensomeness, Thwarted Belongingness, and Frequency of Non-Suicidal Self-Injuries in Spanish Adolescents. *J. Clin. Med.* 2021, 10, 4867. <https://doi.org/10.3390/jcm10214867>
- Martela, F., & Steger, M. F. (2016). The three meanings of meaning in life: Distinguishing coherence, purpose, and significance. *The Journal of Positive Psychology*, 11(5), 531-545.
- McKenzie, S. K., Collings, S., Jenkin, G., & River, J. (2018). Masculinity, Social Connectedness, and Mental Health: Men's Diverse Patterns of Practice. *American journal of men's health*, 12(5), 1247-1261. <https://doi.org/10.1177/1557988318772732>
- McLaren, S., & Challis, C. (2009). Resilience Among Men Farmers: The Protective Roles of Social Support and Sense of Belonging in the Depression-Suicidal Ideation Relation, *Death Studies*, 33:3, 262-276, <https://doi.org/10.1080/07481180802671985>
- Méndez-Bustos, P., Calati, R., Rubio-Ramírez, F., Olié, E., Courtet, P., & Lopez-Castroman, J. (2019). Effectiveness of Psychotherapy on Suicidal Risk: A Systematic Review of Observational Studies. *Frontiers in psychology*, 10, 277. <https://doi.org/10.3389/fpsyg.2019.00277>
- Millner, A. J., Robinaugh, D. J., & Nock, M. K. (2020). Advancing the Understanding of Suicide: The Need for Formal Theory and Rigorous Descriptive Research. *Trends in cognitive sciences*, 24(9), 704–716. <https://doi.org/10.1016/j.tics.2020.06.007>
- Morselli, D. (2016). Contextual Determinants of Hopelessness: Investigating Socioeconomic Factors and Emotional Climates. *Social indicators research*, 133(1), 373-393. <https://doi.org/10.1007/s11205-016-1346-x>
- Mortier, P., Cuijpers, P., Kiekens, G., Auerbach, R. P., Demyttenaere, K., Green, J. G., Kessler, R. C., Nock, M. K., & Bruffaerts, R. (2018). The prevalence of suicidal thoughts and behaviours among college students: A meta-analysis. *Psychological Medicine*, 48(4), 554–565. <https://doi.org/10.1017/S0033291717002215>
- Naghiyae, M., Bahmani, B., & Asgari, A. (2020). The Psychometric Properties of the Meaning in Life Questionnaire (MLQ) in Patients with Life-Threatening Illnesses. *TheScientificWorldJournal*, 2020, 8361602. <https://doi.org/10.1155/2020/8361602>
- Naidoo, S. (2016) Testing the interpersonal-Psychological Theory of suicidal behaviour (IPTS) in the South African context.(Doctoral thesis, University of Kwazulu-Natal, Durban, South Africa. Retrieved from <http://hdl.handle.net/10413/14960>

- Newman, D. B., Nezelek, J. B., & Thrash, T. M. (2018). The dynamics of searching for meaning and presence of meaning in daily life. *Journal of personality*, 86(3), 368–379. <https://doi.org/10.1111/jopy.12321>
- Nock, M. K., Borges, G., Bromet, E. J., Alonso, J., Angermeyer, M., Beautrais, A., Bruffaerts, R., Chiu, W. T., de Girolamo, G., Gluzman, S., de Graaf, R., Gureje, O., Haro, J. M., Huang, Y., Karam, E., Kessler, R. C., Lepine, J. P., Levinson, D., Medina-Mora, M. E., Ono, Y., ... Williams, D. (2008). Cross-national prevalence and risk factors for suicidal ideation, plans and attempts. *The British journal of psychiatry : the journal of mental science*, 192(2), 98–105. <https://doi.org/10.1192/bjp.bp.107.040113>
- Nock, M. K., & Kazdin, A. E. (2002). Examination of affective, cognitive, and behavioral factors and suicide-related outcomes in children and young adolescents. *Journal of clinical child and adolescent psychology*, 31(1), 48-58. https://doi.org/10.1207/S15374424JCCP3101_07.
- Oakey-Frost, D. N., Moscardini, E. H., Russell, K., Rasmussen, S., Cramer, R. J., & Tucker, R. P. (2022). Defeat, Entrapment, and Hopelessness: Clarifying Interrelationships between Suicidogenic Constructs. *International journal of environmental research and public health*, 19(17), 10518. <https://doi.org/10.3390/ijerph191710518>
- O'Carroll, P. W., 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 & life-threatening behavior*, 26(3), 237–252.
- Pachkowski, M. C., Hewitt, P. L., & Klonsky, E. D. (2021). Examining suicidal desire through the lens of the three-step theory: A cross-sectional and longitudinal investigation in a community sample. *Journal of consulting and clinical psychology*, 89(1), 1–10. <https://doi.org/10.1037/ccp0000546>
- Park, C. L. (2010). Making sense of the meaning literature: An integrative review of meaning making and its effects on adjustment to stressful life events. *Psychological Bulletin*, 136, 257–301.
- Posner, K., Brown, G. K., Stanley, B., Brent, D. A., Yershova, K. V., Oquendo, M. A., Currier, G. W., Melvin, G. A., Greenhill, L., Shen, S., & Mann, J. J. (2011). The Columbia-suicide severity rating scale: Initial validity and internal consistency findings from three multisite studies with adolescents and adults. *American Journal of Psychiatry*, 168(12), 1266–1277. <https://doi.org/10.1176/appi.ajp.2011.10111704>
- Qiu, T., Klonsky, E. D., & Klein, D. N. (2017). Hopelessness Predicts Suicide Ideation But Not Attempts: A 10-Year Longitudinal Study. *Suicide & life-threatening behavior*, 47(6), 718–722. <https://doi.org/10.1111/sltb.12328>
- Rameka, L. (2018). A Māori perspective of being and belonging. *Contemporary Issues in Early Childhood*, 19(4), 367–378. <https://doi.org/10.1177/1463949118808099>
- Rasmussen, K. A., & Wingate, L. R. (2011). The role of optimism in the interpersonal-psychological theory of suicidal behavior. *Suicide & life-threatening behavior*, 41(2), 137–148. <https://doi.org/10.1111/j.1943-278X.2011.00022.x>
- Ribeiro, J. D., Huang, X., Fox, K. R., & Franklin, J. C. (2018). Depression and hopelessness as risk factors for suicide ideation, attempts and death: meta-analysis of longitudinal

