IMPLICATIONS OF SUICIDE WRITINGS

BY

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ABSTRACT

This thesis examines the role of suicide notes as left by the victims of suicide. Suicide note analysis is arguably one of the most robust methodologies in the study of suicide and its prevention. Only a fraction of suicide victims leave a note, however. Although homogeneity has largely been assumed between victims who write notes (i.e. note writers) and those who do not (i.e. non-writers), this assumption was initially made with little if any supporting evidence. This thesis therefore aims to investigate whether note writers are representative of non-writers. Chapter One introduces the study of suicide (i.e. suicidology) and the utility of suicide note analysis within the wider discipline. Chapter Two presents a systematic review of existing literature which has statistically compared note writers to non-writers along a series of demographic and interpersonal factors. Of the identified literature, roughly half of the citations reported significant differences between note writers and non-writers and the remainder reported no significant differences. Multiple limitations were identified, such as inconsistent methodologies, sampling procedures and interpretations, an absence of study replication, and limited cultural representation. Chapter Three is a critique of the Suicide Intent Scale (Beck, Schuyler, & Herman, 1974), a clinical and research psychometric designed to measure the suicidal intent of individuals who have previously attempted suicide. The scale's psychometric properties, strengths, limitations, and contributions to research and clinical practice are evaluated. The theoretical underpinnings and limitations guiding this tool are also discussed. Chapter Four empirically investigates the assumed homogeneity between note writers and non-writers by performing a comparative study using a previously untested sample of Canadian suicide victims. It was concluded that there were no significant differences between note writers and non-writers. Cultural considerations were made; findings may be restricted to the Canadian sample. The limitations of this study and implications for future research are discussed.

DEDICATION

To the memories of the brave and beautiful Newfoundlanders and Labradorians contained within these pages. To the victims' families, friends, and loved ones. And to those living with suicidal thoughts and impulses. Your struggles and your sacrifices are noted with the most heartfelt sincerity.

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CHAPTER ONE

INTRODUCTION

INTRODUCTION

This thesis is concerned with the role and utility of notes that have been left by the victims of suicide.

Suicide—the act of intentionally taking one's own life—claims a victim every forty seconds (World Health Organization [WHO], 2014). In 2012, the World Health Organisation (WHO) estimated that some 804,000 people were the victims of suicide annually (WHO, 2014), making suicide one of the fifteen leading causes of death worldwide. Noting the illegality of suicide in some countries, as well as the cultural and religious sensitivities this topic encompasses, these statistics are likely to be a gross underestimate. In the United Kingdom, 6233 people over the age of 15 were registered as suicides in 2013; this translates to 11.9 deaths per 100,000 (Office for National Statistics, 2015). Although these figures may appear insignificant in lieu of a roughly one-million-per-annum global suicide rate, men in the UK are three times more likely to commit suicide than women, representing an age-standardised rate of 19 deaths per 100,000 (Office for National Statistics, 2015). This is the highest that this rate has risen in over a decade. Suicide is also the leading cause of death for UK individuals aged 20 to 34 years (Office for National Statistics, 2015). In Canada, the prognosis is equally as grim; in 2012, suicide was reported to be the ninth leading cause of death, and for Canadian men it was found to be the seventh leading cause (Statistics Canada, 2015). For Canadian Aboriginal populations, the prognosis is substantially grimmer, in which their suicide rates are an estimated 3-7 times higher than the Canadian national average (Pollock, Mulay, Valcour, & Jong, 2016).

Unlike other leading causes of death in the developed world, suicide is not granted the same fanfare or recognition. Whilst a pink ribbon is synonymous with breast cancer and survival, most would be hard pressed to identify suicide prevention's yellow ribbon with a particular cause or malady. Frederik Deboer (2016) once asked his readers to imagine a

United States of America in which rates of terror-related death had drastically risen in the past fifteen years, in which death-by-terrorism equally affected all demographic groups, and where 40,000 Americans per annum died from terror attacks. He surmised that this was an impossible hypothetical; after all, the impact of terrorism in the US has been negligible since the September 11th attacks, but the US has enacted, and continues to enact, countless international and national policies, initiatives, and military programmes to prevent further domestic causalities (Deboer, 2016). Whilst these statistics do not reflect the state of terrorism in America, they do describe suicide. The resource allocation is skewed, however, and, unlike terrorism, suicide is a topic the media, legislators, and even many healthcare professionals either consciously or unconsciously refrain from discussing. When it is discussed, however, it is described with fervour: it is described as an epidemic (Press Association, 2016).

Suicide and Suicidology: An Introduction

To address an epidemic, it must first be defined and understood. Suicidology, the scientific study of suicide, suicidal behaviour, and suicide prevention, seeks to accomplish this. Modern suicidology is thought to have been pioneered by two individuals: Émile Durkheim and Edwin S. Shneidman.

Durkheim, a French sociologist, is considered one of the founding fathers of classic sociological theory. He sought to differentiate sociology from psychology through social science and research. *Suicide* (1897), Durkheim's formative monograph, was one of the first case studies to examine suicide statistics among Protestant and Catholic samples. Durkheim sought to contextualise suicide socially as an outcome of social regulation and social integration as opposed to individual psychopathology. In his pursuits, he identified four types of suicide: altruistic, anomic, egotistic, and fatalistic. Altruistic suicide was thought to occur

in societies with high social integration, where the needs of the individual paled in comparison to the needs of the many. An example of this is self-sacrifice, in which one person's death could benefit the society (e.g. military service). Anomic suicide was thought to occur in societies with limited social and moral regulation. Individuals in such societies would struggle to find and understand their roles within the society; they may often face disillusionment and disappointment (e.g. economically). Egotistic suicide was thought to result from societies with limited social integration (i.e. individualistic societies). Durkheim proposed that individuals from such societies were at an increased risk of suicide if they were not sufficiently integrated into smaller social groups (e.g. peer-groups, romantic relationships). Lastly, fatalistic suicide was thought to occur in societies with excessive social regulation (i.e. oppressive societies) where citizens would rather die than tolerate existing social conditions and limitations.

The second pioneer of suicidology was Edwin S. Shneidman, a psychologist, foremost researcher of suicide notes, and founder of the American Association of Suicidology and its peer-reviewed journal *Suicide and Life Threatening Behavior.* In contrast to Durkheim, Shneidman conceptualised suicide psychologically and viewed psychological pain as a key factor. Shneidman argued, 'All affective states (such as rage, hostility, depression, shame, guilt, affectlessness, hopelessness, etc.) are relevant to suicide only as they relate to unbearable psychological pain' (Leenaars, 2010, p. 7). Shneidman's work was based on this principle, but his psychological orientation should not be confused with theoretical exclusivity. He was the first to define suicide as a 'multi-dimensional malaise', a process with many interacting and competing factors that nevertheless stem from the psychological element of decision-making (Leenaars, 2010).

Suicide Methodologies: Sociology

Over the past century, suicide has been studied through various methodologies and theoretical orientations. As the origins of suicidology are synonymous with that of sociology, it is not unexpected that suicide is a heavily interpreted topic in sociological discipline. Although over a century has passed since Durkheim published *Suicide*, his theory remains the most prominent within sociology and has been included in many research studies (Stack, 2000). Despite appearances, however, Lester (2000) emphasised that Durkheim's theory itself has never been empirically tested. Moreover, no study has attempted to analyse suicides using Durkheim's suicide typology, as described above. Only two publications (Rootman, 1971; Lester, 1989) are known to have examined social integration and social regulation using a multidimensional array. Stack (1987) also highlighted the conflict between macro- and micro-level methodological approaches, and how this confounds the progression of sociological research. Furthermore, it is speculated that the discipline has ceased to expand upon suicide theory and research due to the classic status of Durkheim's theory; modification or dismissal of this theory is viewed as academic heresy within sociology (Lester, 2000). This has influenced the neglect and disregard of alternative sociological theories of suicide, such as Gibbs and Martin's (1964) theory, and has resulted in few sociological contributions to suicidology in the last quarter century. Gibbs and Martin (1964), for example, sought to expand on Durkheim's theory of anomic suicide by examining the role of status integration within a society. Status integration reflects the compatibility of one's expected and one's actual social status. It was therefore hypothesised that when social status was incompatible, higher suicide rates may result. Lester (1988) tested Gibbs and Martin's (1964) theory by examining the suicide rates of industrialised nations and the proportion of females in the labour force. It was proposed that social integration would be lower when more women entered the labour force, as this would disrupt gendered status expectations. A significant

correlation was reported for both female and male suicides. Although gender roles and expectations continue to disrupt status integration in present society, Gibbs and Martin's (1964) theory can also be applied to the economic crisis and poor employment outcomes faced by today's youth, namely Millennials (those born in the 1980s and 1990s). Often touted as the 'most educated generation', Millennials conversely face some of the highest unemployment rates (Yang, 2013; Yazbec, 2017) in the Western world. Even when employed, there is a significant discrepancy between a young worker's professional standing and his or her level of education. Not only is this a skill gap, it is a status integration gap, one that ought to be considered noting the increased risk of suicide faced by individuals within the Millennial age range (i.e. 20-34). As such, there is a wealth of potential in continuing to build upon classic theory and exploring alternative theory regarding present society, but that may first require a slight shift in sociological thinking.

Biology and Genetics

With recent advancements in science and technology, geneticists and neurologists have searched for a genetic and biochemical basis for suicide. Separated monozygotic twin pair studies, although empirically ideal, are relatively difficult to perform with a suicide population noting the rarity of both requirements. Six studies are known to have examined dizygotic twin pairs reared apart, but no monozygotic twin studies have yet been identified (Voracek & Loibl, 2007). A systematic review of twin studies in suicidology identified a total of 32 studies published between 1820 and 2006 and concluded that, whilst the compounded evidence suggests a link between genetics and suicidal behaviour, there were notable concerns regarding the age of the studies and the reporting of zygosity, as well as reporting quality for case studies (Voracek & Loibl, 2007). A major interpretative problem with such genetic studies is distinguishing between inheritance of a specific proclivity to complete a

task (e.g. suicide) versus inheriting an affective state which, in turn, leads to suicidal thoughts and behaviours. It can be argued that this orientation defies much of what is understood about behavioural decision-making, thus making it unlikely (Lester, 2000). Neurologists have also encountered multiple difficulties in studying suicide despite the plausibility of the argument that neurotransmitter dysfunction may underlie suicidal thoughts and behaviours. A meta-analysis by Lester (1995) found consistent evidence for the role of serotonin in suicidal behaviour, specifically that individuals with lower levels of CSF 5-HIAA were significantly more likely to both attempt suicide more often and to use more violent means whilst attempting. The sample sizes used in brain studies are notably small, however, and, as Lester (2000) comments, such sample sizes cannot control for extraneous variables (e.g. age, sex, psychiatric diagnoses, medical conditions) and their potential impact. Limited participant pools also exclude the use of multiple regression in statistical analyses, and funding is a significant problem for all institutions and labs seeking to study brains, despite the potential the practice may have.

Psychiatry and Psychology

Presently, much of suicidology is published within the disciplines of psychiatry and psychology. Psychiatric research is dominated by the diagnostic and categorical systems that rely on the clustering of associated symptoms (e.g. ICD-10 and DSM-V). Due to the nature of this methodology, many individuals may have differing presentations but similar diagnoses. Two individuals may be diagnosed with schizophrenia, for example, but one may be more prone to impulsive behaviours and low, depressive moods whilst another may suffer from neither—their risk of suicide may also, hypothetically, differ greatly despite similar diagnoses. Arguments that favour diagnosis over symptom aetiology are often methodologically unsound (e.g. issues regarding ‘goodness of fit’ between diagnoses and

clinical practice and research [Jablensky, 1999]), and psychiatric research is rarely theory-driven, making it difficult for both researchers and theorists to draw inferences from diagnostic publications (Lester, 2000). Another difficulty inherent in psychiatry is that diagnoses are dependent on a clinician's ability to effectively communicate and elicit information regarding subjective symptomology (Jablensky, 1999). The diagnostic system rarely relies on an objective test to confirm the chosen categorisation of the patient's experience. What this translates into is a matter of intersubjectivity, which has become intrinsic in psychiatry but adversely impacts the validity of the practice (Fuchs, 2010). Psychology has also encountered multiple difficulties in suicidology, the foremost being that psychology is a largely human-interactive discipline and that the act of suicide eliminates a researcher's ability to physically interact with or observe the population or participant of interest. Psychology, too, is not immune to the effects of intersubjectivity.

In the years following psychology's revival of interest in suicidology, Neuringer (1964a) described suicide as 'an important social and psychological problem' (p. 47) that is closely related to changes in interpersonal relations. He hypothesised that the study of relationship crises may provide evidence supporting the etiological basis of destructive suicidal behaviours. By examining suicidal individuals, Neuringer (1964b) also found evidence supporting rigid thinking styles in those who attempted suicide, and Beck, Kovacs, and Weissman (1975) explored the role of hopelessness in suicidal actions. As Lester (2000) explained, much of the psychological research conducted from the 1960s to 1980s demonstrated significant relationships between suicidal behaviours and interpersonal and personality traits, specifically depression, self-esteem, decision making, impulsivity, emotional disturbances, and locus of control.

The Methodology and Population Debate

There is a present discourse in suicidology regarding the nomenclature associated with suicide and suicidal behaviour, and how suicidal behaviours should be described within the larger discipline (Klonsky, May, & Saffer, 2016). Due to discrepancies in citations' terminology, as well as an absence of differentiation between non-suicidal self-injury and self-injury with suicidal intent, the term *parasuicidal behaviour*, as coined by Krietman (1977), may be used. Unless stated otherwise, parasuicidal behaviour can include suicide attempts, suicide ideation, self-harm, and self-injury.

One of the flaws in both Neuringer and Beck's methodologies was that they sought to comment on the nature of suicide by assessing individuals who engaged in suicidal behaviour—i.e. those who present with suicidal ideation and/or those who have attempted suicide and survived. Although completed versus attempted suicide may only appear to differ in terms of successful task completion, the simplicity of such an assumption may be overstated. Multitudes of studies have examined completed and attempted suicides and the presence of suicide ideation, yet how suicides are categorised continues to be debated (Linehan, 1986). Lester and Beck (1975), for example, have argued in favour of a single suicide population theory: parasuicides and suicides are thought to exist along the same continuum in which suicide ideation is at one end and completion is at the other. The multiple population theory differs in its treatment of suicide, suicidal behaviour, and ideation—conversely, all three are viewed as separate and independent processes which are significant and important in their own right in predicting suicide risk (Linehan, 1986).

Although this argument is far from settled, there is significant risk in assuming that suicide and self-harm are equivalent acts with similar precursors. To illustrate, Brown, Comtois, and Linehan (2002) reported that genuine suicide attempts differed from self-harm and non-suicidal self-injury in that attempts were often characterised by a desire to make

others better off. Suicide and self-harm statistics have also repeatedly demonstrated that there are significant sex differences in suicidal behaviours (Lester, 2000). Women continue to engage in more self-harm behaviours and report greater instances of suicide ideation, but it is men that complete the majority of suicides. If we treat all suicidal behaviour as a continuum, it becomes more difficult to discern the factors driving said continuum. Furthermore, these sex differences cannot be accounted for when only parasuicides are studied. The problem remains that psychology struggles to study completed suicide as its victims are no longer interpersonally accessible, thus removing the laboratory analogue component of psychological suicide research.

Suicide and Theoretical Developments

What one can discern from existing contributions to the field is that it is difficult to both conceptualise and study suicide regardless of the framework used. Exclusivity is a danger in this regard, as is absence of developed theory. Leenaars (1996) argued that people most frequently identify external causes (e.g. major life events or stressors) as the *reason* an individual committed suicide, and that this view is often too simplistic. As Shneidman contended, suicide is a *multidimensional malaise*: a combination of biological, psychological, logical, conscious and unconscious, interpersonal, intrapsychic, sociological, cultural, and existential variables (Leenaars, 1996). Much of suicide research has since abandoned this axiom but fails to produce or subscribe to established theory. At present, Shneidman's theory of suicide is one of the most robust and inclusive, despite its age. Suicide is a deeply personal action, but it is also interpersonal. As Leenaars (1996) wrote of Shneidman's theory, 'suicide is an *intrapsychic* drama on an *interpersonal* stage' (p. 224)—victims of suicide experience mental constriction and pain, but this pain is also influenced by and continues to influence others around them or the absence thereof.

Shneidman's Theory

Within the intrapsychic, Shneidman (1985) listed five potential components for suicide: unbearable psychological pain, cognitive constriction, indirect expressions, inability to adjust, and ego strength. Shneidman (1985) lists unbearable psychological pain as the stimulus in suicide. The psychological pain is denoted by suffering, hopelessness, helplessness, and a belief that the pain is inescapable and eternal. Suicide is thus an escape or relief from this pain. Cognitive constriction is a rigidity of thought believed to be the major cognitive component of suicide. It is an inability to think beyond psychological pain and trauma. As Leenaars (1996) explained, 'In the face of painful trauma, a possible solution became the solution' (p. 225). Indirect expressions are unconscious processes and represent a person's many contradictory feelings and motives for committing an act—typically there are more reasons for the individual to commit suicide than he or she is even aware of, but these unconscious processes are thought to nevertheless contribute to the outcome. Inability to adjust represents an inability to cope or feeling too weak or powerless to overcome what lays ahead, thus individuals choose not to survive their difficulties. Lastly, ego strength, a largely Freudian concept, represents an individual's capacity to develop constructive means of overcoming his or her difficulties. A strong ego is perceived as a protective factor for suicide, whilst a weakened ego is likely to impact a person's ability to cope as well as learn how to cope. The ego is also thought to become weaker when faced with multiple traumas (e.g. loss, abuse, failure).

Within the interpersonal, there are three components: interpersonal relations, rejection-aggression, and identification-egression. Suicidal individuals are thought more likely to have problems in establishing and/or maintaining interpersonal relationships and a disturbed attachment need. Rejection-aggression accounts for the rejection or loss felt by the individual, how this is construed as abandonment, and how this abandonment is transformed

into self-directed aggression. Identification-egression represents an emotional attachment to another person, and how a suicidal person experiences significant pain when his or her attachment needs are not met. When this happens, he or she is likely to want to egress: leave.

As previously stated, this is only one theory of suicide, but it is comprehensive and it also acknowledges the multiple paths towards suicide and the interplay of mitigating factors. A person does not need to meet all interpersonal and intrapsychic criteria to be at risk of suicide; their experience is likely to be unique to them, but nevertheless significant and mappable. It should be interpreted as more than an emotional state or a traumatic event—it is a combination of all aspects of life and how we, as individuals, interpret, accumulate, tackle, and/or ignore these things.

From Theory to Practice

A comprehensive theory is but one aspect of research. The other aspect is ensuring that said theory is empirically viable. To do this, one must employ an appropriate methodology, thus evoking a previous query: is it sufficient to study suicide by using parasuicidal participants? With increasing evidence that completed suicides and parasuicidal populations may differ (Coster & Lester, 2013), to understand suicide, one must examine those who have completed suicide. This may be accomplished by the four types of death investigations: medical autopsies, forensic investigations, statistics/demographics, or psychological autopsies. Thus far, these forms of investigation have greatly assisted in the identification of factors correlated with risk of suicide. For example, statistical analyses have identified that the majority of suicide victims are males between the ages of 20 and 32 (Office for National Statistics, 2015), that particular ethnic groups may be at an increased risk of suicide (Pollock et al., 2016), that gay, lesbian, bisexual, and transgendered men and women are at an increased risk of suicide attempts and suicide ideation (Figueiredo & Abreu, 2015),

and that, in developed countries, a high percentage of suicides have established mental health diagnoses (Bertolote & Fleischmann, 2002). These factors can also be recognised, measured, and tallied in advance of suicidal behaviour. However, whilst all four methodologies are adept at determining or hypothesising the means and occurrences of suicides and suicidal behaviour, only the psychological autopsy can comment on the motive and the intent (Shneidman, 1994).

A psychological autopsy seeks to deduce not only a person's circumstances prior to their death, but also their mental state—as Shneidman (1994) explained, the psychological autopsy is an impartial behavioural scientific investigation of the psychological. The psychological autopsy is routinely regarded as a valid and useful death investigation tool, and this is equally true for the study of suicides (Dieserud, Leenaars, & Dyregrov, 2015). Many researchers also regard the psychological autopsy as one of the most valid methods for studying the relationship between risk and suicide completion (Cavanagh, Carson, Sharpe, & Laurie, 2003). A component of most psychological autopsies is interviewing several individuals close to the suicide victim, but a recent study by Dieserud et al. (2015) suggested that the information obtained from interviewees may be dependent on that person's relationship to the deceased and that information from multiple relations may prove contradictory. The psychological autopsy is nevertheless a series of hypotheses drawn from secondary sources, adding another layer of human error, stigma, and assumption to an already complex process. It is perhaps for that reason that Shneidman wrote, 'suicide notes are the golden road to understanding suicide' (as cited in Leenaars, 2010).

Unlike the study of an approximate population (i.e. parasuicides) or a psychological autopsy that relies on secondary data, suicide notes are a primary data source. Suicide notes provide investigators and researchers with the means to directly analyse the affective and cognitive states of suicide victims in their final moments. It was Shneidman that first

proposed the use and the soundness of suicide notes and note analysis in suicidology, and up until his death, he remained a pioneer in the field and wrote extensively on the study of suicide notes (Leenaars, 2010), a tradition which has been carried on by his pupil, Antoon A. Leenaars. Suicide note analysis has enhanced suicidology's understanding and identification of factors associated with suicide risk. For example, Lester and Leenaars (2016) identified several sex differences in victims' affective and cognitive expressions, such as females exhibiting greater hopelessness, defeat-entrapment, and unrelenting standards. Coster and Lester (2013) also identified common emotional expressions of guilt, shame, hurt, and anger, offering insight into possible predisposing affective states. Conceptually, suicide note analysis boasts a strong and complimentary methodology within suicidology, as it allows some direct psychological analysis of the concerned population. It does exhibit some methodological difficulties, namely the potential role of impression management, egocentric biases, cognitive distortions, false memories, and hindsight bias, to name but a few, but it is perhaps most complicated by one particular factor: representativeness. Despite common belief, the production of suicides notes is a relatively rare phenomenon, with an estimated 10% to 25% of suicide victims leaving a note (Lester, 1972). Not only does this frame note writers as a minority group, it also raises concerns whether a small percentage of suicide victims are representative of all completed suicides. Simply stated: can homogeneity be assumed for the completed suicide population?

Such concerns have not dissuaded researchers from using suicide note analysis to investigate the psychodynamic factors associated with suicide. This methodology has produced multiple insights into risk factor identification (Fernández-Cabana, Ceballos-Espinoza, Mateos, Alves-Pérez, & García-Caballero, 2015a), sex differences (Lester and Leenaars, 2016), and has even contributed to the development of new theories of suicide and psychological treatments and therapies (Joiner et al., 2002; Coster & Lester, 2013). The

generalisability of these findings is nevertheless contingent on the assumption of suicide homogeneity. Should this assumption be empirically contested, it has the potential to query, if not disrupt, not only the academic understanding of suicide but also clinical programmes and interventions based on the findings from note analysis studies.

