PREDICTORS OF SUICIDE-RELATED IDEATION AMONG OLDER ADULTS: EXPLORING THE ROLE OF IMPULSIVITY

by

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ABSTRACT

Research has demonstrated that impulsivity is strongly associated with suicide-related ideation and behaviour among young adults. To date, however, the potential importance of impulsivity as a predictor of suicide-related ideation in later life has yet to be determined. The current study set out to examine impulsivity, hopelessness, depressive symptomatology and socio-demographic factors vis-à-vis suicide-related ideation among a sample of older adults using both hierarchical regression and canonical correlation. A national sample was recruited from multiple sources for this study over a 1-year period ($N = 117$). Canonical correlation analysis showed that the impulse to self-harm may be more pronounced among older adults less likely to present as typically depressed. The findings of this study further suggest that impulsivity is more broadly associated with suicide-related ideation than hopelessness, and that screening for impulsivity as well as hopelessness may increase clinicians' ability to identify older adults at greatest risk for self-harm.

Keywords: elderly; hopelessness; impulsivity; suicidal ideation

Subject Terms: older people-mental health; older people–suicide; suicide-psychological aspects

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CHAPTER 1: INTRODUCTION

Suicide among older adults is a complex and multifaceted phenomenon that has been identified as a serious health concern in all industrialized countries. Geriatric suicide is defined as the intentional act of killing oneself by older, aged, or elderly persons. On a global scale, men and women over 74 years of age have the highest rates of completed suicide (World Health Organization [WHO], 2000); however, men over 84 have the highest rate of suicide across all age groups (Canadian Coalition for Seniors Mental Health [CCSMH], 2006). In addition to age and male sex, Caucasian race, being single, divorced or widowed, social isolation and poor physical health have been identified as further risk factors for suicide among older adults (Conwell, 1995). In addition, the ratio of attempts to completions in later life has been estimated at 4:1 versus 8:1 and 15:1 for the population in general, and 200:1 for the young (McIntosh, Santos, & Hubbard, 1994).

In Canada, suicide is the ninth leading cause of death for all ages (Public Health Agency of Canada, 2000) and the eleventh leading cause of death in the United States (Minino, Heron, & Smith, 2006). In general, the male to female ratio of suicide increases with age, from approximately 3:1 among younger people to 12:1 among those over 85 years of age (De Leo & Spathonis, 2004). It should be noted, however, that many instances of suicide among older adults go underreported whereby death is deemed accidental, in part, due to the stigma of suicide and other social pressures that may lead family members and health professionals to avoid labelling these as intentional deaths. Other factors such as lower rates of autopsy and purposeful medication non-adherence also contribute to the under-detection and reporting of suicide in later life.

Approximately 1,000 older adults are admitted to Canadian hospitals each year as a consequence of intentional self-harm attempts (CCSMH, 2006); it is not known how often older people in Canada harm themselves without being admitted to hospital.

There are a number of factors that distinguish suicide in later life. Compared to adolescents, suicide by older adults is infrequently an attempt to garner attention, a call for help, or an attempt to manipulate family or friends (Glass & Reed, 1993). Older adults who end their lives are rarely motivated by anger or revenge; instead, they often simply seek the release of death (e.g., escape from emotional and physical pain). Based on content analyses of suicide notes, Leenaars (1994) states that suicide in later life rarely appears to be a function of ambivalence or redirected aggression. He contends that older adults are less conflicted, more direct, and more aware of the reasons for ending their lives.

The risk for suicide and self harm is greatest among those with elevated depressive symptomatology (Conwell, 1995; Hansen, Wang, Stage, & Kragh-Sorensen, 2003; Oquendo, Galfalvy, Russo, Ellis, Grunebaum, Burke, & Mann 2004; Stolberg, Clark, & Bongar, 2002; Waern, Rubenowitz, & Wilhelmson, 2003; Yip, Chi, Chiu, Chi Wai, Conwell, & Caine, 2003). In a Canadian study of adults over 60 years who committed suicide, 42% had been diagnosed with major depression at the time of death. This number increases to 65% when cases of minor depression are included (Préville, Boyer, Hébert, Bravo, & Séguin, 2005). Individuals of all ages may have depressive symptoms without meeting criteria for a depressive disorder. The clinical presentation of symptomatic depression or major depressive disorder can vary among older patients.

Even minor depression among older adults increases the risk for disability and suicide-related ideation (Fischer, Wei, Solberg, Rush, & Heinrich, 2003).

In 1996, over one million Canadians over 11 years of age were estimated to be depressed (e.g., feeling sad, blue, or having lost interest in things; Statistics Canada, 2005), with females accounting for two-thirds of this total. Although depression is indeed one of the most common forms of psychopathology, it is not clear whether it is more prevalent among older adults (Powers, Thompson, Futterman, Gallagher-Thompson, 2002; Smyer & Qualls, 1999). The age group that holds the highest rates for depression are those 35 to 44 years; however, those over 74 years of age report the longest average number of weeks with depressive symptomatology (Statistics Canada, 2005). (Statistics Canada [2005] measures depressive symptomatology not depression as they mistakenly claim.) Arguably, advancing age affords more time for depression to develop. Yet, some research suggests that prevalence rates of depressive disorders are lower for older adults than younger adults (Smyer & Qualls, 1999).

Thoughts of insufficiency, worthlessness and guilt, despair and hopelessness are some reasons why people with depression come to consider suicide as a viable option (Wolfersdorf, 1999). In addition, there are many factors that increase the risk for depression among older adults such as chronic illness, physical disability, bereavement, social isolation, and loss of social roles and ties (Smyer & Qualls, 1999).