- studies. *British journal of psychiatry*, 212(5), 279-286.
<https://doi.org/10.1192/bjp.2018.27>
- Rizvi, S. L., & Fitzpatrick, S. (2021). Changes in suicide and non-suicidal self-injury ideation and the moderating role of specific emotions over the course of dialectical behavior therapy. *Suicide & life-threatening behavior*, 51(3), 429–445.
<https://doi.org/10.1111/sltb.12691>
- Robinson, K., Garisch, J. A., & Wilson, M. S. (2021). Nonsuicidal self-injury thoughts and behavioural characteristics: Associations with suicidal thoughts and behaviours among community adolescents. *Journal of affective disorders*, 282, 1247–1254.
<https://doi.org/10.1016/j.jad.2020.12.201>
- Roeder, K.M. and Cole, D.A. (2019), Simultaneous Longitudinal Examination of Hopelessness, Thwarted Belongingness, and Perceived Burdensomeness as Predictors of Suicide Ideation. *Suicide Life Threat Behav*, 49: 1058-1071.
<https://doi.org/10.1111/sltb.12508>
- Rudd, M. D., Berman, A. L., Joiner, T. E., Jr, Nock, M. K., Silverman, M. M., Mandrusiak, M., Van Orden, K., & Witte, T. (2006). Warning signs for suicide: theory, research, and clinical applications. *Suicide & life-threatening behavior*, 36(3), 255–262.
<https://doi.org/10.1521/suli.2006.36.3.255>
- Rudd, M., Trotter, D., & Williams, B. (2009-03). Psychological theories of suicidal behaviour. In *Oxford Textbook of Suicidology and Suicide Prevention*. Oxford, UK: Oxford University Press.
- Rudd, M. D. (2006). Fluid vulnerability theory: A cognitive approach to understanding the process of acute and chronic suicide risk. In T. E. Ellis (Eds.), *Cognition and suicide: Theory, Research, and Therapy* (pp. 355–368). American Psychological Association.
- Seligman, M. E., & Csikszentmihalyi, M. (2000). Positive psychology. An introduction. *The American psychologist*, 55(1), 5-14. <https://doi.org/10.1037//0003-066X.55.1.5>
- Silverman, M. M., Berman, A. L., Sanddal, N. D., O'carroll, P. W., & Joiner, T. E. (2007). Rebuilding the tower of Babel: a revised nomenclature for the study of suicide and suicidal behaviors. Part 1: Background, rationale, and methodology. *Suicide & life-threatening behavior*, 37(3), 248–263. <https://doi.org/10.1521/suli.2007.37.3.248>
- Silverman, M. M., Berman, A. L., Sanddal, N. D., O'carroll, P. W., & Joiner, T. E. (2007). 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 & life-threatening behavior*, 37(3), 264–277.
<https://doi.org/10.1521/suli.2007.37.3.264>
- Sinclair, S.; Bryan, C.J.; Bryan, A.O. Meaning in life as a protective factor for the emergence of suicide ideation that leads to suicide attempts among military personnel and veterans with elevated PTSD and depression. *Int. J. Cogn. Ther.* 2016, 9, 87–98.
<https://doi.org/10.1521/ijct.2016.9.1.87>
- Soulié, T. S. E., Levack, W. M. M., & Bell, E. M. (2021). Barriers to positive outcomes in treating patients at risk of suicide in Aotearoa/New Zealand: Perspectives from 'positively inclined' clinicians [Brief report]. *Kōtuitui*, 16(1), 225-232. doi: 10.1080/1177083X.2020.1856148