Thesis Aims

Bearing the above concerns in mind, this thesis aims to investigate the assumption of homogeneity between suicides who do and do not write notes as well as the assumption's impact on suicide note research and the larger field of suicidology. This will be accomplished in various stages through the proceeding chapters and will culminate in an empirical study that quantitatively compares an untested sample of suicide victims along a series of demographic and interpersonal factors.

Although the empirical study is concerned with Shneidman's theory of suicide and suicide note analysis, a further discussion of approximate population as a means of studying suicide will be conducted. A psychometric tool which estimates risk of suicide and is grounded in such a methodology will be critiqued.

This thesis also aims to examine the role of culture in suicide note analysis (e.g. how culture is measured, its perceivable impact, and how it may be conceptually and methodologically approached within suicidology).

Thesis Structure

This thesis is divided into five chapters.

Chapter One (present chapter) serves as an introduction to the topic of suicide, how it is studied, and the difficulties associated with various methodologies and their assumptions, namely suicide note analysis.

Chapter Two is a systematic review of peer-reviewed literature that has investigated the representativeness of suicide note writers by statistically comparing note writers with suicide victims that did not write notes (subsequently to be referred to as 'non-writers'). This review provides context and groundwork for the research study presented in Chapter Four.

Chapter Three is a critique of the Suicide Intent Scale developed by Beck, Schuyler, and Herman (1974). The scale was designed to assess the seriousness of parasuicidal behaviour and a person's subsequent risk of suicide following a suicide attempt. It is theoretically derived from Beck's single population theory of suicide, in which suicidal intent and completed suicide exist along a continuum. The limitations of this theoretical approach, as well as the structure, usefulness, and limitations of the Suicide Intent Scale as both a risk assessment and research tool will be discussed.

Chapter Four is an empirical investigation into the assumption of homogeneity between suicide note writers and non-writers using a previously untested sample of completed suicides from Newfoundland and Labrador, Canada. The objectives of this research were to determine if there were significant demographic and interpersonal differences between note writers and non-writers, to examine the effect of culture in comparative suicide note research, and to determine if there were any sex differences between groups.

Chapter Five is the concluding chapter of this thesis. It will provide a final discussion regarding research findings, theoretical and practical implications, and directions for future research.

CHAPTER TWO

SUICIDE NOTES AND SUICIDE VICTIM REPRESENTATION: A SYSTEMATIC REVIEW

ABSTRACT

Aim: Only a fraction of suicide victims (roughly 20%) are known to write and leave suicide notes. Suicide note analysis is nevertheless considered to be one of the most robust methodologies to discern the motives behind suicidal behaviour. There is an assumption in suicidology that there are no systematic differences between suicide victims who write notes and those who do not, but it is unknown to what extent this assumption is empirically supported. The aim of this review was to explore the degree to which the literature has examined sociodemographic and interpersonal differences between note writing and non-note writing suicide victim populations, and discern whether it supports or contradicts an assumption of homogeneity.

Method: Scoping exercises were performed to detect the existence of present or planned systematic reviews in this topic area, and thus justify the need for such a review. Searches were performed by using six electronic databases, hand-searching reference lists from electronically identified citations, and corresponding with experts in the field. Specific screening selection tools, data extraction forms, and quality assessment forms were developed and applied to each identified citation.

Results: Of the 1,341 identified citations, 17 met inclusion criteria. Nineteen (19) sociodemographic and interpersonal variables were examined across all 17 citations, and suicide victims from 12 distinct countries were sampled. Although statistically significant results were detected along one or more variables for 15 of the 17 citations, a substantial level of discord was present in relation to how each citation interpreted their findings. As such, 8 of the citations reported no statistically significant differences between samples of note writers

and non-writers, whilst the remaining 9 interpreted statistically significant differences between the two groups.

Conclusions: Due to the contradictory findings presented within the citation pool, it is presently difficult to assess the value of suicide notes as a source of information and analysis. Although the literature has examined the potential for systematic differences between note writers and non-writers, this literature consists of inconsistent methodologies, sampling procedures, analyses, and interpretations. As such, it is difficult to both compare and draw finite conclusions from the existing information. It is suggested that the varied findings may also represent cultural differences. Future research should prioritise study replication as well as developing a consistent methodology that can be applied to international samples. Cross-cultural research would also be of benefit.

Suicide Prevention and Comprehension

Suicide prevention draws upon statistical analysis and empirical research. Before any successful intervention can be employed, it must first be understood who the intervention is targeting. National statistical offices and bureaus (e.g. UK Office for National Statistics; United States Census Bureau) have provided a wealth of information regarding suicide rates per annum, gender and age disparities, and regional differences. Researchers have also compiled and investigated suicides rates on a global scale, seeking to identify countries, regions, and nations that have the highest and lowest incidences of suicide (Leenaars et al., 2010; Lester, 2006). This has provided some insight into which broad categories of people may be at high risk of committing suicide, and has also incorporated culture, government, and religion as factors for consideration. Although the argument can be made that such knowledge has enabled policy makers to identify at-risk groups for prevention programmes, these target groups, based on this knowledge, would be massive in scale. For example, UK males between the ages of 20 and 34 who live in the Northwest have the highest rates of suicide per annum. That population encompasses millions, however, and one must query the feasibility of constructing and implementing an intervention for such a large population. Furthermore, of this population, less than one percent were predicted as at risk of committing suicide. As such, more recent research has sought to identify additional suicide risk factors by examining prevalence per sample. Yip et al. (2012), for example, investigated the most commonly used methods of suicide (e.g. hanging, firearms) and the success of a method-restriction invention (e.g. removal of firearms from residence). They then evaluated the spread of suicide method information through informal and formal media, and how this affected choice of suicide method in their sample. Such research, once again, allows the pinpointing of suicidal populations by static risk factors, but what it fails to consider is *why*.

Why are people committing suicide? Why is it that only a select few within an identified high-risk population become victims of suicide? What differentiates victims beyond demographics and socioeconomics? What can statistics *not* tell us?

Demirel, Akar, Sayin, Candansayar, and Leenaars (2008) argue that to understand the act of suicide, one must identify the motives behind suicidal behaviour—the *why*. To accomplish this, researchers from around the world have employed a series of diverse methods, including psychological autopsies, studying individuals who have attempted suicide and survived, and suicide note analysis (Demirel et al. 2008; Leenaars, Girdhar, Dogra, Wenckstern, & Leenaars, 2010). Of these methods, the analysis of suicides notes is considered one of the most valuable sources of information in suicidology literature (Chaves-Hernandez, Paramo, Leenaars, & Leenaars, 2006). According to Leenaars (1988), the thematic analysis of suicide notes has offered valuable insight into a suicide victim's affective state, preceding life events and stressors, and their decision-making processes. Although these findings are likely susceptible to psychological biases, noting the circumstances in which they were produced, the presence of bias is also a key factor to recognise in a suicidal person's thinking style. Interpersonal factors, as identified through notes, contextualise existing statistics and better inform intervention policies at both the individual and the population level. They highlight the importance of relationships, emotions, and significant life events, and can allow professionals and programme providers to appropriately target at-risk groups with more effective interventions.

The issue with this approach is that suicide notes are only written by a fraction of suicide victims—approximately 20%, although rates are reported to have ranged from 3% to 42% globally (Ho, Yip, Chiu, & Halliday, 1998; Kuwabara et al., 2006). As such, one must query if a group reported to be as small as 3% can accurately communicate and represent the affective and interpersonal circumstances faced by all victims of suicide. The current

consensus in suicidology is that there are no systematic differences between note writers and other suicide victims, but these statements are made with little if any supporting evidence. This mentality is grounded in a prediction made by Stengel (1964), in which he stated that there should be no meaningful differences between suicides who write notes and those who do not, with the exception of note writers being better communicators. At present, a basic literature search for ‘suicide notes’, ‘themes’, and ‘prevention’ displays hundreds of results, and that is just within peer-reviewed and English-language publications. Stengel failed to empirically support his prediction, however, thus the possibility exists that there are differences between suicide victims based on note writing preferences. If this were the case, it could call into question not only existing suicide literature, but also existing preventative and intervention strategies that were based upon this premise.

Aims and Objectives

To further investigate these concerns, a systematic literature review was performed. Systematic reviews differ from narrative literature reviews in that they do not examine a limited sample of the existing literature, nor do they report the claims made by researchers at face value. Systematic literature reviews are standardised, explicit, extensive, and replicable. They scope the existing literature pool, and then evaluate and compare literature in a standardised fashion, synthesising results such that they are easily compared.

An equivalent systematic review concerning differences between suicide victims who write notes and suicide victims who do not write notes has not previously been completed, nor is there one known to be in progress. This information was obtained by performing a scoping exercise which will be further detailed in the following section.

The aim of this systematic review was to determine if suicide note writers are representative of all suicide victims, with no sociodemographic or interpersonal differences between them apart from note writing itself. The objectives are as follows:

1. To determine if there are characteristic differences between suicide victims who write notes (i.e. note writers) and suicide victims who do not write notes (i.e. non-writers).
2. To determine if there are cultural differences between note writers and non-writers.
3. To examine the extent to which characteristics have been identified and compared between note writers and non-writers.
4. To examine the relationship between sample size and significance of findings in relation to detecting differences between note writers and non-writers.

Method

Scoping Exercise

Prior to commencing this review, a scoping exercise was conducted to determine if there were any present or planned systematic literature reviews that would specifically examine differences between suicide victims in relation to note writing or more generally examine suicide note citations. To accomplish this, the following free terms and keywords were used in the Cochrane Database of Systematic Reviews (CDSR), the Centre for Reviews and Dissemination (CRD), and PROSPERO:

"suicide note*" AND differ* OR character* OR compar*

This search returned no existing or planned systematic reviews.

Following this, a scoping search was conducted via PubMed and PsycINFO databases to determine:

1. Additional keywords and themes in suicide note citations.
2. The breadth of studies conducted in this area.
3. Ways in which suicide literature has also referenced note writers (e.g. note leavers, suicide writers, suicide letter writers).
4. Subject and publication sources which contained relevant citations.

This scoping exercise indicated that citations were present for this topic, but were relatively few and required extensive searching. It was decided that there was nevertheless sufficient information to perform a systematic review. Additional search terms and keywords were also identified. Citations appeared limited to psychological and medical subject databases and publications.

Sources of Literature

The initial scoping exercise was conducted on 27 March 2015 to determine the feasibility of the topic and the status of related systematic reviews. It was repeated on 24 April 2015, 20 June 2016, and 2 April 2017. No results were returned on all occasions.

Following the initial scoping exercise, a search for citations was performed using six major electronic databases: Web of Science (all years), PsycARTICLES, Embase Classic (1947-2973), Embase (1974 to 2017 April 06), Ovid MEDLINE(R) (1946 to March Week 5 2017), PsycINFO (1806 to 1966 and 1967 to March Week 4 2017), and HMIC (1979 to January 2017). Embase Classic and HMIC returned zero results and were subsequently excluded from future searches. Web of Science was most recently searched on 6 April 2017. PsycARTICLE, Embase, Ovid MEDLINE(R), PsycINFO, and HMIC searches were performed 7 April 2017. Results were screened via title and abstract. Relevant articles were marked for potential inclusion. Reference lists of marked articles were then reviewed for

additional citations. Citations' titles and abstracts were also screened for inclusion. Three experts were contacted (two via ResearchGate), inquiring as to the existence of additional citations. Two replies were received, resulting in an additional citation.

Search Strategy

Web of Science is a large bibliographic database that encompasses multiple subject areas (e.g. humanities, sciences, social sciences, etc.), but relies on the explicit use of keyword searching and does not facilitate cross-referencing. As such, the usage of synonyms, wildcards, and adjacencies is recommended. For the purposes of this review, all three were used.

PsycARTICLE, Embase, MEDLINE(R), PsycINFO, and HMIC databases were accessed via Ovid. Ovid allows the use of subject headings as well as advanced keyword searching. Difficulties were encountered when trying to map suicide note comparison research to subject headings. Because of this, advanced keyword searching was relied upon exclusively.

For both databases, wildcards, adjacencies, phrase searching, and AND and OR functions were employed to obtain the maximum number of relevant results. As previously mentioned, a scoping search was conducted via PsycINFO and PubMed to identify additional keywords relating to suicide note and comparison citations.

Search limiting options were applied on both Ovid and Web of Science to remove duplicates, non-English language citations, and non-peer-reviewed citations.

The following keywords were used to search all databases. Some were modified to fit restrictions/criteria for specific databases, and these modifications may not be listed below. To review the unedited search terms per database as well as the number of citation 'hits' or results, see Appendix A.

Keywords:

"suicide note*" OR "note writer*" OR "suicide note writer*" or "suicide NEAR note*" or "suicide NEAR writ*"

compar* OR differ* OR distinguish* OR discrim*

variable* OR trait* OR character* OR factor* OR demographic OR socioeconomic OR sociodemographic OR "demographic NEAR factor" or "socioeconomic NEAR factor"

Subject Headings:

"suicide classification psychology"

Screening and Selection

The Population, Intervention, Comparator and Outcome (PICO) is a framework utilised by the Cochrane Review Group to systematically define review research questions and establish exclusion and inclusion criteria for quantitative research. As this particular systematic review is not intended to evaluate an intervention, aspects of the Sample, Phenomenon of Interest, Design, Evaluation, Research type (SPIDER) were substituted. The SPIDER is an alternative systematic search strategy for qualitative and mixed methods research (Cooke, Smith, & Booth, 2012). As such, the two tools were combined to devise a Screening Selection Tool (SST) that could best address the subject matter. The modified PICO is as follows:

Population:	Suicide victims who left notes
Phenomenon of Interest:	Characteristics (i.e. variables) of suicide victims
Comparison Group:	Suicide victims who did not leave notes
Outcome:	A comparison of suicide victims who did and who did not leave notes on a minimum of three variables (e.g. age, sex, and method of suicide) as defined by the phenomenon of interest.
Research Design:	Quantitative or Mixed Methods
Language:	English

Additional exclusions include:

1. Studies that were not peer-reviewed and/or published. This is due to difficulty in identifying and acquiring unpublished materials through database searches.
2. Studies that only compared groups on two or fewer variables.
3. Studies that did not specify which variables (i.e. the phenomenon of interest) were examined.
4. Exclusively qualitative studies. This is due to the chosen phenomenon of interest and the review's interest in sociodemographic factors that can be standardised, generalised, and identified post-mortem without the involvement of victims' peers, associates, or family.

See Appendix B for the SST.

The electronic search of Web of Science, PsycARTICLE, Embase, MEDLINE(R), and PsycINFO returned 1,341 citations. Following the removal of duplicates, 1,168 citations remained. Of these, 622 peer-reviewed and English-language citations were identified and their titles and abstracts were screened for inclusion/exclusion. Fifteen (15) citations were

identified and the SST was employed—one of the citations was excluded. From these 14 included citations, reference lists were searched and 10 additional citations were identified. These 10 citations were then evaluated by the SST; 7 citations were excluded. This resulted in a total of 17 included citations. See Figure 1 for a diagram of this process.

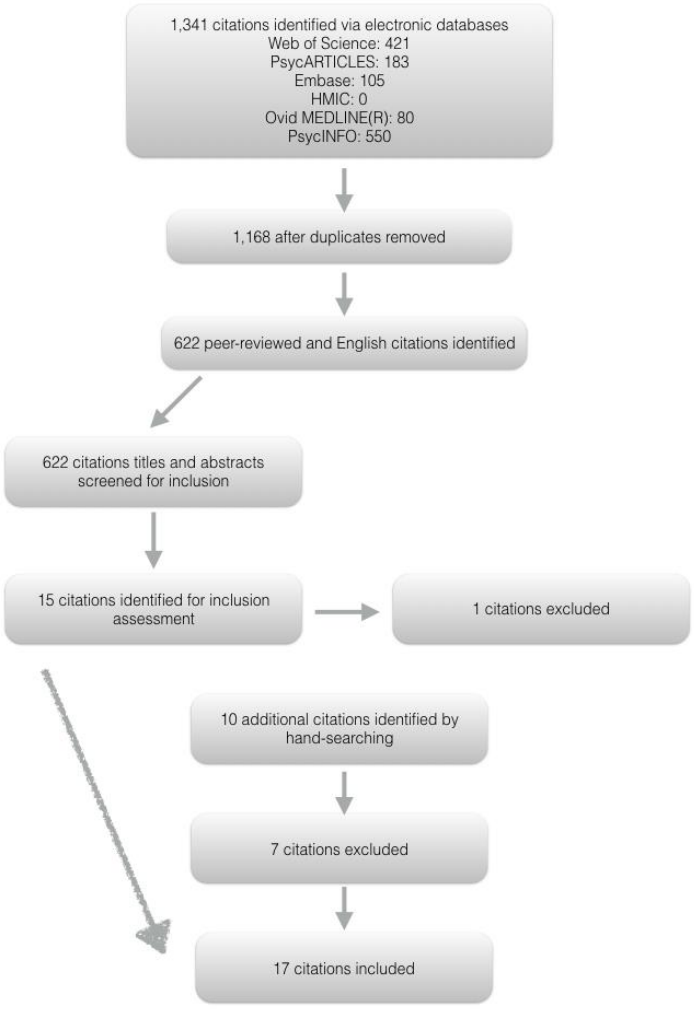

Figure 1. Citation search and selection process.

Of the 8 excluded citations:

- Two studies were excluded for not specifying which variables they compared between groups.

- One study used a female-only sample, which was deemed non-representative of the overall population of suicide victims. (As previously mentioned, men are at a greater risk of committing suicide than women, thus incorporated citations should have both male and female participants.)
- One study used an age-specific sample, which was deemed non-representative of the overall population of suicide victims.
- Two studies were excluded for comparing populations on two or fewer variables.
- Two studies were excluded due to unavailability. (*AN:* Both studies were published before 1977 and are presently difficult to obtain electronically. An online request was issued for one of these studies in 2015 and 2016 but did not receive a response. Based on these citations' abstracts, it is believed that neither would meet inclusion criteria. Chenoweth (1977)'s abstract lists results for suicide note analysis but not comparative research between note writers and non-writers. Tuckman, Kleiner, and Lavell's (1960) abstract suggests that their study exclusively examined one particular variable, namely 'reason for suicide'.)

To view a complete list of excluded citations, see Appendix C.

Quality Assessment

Quality assessments serve to evaluate the methodological quality of citations to be included in a systematic review. They enable the detection of potential bias and heterogeneity of results, determining the extent to which a study's design matches its objectives (The Cochrane Collaboration, 2011). They can also be used to further limit the citation pool, if necessary. For the purposes of this review, a quality cut-off score was not defined and all citations were included. All citations were nevertheless assessed for quality.

Several quality assessment tools already exist, but many are tailored to a specific review (The Cochrane Collaboration, 2011b) or study design. Examples include the QUADAS, the AMSTAR, and eight guidances provided by the Critical Appraisal Skills Program (CASP). As this review's PICO resembles a case-control study, the CASP Case Control Checklist was incorporated into the quality assessment process. Noting that the population and comparison group were both composed of deceased individuals, the CASP Case Control Checklist required tailoring. Moreover, it was felt that the checklist did not adequately address all potential aspects of bias present in the identified literature. As such, a quality assessment checklist was devised for the purposes of this review and items which addressed sampling, selection, attrition, and measurement biases were incorporated. See Appendix D for the developed Quality Assessment Form.

The Quality Assessment Form incorporated the scoring criteria devised by the CASP Case Control Checklist, but added an additional category: Criteria Somewhat Met. After the development and application of the initial tool, it was felt that several studies partially met criteria and did not neatly fit into a Yes/No dichotomy. To compensate for this, this additional category was added, and a number value was assigned to the categories to allow for a quality assessment score to be computed. The categories are as follows:

Criteria Met = Score of 2

Criteria Somewhat Met = Score of 1

Criteria not Met = Score of 0

Criteria Unavailable/Unknown = Score of 0

All assessments were then scored out of a total of 32 possible points, and converted to a percentage.

Data Extraction

A bespoke data extraction form was devised for the purposes of this review. To view the utilised form, see Appendix E. If information was unable or unspecified, ‘not specified’ was inserted into the appropriate cell. Data extraction was performed during the full review of each citation. Following the completion of the form, the citation was then reviewed a second time and extracted data was examined and, if necessary, revised during this second viewing.

The following data were marked for extraction:

- Overview of general citation information (title, author(s), year published, publication source, study location)
- Citation Characteristics (research question(s) and/or aim(s), research design, variables examined, validity and reliability measures [if reported])
- Citation Data (sample size, sample origin [location and timeframe], data sources)
- Results (statistical test(s) performed, significant results [if present], conclusions)
- Quality Assessment Score (X/32 = X%)

Results

The data extracted from the 17 citations was systematically compiled in Table 1. Listed information includes author(s) and publication date, study location, research question(s) and/or aim(s), variables examined/compared between groups, sample size and origin, statistical test(s) performed, statistically significant results, conclusions drawn from findings by authors, and quality assessment scores.

Table 1

Data Extraction Table

Author(s) and Year	**Location**	**Research Question(s)/Aim(s)**	**Characteristics Examined**	**Sample Size and Origin**	**Statistical Test(s)**	**Significant Results ($p < 0.05$)**	**Conclusions**	**Quality Score**
Cohen & Fiedler (1974)	USA	1) Analysis of the extent to which note leavers resemble all suicide victims 2) Analysis of suicide notes (statements, affect)	Age, Sex, Race, Martial Status, Method of Suicide, Previous Attempts	1033 (220 note writers) Pittsburgh (***Timeframe not specified***)	Chi-square test	Sex, Race, Method of Suicide, females' marital status, females' method of suicide, age x method of suicide, method x marital status	Significant differences detected, specifically for female suicide victims. Study questions extent to which content of notes can depict victims' state of consciousness prior to committing suicide.	65.6%
Heim & Lester (1990)	Germany	Explore if suicide victims who leave notes differ from suicide victims who do not leave notes using a recent sample of West Berlin suicides.	Age, Sex, Nationality, Martial Status, Religious Beliefs, Day of the Week, Method of Suicide, Previous Attempts, Precipitating Stressors	3127 (943 note writers) West Berlin (1981-1985)	***Not specified*** (Appears to be Chi-square test on inspection of data tables)	Sex, Age, Martial Status, Day of Week, Method of Suicide	Differences suggest that study of suicide notes will not necessarily be a study of a sample of suicides.	46.9%
Ho, Yip, Chiu, & Halliday (1998)	China	1) Examine characteristics of note leavers 2) Describe content of suicide notes with regard to age and sex differences 3) Determine how often note writers mentioned the difficulties leading to their suicides	Age, Sex, Occupation, Marital Status, Religious Beliefs, Living Arrangements, Day of Week, Previous Attempts, Physical Illness, Psychiatric Illness, Method of Suicide	769 (154 note writers) Hong Kong (1992)	Chi-square test, ANOVA	Age, Sex, Martial Status, Religious Beliefs, Previous Attempts, Psychiatric Illness	Note leavers are characterised as young females, of non-widowed marital status, with no history of previous suicide attempts, with religious beliefs, and with no previously diagnosed psychiatric illness.	84.4%

O'Connor, Sheehy, & O'Connor (1999)	Northern Ireland (UK)	To illustrate the utility of suicide notes in the psychological profiling of suicidal individuals.	Age, Sex, Marital Status, Socioeconomic Class, Method of Suicide	133 (45 note writers) Belfast (1993-1994)	***Not specified***	Method of Suicide	No interactions found between age and psychological profiles. Depressed individuals as well as those without a history of suicide attempts individuals appear to have different reasons for committing suicide.	62.5%
Salib, Cawley, & Healy (2002)	England (UK)	To determine if there are differences between elderly suicide victims who leave notes and those who do not.	Sex, Location of Suicide, Marital Status, Living Arrangements, Existence of Offspring, Known to healthcare practitioners/services, Method of Suicide, Previous Attempts, History of Recent Psychiatric Treatment	125 (54 note writers) Cheshire (1989-1998) All suicides > 60 yrs	***Not specified***	Method of Suicides, Previous Attempts, History of Recent Psychiatric Treatment, Known to healthcare practitioners/services	High percentage of note leavers in elderly population. Importance of depression and suicide highlighted.	65.6%
Foster (2003)	Northern Ireland (UK)	To determine if suicide note themes might inform suicide prevention strategies.	Age, Sex, Marital Status, History of Self-Harm, Known to healthcare services, Diagnosis of Mental Illness, Medication, Physical Illness, Method of Suicide, Living Arrangements, Precipitating Stressors, Occupational Status	118 (42 note writers) Belfast (***Timeframe not specified)***	Chi-square test, Fisher's exact test (two-tailed)	None	No differences detected between note writers and those who did not write notes. Suicide themes identified from notes.	62.5%

Girdhar, Leenaars, Dogra, Leenaars, & Kumar (2004)	India	Present the first study of suicide notes in India. Differences between note writers and non-writers to be evaluated.	Sex, Age, Educational Status, Socioeconomic Status, Occupation, Marital Status, Religious Beliefs, Physical Illness, Psychiatric Illness with Treatment, Previous Attempts, Method of Suicide	100 (50 note writers) New Delhi (2001-2002)	Chi-square test	Sex, Educational Status, Occupation, Marital Status, Religious Beliefs	Note writers do not differ greatly from other suicides. Males wrote more notes in India. Suicide in India is associated with an array of psychiatric and social factors.	81.3%
Kuwabara et al. (2006)	Japan	1) To examine incidence of note writing 2) To determine if there are differences between note writers and other suicides	Sex, Age, Method of Suicide, Marital Status, Living Arrangements, Reason for Suicide, Previous Attempts, Psychiatric Illness, Alcohol	5161 (1553 note writers) Kobe City (1981-2001)	Chi-square test, **multiple logistic regression analysis**	Sex, Living Arrangements, Method of Suicide, Physical illness or psychiatric illness as Reasons, History of Psychiatric Illness	Ethnic differences found in study when compared to existing literature. Suicide notes may be an indicator of serious suicide attempts.	87.5%
Chavez-Hernandez, Paramo, Leenaars, & Leenaars (2006)	Mexico	1) Examine characteristics of suicide notes 2) Examine sociodemographic characteristics of the suicidal population that wrote them 3) Compare these individuals to a matched suicidal sample that did not write notes	Sex, Age, Educational Status, Occupation, Zone of Residence, Religious Beliefs, Marital Status, Location of Suicide, Method of Suicide, Previous Attempts	212 (106 note writers) Mexico (1995-2001)	Chi-square test, Fisher's test	Educational Status, Zone of Residence, Occupation, Previous Attempts	Note writers do not differ greatly from other suicides.	78.1%

Demirel, Akar, Sayin, Candansayar, & Leenaars (2008)	Turkey	First study of suicides and suicide notes in Turkey and an Islamic country.	Marital Status, Existence of Offspring, Living Arrangements, Occupation, Psychiatric Illness, Physical Illness, Precipitating Stressors, Previous Attempts, Method of Suicide, Reason for Suicide, Season, Day of Week, Time of Day, Location of Suicide	148 (49 note writers) Ankara (2005)	Chi-square test	Psychiatric Illness, Reason for Suicide	Few significant differences detected. When comparing findings to other classification studies in different countries, caution is required for transposition.	78.1%
Chia, Chia, & Tai (2008)	Singapore	To determine: 1) whether differences still existed between suicide letter writers and non-letter writers 2) whether there was expression of suicide intent 3) whether themes and emotions cited in other studies were present in Singaporean letters	Sex, Marital Status, Ethnicity, Occupation, Place of Birth, Mental Illness, Physical Illness, Prior Hospitalisation, Socioeconomic Problems	1721 (398 note writers) Singapore (2000-2004)	Chi-square test, independent sample t-test	Marital Status, Occupation, Place of Birth, Mental Illness, Physical Illness, Prior Hospitalisation, Socioeconomic Problems	There are significant differences between those who do and don't leave suicide letters in Singapore.	84.4%

Callanan & Davis (2009)	USA	Do suicide decedents who write notes differ from those who do not?	Sex, Race, Age, Marital Status, Living Arrangements, Employment Status, Mental Illness, Physical Illness, Previous Attempts, Affect before Death, Precipitating Stressors, Chronic Problems, Method of Suicide, Drugs/Alcohol	621 (231 note writers) Summit Country, Ohio (1997-2006)	Chi-square test, logistic regression	Living Arrangements, Previous Attempts, Affect before Death, Method of Suicide, Drugs/Alcohol	Few differences noted. Findings suggest that, for research purposes, suicide cases with and without notes are essentially similar.	78.1%
Haines, Williams, & Lester (2011)	Australia	To replicate Callanan & Davis (2009) with an Australian sample.	Sex, Marital Status, Employment Status, Living Arrangements, Previous Attempts, Medical History, Psychiatric History, Psychological State, Psychiatric Symptoms, Reason for Suicide, Method of Suicide	1051 (347 note writers) Tasmania (20-year period. ***Dates note specified.***)	Chi-square test, correction for multiple testing, effect sizes	Marital Status, Living Arrangements, Medical History, Psychiatric History, Psychological State, Psychiatric Symptoms, Reasons for Suicide, Method of Suicide	The large number of differences suggest that it may not be possible to learn about suicide in general from a study of suicide notes.	84.4%
Paraschakis et al. (2012)	Greece	To compare the group of suicide victims who leave notes with the ones who do not.	Sex, Marital Status, Living Arrangements, Nationality, Religious Beliefs, Psychiatric History, Previous Attempts, Previous Psychiatric Hospitalisation, Physical Illness, Alcohol/Drugs, Method of Suicide	253 (66 note writers) Athens (2007-2009)	Chi-square test, independent sample t-test	Psychiatric History, Previous Psychiatric Hospitalisation, Method of Suicide	Few differences identified. Results in comparison with previous studies may point to differences being culturally based.	81.3%

Cerel, Moore, Brown, & van de Venne (2014)	USA	To determine differences between suicides who leave notes prior to suicide and those who do not in terms of demographics, circumstances of the suicide, and circumstances precipitating the suicide.	Age, Sex, Race, Ethnicity, Education Level, Marital Status, Homeless Status, Pregnancy Status, Veteran Status, Place of Injury, Method of Suicide, Depression Presence, Mental Health, Mental Health Treatment, Physical Health, Medical Treatment, Suicide Attempts, Suicide Intent, Alcohol, Drugs, Relationship Problems, Recent Criminal Legal Problems, Recent Noncriminal Legal Problems, Financial Problem, Educational Problem, Death of Family/Friend, Recent Suicide of Family/Friend, Perpetrator of Interpersonal Violence, Victim of Interpersonal Violence	2,936 (536 note writers) Kentucky (2005-2011)	Logistic regression, independent sample t-test	None ($p<0.01$) AN: For $p<0.05$, Method of Suicide (Poisoning), History of Suicide Attempts, Financial Problem, Perpetrator of Interpersonal Violence within 30 Days of Suicide	With regard to chosen alpha, no significant demographic differences reported.	84.4%

Carpenter, Bond, Tait, Wilson, & White (2016)	Australia	Are those who leave suicide notes representative of the larger population of those who commit suicide?	Age, Sex, Indigenous Status, Socio-economic Status, Method of Suicide, Mental Health Concerns	533 (325 note writers) Queensland (2004)	Bivariate analysis, logistic regression	Method of Suicide (Gassing)	Large proportion of population left a note, women less likely to leave notes, those of indigenous status less likely to leave notes, and differences found in method of suicide. Findings in contrast to previous gender, note leaving, and indigenous findings.	75%
Stack & Rockett (2016)	USA	To determine demographic differences between suicides who leave notes and those who do not using a large national sample.	Gender, Race, Marital Status, Age, Urban Residence, Stressful Life Events, Psychiatric Issues, Method of Suicide	30,570 (9,048 note writers) National (2003-2006)	Bivariate analysis, **multivariable logistic regression**	Gender, Race, Marital Status, Age, Stressful Life Events, Psychiatric Issues, Method of Suicide	Note leavers were found to be significantly difference from other suicide along a series of demographic factors. Finding may be affected by national sampling and reduced cultural impact.	96.9%

Methodological Characteristics

Of the 17 citations, the oldest was published in 1974 (Cohen & Fiedler, 1974) and the most recent was published in 2016 (Stack & Rockett, 2016). The 17 citations represented research conducted and compiled in 12 different countries. Four (4) citations were from the United States of America (USA), 3 were from the United Kingdom (two from Northern Ireland and one from England), and 2 were from Australia. The remaining studies originated from Germany, China, India, Japan, Mexico, Turkey, Singapore, and Greece, thereby representing a number of Western and Eastern samples. All citations abided by a quantitative research methodology, but 5 incorporated a qualitative methodology in addition to quantitative (i.e. mixed methods design). Those which were classified as mixed methods had two or more research questions or aims, one of which compared note writers and non-writers. Secondary or tertiary research aims for these mixed methods citations then pertained to the content of suicide notes left by the sample, typically using thematic analysis to generate interpersonal and affective themes. For the purposes of this review, focus was directed to quantitative research aims exclusively. Qualitative findings were not documented in Table 1 as they did not pertain to this review's objectives.

Sample and Origin

Sample sizes ranged from 30,570 (Stack & Rockett, 2016) to 100 (Girdhar, Leenaars, Dogra, Leenaars, & Kumar, 2004) with a mean sample size of 1,040.86 per citation. For percentages of note writers per sample, see Table 2.

Table 2

Percentage of Suicide Note Writers per Citation

Study	Total Sample Size	Total Note Writers	Percentage of Note Writers
Cohen & Fiedler (1974)	1033	220	21.3%
Heim & Lester (1990)	3127	943	30.2%

Ho, Yip, Chiu, & Halliday (1998)	769	154	20.0%
O'Connor, Sheehy, & O'Connor (1999)	133	45	33.8%
Salib, Cawley, & Healy (2002)	125	54	43.2%
Foster (2003)	118	42	35.6%
Girdhar, Leenaars, Dogra, Leenaars, & Kumar (2004)	100	50	50%
Kuwabara et al. (2006)	5161	1553	30.1%
Chavez-Hernandez, Paramo, Leenaars, & Leenaars (2006)	212	106	50%
Demirel, Akar, Sayin, Candansayar, & Leenaars (2008)	148	49	33.1%
Chia, Chia, & Tai (2008)	1721	398	23.1%
Callanan & Davis (2009)	621	231	37.2%
Haines, Williams, & Lester (2011)	1051	347	33.0%
Paraschakis et al. (2012)	253	66	26.1%
Cerel, Moore, Brown, & van der Venne (2014)	2936	536	18.2%
Carpenter, Bond, Tait, Wilson, & White (2016)	533	325	61%
Stack & Rockett (2016)	30,570	9048	29.6%

Percentages of suicide note writers ranged from 18.2% to 61%, with a mean percentage of 33.85%. Thirteen (13) of the 17 citations utilised a sample which incorporated all suicides in a particular city or region within a specific timeframe. This timeframe was typically 365 days, but ranged to twenty years (Haines, Williams, & Lester, 2011; Kuwabara et al., 2006). Two (2) studies based their sample size on the availability of suicides notes. Girdhar et al. (2004) identified 320 suicides from records provided by the All India Institute of Medical Sciences; 51 had left suicide notes, and 50 notes were available for study. A comparison sample (*n*=50) was selected from the group of non-

writers by choosing every third suicide victim from the sample (*n*=249). Chavez-Hernandez et al. (2006) employed a similar sampling strategy to Girdhar et al. (2004), in which they identified 216 note writers. Their comparison sample selection was based on age- and sex-matched pairs, thereby eliminating age and sex as possible variables of comparison. Demirel et al. (2008) did not match their comparison sample size to their note writing sample size, but did age-match the comparison group. Foster (2003) did not specify the timeframe in which his sample was collected, and it is unknown if his sample incorporated all suicides within a specific timeframe or if they were randomly selected from a larger population.

Regarding exclusions, Girdhar et al. (2004), Chavez-Hernandez et al. (2006), and Demirel et al. (2008) excluded note writers if the notes were not available for study and also excluded a number of non-writers based on random selection or pair-matching. O'Connor, Sheehy, and O'Connor (1999) excluded 9 suicide victims due to brief and/or non-descriptive suicide notes. Salib, Cawley, and Healy (2002) excluded all suicides under the age of 60. Due to the lack of sampling information provided by Foster (2003), it is unknown if he excluded any suicide victims from his sample. Haines, Williams, and Lester (2011) excluded two suicide victims due to missing coroner data. Paraschakis et al. (2012) based their sample on the availability of data, thus limiting their pool of 335 suicide victims to 253. Carpenter et al. (2016) excluded 31 suicides due to indeterminate residence or non-Queensland residency status. Cerel et al. (2014) initially identified 4,092 suicides but excluded 28.2% of this sample due to missing demographic information.

Sources of information (concerning variables to be examined) included police files (Callanan & Davis, 2009; Foster, 2003; Heim & Lester, 1990, Ho et al., 1998), coroner files and/or medical examiner reports (Callanan & Davis, 2009; Carpenter et al., 2016; Chavez-Hernandez et al., 2006; Chia, Chia, & Tai, 2008; Demirel et al., 2008; Foster, 2003; Girdhar et al., 2004; Haines et al., 2011; Kuwabara et al., 2006; O'Connor et al., 1999; Paraschakis et al., 2012; Salib et al., 2002), medical registries and databases (Cerel et al., 2014; Stack & Rockett, 2016), dispositions from family, friends, and/or medical professionals (Foster, 2003; Girdhar et al., 2004; O'Connor et

al., 1999; Paraschakis et al., 2012), and suicide notes (Callanan & Davis, 2009; Foster, 2003; Ho et al., 1998; O'Connor et al., 1999). Cohen & Fiedler (1974) did not specify which sources of information were used.

Research Questions and/or Aims

Sixteen (16) of the 17 citations identified their research aim to be an analysis or investigation of the extent to which note writers differ from other victims of suicide. Studies with additional research aims sought to analyse suicide notes to discern commonalities regarding statements of affect, justifications, and explanations. Foster (2003) cited his aim as determining whether suicide note themes could inform suicide prevention strategies, but was nevertheless interested in potential differences between note writers and non-writers. Six (6) citations were also concerned with examining suicides in a specific region and performing the first ever study with a regional sample (Chavez-Hernandez et al., 2006; Chia et al., 2008; Demirel et al., 2008; Girdhar et al., 2004; Haines et al., 2011; Heim & Lester, 1990). All 17 citations compared note writers and non-writers on a series of sociodemographic and interpersonal variables.

Characteristics of Suicide Victims

Nineteen (19) shared variables (i.e. sociodemographic and interpersonal characteristics) were examined across the 17 citations. Table 3 provides a complete breakdown of which variables were examined per each citation. Of the 19 variables examined, sex (*n*=16), marital status (*n*=16), and method of suicide (*n*=16) were the most commonly cited. The least cited variables were day of the week on which the victim committed suicide (*n*=3), religious beliefs (*n*=4), location in which the victim committed suicide (*n*=4), if the victim had children or was pregnant (*n*=3), if the victim was known to health care services/practitioners (*n*=4), and having cited reasons for committing suicide (*n*=3). Foster (2003) examined 'history of self-harm', which was neither included in Table 3 or incorporated into 'previous suicide attempts' due to the lack of information provided. Chavez-

Hernandez et al. (2006) also examined ‘zone of residence’ which was also not included in Table 3 as this variable pertained exclusively to the region from which victims were sampled and thus is incomparable with non-Mexican samples. Apart from Haines et al. (2011), who sought to replicate Callanan and Davis’ (2009) research, and Stack and Rockett (2016), who also sought to replicate previous comparative citations, citations either selected variables based on the availability of sample information or neglected to describe the variable selection process. It is unclear whether variable selection was grounded in suicide theory. Callanan and Davis (2009), for example, coded and extracted all available data from their source material and chose their variables based on said availability. Due to the ample availability of data, the authors were able to compare more variables than most preceding citations. This may account for some proceeding citations’ usage of Callanan and Davis’ (2009) study as a variable template.

Statistical Tests

Eleven (11) of the 17 citations analysed their results using the chi-square test, a nonparametric statistical test which is used to determine whether there are significant differences between expected frequencies of individuals and observed frequencies of individuals along one or more categories (i.e. variables). Carpenter et al. (2016) and Stack and Rockett (2016) used bivariate analysis. Of the 3 remaining citations (Heim & Lester, 1990; O’Connor, Sheehy, & O’Connor, 1999; Salib, Cawley, & Healy, 2002), their methodologies did not state which statistical test(s) were employed, but an examination of results and data tables indicated that the chi-square test was used. Foster (2003) and Chavez-Hernandez et al. (2006) also performed post-hoc tests (specifically Fisher’s exact test, two-tailed). Kuwabara et al. (2006), Callanan and Davis (2009), Cerel et al. (2014), Carpenter et al. (2016), and Stack and Rocket (2016) also employed logistic regression to determine if comparative relationships held to a predictive model, and Haines et al. (2011) also computed effect sizes. Only two citations (Kuwabara et al., 2006; Stack & Rockett, 2016) performed multivariate analyses. Regarding regression models, Stack and Rockett (2016) reported

Table 3

Variables Examined

Author(s) and Year	Sex	Age	Marital Status	Suicide Method	Previous Attempts	Day of Week	Religious Beliefs	Mental Illness	Physical Illness	Precip. Stressors	Living Arrangements	Occupation/ SE Class/ Education	Nationality /Ethnicity	Suicide Location	Have Children	Known to HCS	Recent Psychiatric Treatment	Reason for Suicide	Alcohol/ Drugs
Cohen & Fiedler (1974)	X	X	X	X	X								X						
Heim & Lester (1990)	X	X	X	X	X	X	X			X			X						
Ho, Yip, Chiu, & Halliday (1998)	X	X	X	X	X	X	X	X	X		X	X							
O'Connor, Sheehy, & O'Connor (1999)	X	X	X	X								X							
Salib, Cawley, & Healy (2002)	X		X	X	X						X			X	X	X	X		
Foster (2003)	X	X	X	X				X	X	X	X	X				X	X		
Girdhar, Leenaars, Dogra, Leenaars, & Kumar (2004)	X	X	X	X	X		X	X	X			X					X		
Kuwabara et al. (2006)	X	X	X	X	X			X			X							X	X
Chavez-Hernandez, Paramo, Leenaars, & Leenaars (2006)	X	X	X	X	X		X					X		X					
Demirel, Akar, Sayin, Candansayar, & Leenaars (2008)			X	X	X	X		X	X	X	X	X		X	X			X	
Chia, Chia, & Tai (2008)	X		X					X	X	X		X	X				X		
Callanan & Davis (2009)	X	X	X	X	X			X	X	X	X	X	X						X
Haines, Williams, & Lester (2011)	X		X	X	X			X	X		X	X						X	
Paraschakis et al. (2012)	X		X	X	X		X	X	X		X		X			X	X		X
Cerel, Moore, Brown, & van der Venne (2014)	X	X	X	X	X			X	X	X		X	X	X	X	X	X		X
Carpenter, Bond, Tait, Wilson, & White (2016)	X	X		X				X				X	X						
Stack & Rockett (2016)	X	X	X	X	X			X		X			X						X
TOTAL:	**16**	**12**	**16**	**16**	**14**	**3**	**4**	**12**	**9**	**7**	**8**	**11**	**8**	**4**	**3**	**4**	**6**	**3**	**5**

good model fit which explained 5.8% of variance, Callanan and Davis (2009) were unable to comment on overall fit due to study design, Kuwabara et al. (2006) and Cerel et al. (2014) did not report model fit, and Carpenter et al. (2016) reported reasonable model fit.

Quality Assessments

Scores derived from the Quality Assessment Form (Appendix D) ranged from 46.9% (Heim & Lester, 1990) to 96.9% (Stack & Rockett, 2016) with a mean quality assessment score of 76.29%. Only one study (Heim & Lester, 1990) earned a score below 50%. Heim and Lester (1990) failed to account for, or document that they accounted for, sampling bias, selection bias, and attrition bias. They did not specify which statistical test(s) they employed, did not employ a post-hoc test, insufficiently described their results, were unclear whether their data supported their study's findings, and did not discuss the limitations of their research. The second lowest quality score was 62.5% (Foster, 2003). Most citations fell within the 70%-87% range. Two of the main issues affecting quality were the lack of post-hoc tests utilised and failures to discuss study limitations.

Results and Review Objectives

Are there characteristic differences between suicide victims who write notes and suicide victims who do not write notes? Although statistically significant results were detected along one or more variables for 15 of the 17 citations, a substantial level of discord was present in relation to how each citation interpreted their findings. Table 4 presents a tabular breakdown of each citation's significant results obtained for each variable. Significant results were defined as those in which $p<0.05$, $p<0.01$, or $p<0.001$. Foster (2003) and Cerel et al. (2016) reported no significant findings.

Table 4

Significant Results per Citation

Author(s) and Year	Sex	Age	Marital Status	Suicide Method	Previous Attempts	Day of Week	Religious Beliefs	Mental Illness	Physical Illness	Precip. Stressors	Living Arrangements	Occupation/ SE Class /Education	Nationality /Ethnicity	Suicide Location	Have Children	Known to HCS	Recent Psychiatric Treatment	Reason for Suicide	Alcohol/ Drugs
Cohen & Fiedler (1974)	S	X	X	S	X								S						
Heim & Lester (1990)	S	S	S	S	X	S	X			X			X						
Ho, Yip, Chiu, & Halliday (1998)	S	X	S	X	S	X	S	S	X		X	X							
O'Connor, Sheehy, & O'Connor (1999)	X	X	X	S								X							
Salib, Cawley, & Healy (2002)	X		X	S	S						X			X	X	S	S		
Foster (2003)	X	X	X	X				X	X	X	X	X				X	X		
Girdhar, Leenaars, Dogra, Leenaars, & Kumar (2004)	S	X	S	X	X		S	X	X			S					X		
Kuwabara et al. (2006)	S	X	X	S	X			S			S							S	X
Chavez-Hernandez, Paramo, Leenaars, & Leenaars (2006)	X	X	X	X	S		X					S		X					
Demirel, Akar, Sayin, Candansayar, & Leenaars (2008)			X	X	X	X		S	X	X	X	X		X	X			S	
Chia, Chia, & Tai (2008)	X		S					S	S	X		S	S				S		
Callanan & Davis (2009)	X	X	X	S	S			X	X	X	S	X	X						S
Haines, Williams, & Lester (2011)	X		S	S	X			S	S		S	X						S	
Paraschakis et al. (2012)	X		X	S	X		X	S	X		X		X			X	S		X
Cerel et al. (2014)	X	X	X	X	X			X	X	X		X	X	X	X	X	X		X
Carpenter et al. (2016)	X	X		S				X				S	S						
Stack & Rockett (2016)	S	S	S	S	X			S		S			S						S
TOTAL SIGNIFICANT:	**6/16**	**2/12**	**6/16**	**10/16**	**4/14**	**1/3**	**2/4**	**7/12**	**2/9**	**1/7**	**3/8**	**4/11**	**4/8**	**0/4**	**0/3**	**1/3**	**3/6**	**3/3**	**2/5**

X = insignificant variable examined; S = significant variable examined.