- Stavrova, O., & Luhmann, M. (2015). Social connectedness as a source and consequence of meaning in life. *The journal of positive psychology, 11*(5), 470-479. <https://doi.org/10.1080/17439760.2015.1117127>
- Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The Meaning in Life Questionnaire: Assessing the presence of and search for meaning in life. *Journal of Counselling Psychology, 53*(1), 80-93. <https://doi.org/10.1037/0022-0167.53.1.80>
- Steger, M. F., Oishi, S., & Kashdan, T. B. (2009). Meaning in life across the life span: Levels and correlates of meaning in life from emerging adulthood to older adulthood. *The Journal of Positive Psychology, 4*(1), 43–52. <https://doi.org/10.1080/17439760802303127>
- Steger MF, Kashdan TB, Sullivan BA, Lorentz D. (2008a). Understanding the search for meaning in life: personality, cognitive style, and the dynamic between seeking and experiencing meaning. *J Pers, 76*:199–228. doi: 10.1111/j.1467-6494.2007.00484.x.
- Steger MF, Kashdan TB. (2007). Stability and specificity of meaning in life and life satisfaction over one year. *Journal of Happiness Studies.;8*(2):161–179. doi: 10.1007/s10902-006-9011-8.
- Steger, M. F., Kawabata, Y., Shimai, S., & Otake, K. (2008b). The meaningful life in Japan and the United States: Levels and correlates of meaning in life. *Journal of Research in Personality, 42*, 660–678.
- Stillman, T. F., & Lambert, N. M. (2013). The bidirectional relationship of meaning and belonging. In Hicks J., Routledge C. (eds) *The Experience of Meaning in Life*. Springer, Dordrecht. https://doi.org/10.1007/978-94-007-6527-6_23
- Sueki, H. (2020). Relationship between Beck Hopelessness Scale and suicidal ideation: A short-term longitudinal study. *Death studies, 1*-6. <https://doi.org/10.1080/07481187.2020.1740833>
- Sun, F. K., Wu, M. K., Yao, Y., Chiang, C. Y., & Lu, C. Y. (2022a). Meaning in life as a mediator of the associations among depression, hopelessness and suicidal ideation: A path analysis. *Journal of psychiatric and mental health nursing, 29*(1), 57–66. <https://doi.org/10.1111/jpm.12739>
- Sun, F. K., Chiu, N. M., Yao, Y., Wu, M. K., Hung, C. F., Chen, C. C., Lee, Y. H., & Chiang, C. Y. (2022b). The effects of logotherapy on meaning in life, depression, hopelessness, and suicidal ideation, in patients with depression: An intervention study. *Perspectives in psychiatric care, 58*(4), 1891–1899. <https://doi.org/10.1111/ppc.13003>
- Te Whatu Ora (2022) Suicide Web Tool. Retrived from <https://tewhatuora.shinyapps.io/suicide-web-tool>
- 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 & life-threatening behavior, 35*(1), 14-34. <https://doi.org/10.1521/suli.35.1.14.59266>