Six (6) of the 16 citations that examined sex found statistically significant differences between note writers and non-writers (Cohen & Fiedler, 1974; Heim & Lester, 1990; Ho et al., 1998; Girdhar et al., 2004; Kuwabara et al., 2006; Stack & Rocket, 2016). In these studies, it was found that women were statistically more likely to write notes. Six (6) of 16 citations found significant differences pertaining to marital status, of which 4 citations identified widows to differ in terms of note writing (Chia et al., 2008; Girdhar et al., 2004; Heim & Lester, 1990; Stack & Rockett, 2016), one citation identified any marital status other than widowed (Ho et al., 1998), and two identified single individuals (Haines et al., 2011; Stack & Rockett, 2016). Ten (10) of 16 citations reported significant differences with the method of suicide used (Callanan & Davis, 2009; Carpenter et al., 2016; Cohen & Fiedler, 1974; Haines et al., 2011; Heim & Lester, 1990; Kuwabara et al., 2006; O'Connor et al., 1999; Paraschakis et al., 2012; Salib et al., 2002; Stack & Rockett, 2016). Seven (7) of 12 citations detected significant differences between the diagnosis of mental/psychiatric illness and note writing (Chia et al., 2008; Demirel et al., 2008; Haines et al., 2011; Ho et al., 1998; Kuwabara et al., 2006; Paraschakis et al., 2012; Stack & Rockett, 2016), and 3 of 6 citations reported significant associations between note writing and having recently received psychiatric treatment (Chia et al., 2008; Paraschakis et al., 2012; Salib et al., 2002).

No significant results were reported for location in which suicide was committed or if the suicide victim had children (biological or adopted) or was pregnant. Only one citation reported significant differences between note writers and non-writers for day of the week (Heim & Lester, 1990), presence of precipitating life stressors (Stack & Rockett, 2016), and if the victim was known to healthcare services/practitioners (Salib et al., 2002). Two citations reported significant results for age (Heim & Lester, 1990; Stack & Rockett, 2016) and if the victim consumed alcohol and/or illicit substances prior to committing suicide (Callanan & Davis, 2009; Stack & Rockett, 2016).

Upon examining the conclusions made by authors per citation, roughly half of the citations concluded that their findings were indicative of there being significant differences between note writers and non-writers, thus concluding that the characteristics of note writers cannot be generalised to depict all victims of suicide (Chia et al., 2008; Carpenter et al., 2016; Cohen & Fiedler, 1974; Haines et al., 2011; Heim & Lester, 1990; Ho et al., 1998; Kuwabara et al., 2006; Salib et al., 2002; Stack & Rockett, 2016), whilst the remainders argued the contrary (Callanan & Davis, 2009; Cerel et al., 2014; Chavez-Hernandez et al., 2006; Demirel et al., 2008; Foster, 2003; Girdhar et al., 2004; O'Connor et al., 1999; Paraschakis et al., 2012). It is worth noting that citations which concluded that note writers did not differ significantly from non-writers reported fewer statistically significant results (i.e. fewer than five variables), whilst citations claiming otherwise reported five or more significant variables (*AN*: Carpenter et al. [2016] was an exception).

Are there any cultural discrepancies between suicide victims who do and do not write notes? Although none of the citations sought to investigate the role of culture regarding the potential for differences between note writers and non-writers, several studies suggested that their findings might be culturally exclusive. Kuwabara et al. (2006), for example, concluded that their results, when compared to existing literature, might differ due to culture, specifically how Japanese culture acknowledges suicide in comparison to other cultures. Girdhar et al. (2004) also noted that suicide in India appeared to be associated with an array of psychiatric and social factors that may by exclusive to Indian culture. O'Connor et al. (1999) and Foster (2003) both sampled suicides from Belfast, Northern Ireland, and both concluded that there was insufficient evidence to suggest note writers and non-writers differed in regard to sociodemographic or interpersonal characteristics. As stated by Paraschakis et al. (2012), 'It seems possible that cultural differences could play a significant

role in the controversial findings of the research completed so far on this topic' (p. 347). Stack and Rockett (2016) also identified that previous suicide note research derives its unicultural samples at a local level or from a single region within a country. They argued that between cities and nations there are cultural differences, thus by using local samples, studies may unintentionally produce unreliable findings. They attempted to account for this in their methodology, using data from 17 states (previous USA samples were state-specific [Callanan & Davis, 2009; Cerel et al., 2014; Cohen & Fiedler, 1974]). Conversely, Stack and Rockett's (2016) study also produced the greatest number of significant findings.

To what extent have variables been identified and compared between note writers and non-writers? As depicted in Table 3, 19 variables were identified and compared across 17 citations. Except for sex, marital status, method of suicide, and previous suicide attempts, there was little uniformity as to which variables each citation investigated. Cerel et al. (2014) investigated the most variables (n=15), and O'Connor et al. (1999) investigated the least (n=5). Of the 17 citations, none shared a complete list of examined variables. As such, these 17 citations identified a multitude of variables, but none sufficiently replicated the methodology of a previously published study.

Is there a relationship between sample size and significance of findings? Table 5 lists each citation's sample size and the detection of significant findings (as defined by the conclusions drawn by the study's authors). With the exceptions of Callanan and Davis (2009) and Cerel et al. (2014), all studies which concluded that there were no significant differences between note writers and non-writers employed samples smaller than n=253. Samples ranging upward of this value concluded that there were significant differences. As previously described, those studies which boasted the largest sample sizes investigated all suicides

within a region and did not engage in additional selection processes. Power was not reported in any of the citations.

Table 5

Conclusions and Sample Size

Study	Total Sample Size	Authors' Conclusions
Stack & Rockett (2016)	30,570	Significant differences detected
Kuwabara et al. (2006)	5161	Significant differences detected
Heim & Lester (1990)	3127	Significant differences detected
Cerel et al. (2014)	*2936*	*No significant differences detected*
Chia et al. (2008)	1721	Significant differences detected
Haines et al. (2011)	1051	Significant differences detected
Cohen & Fiedler (1974)	1033	Significant differences detected
Ho et al. (1998)	769	Significant differences detected
Callanan & Davis (2009)	*621*	*No significant differences detected*
Carpenter et al. (2016)	533	Significant differences detected
Paraschakis et al. (2012)	*253*	*No significant differences detected*
Chavez-Hernandez et al. (2006)	*212*	*No significant differences detected*
Demirel et al. (2008)	*148*	*No significant differences detected*
O'Connor et al. (1999)	*133*	*No significant differences detected*
Salib et al. (2002)	125	Significant differences detected
Foster (2003)	*118*	*No significant differences detected*
Girdhar et al. (2004)	*100*	*No significant differences detected*

Discussion

As was previously discussed, a sizeable portion of suicide literature places immense value on the usage of suicide notes to better understand the interpersonal, affective, and psychological components of suicide. Limited consideration has been given to how

representative suicide note writers are of all suicide victims, however; this is concerning with only a fraction of suicide victims having written and left notes. This systematic review sought to examine the extent to which comparative research has been performed between note writers and non-writers, such that the value—or insignificance—of suicide notes could be given empirical weight.

After several scoping exercises, four searches of six databases, and multiple hand-searches, 17 citations were identified as having met the review's PICO and inclusion standards. These citations span across forty-two years, the oldest of which was published in 1974 and the most recent in 2016. Little conformity was present amongst the citations apart from research aims, but even that was complicated by multiple studies having secondary and tertiary research aims that were not comparable. Sample sizes ranged from hundreds to thousands, and some included entire populations whilst others employed random selection and pair-matching. Nineteen (19) variables were identified between 17 citations, but no two citations shared an identical list of comparators. Furthermore, 9 of the 17 citations interpreted findings as supporting the hypothesis that there are statistically significant differences between note writers and non-writers, whilst the remaining 8 supported the null hypothesis. If one conclusion is to be drawn, it is that there is stark disagreement in this topic area as well as several contradictory findings.

Strengths and Weaknesses

When performing a systematic review, the Cochrane Collaboration recommends searching a minimum of three databases; this review searched six and was not limited to psychological or social science databases. This was done to identify literature that may have been cross-categorised as sociological, medical, or educational. Multiple scoping exercises were also carried out to identify the maximum number of search terms and keywords in this

area. A weakness of this review is that it was limited by language and peer-review status, which is contrary to Cochrane guidance (The Cochrane Collaboration, 2011a). This decision was made in light of difficulties in identifying and obtaining 'grey' literature—unpublished studies, and theses or dissertations—as well as the limited robustness of findings from non-peer-reviewed sources. Another limitation was the exclusion of two articles which may have met inclusion criteria. The articles were excluded due to unattainability. Although one article was published online, access to the online provider was not available at the time of the review; a review of the abstract did raise concerns that the article would not meet inclusion criteria, however. The author of the second article was contacted in 2015 and again in 2016, but no reply was received.

The inclusion/exclusion criteria for this review were extensively revised such that it could account for many possible aspects of suicide note literature and target comparative citations specifically. The SSL represents this endeavour, and noting the complex and phenomenological nature of suicide, it was repeatedly refined following the scoping exercise in which particular legal aspects of death investigation and categorisation were encountered (e.g. euthanasia versus suicide). Due to the nature of the review topic, neither the PICO nor SPIDER frameworks could be used in their original forms. As such, this review adopted a modified PICO, using aspects of SPIDER to enable a more concise search to be performed. The limitation of this approach is that the review's PICO is presently lacking in empirical and/or peer-reviewed support. The strength of this approach, however, is the detection, inclusion, and exclusion of a greater number of citations. The Quality Assessment Form also has its strengths and weaknesses. On one hand, the quality assessment form was newly constructed and had not been previously tested using this population. On the other hand, the necessity to adapt a quality assessment checklist allowed for the inclusion of items specific to

the multitude of biases (e.g. selection bias, measurement bias) that can be encountered in comparative research.

Interpretation of Findings

One of the difficulties presented by contradictory findings is how they are understood within the wider literature. The literature comparing note writers and non-writers is exceedingly self-aware, however. As the citations progress throughout the years, from the earliest to the most recent, most authors have referenced a number of studies that preceded them in this specific research area. From the perspective of a reviewer, this facilitates the searching and screening process, but from an analytical perspective, it is curious how such an intimate and cross-cited research collective could not only produce contradictory findings, but fail to utilise a singular or consistent methodology.

Several citations referenced and praised the methodology employed by Ho et al. (1998), in which every suicide committed in Hong Kong in 1992 was sampled and examined for 11 variables using a chi-square test and analysis of variance. Of these citations which held Ho et al.'s (1998) methodology in high regard, none chose to replicate it, and instead relied on pair-matching and semi-random sampling. These studies also used smaller sample sizes (n=100 to n=212) versus a complete population, did not employ analysis of variance, and examined various combinations of different variables. Similarly, Haines et al. (2011) identified the aim of their research to be a replication of Callanan and Davis's (2009) work, but then proceeded to examine several different variables and utilised a correction for multiple testing and effect sizes, whilst Callanan and Davis (2009) used neither of these statistical tests but did employ logistic regression, which Haines et al. (2011) did not. Ergo, one might hypothesise that the variance in results may be a reflection of the varying methodologies. Logistical regression, for example, is a more powerful statistical approach

that is less prone to Type I errors, but it was only used in a fraction of the studies. It is nevertheless difficult to specify which component(s) of the methodologies may be most influential, as there was limited consistency in sample size, selection, origin, data sources, phenomenon of interest, and statistical testing.

An observation of note is the apparent association between sample size and significance of results. Whilst an increase in sample size typically lends itself to the detection of a significant result, none of the citations featured a 'small' sample. These citations utilised either hundreds or thousands of participants, and whilst none reported sample/population distributions or power calculations, the sample sizes suggest that the samples are likely to be distributed closely to the population mean. As Table 5 demonstrated, the citations which concluded significant differences between note writers and non-writers primarily used the largest sample sizes, and the citations which concluded the contrary had smaller samples in all but two instances. A possible explanation for this is that the standard error for these citations was not sufficient to investigate this phenomenon of interest in relation to suicide victim populations. The absence of power analysis is detrimental to these deductions.

Another possible source of variance affecting results is culture, specifically cultural attitudes. As previously discussed, a plethora of religious, societal, legal, and familial implications mediates suicide, all of which give suicide different meanings depending on where one lives, what culture one identifies with, and surrounding people and groups. It is plausible that the citations are not contradictory, but are culturally bound. Providing this is an accurate hypothesis, it may suggest that differences between note writers and non-writers may only be present in certain cultures or countries. This assumption nevertheless has its own unique implications, which will be discussed below.

Implications of Findings

Given the contradictory findings presented, it is misleading to conclude that suicide notes are important as well as argue that suicide notes have limited empirical value. At present, the literature is too varied to accurately address this review's aims. Relating to practice, however, there may be some merit in referencing culturally specific citations. Although there may not be a definitive global answer regarding the value of suicide notes, findings by Ho et al. (1998) may be valuable when researching suicide in Hong Kong, for example. There is a possibility that suicide note writers may indeed significantly differ from non-writers in Hong Kong, whilst they do not in India (Girdhar et al., 2004). Conversely, researchers should be mindful to avoid the usage of local samples when inferring national trends. Until more research is conducted in this area, and conducted with methodological consistency and/or replication, it may prove beneficial to prioritise the significance of suicide notes as a source of information on a culture-by-culture basis. Noting that only a handful of countries have been sampled and studied thus far, however, this would have limited results.

Recommendations for Future Research

The citations featured in this review encompassed a series of pitfalls, but also pave the way for future research in suicidology. It would prove useful to see a replication of one of these studies using a similar sample and to assess test-retest reliability. There is also the potential for future studies to amalgamate the methodologies employed by these citations, thus examining future suicide victim populations along all 19 variables, as well as using the chi-square test and logistic regression, calculating power, and reporting effect sizes. Future research should pay particular attention to cultural representation, and it may also prove useful for cross-cultural research to be piloted in this area. Also, regarding representation, the majority of studies thus far have been focused in Asia, North America, and select parts of

Europe. African and South American populations have yet to be studied. In full, there are a multitude of future avenues for research in this area, but it is strongly suggested that future research lend attention to methodological consistency, to be aware of sampling errors and biases, and to properly detail all utilised sources of information.

CHAPTER THREE

THE SUICIDE INTENT SCALE: A CRITIQUE

THE SUICIDE INTENT SCALE: A CRITIQUE

As established in Chapter One, suicide is currently one of the leading causes of death worldwide. In the United Kingdom, the annual suicide rate has risen to its highest point in over a decade, and suicide has become the leading cause of death for UK residents aged 20 to 34 (Office for National Statistics, 2015). Recent UK media outlets have likened this phenomenon to an 'epidemic' (e.g. Press Association, 2016), and whilst such taglines may appear overtly sensationalist, this should not detract from the magnitude of the issue. For clinicians and mental health practitioners, suicide and risk thereof is a constant concern and consideration. Despite this, there is no singular 'best practice' in how suicide should be assessed or treated, and what practices do exist can be conflictual in conceptualisation and execution. This conflict stems from a larger methodological issue, namely how a psychological phenomenon is best studied when its only identifiable victims are deceased.

Beck on Suicide, Research, and Risk

Since the 1970s, Aaron T. Beck has been an active voice in suicide research and its encompassing methodological debate. Influenced by the work of Stengel (1964), Beck has proposed that the victims of suicide as well as those who attempt suicide comprise a single population. This population is thought to exist along a continuum, with suicide ideation at one end and completed suicide at the other (Lester & Beck, 1975). As such, by studying the intrapsychic and interpersonal characteristics of individuals who have attempted suicide (i.e. parasuicides), it may be possible to deduce which factors lessen or increase likelihood of future suicide. Research has since established that one of the strongest and most clinically relevant predictors of suicide is a previous suicide attempt (Moscicki, 2001; Brown, Henriques, Sosdjan, & Beck, 2004); such findings have conversely supported the use of

parasuicide proxies in suicide research (Freedenthal, 2008). This approach is not without its limitations, however.

Self-harm, for example, is defined as intentional self-injury or self-poisoning that is not bound by specific motivation (Harriss, Hawton, & Zahl, 2005). It can also be classified as a form of parasuicide, along with suicide ideation. One of the issues with this nomenclature is that it can be irresponsible and, in many circumstances, inaccurate to equate self-harm with attempted suicide. Even if parasuicides are thought of as a single population whose actions exist along a continuum, research has demonstrated that there are significant intrapsychic differences between those who engage in self-harm and those who genuinely attempt suicide. Brown, Comtois, and Linehan (2002), for example, reported that females who engaged in non-suicidal self-injury reported intending to express anger, regulate emotions, punish themselves, or distract themselves, whilst females who attempted suicide reported an intent to make others 'better off'. Muehlenkamp and Gutierrez (2004) have also reported significant differences between adolescents who self-harm and those who attempt suicide regarding their attitudes toward life and living. Thus, to responsibly use parasuicides as a suicide proxy, one must systematically differentiate attempts from injury. Although this task may appear self-evident, internal motivations and external outcomes are not always congruent. What may appear as a superficial self-harm incident may in fact have been an unsuccessful suicide attempt, and a non-fatal hanging may not have been staged for the purposes of death but rather to garner the attentions of a specific individual. As Freedenthal (2008) summarises, a third to a half of survivors of attempted suicide did not intend to die, rather they were hoping to secure another effect, such as assistance or attention from others. The key differentiator is *intent*. Much like with parasuicide, intent is equally as difficult to discern. As Pierce (1981) explains, parasuicidal individuals who survive their actions may not willingly or accurately disclose their suicidal intentions through direct questioning. Suicide itself is a very divisive

and stigmatised practice that can have wide-reaching social, institutional, and economic consequences as well as some gains. To avoid hospitalisation or familial conflict, a genuine attempt may be minimised or denied. Conversely, self-injury may be self-reported as an attempt for instrumental purposes (e.g. obtaining additional care or medication). Freedenthal (2008) also cites memory problems, intoxication, confusion, and impulsivity as factors complicating intent. It is for these reasons that investigations of intent may require an oblique approach as opposed to direct (Pierce, 1981).

Beck, Schuyler, and Herman appreciated these difficulties and acknowledged that to effectively study the causes and correlates of suicide, the multiple dimensions of intent required distinction (Mieczkowski et al., 1993). The Suicide Intent Scale (Beck, Schuyler, & Herman, 1974) was therefore developed to assess the seriousness of suicide attempts and analyse subsequent suicidal risk (Beck, Morris, & Beck, 1974). The Suicide Intent Scale (SIS) works by examining both circumstantial evidence and a person's subjective feelings of intent for a specific suicide attempt. As such, it is utilised in research settings to better understand intent and suicidal behaviour as well as in clinical settings to assess an individual's parasuicidal motivations and their risk of subsequent suicide. (Bearing in mind that attempted suicide is a significant risk factor for future suicide.) Despite its age, the SIS is still utilised both clinically and empirically—it is also the most widely used psychometric scale for assessing suicidal intent and risk (Stefansson, Nordström, Jokinen, 2012). What is perhaps of most concern about the SIS is that, despite its age and popularity, there is a limited body of literature that has examined the effectiveness and limitations of the scale. The SIS has also been available for over forty years, yet it has undergone only limited revision by its original authors or other users. This review will therefore attempt to examine the SIS's structure, usefulness, and limitations both as a risk assessment and research tool.

SIS Review

Structure and Administration

The SIS is a psychometric scale comprising 20 items, 15 of which are scored for clinical and research purposes (Beck, Schuyler, & Herman, 1974). The remaining 5 items are not scored, but may provide additional context and value to both researchers and clinicians examining a specific suicide attempt. The SIS is typically administered as an interview and is then scored by the administrator. The initial items (Items 1-8) relate to the objective circumstances of the assessee's suicide attempt. The remaining items (Items 9-15) are self-report (i.e. subjective) and examine the assessee's perceptions and expectations of fatality, lethality, and rescue. The SIS uses an ordinal scale of severity, ranging from 0-2 and total SIS scores can range from 0 (extremely low intent) to 30 (extremely high intent) (Strosahl, Chiles, & Linehan, 1992). Attempts are defined as 'low intent' (scores ranging from 15-19), 'medium intent' (20-28), and 'high intent' (29+).

As the SIS explains, the scale endeavours to redefine the meaning of attempted suicide as a measure of intent, with high intent scores ideally representing 'actual' suicide attempts (Beck, Schuyler, & Herman, 1974). The SIS also measures the degree of medical lethality, i.e. the degree of danger to life resulting from parasuicidal behaviour (Brown et al., 2004), present during an attempt. Lethality is often associated with method of attempted suicide. For example, firearms are likely to be more lethal than poisoning. Although there is an assumption that lethality and intent are positively correlated, i.e. highly lethal attempts should coincide with high levels of intent (Brown et al., 2004), Beck, Beck, and Kovacs (1975) have reported that an additional factor mitigates this association: expectations. When an individual has greater expectations of suicide success, their level of suicidal intent was associated with a more lethal attempt (Beck et al., 1975). This supports, in part, the necessity for multiple items to be assessed in the self-report section in order to explore an asssessee's

internal construct of intent. Intent, itself, needs careful measurement and conceptualisation, which the SIS aims to provide.

The SIS is designed to be administered to individuals who have claimed to or are suspected of having attempted suicide. Although there have been instances of clinicians and researchers retrospectively completing the SIS for already deceased victims of suicide (see Freedenthal, 2008), only Items 1-8 can be retrospective assessed, resulting in an incomplete psychometric. Whilst such actions may be of some academic value, the authors do not support this form of usage. The SIS can be administered to both women and men, but it was designed and validated with an adult psychiatric population. In recent years, several studies have attempted to use and validate the SIS on youth/adolescent populations, but this research pool is limited (Kingsbury, 1993; Nasser & Overhalser, 1999; Freedenthal, 2008). Although setting is not specified, the SIS is routinely administered in a clinical or healthcare setting, specifically inpatient settings (Perlman, Neufeld, Martin, Goy, & Hirdes, 2011). This is likely due to organisational liability and concerns regarding suicide and suicide risk, as well as suicide being seen as a largely psychological phenomenon, often requiring or qualifying for medical treatment.

Other Means of Assessment

The SIS is not the only psychometric which evaluates intent, but it is one of the few that focuses solely upon it. Linehan (1982) did develop a self-report version of the SIS to lessen time demands on research participants. This unpublished adaptation, which she entitled the Suicide Intent Questionnaire (SIQ), is comparable to its source material; in comparing a sample of 20 participants who completed the original SIS and the SIQ, the coefficient of equivalence (0.87) supported the assumption that both versions produce comparable scores (Linehan, 1982). Pierce (1977) also modified the SIS following his own

investigation of the tool. His version reported a close correlation to the original SIS and removed several of the self-report items before adding two additional items for medical risk of self-injury, resulting in the 12-item Pierce Suicide Intent Scale (Pierce, 1981). Much like Linehan's adaptation, Pierce's is not as readily utilised as the original SIS.

Regarding suicide risk assessment in general, multiple assessments targeting different components of suicide and suicidal behaviour have been created throughout the past half century. Whilst there are too many to list for the purposes of this review, the following provides a sampling of possible risk assessment approaches:

The Beck Scale for Suicide Ideation (BSS). The BSS (Beck, Kovacs, & Weissman, 1979) measures the intensity of suicidal attitudes, behaviours, and plans as well as intent. It is primarily a clinical tool to be used with psychiatric patients. The BSS has nevertheless been validated with inpatient and outpatient populations as well as student, emergency care, adolescent, and elderly clinical populations (see Perlman, 2011), and it reports high internal consistency (Beck et al., 1979). Much like the SIS, the BSS is one of the most widely used measures for suicide risk. Brown, Beck, Steer, and Grisham (2000) have also reported good predictive validity, where high risk patients (as defined by the BSS) were found to be roughly seven times more likely to die by suicide. The comprehensiveness of the scale also compliments Beck's conception of suicide as involving a single population with different risk potentials. One of the scale's weaknesses, however, is that the scale has not been found to be predictive of suicidal behaviour for psychiatric patients in emergency departments (Nock et al., 2010), despite reported validation.

Columbia-Suicide Severity Rating Scale (C-SSRS). The C-SSRS, developed by Posner et al. (2008), assesses suicide ideation, behaviours, and intensity. It was originally developed for use in clinical drug trial research, but has gained popularity for its applicability in multiple clinical settings. There are three versions of the C-SSRS, two of which are more

investigative (reflective of the nature of drug trial research) and one which assesses risk. Unlike some suicide assessment scales, training is required to administer the C-SSRS, but a mental health practitioner background is not required. At present, research regarding the reliability and validity of the tool is limited but promising (Mundt et al., 2013).

Reasons for Living Inventory (RFL). The RFL (Linehan, Goodstein, Nielsen, & Chiles, 1983) is not a traditional risk assessment tool in that it examines protective factors as opposed to risk factors (although the argument can be made that the absence of one is the probability of the other). It is a 48-item self-report questionnaire and is comprised of six subscales that address coping beliefs, family responsibility, child-related concerns, fear of suicide, fear of social stigma, and moral objections. The RFL has reports of good internal reliability (Cronbach alphas ranging from $\alpha = .72$ to $\alpha = .92$) and has been used with both clinical and non-clinical samples (Perlman, 2011).

Statistical Analysis

In 1986, Kline first published a handbook that sought to guide the adequate construction of psychometric tests, and, in doing so, emphasised that the quality of a test is often determined by the quality of its items. Kline (2015) wrote that a psychological test may be described as a *good test* when in possession of certain characteristics, namely appropriate levels of measurement, reliability, validity, and standardised norms. In addressing these key areas, the statistical precision and accuracy of a test can be established or improved. As Kline (2015) states, scientific progress is dependent on the development of good measures, and psychological measures should not be an exception.

Levels of measurement. The SIS, like many of Beck's developed scales, utilises ordinal data. Although the test relies on numerical outcomes, it is Beck, Schuyler, and Herman (1974) who have prescribed meaning to these numbers. Without the scale's legend,

the numerical output has no intrinsic value. Whilst ordinal data does indicate a ranked system (e.g. a score of 0 indicates lower intent than a score of 2), it fails to quantify the actual or absolute amount of intent being scored. For example, is the discrepancy in levels of represented intent between scores of 0 and 1 equivalent to the discrepancy between scores of 1 and 2? Moreover, does it need to be equal?

As Kline (2015) explained, test developers should aim to produce ratio scales—or, barring that, interval scales—if the results are to be subjected to any statistical analysis (which all validated tests would be). Intent, like many psychological variables, is a construct, however—there is no meaningful zero, no means by which it can be collected and measured with physical tools and universal systems of measurement. Some constructs can only be measured through further construct development. This is not to imply that the SIS cannot or should not be improved. It is one of few psychometrics that has attempted to tackle and assess the concept of intent, but it is negligent to accept what exists and not strive to improve upon it. It would be statistically beneficial should any future revisions or adaptations employ an interval/ratio scale, and this could help to strengthen arguments in favour of the usage of the tool as well as offer a more quantitative analysis of suicidal intent.

Reliability. A test is thought to be reliable if it meets two assumptions: 1) that it is internally consistent, meaning that all test items are measuring the same construct and that two administrators would score the same outcome similarly (i.e. interrater reliability), and 2) that it is retestable and not time sensitive, meaning that if an individual is tested and then retested (providing nothing has changed for this individual in the interim) they should receive that same score. Internal consistency (i.e. internal reliability) can be statistically assessed using a number of models, such as Cronbach's alpha (Kline, 2015). Internal consistency is also thought to be a precursor to validity, i.e. it may be practically (though not theoretically) difficult to develop a test that is valid without it also having internal reliability (Kline, 2015).

The interrater reliability of the SIS was first reported by Beck, Schuyler, and Herman (1974) with the scale's seminal publication. Using a sample of 45 suicide attempts, interrater reliability was reported to be 0.95, implying high interrater reliability. Interrater reliability was again computed by Beck, Morris, and Beck (1974) and a reliability coefficient of 0.91 was reported. Over the past four decades, fewer than twenty peer-reviewed studies have reported internal/interrater reliability coefficients. These scores have ranged from 0.74 (Nasser & Overhalser, 1999) to 0.95 (Beck, Schuyler, & Herman., 1974; Dyer & Kreitman, 1984) with a weighted mean coefficient of 0.85 (Freedenthal, 2008). Only twice have reliability coefficients outside of the optimal or acceptable range (i.e. 0.8) been reported (Kingsbury, 1993; Nasser & Overhalser, 1999). It is worth noting that both outlying studies utilised adolescent as opposed to adult samples and that the SIS was designed to be used with adult populations only. As previously discussed, Linehan (1981)'s SIQ demonstrated a strong coefficient of equivalence (i.e. parallel reliability) with the SIS ($r = 0.87$). This subsequently suggests relatively strong measurement precision. Overall, the SIS boasts adequate reliability, and this score is slightly improved when only adult samples are weighted. Moreover, the included studies represent many regionally diverse samples and were not restricted to English-speaking countries or first-world nations (Freedenthal, 2008). This speaks to the potential reach of the scale as well as the notion that intent, and how Beck, Schuyler, and Herman (1974) opted to measure it, may not be culturally contained.

Validity. Validity, much like reliability, is a comprehensive term. Simply stated, a test is defined as valid when it tests what it is supposed to test (e.g. the SIS should test for suicidal intent; Kline, 2015). Despite there being multiple types of validity, much of SIS research exclusively examines *predictive validity* (i.e. the test's correlation with future performance). Such research is also more likely to frame the SIS as a clinical risk assessment tool as opposed to a research instrument.

Predictive validity. As previously discussed, the SIS was designed to measure intent, but it also measures lethality. In subscribing to the axiom that history is the best predictor of future action, those who have previously attempted suicide are thought most likely to make future attempts. The SIS seeks to determine which parasuicidal behaviours were most akin to intentional attempts and also identifies which of these were most lethal. The SIS is therefore not a direct assessment of suicide risk but rather an indirect assessment. Although it claims to assess intent, it instead examines lethality of means, which, whilst correlated with intent, is not synonymous with intent. Lethality of means is also likely to be impacted by availability of lethal means, such as the discrepancy in means access between a person in possession of a firearm and another person occupying a bare prison cell. Whilst both hypothetical individuals may be experiencing equal levels of suicidal intent, the SIS would argue that the individual with the firearm has greater intent due to means availability. Moreover, the SIS makes a judgement regarding decision-making whilst failing to account for or acknowledge an assessee's agency in engaging in suicidal behaviour. As such, predictive validity has been measured between the SIS and eventual suicide as well as between the SIS and repetition of non-suicidal self-injurious behaviour (the former which is hypothesised to be related to high intent and the latter with low intent). Harriss and Hawton (2005) examined the predictive validity between the SIS and eventual suicide. In using a sample of 4156 individuals who engaged in self-injurious behaviour, the predictive value of the SIS was examined over a 5.2-year period using Receiver Operating Characteristic (ROC) plots. ROCs are routinely used to evaluate the efficacy of diagnostic tests (Harriss & Hawton, 2005). Harriss and Hawton (2005) reported that ROC curves for assessees' SIS scores confirmed the relationship between suicidal intent and future suicide. The cut-off values produced by the ROC analysis also correctly identified over two-thirds of parasuicides who eventually committed suicide during the study's follow-up period. Despite this, the majority of parasuicides that were

predicted to die by suicide (96%) were still alive at follow-up, resulting in a positive predictive value of 4% (i.e. very low predictive ability). Positive predictive values also differed between males and females, and the SIS was found to be a better discriminator between female suicides and non-suicides, as evidenced by the female total SIS score ROC curve (area = 0.75, $p < 0.001$). There are several difficulties in generalising Harriss and Hawton's (2005) findings to other predictive validity SIS studies. Firstly, the SIS is designed to be administered on individuals who have attempted suicide; Harriss and Hawton (2005) conducted their study on a large sample of individuals who engaged in self-harm behaviour. It is uncertain which of these individuals may have a history of attempts, and the sample's motivations for self-harm were not addressed or explored. Whilst intent may underlie all parasuicidal behaviours, Harriss and Hawton (2005) examined self-injurious intent, not suicidal intent; evidence suggests that the two may not be synonymous (Brown et al., 2002). Secondly, females and males are documented to commit suicide and self-injurious behaviours at different rates: females present with higher rates of self-harm whilst males have higher rates of suicide (Hawton & Harriss, 2008; Lester, 2000; Office for National Statistics, 2015). The compounding effects of examining a self-injurious sample must be considered, as this sample is not representative of suicides rates per gender and may have inadvertently affected the reported predictive validity. A similar study design was used by Niméus, Alsén, and Träskman-Bendz (2002) several years prior and published similar findings, specifically a positive value of 9.7% for SIS predicted subsequent suicide over a 4.5-year period. Unlike Harriss and Hawton (2005), Niméus et al. (2002) used a sample of individuals who had attempted suicide. Stefansson et al. (2012) reported a positive predictive value of 16.7% over a 5-year follow-up period and the Area Under the Curve (AUC) was 0.74. Whilst the follow-up period between studies was relatively similar, predictive values have ranged from 4% to 16.7%; this, again, may be attributional to the population of study (e.g. self-injury versus

suicide attempt). Regarding the predictive validity of the SIS for subsequent non-lethal parasuicidal behaviour, Beck, Morris, and Beck (1974) reported a positive relationship between higher mean SIS scores and future parasuicidal behaviour ($p < 0.02$). The majority of findings since, however, have reported no significant relationship between the two (Freedenthal, 2008).

Concurrent validity. Concurrent validity refers to a test's level of correlation with another established test that measured the same trait, utilises the same sample and, is administered at the same time. Simply stated, tests are concurrently valid if significant (or high) correlations are reported (Kline, 2015). Stefansson et al. (2015) sought to compare the SIS to the Karolinska Interpersonal Violence Scale (KIVS), hypothesising that childhood trauma and exposure to violence may be linked to suicidal behaviour, specifically intent. Whilst the study produced some significant results regarding the combined predictive validity of the two tools as a means of risk assessment, the correlation between the SIS and KIVS was not significant. Beck, Morris, and Beck (1974) reported significant correlations between the objective section (Items 1-8) of the SIS and its ability to differentiate between fatal and nonfatal suicide attempts as well as between SIS scores and differentiating between repeat and single suicide attempters. Strosahl et al. (1992) also compared the SIS to a number of suicide measures and reported strong correlations between the RFL and the SIS, a moderate correlation between hopelessness (as measure by the Beck Hopelessness Scale) and the SIS, and low correlation between depression (as measure by the Beck Depression Scale) and the SIS. Akin to findings by Stefansson et al. (2015), Strosahl et al. (1992) also commented on the predictive validity of the RLS as a risk assessment tool when used in tandem with the SIS.

***Factorial validity*.** Factorial validity is specifically used to determine the validity of latent structures (i.e. constructs that cannot be directly measured), such as 'intent'. Noting that intent is psychologically abstract, Beck, Schuyler, and Herman (1974) opted to measure

it through two forms of questioning/investigation: objective circumstances (Items 1-8) and subjective (i.e. self-report) aspects (Items 9-15). A test is considered factorially valid when its items correctly load onto the appropriate 'sub-scale' or factor. This is routinely accomplished through factor analysis. To investigate the SIS's factorial structure and validity, Mieczkowski et al. (1993) performed a factor analysis with 98 psychiatric inpatients which resulted in a two-factor solution. Mieczkowski et al. (1993) defined a 'lethal intent' factor and a 'planning factor'. The lethal intent factor was primarily comprised of the subjective SIS items whereas the planning factor was comprised of the remaining objective items. Mieczkowski et al. (1993) concluded that their analysis supported the use of the SIS in evaluating both the planning and lethality of suicidal attempts, supporting Beck, Schuyler, and Herman (1974)'s hypothesised factorial design ('subjective' and 'objective'). More recently, Antretter et al. (2008) conducted a substantially larger factor analysis of the SIS using eleven distinct clinical samples and by examining multiple variations of both two-factor and three-factor models of the SIS using principal component analysis. It was reported that the factorial structure of the 'subjective' part of the SIS was strongly supported (akin to Mieczkowski et al. [1993]'s findings) but that an acceptable model fit for the 'objective' part could not be entirely established. What these findings suggest is that the SIS does have some factorial validity, specifically for the 'subjective' items, indicating that these items may be more effectively measuring suicidal intent. What the 'subjective' items fail to incorporate, however, is an assessee's *motivations* (or indirect expressions) for attempting suicide, so although these items may have some factor validity, the items may fail to appreciate the cognitive, affective, and behavioural components of intent.

Appropriate norms. Kline (2015) defined norms as a set of scores from clearly defined samples that enable both clinicians and researchers to meaningfully interpret an individual's test score. Following a thorough review of the literature, explicit normative data

for the SIS could not be readily identified. Beck, Schuyler, and Herman (1974) did propose that their SIS development research was to consist of a five-year longitudinal study of 500 individuals admitted to Philadelphia General Hospital and Hospital of the University of Pennsylvania for suicide attempts or threats thereof. It can therefore be hypothesised that this was their normative population. One of the limitations in using this group to derive appropriate norms is that a majority of suicides occur outside of a psychiatric in-patient setting (Linehan, 2008); ergo, one must query whether a tool normalised on such a population would be applicable to outpatient, community, and/or non-psychiatric assessees. Again, please note that this is conjecture, and no confirmatory information regarding appropriate norms was identified in the course of this critique.

In lieu of norms, the SIS uses summed ordinal scales that correspond to specific levels of intent. Whilst no definite 'cut-off' exists, scores below 14 may be interpreted as more representative of non-suicidal parasuicidal behaviour (Beck, Schuyler, & Herman, 1974). Much akin to literature referencing appropriate norms, literature examining or contending Beck, Schuyler, and Herman (1974)'s numerical categorisation could not be identified at the time of this review.

Summary and Discussion

Two of the most evident issues with the SIS, regardless of its usage as a research or clinical tool, are the scale's level of measurement and lack of appropriate norms. In accordance with Kline's (2015) assertions, the SIS failed to meet two of four criteria for a 'good test'. Upon acknowledging the construct of intent, however, as well as the population from which intent can only be measured, the use of ordinal scales and lack of standardised norms are more likely due to the theoretical and practical constraints placed on Beck, Schuyler, and Herman (1974), not their ignorance of appropriate test construction. Whether

this could be improved upon in the future is also of some debate as the problems may persist regardless of the test of intent that is used.

The internal reliability of the SIS has been reported more often than test-retest reliability. From what information is available, the SIS does meet criteria for sufficient reliability providing it is used with the intended population (i.e. adults). Low reliability coefficients obtained with adolescent samples suggest that, should intent be assessed in younger populations, either a different approach needs to be employed or the SIS would require modification and its reliability re-examined with this specific population. The SIS does appear to be reliable across multicultural and international adult samples, which is encouraging.

The consensus is that the SIS has moderate to high concurrent validity in regard to other tests of intent as well as with parasuicidal differentiation, which supports its use as a valid research tool. It lacks concurrent validity when compared to other assessments of suicide risk, however. The SIS's items have moderate factorial validity when loaded to a two-factor model (as intended by Beck, Schuyler, and Herman [1974]), but not all 'objective' items appropriately load, lending support to a three-factor model as well as providing some indication that the 'objective' items may be measuring more than parasuicidal circumstance. From a research perspective, this can cause some concern as to the practicality of assessing parasuicides as suicide proxies; it may also provide pause as to the choice of this methodology over the study of actual suicides (either through psychological autopsy or suicide note analysis). In regard to the SIS's usage as a risk assessment tool, the SIS's predictive validity is poor (4% to 16.7%). This result is based on the premise that high intent is equivalent to high suicide risk and that high-risk people *will* commit suicide during the follow-up period. Very few participants committed suicide, however, hence low predictive validity scores. Interestingly, of the participants who did commit suicide, over two-thirds

were ‘correctly’ placed in the high intent/high risk group by the SIS. As such, the SIS does have some risk predictive validity, but ultimately produces a large number of false positives that complicate reported findings. It is also important to discuss how the predictive validity of suicide risk assessment tools is reported to increase when these tools are used in tandem with the SIS even whilst the SIS and other assessments share non-significant concurrent validity. As Strosahl et al. (1992) reported, the RFL and SIS have the highest predictive ability in suicide risk assessment when both tools are combined.

In full, the SIS does have some merits, such as internal reliability and high concurrent validity, but it has an equal, if not larger, number of limitations, namely poor predictive validity, questionable factorial structure, lack of appropriate norms, and an inadequate level of measurement. These problems are not exclusive to the SIS, however, and instead represent a pattern in standardised suicide risk assessment as well as the methodologies used in suicide research. There is more empirical and clinical descent than agreement, and more questions than answers. As Stefansson et al. (2015) summarise, there is insufficient evidence concerning the predictive value and structure of suicide risk assessment scales. NICE guidelines recommend *against* the use of risk assessment tools due to the lack of research evidence and empirical cohesion (Stefansson et al., 2015). Instead, NICE recommend the use of clinical judgement, which is somewhat unprecedented in post-structured professional judgement (SPJ) psychological practice. The present state of the discipline warrants such treatment, unfortunately. Nevertheless, Strosahl et al. (1992)’s findings regarding increased predictive validity through use of multiple measures does offer some insight into realms of research and assessment that can and should be pursued. Bouch and Marshall (2005) have also outlined a possible SPJ approach for suicide risk, emphasizing the need for risk management as well as prediction. Their model acknowledges the discipline’s gaps in knowledge, but proposes the use of known risk factors, formulation, and clinical assessment

to best address suicide risk. It also proposes a categorisation system for known risk factors (e.g. static, stable, dynamic, and acute), which is in line with SPJ approaches. Further development is required in this area, however. Relying on first generation risk assessment as 'best practice' is not appropriate, not when it is risk of death that is ultimately being assessed.

CHAPTER 4

IMPLICATIONS OF SUICIDE WRITINGS: A COMPARISON OF SUICIDE VICTIMS THAT DID AND DID NOT LEAVE NOTES

ABSTRACT

Aims: Suicide note analysis is a commonly utilised methodology to study the psychological components of completed suicide. As only as estimated 20% of suicide victims write notes, it has been contended that note writers may not be representative of all suicide victims, which could jeopardise the generalisability of empirical findings produced via suicide note analysis. This study sought to investigate whether there are demographic and interpersonal differences between note writers and non-writers using a previously untested sample of completed suicides.

Method: 200 completed suicides that were committed between the years of 2000-2015 were randomly sampled from all officially identified suicides in Newfoundland and Labrador, Canada. Demographic, interpersonal, and suicide event information was extracted from official case records held by the Office of the Chief Medical Examiner. Data was analysed using parametric and non-parametric statistical tests in SPSS.

Results: Statistically significant results were detected for 2 variables of interest. Completed suicides from urban regions and those citing relationship difficulties were more likely to write a note. No other significant results were produced. It was hypothesised that levels of literacy and education may have confounded significant findings.

Conclusions: This study concluded that there were no significant differences between note writers and non-writers within this sample. Cultural considerations were made, which may restrict the generalisability of these findings to the Newfoundland and Labrador population. Limitations of this research were discussed, as were implications for future research.

INTRODUCTION

There are several means by which suicide—the act of intentionally taking one's own life—can be studied. One such means is suicide note analysis: a thematic, linguistic, and/or deconstructive investigation of suicide victims' final communications. The study of suicide notes was pioneered by Edwin S. Shneidman following his discovery of hundreds of archived suicide notes whilst working at the Los Angeles Coroner's Office (Shneidman, 1969). For psychologists and psychological researchers, one of the greatest obstacles to researching suicide is that the primary subject is deceased. Although Beck and his associates have proposed studying an approximate population, namely parasuicidal individuals, Chapter Three has highlighted some of this method's limitations. Another means of investigation, as described in Chapter One, is the psychological autopsy, but this method relies exclusively on secondary data and is also prone to various psychological biases (Dieserud et al., 2015). In consideration of these limitations, Shneidman proposed suicide note analysis as a means of psychological death investigation, and later hailed suicide notes as 'the golden road to understanding suicide' (as cited in Leenaars, 2010). As Leenaars (1996) explained:

> Suicide notes are the ultrapersonal documents. They are unsolicited productions of the suicidal person, usually written minutes before the suicidal death. They are an invaluable starting point for comprehending the suicidal act and for understanding the special features of the people who actually commit suicide and what they share in common with the rest of us who have only been drawn to imagine it. (p. 223)

The utility of suicide notes was first tested by Shneidman and Farberow (1957) by examining themes present in genuine and simulated suicide notes. A computer was asked to identify the genuine notes by using a series of 'tag words' (keywords), which it was able to do successfully. Schneidman's theory that suicide notes were the 'golden' source that could provide insight into a suicide victim's cognitive and affective states thus had initial support.

Throughout his long career, Shneidman remained a pioneer in the field of suicidology and an advocate for the utility of suicide note analysis, a tradition which has been carried on by his pupil, Leenaars. Leenaars and Balance (1984) have since composed a guide to studying and interpreting suicide notes, providing the field of suicidology with an empirically supported paradigm. Leenaars and Balance (1984) treated suicide notes as an archival source that should be subjected to control hypotheses. Multiple studies were performed, requiring various individuals to judge the content of genuine and simulated suicide notes and apply them to control hypotheses derived from the personality theorems of Sigmund Freud, Ludwig Binswanger, and George Kelly. Leenaars and Balance (1984) reported that protocol sentences and themes should be determined by independent investigators who exhibit suicide theory impartiality and dispassion. They also recommended the use of blind, independent judges.

To document the many studies that have examined suicide notes and used notes as a data source would prove an exhaustive task, but it is useful to provide a sampling of the ways in which suicide notes have recently contributed to suicidology.

Suicide Note Analysis and Findings

As discussed in Chapter One, Durkheim (1987)'s theory of suicide addressed social regulation and social integration. In conceptualising suicide as such, he then distinguished between four sub-types of suicide, one of which was altruistic suicide. For Durkheim, altruistic suicide occurred in societies with high social integration, where the needs of the group are viewed with greater importance than the needs of the individual. A primary example of this is military society, in which the needs of one soldier pale in comparison to those of the army itself. Although Durkheim's theory has not been empirically tested, Blake (1978) did find that cohesiveness of combat units could predict altruistic suicide (e.g. intentionally falling on a grenade; as cited in Joiner et al., 2002). Joiner et al. (2002) proposed

that this may not be dissimilar from evolutionary-psychological thoughts on suicide in which a sense of burdensomeness towards kin may erode self-preservation motives and facilitate suicide.