- Tsai, M., Lari, H., Saffy, S., Klonsky, E.D (2021). Examining the Three-Step Theory (3ST) of Suicide in a prospective study of adult psychiatric inpatient. *Behaviour Therapy*, 52 (3), 673-685. <https://doi.org/10.1016/j.beth.2020.08.007>.
- Tucker, R. P., Hagan, C. R., Hill, R. M., Sligh, M. L., Bagge, C. L., Joiner, T. E., Jr, & Wingate, L. R. (2018). Empirical extension of the interpersonal theory of suicide: Investigating the role of interpersonal hopelessness. *Psychiatry research*, 259, 427–432. <https://doi-org.ezproxy.canterbury.ac.nz/10.1016/j.psychres.2017.11.005>
- Tucker, R.P., Wingate, L.R., O’Keefe, V.M., Sligh, M.L., Judah, M.R., & Rhoades-Kerswill, S. (2013). The moderating effect of humor style on the relationship between interpersonal predictors of suicide and suicidal ideation. *Personality and Individual Differences*, 54, 610-615.
- Van Orden, K. A., Witte, T. K., Gordon, K. H., Bender, T. W., & Joiner, T. E., Jr (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. <https://doi.org/10.1037/0022-006X.76.1.72>
- Van Orden, K. A., Witte, T. K., Cukrowicz, K. C., Braithwaite, S. R., Selby, E. A., & Joiner, T. E., Jr. (2010). The interpersonal theory of suicide. *Psychological Review*, 117(2), 575-600. <https://doi.org/10.1037/a0018697>
- Van Orden, K. A., Bamonti, P. M., King, D. A., & Duberstein, P. R. (2012a). Does perceived burdensomeness erode meaning in life among older adults? *Aging & mental health*, 16(7), 855–860. <https://doi.org/10.1080/13607863.2012.657156>
- Van Orden, K. A., Cukrowicz, K. C., Witte, T. K., & Joiner, T. E. (2012b). Thwarted belongingness and perceived burdensomeness: construct validity and psychometric properties of the Interpersonal Needs Questionnaire. *Psychological assessment*, 24(1), 197–215. <https://doi.org/10.1037/a0025358>
- Weishaar, M. E., & Beck, A. T. (1992, 1992/01/01). Hopelessness and suicide. *International Review of Psychiatry*, 4(2), 177-184. <https://doi.org/10.3109/09540269209066315>
- Weissman, M. M., Bland, R. C., Canino, G. J., Greenwald, S., Hwu, H. G., Joyce, P. R., Karam, E. G., Lee, C. K., Lellouch, J., Lepine, J. P., Newman, S. C., Rubio-Stipec, M., Wells, J. E., Wickramaratne, P. J., Wittchen, H. U., & Yeh, E. K. (1999). Prevalence of suicide ideation and suicide attempts in nine countries. *Psychological medicine*, 29(1), 9–17. <https://doi.org/10.1017/s0033291798007867>
- Wenzel, A., & Beck, A. (2008, 10/01). A cognitive model of suicidal behavior: Theory and treatment. *Applied & Preventive Psychology - APPL PREV PSYCHOL*, 12, 189-201. <https://doi.org/10.1016/j.appsy.2008.05.001>
- Wetzel, R. D., Margulies, T., Davis, R., & Karam, E. (1980). Hopelessness, depression, and suicide intent. *The journal of clinical psychiatry*, 41(5), 159-160. <https://doi.org/10.1001/archpsyc.1976.01770090059005>
- Wong, P. (2012). From logotherapy to meaning-centered counseling and therapy. In P. T. P. Wong (Ed.), *The human quest for meaning: Theories, research, and applications* (pp. 619–647). Routledge/Taylor & Francis Group.
- World Health Organization (2014). Preventing suicide: a global imperative. World Health Organization, Geneva

- World Health Organization (2018). *Global Health Estimates 2016: Deaths by cause, age, sex, by country and by region, 2000-2016*. World Health Organization, Geneva
- Wu, H., Lu, L., Qian, Y., Jin, X. H., Yu, H. R., Du, L., Fu, X. L., Zhu, B., & Chen, H. L. (2022). The significance of cognitive-behavioral therapy on suicide: An umbrella review. *Journal of affective disorders*, 317, 142–148. <https://doi.org/10.1016/j.jad.2022.08.067>
- Yang, L., Liu, X., Chen, W., & Li, L. (2019). A Test of the Three-Step Theory of Suicide among Chinese People: A Study Based on the Ideation-to-Action Framework. *Archives of suicide research : official journal of the International Academy for Suicide Research*, 23(4), 648–661. <https://doi.org/10.1080/13811118.2018.1497563>
- Young, M. A., Fogg, L. F., Scheftner, W., Fawcett, J., Akiskal, H., & Maser, J. (1996). Stable trait components of hopelessness: Baseline and sensitivity to depression. *Journal of Abnormal Psychology*, 105(2), 155–165. <https://doi.org/10.1037/0021-843X.105.2.155>
- Zhang, J. (2016). From psychological strain to disconnectedness: A two-factor model theory of suicide [Editorial]. *Crisis: The Journal of Crisis Intervention and Suicide Prevention*, 37(3), 169–175. <https://doi.org/10.1027/0227-5910/a000420>

Appendix A

Suicide Severity Rating Scale- Modified

An adaptation of the Suicide Severity Rating Scale- Modified (Mortier et al., 2018)

Please read the statements carefully one by one. If the statement describes your thoughts from your lifetime chose "YES" in the column next to the statement. If the statement does not describe your thoughts from your lifetime choose "NO" in the column next to the statement.

1. "In your lifetime, have you ever wished that you were dead or would go to sleep and never wake up?"
2. "In your lifetime, have you had thoughts of killing yourself?"
3. "In your lifetime, have you thought about how you might kill yourself?"
4. "In your lifetime, have you had thoughts about killing yourself and had some intention of acting upon them?"

Note. Item 5 removed. "In your lifetime, have you made a suicide attempt (i.e. purposefully hurt yourself with at least some intention to die?"