Expanding upon this, Joiner et al. (2002) hypothesised that:

1) the perceived burdensomeness should characterise those who complete suicide (versus attempt) and that burdensomeness should be able to effectively differentiate between completed suicides and attempts opposed to other cited dimensions of suicidal intent (e.g. hopelessness); and

2) the perceived burdensomeness may be related to more lethal means of suicide.

These hypotheses were investigated through the use of suicide notes written by those who attempted suicide and those who completed suicide. Three raters (or judges) were employed and all were initially blind to the study's hypotheses as well as whether the notes were from individuals who attempted or completed suicide. Raters were asked to read 40 notes and rate them along several dimensions (i.e. 'better off gone', 'control feelings', 'control people', 'emotional pain', and 'hopelessness'). Raters used a five-point scale, ranging from '1 = not at all' to '5 = very much', to score each dimension. The results presented perceived burdensomeness as strongly correlated with both completed suicide and use of lethal means opposed to the other dimensions. Instead of offering clinical recommendations, the authors suggested that further studies first be conducted on burdensomeness as an interpersonal motive of suicide.

Using a different framework, Coster and Lester (2013) sought to identify common emotional and cognitive themes in suicides from a rational-emotive cognitive behavioural therapy (RECBT) perspective. They analysed a sample of 86 suicide notes from the United States using grounded theory and statistical analysis, and found that the most common emotional expressions were autonomous depression, sociotropic depression, guilt, shame,

hurt, and anger. They also found sex differences in expressed emotion; men were more likely to write about guilt whilst women discussed feelings of hurt. Although the authors state that this research may be useful for RECBT practitioners and their understanding and treatment of patients with suicidal risk or behaviours, it also provides general insight into emotional states for all prevention research. Similar results were obtained in a study by Namratha, Kishor, Sathyanarayana Rao, and Raman (2015) using a sample of 22 suicide notes from Mysore, India. They reported finding common themes of apology, shame, and guilt (90% of sample), life being too much to bear (14%), and hopelessness (14%).

Shniedman's theory of suicide was previously presented in Chapter One due to its comprehensiveness and status within suicidology. However, this is not to imply that his theory is the only one of note. In the past decade, Joiner's Interpersonal Theory of Suicide (ITS) has received notable attention and use in the literature. Joiner's theory is composed of fewer stated components than Shneidman's, but many of its elements are similar but presented within a different therapeutic framework (i.e. psychodynamic versus cognitive behavioural). ITS cites three central constructs for suicidal behaviour, namely the feeling of being a burden, the lack of belonging to a (social) group, and the acquired ability to enact lethal self-injury. In a study by Fernández-Cabana et al. (2015a), 80 Chilean suicide notes were examined using ITS (i.e. presence or absence of the theory's cited risk factors) and analysed linguistically with the Linguistic Inquiry and Word Count program (LIWC), a computer program capable of analysing written text and calculating the percentage of words that meet the criteria for each of the 72 categories in the text's language. Fernández-Cabana et al. (2015a) reported that 60% of notes had content related to ITS. 'Lack of belonging' was the most commonly identified, in 42.5% of the notes, and 'feeling like a burden' was the second most common, found in 35% of notes. The authors concluded that, due to these findings, ITS factors should be considered and assessed in clinical settings to improve

understanding and possible prevention of suicide. LIWC was also used on a sample of suicide notes in Spain, comparing linguistic features by gender, age, and environment (urban or rural). In this study, Fernández-Cabana et al. (2015b) identified a number of significant gender differences in note length, emotional content, tentative expressions, denial, and the use of first person plural and future tense verbs. It was reported that 72.22% of the suicide sample was male, that 44.36% was in a romantic partnership, and that 64.88% lived in a rural area (i.e. fewer than 10,000 inhabitants). Notes written by women were found to be significantly longer ($p = 0.018$). Women's notes also had a higher percentage of affective content (e.g. 'happy', 'cried'; $p = 0.033$), positive emotions (e.g. 'love'; $p = 0.001$), positive feelings (e.g. 'happiness'; $p = 0.004$), past tense and future tense verbs ($p = 0.022$ and $p = 0.027$, respectively), spatial references (e.g. 'down', 'in'; $p = 0.01$), and negotiations (e.g. 'no', 'never'; $p = 0.033$). In addition to gender differences, significant results were also found for age and region (e.g. rural). Suicide victims under the age of sixty-five-years were found to use more punctuation, namely exclamations ($p = 0.009$) and commas ($p = 0.33$), and rural inhabitants used more words referring to social processes (e.g. 'mate', 'talk'; $p = 0.049$). It was concluded that the linguistic analyses demonstrated gendered and regional differences in suicidal speech, namely that women may show more complexity and interest in communicating information to others regarding suicide, and that rural inhabitants showed greater social integration.

Sex and gender differences are an important consideration in suicide research. Statistically, there are clear differences in suicidal behaviours between men and women. As mentioned in Chapter One, men are at a significantly higher risk of committing suicide than women whilst women have notably higher instances of parasuicidal behaviours and reported suicide ideation. Lester and Leenaars (2016) wrote that, despite these figures, studies of suicide notes have identified few, if any, sex differences. They argued that this may be due to

the use of judges to rate suicide notes, which may increase subjectivity and unreliability, and the use of small sample and effect sizes. Lester and Leenaars (2016) attempted to correct former methodology by using LIWC, an impartial computer program, and a large sample of 679 suicide notes previously accumulated by Shneidman. This methodological shift proved successful, as they reported ten statistically significant ($p < 0.001$ and $p < 0.05$) sex differences, including more negotiations, more discrepancies, and more words indicative of cognitive mechanisms in female notes. They also found tendencies ($p < 0.10$) for women to use words associated with anxiety and fewer references to friends. This study highlighted not only the importance of sex in suicide, but also the importance of a robust methodology.

Whilst these examples only represent a fraction of the ways in which suicide notes have been used as a data source within suicidology, it should nevertheless be apparent that the results infer many potential insights and implications for intervention and prevention research and planning. One of the unfortunate difficulties with this research is the disconnect between the published findings and the development of empirically supported effective suicide interventions. As Linehan (2008) explained, there is an appeal to the assumption that hospitalisation of suicidal individuals prevents suicide and saves lives, but there is no empirical evidence to support these clinical and legal interventions. Moreover, suicide risk management continues to emphasise treatment of underlying psychiatric disorders as a primary treatment need (Linehan, 2008), despite evidence suggesting that the diagnostic system is counterproductive in suicidology (see Chapter One).

Limitations of Note Analysis

Perhaps one of the most concerning limitations in this field is not the disconnect between research and practice, nor is it the methodologies employed, or the sources of information studied. The largest potential limitation is the assumption that suicide note

writers—who comprise roughly 20% of known suicides, though rates are reported to range from 3% to 42% globally (Ho, Yip, Chiu, & Halliday, 1998; Kuwabara et al., 2006)—are representative of all suicides.

The current consensus in suicidology is that there are no systematic differences between note writers and non-writers, but these statements are made with little if any supporting evidence. This mentality is grounded in a prediction made by Stengel (1964), in which he stated that there should be no meaningful differences between suicides who write notes and those who do not with the exception of note writers being better communicators. This statement, however, is conjecture, and it is only within the last two decades that a limited number of researchers have sought to empirically examine this hypothesis, as was examined in Chapter Two. The systematic literature review found that roughly half (i.e. 9 of 17) of the identified citations examining note writers and non-writers concluded that their findings were indicative of there being significant differences between the two groups, thus insinuating that the characteristics of note writers cannot be generalised to all victims of suicide, whilst the remaining 8 citations argued the contrary. Although the findings were not equally allocated, the literature is adequately divided.

Chapter Two also raised another confounding factor. The majority of samples represented by citations were regionally restricted (i.e. specific to one geographic area such as a country, county, or city) and had limited locational and cultural overlap. No study had been replicated using the same sample, and only a handful of studies examined samples of the same nationality (i.e. 3 citations used American samples). Due to the range of reported results, several studies have hypothesised that the detection of significant differences between note writers and non-writers may be culturally contingent (Girdhar et al., 2004; Kuwabara et al., 2006; Paraschakis et al., 2012). No cross-cultural studies have been conducted thus far.

Some of many difficulties in accounting for culture are determining at what level culture is being defined (e.g. macro or micro), identification of research variables as culturally internal or external, and discerning what psychological phenomenon are universal (i.e. shared by all humans) or culturally dependent. To further complicate this matter, there are often discrepancies in how culture is broadly depicted and what it is, in fact, depicting. As Joe, Canetto, and Romer (2008) argue, American culture, for example, is often synonymous with the culture of the dominant majority, that being Caucasian Americans of Western European descent. This depiction has been epitomised in cultural research, and often fails to consider American minority culture and the unique difficulties, traditions, and experiences of this group. Statistics demonstrate that rates of suicides for minority groups in the United States tend to be higher than national averages (Joe et al., 2008), thus further complicating the relationship between culture and suicide. Research should therefore be cognisant of the culture or cultures represented within samples, as well as strive to account for or understand the relationship between the culture(s) studied and suicide. It is also important for researchers to differentiate between culturally-specific results and generalisable findings.

The Current Study

As emphasised above, the study of suicide notes is a means of investigating the psychological components of completed suicides using primary data. This supposition is contingent on suicide population homogeneity (i.e. no discernible differences between note writers and non-writers), however, and contrary evidence has the potential to restrict the generalisability of findings from research which did employ suicide note analysis. Previous investigations (see Chapter Two) have resulted in conflicting and inconsistent results. It is speculated that two primary factors may be affecting this:

1) *Culture:* Culture encompasses sets of customs, traditions, and beliefs that are shared amongst nations, groups, and peoples. Whilst cultures can be localised to some geographical areas, one cannot assume that all individuals in such an area encompass said culture. Moreover, as economics and technology push all persons towards a global community, ethnicity and geography cannot be equated to culture. This is especially true in large urban centres where multiculturalism is prominent. As established in Chapter One, suicide is perceived and responded to differently across cultures, and, as Durkheim (1897) postulated, levels of social inclusion inherent within a culture may affect one's decision to commit suicide. Many of the studies identified in Chapter Two were drawn from regional or city samples, two citations utilised national samples, and none utilised international or cross-cultural samples. Moreover, many authors hypothesised that their data may have been culturally constrained but did not investigate further.

2) *Methodology*

    a. *Variable Selection*: Of the 17 citations identified in Chapter Two, 19 variables were collectively identified. No two studies shared the same variable list. These lists were comprised of both demographic and interpersonal characteristics.

    b. *Data Analysis*: The majority of the 17 citations used bivariate analysis, Pearson's chi-squared test (or a variation thereof), or logistic regression to analyse their data, several reported effect sizes, and none reported power. No study replicated the methodology of another.

Study aims. Based on the theories, findings, and limitations reviewed above, this study proposed to quantitatively investigate whether certain demographic and interpersonal

characteristics may be statistically significant when differentiating suicide victims who left notes (i.e. note writers) from those who did not (i.e. non-writers). This study also aimed to contribute to the growing literature regarding how suicides are characterised and whether note writers should comprise a unique group within suicide victim populations.

Considerations. Cultural considerations were made to account for cultural variance as adequately as possible whilst also examining a previously unexamined population. This study utilised an untested geographic and cultural sample taken from Newfoundland and Labrador, Canada, which is a relatively static and monocultural group. Methodological considerations were also made regarding variable selection and data analysis. All 19 previously identified variables were incorporated into the proposed data collection process; a majority of these were incorporated into the final analysis. This study also utilised both Pearson's chi-squared test and logistic regression to analyse the data (thus accounting for both primary methodological variants); power and effect sizes were calculated.

Hypotheses: The null hypothesis was that there will be no significant differences between note writers and non-writers. The alternative hypothesis was that there will be differences between note writers and non-writers. Providing the study failed to reject the null hypothesis, the interacting role of sex in note writing will also to be explored (null hypothesis: sex will not have a statistically significant interaction with note writing in regard to the variables of interest).

Method

Ethical Considerations

Anonymity and confidentiality. To ensure confidentiality of all suicide victims during the data collection stage, input information was assigned a line number to identify that information string. No identifying information was collected aside from age, sex, and

geographic area in which the death occurred. Although data was confined to residents of a single geographic area, it should be noted that this area constitutes 405,212 km². All data strings were specifically used for population statistical analysis and no individual string was documented or will be discussed within this or subsequent publications. This anonymisation was undertaken to ensure the confidentiality of victims' associates, families, and affiliations.

Data protection and transfer. Data was inputted and stored on an encrypted solid state drive (FileVault encryption software). Data was collected on site at the Office of the Chief Medical Examiner and inputted onto this drive at that location. The drive was physically transported from Canada to the UK by the researcher. It was not left unattended during the journey and remained in a powered-off state throughout.

Data retention. Data will be stored for the required period set out by the University of Birmingham for post-graduate research (i.e. 10 years). Following this, data will be purged from the drive as per the University's policy on sanitising electronic data storage media.

Issuing bodies. Ethical approval for this research was obtained from the University of Birmingham's Science, Technology, Engineering and Mathematics Ethical Review Committee (ERN_16-0001) and Memorial University of Newfoundland's Health Research Ethics Board (HREB# 2016.322). Permission to conduct the research was obtained from Dr Simon P. Avis, Chief Medical Examiner for Newfoundland and Labrador, and the Office of the Chief Medical Examiner. This research was conducted in accordance with the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS2), the Health Research Ethics Authority Act (HREA Act), and the University of Birmingham's Code of Practice for Research.

Engagement with Aboriginal communities. As per TCPS2 guidance, research involving engagement with Aboriginal (i.e. First Nations and Inuit) communities required additional approval from Research Advisory Committees (RACs). As this study sought to

sample from all provincial suicides, it was hypothesised that some victims may have identified as Aboriginal. There are six Aboriginal RACs in Newfoundland and Labrador. Due to the timeframe in which the research was conducted, unanimous approval from the RACs could not be obtained. As such, ethnicity could not ethically be examined within the scope of this research as it could potentially identify persons of Aboriginal heritage without appropriate RAC approvals.

Researcher wellbeing. Noting the potential psychological impact of the research topic and materials reviewed during data collection, the researcher acknowledged awareness of organisational and personal support systems if required. The researcher was supported through clinical and academic supervision on a weekly and monthly basis, respectively. The researcher also had robust familial and social support networks that were aware of her topic of interest and the types of data she was likely to encounter. The contact number for the Good Samaritans was always readily available whilst in the UK, and the Newfoundland and Labrador HealthLine and Mental Health Crisis Line were available whilst in Canada.

Setting and Population

This study was conducted at the Office of the Chief Medical Examiner located in St. John's, Newfoundland and Labrador, Canada. This Office is a division of the Department of Justice and Public Safety for the Government of Newfoundland and Labrador. The Office is responsible for the investigation of all provincial deaths due to possible violence, accident, suicide, or negligence and deaths that are sudden or unexpected.

As of 2016, the population of Newfoundland and Labrador was estimated to be 519,716 (Statistics Canada, 2017a). 27,197 (5.2%) are estimated to live in mainland Labrador and 492,519 (94.8%) on the island of Newfoundland. Newfoundland and Labrador is a relatively homogeneous society, 94.6% of which is Caucasian with Western European

ancestry (two-fifths of which identify as English and one-fifth as Irish) and 4.7% of which is Aboriginal (Statistics Canada, 2006). 97.1% of Newfoundlanders and Labradorians identify as Christian; 36.9% as Catholic and 59.7% as Protestant, which includes the Anglican Church/Church of England (Statistics Canada, 2005).

The island of Newfoundland officially became an English colony in the 16th century, but the island was previously colonised and inhabited by the medieval Norse, the Beothuks (now extinct), and the Mi'kmaq (First Nations). In 1907, Newfoundland became a Dominion of the United Kingdom and remained as such until 1949 when the island became the tenth Canadian province. After joining Canadian confederation, Newfoundland and Labrador's cultural and ethnic composition exhibited limited change; between 1950 and 2011, only 9165 persons immigrated to the province (Newfoundland and Labrador Statistics Agency, 2011).

Within Canada, Newfoundlanders and Labradorians constitute a minority group on the grounds of socioeconomic status, language, and culture (King & Clarke, 2002). Newfoundland and Labrador is one of the poorest Canadian provinces, and has the highest rates of unemployment (Statistics Canada, 2017b) and illiteracy (Statistics Canada, 2012). According to King and Clarke (2002), the colonisation of Newfoundland differed from much of mainland Canada. Whilst many of Canada's settlers were post-revolutionary American colonists, Newfoundland was settled exclusively (pre-American Revolution) by working-class migrants from southern Ireland and West Country England (King & Clarke, 2002). As such, this exempted Newfoundland from Canadian trends in multi-ethnic migration, and contributed to both the unique accent and vernacular still present in the province. Newfoundland and Labrador have remained insular regions over the past half millennia. Although global technological advances over the past half century have facilitated efficient and affordable travel to and from the province, as well as expanding external cultural

influence (e.g. media, Internet), low immigration numbers suggest a relatively unchanged provincial persona.

Sample Information

Cases (*n*=200) were Newfoundland and Labrador residents and Canadian nationals who committed suicide in the province of Newfoundland and Labrador. Within the randomly selected sample, 165 cases were male (82.5%) and 35 were female (17.5%). The mean age was 44.26 years (*SD*=17.912). The youngest case was aged 12 years and the eldest was aged 93 years.

Marital status. 82 (41%) were single, 89 (44.5%) had a partner or spouse, 25 (12.5%) were divorced or separated, and 4 (2%) were widowed.

Employment status. 59 (29.5%) were employed, 89 (44.5%) were unemployed, 29 (14.5%) were retired, 18 (9%) were either secondary or post-secondary students, and 5 (2.5%) either had to leave work or were unable to work due to a physical and/or mental health disability.

Geography. 26 (13%) of suicides occurred in Labrador whilst the remaining 74 (87%) occurred on the island of Newfoundland and Labrador (34% on the Avalon Peninsula, 8.5% in Eastern Newfoundland, 19.5% in Central Newfoundland, and 25% in Western Newfoundland). 87 (43.5%) of suicides occurred in urban centres and 113 (56.5%) occurred in rural centres.

Mental health. 145 (72.5%) of cases had a pre- or post-mortem mental health diagnosis. 99 (49.5% total sample) were diagnosed with Depression, 12 (6%) were diagnosed with Bipolar I or II, 1 (0.5%) was diagnosed with Post-Traumatic Stress Disorder, 2 (1%) were diagnosed with Schizoaffective Disorder, 3 (1.5%) were diagnosed with Schizophrenia, 2 (1%) had diagnosed Personality Disorders (Borderline and Antisocial), and 2 (1%) were

diagnosed with Eating Disorders; 27 (13.5%) were diagnosed with a dual or standalone Substance Use Disorder (including alcohol abuse). 110 (55%) exhibited parasuicidal behaviour (not time sensitive); 51 (25.5%) had previously attempted suicide, 78 (39%) exhibited suicide ideation, and 6 (3%) engaged in self-harm behaviours (i.e. cutting and ligature tying).

Substance use. 62 (31%) tested positive for one or more screened substance. Regarding blood ethanol level at time of death, 136 (68%) tested negative, 25 (12.5%) had blood ethanol levels below the legal limit for Newfoundland and Labrador, and 39 (19.5%) had levels above the legal limit.

Suicide method. 46 (23%) committed suicide via poisoning (i.e. antifreeze, CO, cyanide) or overdose (i.e. medications and/or illicit substances), 61 (30.5%) died by self-inflicted gunshot wound, 57 (28.5%) committed suicide by hanging or suffocation, and 36 (18%) committed suicide by motor vehicle accident, electrocution, self-inflicted wounding, jumping, or drowning.

Suicide notes. 64 (32%) of cases left a suicide note; 136 (68%) did not. 17 (26.6%) notes were digital (e.g. email, Facebook posts, text messages).

Sample Size

A sample size calculation was conducted using G*Power 3.0.10 software. An a priori analysis for chi-squared tests was performed. With reference to gendered suicide demographics as reported in the 2013 Census (Statistics Canada, 2017) and an average global suicide note-writing percentage of 20%, the effect size was determined to be 0.2655425. Sex was chosen for two primary reasons: 1) roughly half of the citations which examined sex in Chapter Two detected sex differences between note writers and non-writers, and the majority of these citations boasted some of the highest quality scores as well as the most robust

methodologies (e.g. Stack & Rockett, 2016), and 2) suicide note analysis research has demonstrated significant sex differences when gender biases were controlled for (Joiner et al., 2002; Lester & Leenaars, 2016). Using this value, an alpha of 0.05, a power of 0.8, and 1 degree of freedom, the required minimum total sample size was calculated as 112 cases.

As identified in Chapter Two, the production of significant findings was strongly correlated with larger sample sizes, and it was hypothesised that suicide note comparison studies may be sensitive to sampling errors. Consideration was also given to the probable annual suicide rate for a geographic area with a population of 519,716 and the time constraints in which the research could be performed such that data extraction quality was not impacted. A sample size of 200 cases was chosen to best mitigate these concerns.

Procedure

This study utilised secondary data that was generated and provided by the Office of the Chief Medical Examiner. Information was extracted from official case files and death investigation reports. Each case file contained an assortment of autopsy reports, medical records, toxicology screens, police scene reports, police interviews, suicide notes (where present), and scene and autopsy photographs. Data collection was performed at the Office of the Chief Medical Examiner under the site supervision of Dr Simon P. Avis, Chief Medication Examiner, Professor of Laboratory Medicine (Forensic), and Chair of Laboratory Medicine for Memorial University of Newfoundland.

The selected data pool included all provincial suicides between the years of 2000 and 2015 to ensure that both an extensive and recent sample was recorded. Office of the Chief Medical Examiner administration staff were instructed to randomly select 13 case files from each year (2000-2015). Several years had fewer than 13 recorded suicides, which resulted in a sample of 200.

Demographic profiles and suicide event information for all suicides from 2000 to 2015 were documented, discriminating note writers from non-writers. With reference to the variables of interest as identified in Chapter Two, ethical considerations, and available case information, characteristics of interest were age, sex, employment status, marital status, living arrangements, location where the suicide act was committed, provincial region in which the death occurred, region classification (urban or rural), method of suicide, month in which the death occurred, day of the week on which the death occurred, blood ethanol levels, toxicology results (medications and illicit substances), living arrangements, presence of mental health difficulties, presence of physical health difficulties, presence of parasuicidal behaviour, and precipitating events or stressors.

IBM SPSS 24 was used for statistical analysis. Due to the categorical (or nominal) nature of the data, nonparametric tests were primarily utilised. A Pearson's chi-squared test was employed to test for significant differences between note writers and non-writers. Age was examined using an independent measures t-test. A logistic regression was also performed to further examine the relationship between individual predictor variables and note writing. One of the drawbacks to the chi-squared test is its inability to examine the contribution or influence of individual items (or predictors) within a category, which logistic regression overcomes. A predictive model of suicide note writing could also be evaluated using this method. Due to the moderate sample size, statistical significance was defined as $p \leq 0.05$.

Predictor Variables of Interest

Demographic factors. Demographic factors of interest, as identified in Chapter Two, were age, sex, marital status, living arrangements, and employment status. *Sex* was listed opposed to *gender* as only sex could be determined during the autopsy. Sex and gender are not synonymous; gender and gender identity are psychological phenomenon with social

connotations, whilst sex is biological and can be medically determined post-mortem. Within *marital status*, 'partnership/marriage' reflects legal marriages, civil partnerships, and common-law marriages (which are recognised in Newfoundland and Labrador following two-years of living in a marriage-like relationship). *Living arrangements* were coded as 'alone' or 'with others', replicating variable coding from Cerel et al. (2014), Ho et al. (1998), Salib et al. (2002), and Paraschakis et al. (2012).

Geographic variables. Geographic variables of interest were regions of Newfoundland and Labrador in which a suicide was committed and whether the immediate area was classified as rural or urban (i.e. *region classification*). For this study, an urban centre was defined using Statistics Canada's criteria, i.e. a city or town with a population exceeding 1000 and a density greater than 400 persons per square kilometre. *Geographic regions* of Newfoundland were coded as per Newfoundland and Labrador Tourism[1]'s 2017 regional guide which classified the province into Avalon, Eastern, Central, Western, and Labrador regions.

Suicide components. These variables of interest included *method of suicide*, *place of injury*, *month of suicide*, *day of the week* on which the suicide occurred, and *presence of a suicide note*. 15 methods of suicide were identified in the raw data. During preliminary analyses, the majority of chi-squared cells for *method of suicide* had counts below the expected minimum. As such, these means were reallocated to category 'other' to improve upon the robustness of the test. In the majority of studies which examined location of suicide (see Chapter Two), cases were coded as a variation 'at home' or 'outside home'. Of those recorded outside the home, a similar percentage occurred in nature (i.e. on beaches or in forests) whilst others occurred in prisons, hospitals, or vehicles. Noting the thematic and

[1] NL Tourism is a department of the Government of Newfoundland and Labrador

contextual differences between these locations, ‘outside home’ was recoded into ‘nature’ and ‘other’ to reflect these observations.

Health variables. Only medically diagnosed physical and mental health pathologies were coded. These maladies were diagnosed by medical professionals (general practitioners, psychiatrists, or psychologists) either pre- or post-mortem. *Substance use diagnoses* were coded separately to ensure that dual mental health and substance use diagnoses were adequately represented. *Parasuicidal behaviours* (i.e. previous attempts, suicide ideation, and self-harm) were recorded as ‘present’ or ‘absent’; it is recognised that this coding reflects Lester and Beck (1975)’s single theory of suicide in which parasuicidal behaviour and completed suicide exist along a continuum. The chi-squared test’s assumption of independence was also violated when parasuicidal behaviours were coded separately as many victims engaged in multiple parasuicidal behaviours.

Toxicology variables. Toxicology screened cases for opiates, cannabinoids, benzodiazepines, cocaine, amphetamines, barbiturates, and antidepressants (including selective serotonin reuptake inhibitors [SSRIs]). Due to multiple substance detection and subsequent violation of the data’s assumption of independence, *toxicology results* were coded as ‘positive’ or ‘negative’ opposed to per detected substance. *Blood ethanol levels* were recorded as mmol/L; quantities were categorised into ‘negative’, ‘under legal limit’ and ‘over legal limit’. The legal limit in Newfoundland and Labrador is 17mmol/L.

Precipitating events and stressors. Codes were derived from thematic analysis of raw data. Common and independent themes of ‘financial difficulties’ (e.g. increasing debt, bankruptcy), ‘employment difficulties’ (e.g. job loss, increasing work stress), ‘familial difficulties’ (e.g. arguments between parents and children, ill child or parent), ‘relationship difficulties’ (e.g. unfaithfulness, divorce), ‘criminal difficulties’ (e.g. charged with crime, abuse allegations, incarceration), ‘mental health difficulties’ (e.g. worsening depression,

advancing dementia), ‘physical health difficulties’ (e.g. terminal cancer diagnosis, worsening chronic pain), ‘past trauma’ (e.g. experiencing child abuse, military service) and ‘life transitions’ (e.g. graduating from secondary school without future plans, moving away from home).

Results

Data Screening

Raw data was screened prior to analysis to check for errors and missing data. Variables ‘highest level of educational attainment’, ‘has children’, and ‘known to healthcare services’ (which were identified in Chapter Two) were removed from the analysis as this information was not readily discernible from the provided case files. Variables ‘reason for suicide’ and ‘precipitating stressors’ were amalgamated into a single variable, *precipitating events and stressors*, as the two categories exhibited significant crossover.

Missing data was replaced in SPSS with the code ‘999’. This code was used on two occasions for *day of the week*. The estimated time of death for two cases spanned across two or more days. As such, *day of the week* could not be discerned.

Evaluation of Assumptions

Preliminary analyses were performed to evaluate the assumptions of Pearson’s chi-squared test and bivariate logistic regression.

Independence of data. Much of data was independent, with the initial exceptions of *parasuicidal behaviours* and *toxicology*. As the variables were originally coded per behaviour and per identified substance, multiple cases exhibited polysubstance use (e.g. benzodiazepines and cannabinoids) and two or more parasuicidal behaviours (e.g. self-harm

and suicide ideation). As such, these two variables were recoded to 'present' or 'negative' such that the assumption of independence was not violated.

Expected frequencies. For the chi-squared analysis, the contingency table for *employment status* had 20% of expected frequencies below 5, *relationship status* had 25% of expected frequencies below 5, *month of death* had 25% of expected frequencies below 5, and *precipitating factors and stressors* had 40% of expected frequencies below 5. As these codes represented distinct items, no further adjustments were made and the likelihood ratio, opposed to Pearson's chi-square statistic, was reported for these measures. No expected frequencies were below 1.

Linearity. The assumption of linearity for regression was examined for *age* as it was a continuous variable. The interaction for *age* and its logit was not significant ($p < 0.05$)—the assumption of linearity was met.

Independence of errors. Case data was not related: assumption was met.

Multicollinearity. A preliminary linear regression was performed in SPSS to test for multicollinearity. As per Field's (2009) guidance, all tolerance levels were above 0.1 and VIF values were less than 10. Upon examining the collinearity diagnostics, it was found that no predictor variables demonstrated dependent regression coefficients.

Continuous Variable: Age

An independent samples t-test was conducted to compare age for note writers and non-writers. Assumption of homogeneity of variance was met. No significant results were produced for note writers (M=41.97, SD=18.006) and non-writers (M=45.34, SD=17.831); $t(198) = -1.243$, $p = 0.215$, two-tailed. See Table 6.

Table 6

Descriptive Statistics for Age with Mean and Standard Deviation

Predictor Variable	***M (SD)*** **Note Writers**	***M (SD)*** **Non-writers**	***p* value**
Age	41.97 (18.006)	45.32 (17.831)	0.215

Categorical Variables: Chi-Square

Table 7 summarises the demographic profiles, geographic details, suicide event information, health status, and toxicology results of note writers and non-writers. A Pearson's chi-squared test was performed to investigate potential significant differences between these categorical variables of interest. Effect size was measured as Cohen's d.

Table 7

Results from Pearson's Chi-Squared Test

Category	**Note Writers *n* (%)**	**Non-Writers *n* (%)**	χ^2	***df***	**Two-Tailed *p***	**Effect size (φ_c)**
Sex			0.516	1	0.473	0.051
Male	51 (25.5%)	114 (57%)				
Female	13 (6.5%)	22 (11%)				
Marital Status			3.121	3	0.373	0.125
Single	30 (15%)	52 (26%)				
Partner/Married	23 (11.5%)	66 (33%)				
Divorced/Separated	9 (4.5%)	16 (8%)				
Widowed	2 (1%)	2 (1%)				
Employment Status			10.638	4	0.031*	0.235
Employed	21 (10.5%)	38 (19%)				
Unemployed	24 (12%)	65 (32.5%)				
Retired	6 (3%)	23 (11.5%)				
Student	9 (4.5%)	9 (4.5%)				
Disability	4 (2%)	1 (0.5%)				
Suicide Method			1.666	3	0.645	0.091
Poisoning/Overdose	17 (8.5%)	29 (14.5%)				
Gunshot Wound	19 (9.5%)	42 (21%)				
Hanging/Suffocation	15 (7.5%)	42 (21%)				
Other	13 (6.5%)	23 (11.5%)				
Suicide Location			0.070	2	0.966	0.019
Residential Property	44 (22%)	96 (48%)				
Nature	11 (5.5%)	22 (11%)				
Other	9 (4.5%)	18 (9%)				
Provincial Region			13.585	4	0.009**	0.261
Avalon	30 (15%)	38 (19%)				
Eastern	7 (3.5%)	10 (5%)				
Central	6 (3%)	33 (16.5%)				
Western	17 (8.5%)	33 (16.5%)				
Labrador	4 (2%)	22 (11%)				

Region Classification			13.824	1	0.000**	0.263
Urban	40 (20%)	47 (23.5%)				
Rural	24 (12%)	89 (44.5%)				
Living Arrangements			0.862	1	0.353	0.066
Alone	24 (12%)	42 (21%)				
Shared	40 (20%)	94 (47%)				
Month of Death			4.679	11	0.946	0.152
January	13 (6.5%)	18 (9%)				
February	5 (2.5%)	10 (5%)				
March	3 (1.5%)	10 (5%)				
April	7 (3.5%)	11 (5.5%)				
May	6 (3%)	14 (7%)				
June	5 (2.5%)	14 (7%)				
July	5 (2.5%)	12 (6%)				
August	4 (2%)	12 (6%)				
September	3 (1.5%)	7 (3.5%)				
October	3 (1.5%)	12 (6%)				
November	5 (2.5%)	7 (3.5%)				
December	5 (2.5%)	9 (4.5%)				
Day of Week			1.934	6	0.926	0.099
Monday	12 (6.1%)	20 (10.1%)				
Tuesday	9 (4.5%)	23 (11.6%)				
Wednesday	12 (6.1%)	23 (11.6%)				
Thursday	8 (4%)	15 (7.6%)				
Friday	6 (3%)	17 (8.6%)				
Saturday	11 (5.6%)	21 (10.6%)				
Sunday	5 (2.5%)	16 (8.1%)				
Physical Illness			0.157	1	0.692	0.028
Yes	23 (11.5%)	45 (22.5%)				
No	41 (20.5%)	91 (45.5%)				
Psychiatric Diagnosis			0.018	1	0.892	0.010
Yes	46 (23%)	99 (49.5%)				
No	18 (9%)	37 (18.5%)				
Parasuicidal Behaviour			2.139	1	0.144	0.103
Yes	40 (20%)	70 (35%)				

No	24 (12%)	66 (33%)				
Substance Use Diagnosis			1.371	1	0.242	0.083
Yes	6 (3%)	21 (15.4%)				
No	58 (29%)	115 (84.6%)				
Blood Ethanol Content			2.105	2	0.349	0.103
Negative	40 (20%)	96 (48%)				
Under Legal Limit	11 (5.5%)	14 (7%)				
Over Legal Limit	13 (6.5%)	26 (13%)				
Toxicology Detection			1.859	1	0.173	0.096
Negative	40 (20%)	98 (49%)				
Positive	24 (12%)	38 (19%)				
Precipitating Stressors			18.102	9	0.034*	0.291
Employment Stress	4 (2%)	3 (1.5%)				
Financial Stress	4 (2%)	9 (4.5%)				
Criminal Difficulties	3 (1.5%)	14 (7%)				
Relationship Difficulties	21 (10.5%)	23 (11.5%)				
Past Trauma	3 (1.5%)	4 (2%)				
Familial Difficulties	1 (0.5%)	12 (6%)				
Physical Difficulties	9 (4.5%)	14 (7%)				
Mental Health Difficulties	14 (7%)	35 (17.5%)				
Life Transitions	2 (1%)	3 (1.5%)				
None/Unknown	3 (1.5%)	19 (9.5%)				

*$p < 0.05$; **$p < 0.01$

Thirteen (13) results were non-significant. Four (4) categories were significant at the $p \leq 0.05$ and 2 categories were significant at $p < 0.01$. Significant results included *provincial region* $\chi^2(4) = 13.585$, p = 0.009 with a moderately small effect size ($d = 0.261$), *region classification* (urban or rural) $\chi^2(1) = 13.824$, p = 0.001 with a moderately small effect size ($d = 0.263$), *employment status* $\chi^2(4) = 10.638$, p = 0.031 with a small effect size ($d = 0.235$), and *precipitating events and stressors* $\chi^2(9) = 18.102$, p = 0.034 with a moderately small effect size ($d = 0.291$). Sex was found to be non-significant.

Predictor Variables: Logistic Regression

A binary logistic regression was performed to investigate the predictivity of a note writing model and to further investigate whether the independent variables of interest could adequately predict note writing. Variables of interest were: *age*, *sex*, *marital status*, *employment status, living arrangements, method of suicide, place of injury, geographic region, region classification, blood ethanol level, toxicology detection, mental health diagnosis, physical health diagnosis, substance use diagnosis, parasuicidal behaviour*, and *precipitating events and stressors*. Reference category selection followed the precedent set by Cerel et al. (2014) and Stack and Rockett (2016), in which *male, negative, absent,* or *other* categories were selected. The regression predicted the odds for non-writers (i.e. note absence).

Table 8 provides a summary of findings. The logistic regression model was statistically significant, $\chi^2(36) = 56.276$, p = 0.017. It explained 34.3% (Nagelkerke R^2) of note writing variance and correctly classified 77.5% of cases. 34 of 36 findings were non-significant where $p \leq 0.05$. Cases from rural regions were 2.731 times more likely to not write a note ($B = 1.005$, $p = 0.016$), and non-writers were less likely (OR = 0.182) to report relationship difficulties than note writers ($B = -1.705$, $p = 0.048$). The model misclassified 8

Table 8

Results from Binary Logistic Regression

	Logistic Regression Coefficient (B)	**Wald-statistic**	***df***	**Sig. Value (*p*)**	**Standard Error**	**Odds-Ratio Exp(B)**	**95% C.I. for Exp(B)**
Age	0.005	0.071	1	0.790	0.019	1.005	0.968 – 1.044
Sex *(Female)*	0.431	0.646	1	0.422	0.537	1.540	0.538 – 4.410
Male (Reference)							
Martial Status							
Single (Reference)							
Partner/Married	0.464	0.636	1	0.425	0.582	1.590	0.509 – 4.972
Separated/Divorced	0.426	0.359	1	0.549	0.712	1.532	0.380 – 6.178
Widowed	-1.755	1.524	1	0.217	1.421	0.173	0.011 – 2.803
Employment Status							
Employed (Reference)							
Unemployed	0.529	1.189	1	0.275	0.485	1.689	0.656 – 4.396
Retired	0.392	0.287	1	0.592	0.732	1.480	0.353 – 6.212
Student	-1.110	1.564	1	0.211	0.888	0.329	0.058 – 1.877
Disability	-1.733	1.695	1	0.193	1.331	0.177	0.013 – 2.401
Living Arrangements *(With Others)*	0.403	0.524	1	0.469	0.557	1.496	0.502 – 4.460
Alone (Reference)							
Method of Suicide							
Poisoning/Overdose	0.256	0.134	1	0.714	0.700	1.292	0.328 – 5.095
Gunshot Wound	-0.310	0.255	1	0.635	0.654	0.734	0.204 – 2.641
Hanging/Suffocation	0.077	0.012	1	0.913	0.701	1.080	0.273 – 4.267
Other (Reference)							
Place of Injury							
Residential	0.172	0.080	1	0.777	0.607	1.188	0.361 – 3.906
Nature	0.387	0.286	1	0.593	0.723	1.472	0.357 – 6.070
Other (Reference)							
Geographic Region							
Avalon (Reference)							
Eastern	-0.358	0.242	1	0.622	0.727	0.699	0.168 – 2.907
Central	1.226	3.770	1	0.052*	0.631	3.408	0.988 – 11.748
Western	0.269	0.263	1	0.608	0.525	1.308	0.468 – 3.658
Labrador	0.839	1.277	1	0.258	0.742	2.314	0.540 – 9.912

Region Classification *(Rural)* *Urban (Reference)*	1.005	5.802	1	0.016**	0.417	2.731	1.206 – 6.186
Blood Ethanol Level *Negative (Reference)* *Under Legal Limit* *Over Legal Limit*	 -0.507 -0.153	 0.650 0.097	 1 1	 0.420 0.756	 0.629 1.491	 0.602 0.858	 0.176 – 2.065 0.328 – 2.247
Toxicology Detection *(Yes)* *Negative (Reference)*	-0.296	0.391	1	0.532	0.473	0.744	0.295 – 1.879
Psychiatric Condition *(Yes)* *No (Reference)*	-0.174	0.102	1	0.750	0.545	0.841	0.289 – 2.446
Physical Illness *(Yes)* *No (Reference)*	-0.142	0.060	1	0.807	0.582	0.868	0.277 – 2.713
Substance Use Diagnosis *(Yes)* *No (Reference)*	0.914	01.857	1	0.173	0.671	2.494	0.670 – 9.283
Parasuicidal Behaviour *(Yes)* *No (Reference)*	-0.254	0.303	1	0.582	0.461	0.776	0.314 – 1.915
Precipitating Stressors *Employment Stress* *Financial Stress* *Criminal Difficulties* *Relationship Difficulties* *Past Trauma* *Familial Difficulties* *Physical Health Difficulties* *Mental Health Difficulties* *Life Transitions* *None/Unknown (Reference)*	 -2.102 -0.833 -0.051 -1.705 -1.431 0.536 -1.212 -0.620 -1.416	 3.238 0.650 0.002 3.912 1.458 0.144 1.577 0.477 1.287	 1 1 1 1 1 1 1 1 1	 0.072* 0.420 0.962 0.048** 0.227 0.704 0.209 0.490 0.257	 1.168 1.033 1.065 0.862 1.185 1.410 0.965 0.898 1.248	 0.122 0.435 0.950 0.182 0.239 1.709 0.3298 0.538 0.243	 0.012 – 1.206 0.057 – 3.293 0.118 – 7.654 0.034 – 0.985 0.023 – 2.439 0.108 – 27.109 0.045 – 1.973 0.093 – 3.124 0.021 – 2.802

Note: R2 = 0.468 (Hosmer and Lemeshow), 0.245 (Cox & Snell), 0.343 (Nagelkerke). Model $\chi^2(36) = 56.276$, p = 0.017 *$p < 0.1$; **$p < 0.05$

selected cases, 7 of which were note writers and 1 which was a non-writer. Of the classified cases, 89% of non-writers were correctly classified, but only 53.1% of note writers were correctly classified. No relationship between *sex* and *note writing* was detected.

Discussion

The presence of a suicide note can be of significant importance for both friends and families of the deceased as well as the investigators tasked with inspecting the death. Shneidman and Leenaars have also contended that suicide notes are one of the more robust means of studying and understanding the causes and correlates of suicide. This assertion is contingent on homogeneity between suicide note writers and non-writers, however. As Chapter Two demonstrated, the assumption of homogeneity has been contended and tested in 25 citations (excluding this study) spanning 60 years. The results have been inconsistent, with roughly half of identified citations arguing that note writers and non-writers represent a single suicide population whilst the remainder reported significant differences between note writers and non-writers. This study sought to investigate this phenomenon using a previously untested sample at both a provincial and national level that boasts a shared culture.

Results from the Pearson's chi-squared test and independent samples t-test detected significant differences (where $p \leq 0.05$) for 4 of 18 variables (i.e. *geographic region*, *region classification*, *employment status*, and *precipitating events and stressors*). Results from the logistic regression (where $p \leq 0.05$) only detected significant relationships between note writing and two of the aforementioned predictor variables (i.e. 'rural' *region classification* and the 'relationship difficulties' *stressor*). This discrepancy in results can be attributed to several factors, such as the robustness and the sampling sensitivity of logistic regression. Moreover, for Pearson's chi-squared test, both *employment status* and *precipitating factors and stressors* had 20-40% of expected frequencies below 5—the result of which can be a loss

of statistical power. With logistic regression, results are also affected, to varying degrees, by the chosen reference category. As there was no empirical precedent for *geographic region*, 'Avalon region' was arbitrarily selected as the reference category. Secondary analyses were preformed (not reported in Results) in which 'Labrador region' and 'Central region' were also selected as reference categories and the regression was re-run, but this had no discernible effect on the relationship significance between *geographic region* and note writing. As such, it is hypothesised that the results of the logistic regression may be a stronger approximation of the relationship between predictor variables and note writing than the chi-squared analysis for this sample.

In regard to *region classification*, which was found to be significant for both chi-squared and regression analyses, it is plausible that this correlation was compounded by a third, untested correlate: literacy and education. Results from the chi-squared analysis indicated that a larger percentage of urbanites wrote notes whilst more ruralites were non-writers. As previously mentioned, Newfoundland and Labrador has one of the highest illiteracy rates in Canada. The 2011 National Household Survey estimated that roughly 27.99% of Newfoundlanders and Labradorians held no qualifications and roughly 23.25% of residents' highest level of educational attainment was a high school diploma (Statistics Canada, 2013). Newfoundland and Labrador's post-secondary institutions are situated in urban centres, and it is arguable that educational resources are more accessible in urban areas. Corbett (2005), in his study of rural population education attainment and out-migration, also reported that low high school graduation rates were reflected in his sample of ruralites who opted to remain in rural communities opposed to migrating to urban centres. As of 2017, there are still communities in Newfoundland and Labrador that do not have internet access or reliable telecommunications services. Please note that this has transformed significantly since 2011, when the provincial government, in conjunction with the Government of Canada,

launched the Rural Broadband Initiative to encourage telecommunications providers to expand coverage to rural areas ("Five rural N.L. communities," 2016). Upon considering these factors, the study's average age, and the timeframe examined (2000-2015), there is sufficient evidence to hypothesise that what this study was measuring was literacy levels, which conversely impacted the sample's ability—opposed to inclination or decision—to write a note. Should this study be replicated using this or a similar sample, it may prove effective to measure literacy as well as educational attainment.

Chi-squared analysis also produced significant differences between note writing and *precipitating events and stressors*. Within the latter category, the logistic regression produced a significant relationship between 'relationship difficulties' and note writing, in which non-writers were less likely to experience relationship difficulties prior to committing suicide than note writers. Only two other studies are known to have reported a significant relationship between impersonal difficulties and note writing (Demirel et al., 2008; Haines et al., 2011); neither study discussed this finding beyond its initial report. Akin to *region classification*, it is probable that other factors compound this relationship, but due to the complex and systemic nature of interpersonal relationships, it is impractical to speculate without further context or supporting evidence (i.e. suicide note content and themes).

No sex differences between note writers and non-writers were detected. Although sex differences may be present between male and female note writers regarding behavioural, emotional, and cognitive patterns and note content (see Lester and Leenaars, 2016), sex differences were not detected along any of the predictor variables for this sample. This finding does conform to the majority of citations as identified in Chapter Two, in which roughly two-thirds reported no significant sex differences.

As the results demonstrate, there is insufficient evidence to reject the null hypothesis. Within this sample, there are no discernible differences between note writers and non-writers

that would reasonably stipulate that they represent two suicide populations. This finding was also illustrated—albeit indirectly—by the regression model, in which its ability to correctly categorise note writers was akin to chance. What differences were detected were likely compounded by untested factors, namely literacy levels and/or education. Such traits are not relevant to the act of suicide, however, but rather effect one's ability to write a note.

Whilst studies that produced similar findings have concluded that suicide note analysis research is therefore generalisable to all suicides, this study contends that such a statement should only be made with cultural considerations. For example, both O'Connor et al. (1999) and Foster (2003) sampled suicides from Northern Ireland, and both concluded that there was insufficient evidence to suggest differences between note writers and non-writers. Chia et al. (2008) concluded that there were significant differences, however, from their Singaporean sample, and Haines et al. (2008) made a similar conclusion using an Australian sample. As stated in Chapter One, suicide, its implications, its significance, and its meaning is socially constructed and can and will vary between cultures and ethnicities. Kuwabara et al. (2006) argued that their results may differ when compared to other ethnic samples due to how Japanese culture regards suicide in comparison to other cultures. Although there are ways in which cultural limitations can be overcome (which will be subsequently discussed), it is difficult to approximate culture. Moreover, just as significant results may be culturally exclusive, non-significant results may also be exclusive to the sampled culture. This study therefore concludes that no there are no discernible differences between Newfoundland and Labradorian suicide victims that do and do not write notes. As such, should an analysis of Newfoundland and Labrador suicide notes be performed, there is evidence to suggest that findings from such research could be generalisable to that population.

Implications for Future Research and Policy

Although Newfoundland and Labrador has historically had the lowest provincial rates of suicide across Canada (Aldridge & St. John, 1991), this should not detract from the lives both claimed and affected by this epidemic. Between 1998 and 2000, 978 Newfoundlanders and Labradorians were hospitalised for attempted suicide, with an incidence rate of 68.7 per 100,000 persons per year (Alaghehbandan, Gates, & MacDonald, 2005). Although it is not accurate to equate parasuicidal behaviour with completed suicide (Linehan, 1986), there is sufficient crossover between these populations, as demonstrated by this study (at least 55% of the sample had a history of parasiticidal behaviour, and at least 25.5% of the total sample had previously attempted suicide). Whilst this study's findings cannot be used to make direct recommendations regarding public health, intervention, or treatment protocols or policies for suicide detection or at-risk persons/groups, it can offer insights into future research avenues pertaining to such goals.

As Shneidman wrote, 'suicide notes are the golden road to understanding suicide' (as cited in Leenaars, 2010) as they allow researchers to analyse an individual's constricted state of mind in the hours or moments prior to death. Research using suicide notes has identified common affective and cognitive themes, and contributed to the identification of psychological risk factors and intervention targets for suicidal individuals (see Joiner et al., 2002). As previously discussed, however, researchers should be mindful of cultural correlates and influences. Leenaars et al. (2010), for example, conducted a thematic analysis of suicide notes from the United States and Turkey, in which they matched notes for age and sex, to test for cultural differences. Although Leenaar et al. (2010) reported a greater percentage of shared than diverging themes, there were several significant differences between the two cultures' notes, such as 'emotional state in suicidal trauma (instrapsychic)', 'unconscious dynamics (indirect expressions)', and 'harsh conscious (ego)'. Regarding Newfoundland and

Labrador, while it is probable and arguably sufficient to generalise findings from American and western European (e.g. Ireland and United Kingdom) suicide note research to Newfoundlanders and Labradorians, it would be more methodologically sound if future research investigating such themes was conducted using the suicide notes from this provincial sample. Such a study would be the first of its kind using both a Newfoundland and a Canadian sample, and could offer valuable insight into regional suicide risk factors.

This study proposed that Newfoundlanders and Labradorians exhibit a unique culture, but it should also be acknowledged that Labradorians also exhibit distinct cultural traits and practises from Newfoundlanders. Labrador was officially bestowed to Newfoundland in 1809, but it was previously a part of Upper Canada and Quebec, and was primarily inhabited by the Innu and Inuit (Aboriginal peoples). As of 2016, it was estimated that roughly 37.2% of Labradorians identified as Aboriginal (Pollock, Mulay, Valcour, & Jong, 2016), which is in stark contrast to Newfoundland's small Aboriginal population (an estimated 2.9%). In Labrador, there are three aboriginal groups that are politically separate and have their own unique language, traditions, oral histories, and socioeconomic circumstances (Pollock et al., 2016), further complimenting the cultural divide. Across Canada, suicide rates are significantly elevated for Aboriginal people; Pollock et al. (2016) also discerned this trend in Labrador, with the Innu and Inuit communities having the highest rates amongst Labradorian aboriginals. Although this study was unable to analyse ethnicity, an elevated suicide rate was detected in Labrador. Although Labradorians only account for an estimated 5.2% of the provincial population, 13% of sampled suicides were committed in Labrador. Considering the above, should Newfoundland and Labradorian suicide notes be analysed, it may prove effective to evaluate the island and the mainland provincial proportions separately as their demographic profiles, socioeconomic circumstances, language, traditions, and underlying risk factors may differ. Ethnicity should also be a variable of interest in future research sampling

from such a population, but this study recognises the ethical considerations that accompany such research.

Methodological Considerations

This study does have several limitations, and its results and conclusions should be viewed within the context of these limitations.

Firstly, this study relies exclusively on secondary data. Categorisation of cases depended on the successful investigation, retrieval, or identification of a suicide note by investigators. There is evidence to suggest that suicide notes or final communications are now more frequently being left via social media and digital communication (e.g. text messaging) as opposed to physical paper and pen (Cerel et al., 2014; Gunn & Lester, 2012), which may not have been recognised by all investigative agencies and personnel. Variables of interest may have also relied on information that investigators may not have deemed relevant (e.g. a person's marital status) and was therefore not adequately recorded or fact-checked. Please note that this is not a critique of the Royal Newfoundland Constabulary, the Royal Canadian Mounted Police, or the Office of the Chief Medical Examiner but rather an acknowledgement of possible data limitations.

Secondly, the sampling method utilised was not entirely random. Although administration staff arbitrarily requested access to case files, they pulled an equal number of cases per year opposed to 200 for the annual range (2000-2015). This instruction was given to ensure that each year was equally represented, but it did detract from the sample's randomisation.

Thirdly, although the sample exceeded the calculated minimum required sample size for the chi-squared test, Chapter Two did acknowledge a correlation between sample sizes exceeding 250 and the detection of significant differences between note writers and non-

writers. Logistic regression is also sensitive to sampling errors when smaller sample sizes are employed (Field, 2009), which may have resulted in one or more type II errors.

Fourthly, four variables of interest (i.e. *employment status*, *relationship status*, *month of death*, and *precipitating events and stressors*) did violate one of the assumptions of the chi-squared test regarding expected frequencies. Due to distinct items and themes represented, it was not possible to further recode these variables, nor was it possible to collect more data. This likely resulted in a loss of statistical power, which may have resulted in an increased chance of a type II error.

Fifthly, reliability for the study was not determined. Although it would have be preferential to have employed a secondary rater to review coded case files and determine inter-rater reliability, this was erroneously not addressed when ethical approval was sought.

Lastly, in addition to the study's variables of interest, four other variables of interest had been identified from the collective of citations reviewed in Chapter Two. Whilst these variables were included in initial research proposals, they were removed for one of two reasons. Firstly, appropriate ethnical approvals were not obtained for inclusion of Aboriginal ethnicities, thus data relating to all ethnicities was neither collected nor recorded. Secondly, there was insufficient data contained within the case files to examine *highest level of educational attainment*, whether there was *previous contact with mental health services*, or whether cases *had children*. Whilst this data was available for several recorded cases, this data was unavailable for more than half of the selected sample. In consideration of this, these variables were removed prior to preliminary analyses. Although this study sought to combine the methodologies of the studies which preceded it, thus establishing a more robust methodology, the availability of information restricted this intention.

CHAPTER FIVE

DISCUSSION AND CONCLUSIONS

Discussion and Conclusions

Primary Findings

This thesis aimed to examine the role of suicide notes in suicidology by contesting the assumption of homogeneity between suicide note writers and non-writers.

As argued in Chapter One, suicide can be defined as a multidimensional malaise—an outcome affected by a combination of psychological, biological, cultural, and interpersonal factors, to name but a few. Although there is contention regarding the 'most robust' means of researching and understanding suicide, Shneidman's theory of suicide encapsulates the multifaceted nature of suicide, and his usage of suicide notes as a research medium has allowed researchers a glance into the complex workings of suicide victims in their final moments. Chapter One acknowledged the various methodologies used in suicidology, whilst framing suicide note analysis as one of the few methods that uses a primary data source as opposed to secondary data or population approximates. As only a fraction of suicide victims write notes (Lester, 1972), however, the generalisability of findings derived from suicide note analysis has been contested (see Chapter Two). Although homogeneity between note writers and non-writers has been assumed, this assumption was initially made with limited supporting evidence (see Stengel, 1964). This thesis therefore sought to investigate this assumption through the preceding chapters.

Chapter Two presented a systemic review of studies that have investigated the assumption of homogeneity by comparing note writers and non-writers along a series of demographic and interpersonal variables. The review identified 25 citations that performed comparative research between note writers and non-writers, but only 17 citations met inclusion criteria. Of these 17 citations, 8 reported no statistically significant differences between note writers and non-writers, whilst 9 reported significant differences, resulting in overall contradictory findings.

Across the 17 citations, 19 independent variables were identified. All but two citations (i.e. Cerel et al. [2014] and Foster [2003]) reported one or more significant variables, but the citations' conclusions were often dependent on trends in significance across variables, not the presence of a singular significant or insignificant variable result. A correlation was also detected between sample size and significance of findings: citations with the largest sample sizes predominantly reported significant differences between note writers and non-writers, whilst studies with samples comprised of fewer than 253 suicide victims predominantly reported no significant differences between groups. The systematic also identified an absence of methodological consistency amongst citations, with different variables of interest, statistical tests, and levels of significance being used. Also noteworthy was the geographic areas represented, namely the use of 11 distinct national samples across 17 citations. All studies utilised a sample derived from a single country/nation, and many samples originated from particular cities or regions (i.e. states, counties, or provinces). Multiple citations speculated that culture may have confounded results due to discrepancies in how suicide is conceptualised across cultures.

As the empirical study featured in Chapter Four did not require the use of psychometrics, Chapter Three critiqued a suicide assessment and research tool derived from the single suicide population theory as discussed in Chapter One. The Suicide Intent Scale (Beck, Schuyler, & Herman, 1974) was found to have several notable limitations, namely its level of measurement and absence of appropriate norms. Whilst the SIS does demonstrate some internal reliability and concurrent validity, it has poor predictive ability and factoral structure. There is also some contention regarding what, exactly, the SIS is measuring. Although it proposed to measure *intent* and *lethality*, it failed to account for human decision making, which is arguably one of the more significant psychological cornerstones affecting suicide completion (Leenaars, 2010).

Chapter Four presented an empirical study which aimed to quantitatively investigate the assumption of homogeneity between note writers and non-writers by comparing a previously untested sample of suicide victims along a series of demographic and interpersonal characteristics. The variables of interest were extracted from the citations featured in Chapter Two. The study also attempted to overcome some of the methodological pitfalls identified in Chapter Two, ensuring that appropriate tests for nonparametric data were employed and that test assumptions were sufficiently met. To the best of the author's knowledge, this study was also the first of its kind to compare note writers and non-writers using both a Canadian and a Newfoundland and Labradorian sample. The study's secondary aim was to contribute to the growing literature around suicide characterisation and note writing homogeneity.

Of the 18 variables of interest tested, significant results were reported for 2-4 variables; it was argued that the results obtained through binary logistic regression, as opposed to the chi-squared test, may have more accurately depicted the relationship between variables and note writing. Upon further examination, it was hypothesised that the 2 significant results may have been compounded by tertiary, untested correlates. In regard to *region classification*, it was proposed that literacy and/or level of education may have affected the predictive relationship. The study was unable to speculate as to the compounding variable(s) that may have affected 'relationship difficulties' (*precipitating events and stressors*) without further information or testing. No significant sex differences were detected. The study concluded that there was insufficient evidence to reject the null hypothesis; there were no discernible differences between note writers and non-writers from Newfoundland and Labrador. It was also proposed that findings should be interpreted with cultural considerations; namely, that the study concluded that these results may be specific to

Newfoundland and Labrador, not all Canadian or North American cultures and regions, due to the arguably distinct culture as practiced by the province's inhabitants.

The study was limited by its reliance on secondary data as identified and compiled by investigative agencies, as well as changing trends in suicide note mediums (e.g. suicide writings on social media) and how that may not have been recognised by all case investigators. Additional limitations were the sampling method, sample size and subsequent susceptibility to type II errors, violation of one statistical test assumption, absence of reliability testing, and removal and/or modification of some variables of interest as identified in Chapter Two.

As discussed in Chapter One, Shneidman (1985) conceptualised suicide as an intrapsychic and interpersonal process. Although it is difficult to measure intrapsychic characteristics without the use of psychological autopsy or, preferably, suicide note analysis, Chapter Four did approximate some interpersonal factors through examining *marital status*, *living arrangements*, and *precipitating events and stressors*. Whilst *marital status* and *living arrangements* could only offer partial indication of a case's interpersonal relations, 'relationship difficulties' could encapsulate interpersonal relations, rejection-aggression, and identification-egression. Shneidman argued that suicidal individuals are more likely to experience problems in establishing and maintaining interpersonal relationships. As demonstrated in Table 7, 'relationship difficulties' was one of the most cited *precipitating events and stressors* as identified by investigators. Its overrepresentation for note writers may be due to how this information was identified: that is, investigators using notes to identify relationship difficulties as depicted in the note medium. This nevertheless identified the additional layer of knowledge that can be gleaned from suicide notes, and how these notes can offer some insight into the theoretical components of suicide (i.e. the intrapsychic and interpersonal) as identified by Shneidman.

Future Directions

Comparative research regarding note writers and non-writers, whilst informative in its own right, exists to test the assumption of homogeneity for completed suicides. The larger issue relates to suicide note analysis and whether it is appropriate to use this method of analysis in suicidology. Upon amalgamating findings from the citations as identified in Chapter Two and the study presented in Chapter Four, the citations are evenly split in regard to reporting significant versus non-significant differences between note writers and non-writers. But, as discussed in Chapter Four, both researchers and readers should exercise caution when interpreting results independent from sample region and/or culture. Culture and geography should therefore be considered when evaluating existing citations as well as future avenues of research.

In Chapter Four, several areas of future research were discussed, including conducting an analysis of Newfoundland and Labrador suicide notes to better understand the psychological states experienced by suicide victims prior to their death. Such research should refer to Shneidman's (1985) theory of suicide or Joiner's Interpersonal Theory of Suicide (as detailed in Chapters One and Four) and Leenaars and Balance's (1984) guide for studying suicide notes. The potential benefits or aims of such research would be to identify potential risk factors, intervention targets, and help inform suicide risk assessment protocols and policies for healthcare and agency workers in Newfoundland and Labrador. Research using a Newfoundland and Labradorian sample ought to apply caution when interpreting and generalising note-derived content, however, as it is possible that notes are depicting themes and experiences that are more relative to urban living and a higher level of educational pursuit. As such, there is a risk that ruralites may be underrepresented in such research. This is of notable concern upon consideration that more than half of Newfoundland and

Labrador's population lives in or surrounding urban centres, but a greater number of suicides occur in rural settings (i.e. 56.5%).

It would also be viable for this study to be replicated either using the same provincial population or another Canadian provincial population. Should the Newfoundland and Labrador population be re-examined, it would be advisable for researchers to replicate the method as employed in this study, but to use a larger sample size (i.e. $n > 253$, noting the observation made in Chapter Two regarding significant findings and sample size), ensure that the appropriate ethical approvals are obtained to record *ethnicity* as a variable of interest, and to possibly run a secondary multiple regression examining note writing and ethnicity and/or note writing and whether the case resides on the island of Newfoundland or the mainland of Labrador. The latter was explored in Chapter Four's Discussion noting the underrepresentation of Aboriginal persons on the island as opposed to the mainland of the province. Should another Canadian population be examined, this could offer some indication of whether a) there are notable cultural differences between Newfoundland and Labrador and other Canadian provinces, and b) whether any potential cultural differences are affecting findings from comparative suicide note research in Canada. Chapter Two also identified an absence of comparative note research from African countries, as well as Caribbean and South American countries. Moreover, no cross-cultural research testing the assumption of homogeneity has been performed to date.

Regarding psychometrics and suicide risk prediction tools, although current best practice may advise against the use of suicide assessment tools, such as the SIS, this should not detract from either modifying existing tools or developing new tools which better encapsulate risk factors based on effective methodologies and recent peer-reviewed literature. As this thesis suggests, cultural considerations should be made for all suicide assessment tools. The author nevertheless acknowledges that this would be an exceptional task, and it

raises many queries: for example, should culture be defined at the macro or micro level, which individuals or bodies would be responsible for determining what aspects of suicide may be culturally contained, and how can biases regarding culture best be mitigated and addressed? It is also important to consider whether suicide in culture is examined qualitatively or quantitatively, namely, should cultural differences in suicide be evaluated through traditional explanations/measures of suicide (e.g. socioeconomic stain) or through cultural definitions and contexts (e.g. the meaning prescribed to suicide). It may also prove effective to examine the factoral structure of existing tools in conjunction with a) comprehensive theories of suicide, such as Shneidman's and Joiner's, and b) the psychological themes and components as identified by suicide note analyses as well as demographic profiles of at-risk groups. Ideally, it would be most beneficial if a structured professional judgement risk assessment and management approach could be developed for suicide. This would be a substantial undertaking, but suicidology is a rich field that is constantly developing, albeit not at the same pace or with the same recognition as other psychological and forensic disciplines. Nevertheless, as this thesis has illustrated, suicide is significant public health concern and it requires on-going attention and action.

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**Chapter 2 reviewed citation*

APPENDIX A

Searches by Database

Web of Science

Set	Searches	Results
1	TS=(suicide note*) OR TS=(note writer*) OR TS=(suicide note writer*) OR TS=(suicide NEAR note*) or TS=(suicide NEAR writ*) *Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC Timespan=All years*	2597
2	TS=(compar*) OR TS=(differ*) OR TS=(distinguish*) OR TS=(discrim*) *Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC Timespan=All year*	13,619,428
3	TS=(trait*) OR TS=(character*) OR TS=(factor*) OR TS=(variable*) OR TS=(sociodemographic) OR TS=(socioeconomic NEAR factor*) OR TS=(demographic NEAR factor*) *Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC Timespan=All years*	9,915,968
4	#3 AND #2 AND #1 *Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC Timespan=All years*	421
5	(#4) *AND* **LANGUAGE:** (English) *AND* **DOCUMENT TYPES:** (Article OR Review) *Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC Timespan=All years*	366

Ovid: PsycARTICLES, Embase (1974 to 2017 April 06), Embase Classic (1947-1973), PsycINFO (1806 to 1966 and 1967 to March Week 4 2017), MEDLINE(R) (1946 to March Week 5 2017), and HMIC (1979 to January 2017)

Set	Searches	Results
1	(suicide note* or note writer* or suicide note writer*).af.	1777
2	(compar* or differ* or distinguish* or discrim*).af.	22,220,613
3	(character* or trait* or factor* or socioeconomic factor* or variable* or demographic*).af.	16,753,236
4	1 and 2 and 3	920

APPENDIX B

Screening and Selection Tool (SST)

Citation Title:
Author(s):

	Inclusion Criteria	Exclusion Criteria
Population	Suicide victims who left notes	• Male or female only • Non-representative of local population • Population is fewer than 10 • Euthanasia • Suspected suicide
Phenomenon of Interest	Characteristics (variables) of suicide victims which may include: • Demographics of suicide victims • Socioeconomic circumstances of suicide victims • Personal traits of suicide victims • Mental and/or physical health of suicide victims • Method of suicide • Scene/location of suicide • Toxicology of suicide victims	• Variables not specified • Two or fewer variables examined
Comparison Group	Suicide victims who did not leave notes	• No comparison group • Non-representative of local population • Group originates from difference source than target Population group • Suspected suicide • Euthanasia
Outcome	A comparison of suicide victims who did and who did not leave notes on a minimum of three variables (e.g. age, sex, and method of suicide) as defined by the phenomenon of interest.	• No comparison group present • No characteristics of suicide victims examined • Two or fewer variables examined
Research Design	• Quantitative • Mixed Methods (Qualitative and Qualitative)	• Qualitative • Narrative reviews • Editorials • Research proposals
Language	English	Other language
Source Type	• Peer-reviewed • Published	• Unpublished thesis/dissertation • Not peer-reviewed

Criteria Met? Y / N

APPENDIX C

List of Excluded Studies

Comparison Variables Not Specified (2)

Beck, R., Morris, J., & Lester, D. (1974). Suicide notes and risk of future suicide. *Journal of the American Medical Association, 228,* 495-496.

Shneidman, E. S., & Farberow, N. L. (1957). Some comparisons between genuine and simulated suicides notes in terms of Mowrer's concept of discomfort and relief. *Journal of General Psychology, 56,* 511-518.

Gender Specific Sample (1)

Åsgård, U. (1990). A psychiatric study of suicide among urban Swedish women. *Acta Psychiatrica Scandinavica, 182*(2), 115-124.

Age Specific Sample (1)

Cheung, G., Merry, S., & Sundram, F. (2015). Late-life suicide: Insight on motives and contributors derived from suicide notes. *Journal of Affective Disorders, 185,* 17-23.

Two or fewer Variables Examined (2)

Capstick, A. (1960). The recognition of emotional disturbances and the prevention of suicide. *British Medical Journal, 1,* 1179-1182.

O'Donnell, I., Farmer, R., & Catalan, J. (1993). Suicide notes. *British Journal of Psychiatry, 163,* 45-48.

Article not Available (2)

Chenoweth, R. (1977). The significance of suicide notes. *Australian and New Zealand Journal of Psychiatry, 11,* 197-200.

Tuckman, J., Kleiner, R. J., & Lavell, M. (1960). Credibility of suicide notes. *American Journal of Psychiatry, 116,* 1104-1106.

APPENDIX D

Quality Assessment Form

Study: _____

Criterion	Criteria Met	Somewhat Met	Criteria Not Met	Unknown/Unavailable	Comments?
Initial Screening					
Study aims clearly stated (i.e. goal, importance, relevance)					
Quantitative methodology appropriate					
Sampling Bias					
No systematic differences between comparison groups					
Selection Bias					
Sample representative of the population					
Sample randomly selected					
Sufficient sample size/power					
Measurement/Classification Bias					
Data sources consistent between comparison groups					

Criterion	Criteria Met	Somewhat Met	Criteria Not Met	Unknown/Unavailable	Comments?
Same variables examined across comparison groups					
Variables measured consistently across comparison groups					
Attrition Bias					
No participants excluded					
Analysis and Results					
Statistical test(s) appropriately chosen					
Post-hoc test(s) utilised					
Sufficient description of results					
Data sufficiently supports study findings					
Findings discussed in relation to research question/thesis					
Limitations discussed					
Total					

APPENDIX E

Data Extraction Form

Overview	
Title	
Author(s)	
Year Published	
Source (e.g. Journal)	
Study Location	
Study Characteristics	
Research Question/Aim(s)	
Design	
Characteristics Examined	
Validity and Reliability	
Data	
Sample Size	
Sample Origin	
Data Source(s)	
Results	
Statistical Tests Performed	
Significant Results	

Overview	
Conclusions	
Quality	
Assessment Score	