Impulse control is a concept increasingly referenced in the DSM-IV criterion for several disorders and implied in the criteria for others (i.e., gambling, substance use, mood disorders; Hendren & Butler, 1998, Moeller, Barratt, Dougherty, Schmitz, & Swann, 2001).

Impulsiveness is believed to be predictive of suicide and self harm (Corruble, Hatem, Damy, Falissard, Guelfi, Reynaud et al., 2003; Damy, Hatem, Corruble, & Guelfi, 2000; Horesh, 2001; Pfeffer, Hurt, Peskin, & Siefker, 1995), though this association has been more firmly established among younger adults and adolescents. For instance, Wyder (2006) determined in a study examining attempted suicide among 17 to 65 year old participants, that half had thought about it for 10 minutes or less before engaging in suicide-related behaviour.

Impulsivity is the tendency to act with little forethought, without deliberation and without evaluating the consequences (Caci, Nadalet, Bayle′, Robert, & Boyer, 2003). Studies have shown that a considerable number of suicide attempts are impulsive and unplanned (Wyder & DeLeo, 2007); however variations exist regarding how impulsive attempts are defined. Definitions of impulsive suicide-related behaviour have been based upon the absence of planning, (or absence of overt signs of planning), or based upon the timing of suicide-related ideation. For the purpose of this thesis, impulsivity is conceptualized based on the work of Barratt (1985) whereby impulsivity involves cognitive, behavioural and psychological components, such as motor impulsiveness (i.e., acting without thinking); attentional impulsiveness (i.e., having racing thoughts); and non-planning impulsiveness (i.e., lack of future planning).

Given the associations between depressive symptomatology, suicide-related behaviour, impulsivity and increasing age, research is warranted examining the role that impulsivity may play in predicting the risk for suicide in later life. This thesis examines the potential of impulsivity as a predictor of suicide-related ideation above and beyond

that which is determined by depressive symptomatology and hopelessness among a sample of participants over 49 years of age.

CHAPTER 2: LITERATURE REVIEW

Suicide Risk Factors in Later Life

Suicide-related ideation is defined as a wish to be dead or thoughts of killing oneself (Yip, Chi, Chiu, Chi Wai, Conwell, & Caine, 2003) whereas a suicide attempt is an active attempt to end one's life. Active methods of suicide tend to be swift, effective and allow little opportunity for interruption or time to reconsider (e.g., hangings, shootings, jumping). Comparatively, passive suicide methods are less overtly violent which may allow for intervention or time to reconsider (e.g., overdoses, carbon-dioxide poisoning). Passive suicides are also accomplished, for example, by ceasing to follow a medication regime, or intentional malnutrition. Active suicide-related ideation describes a person who is in imminent danger of committing suicide, and may require emergency hospitalization. Conversely, passive suicide-related ideation is the wish for oneself to die, without active plans to facilitate the process (Sivak, 2005). For the purposes of this thesis, the focus is placed on suicide-related ideation among older adults. In other words, an older adult who has given serious thought, planned or wishes no longer to remain alive (i.e., encompassing both passive and active suicide-related ideation). Silverman and colleagues (2007) nomenclature for the study of suicide and suicide-related behaviour has been adopted throughout this text.

As previously noted, older men are much more likely to commit suicide for several reasons. First, they are more likely to use violent, lethal methods such as shooting or hanging (Osgood, 1992; Glass & Reed, 1993). Gunshot wounds tend to be a more common method with men of all ages as they are more likely to be familiar with,

and have access to, firearms (e.g., hunting rifles). Women not only are less familiar with guns and have less access to them but tend to use less disfiguring methods to end their lives (Osgood, 1992). Women of all ages attempting suicide are more likely to choose less violent methods such as an intentional overdose of sleeping pills or other medications (Glass & Reed, 1993); and as a result, they are less likely to die by suicide. The method used provides one explanation to account for sex differences in the ratio of suicide attempts to completion. As it is assumed that men are more likely to see a failed suicide attempt as a source of shame (e.g., they can not even do *that* right), they ensure that the method used is infallible (Osgood, 1992).

Suicide rates are higher among those with little or no social connections, people with no religious community involvement, the retired, unemployed, divorced and others who live alone. Of note, several of these life circumstances are most common among the elderly. Suicide rates also rise during times of economic uncertainty though poverty is not a direct causal factor (Maris, Berman, & Silverman, 2000). Furthermore, epidemiological studies show a general relationship between self-harm and socioeconomic disadvantage, including limited educational achievement, homelessness, unemployment, economic dependence and contact with the criminal justice system.

Individuals who have previously attempted suicide are at higher risk for subsequent suicide attempts (Ramsay, Tanney, Lang, Kinzel, & Turley, 1999). Even one previous attempt indicates that the person has given him or herself permission to, and is capable of moving from, ideation to suicide-related behaviour. Although the percentage is relatively small (roughly 10%), those who do commit suicide after a previous attempt are most likely to do so within the next two years (Ramsay et al., 1999).

Another finding of note is older adults' reticence to seek mental health services (Pearson, Conwell, Lindesay, Takahashi, & Caine, 1997). Compared to younger persons, older adults with suicide-related ideation are much less likely to turn to suicide prevention centres, crisis telephone lines or other kinds of mental health services (Glass & Reed, 1993). Those who see a physician prior to their suicide tend to report somatic symptoms or despair, and generally do not volunteer thoughts of self-harm unless directly questioned. Waern and colleagues (1999) reported that three quarters of older adults who had died by suicide had told relatives or friends of their wish to die or their suicide-related ideation in the year preceding their suicide. Only 38% had discussed these thoughts with a healthcare professional, however. Of note, it is common for the majority of older adults who commit suicide to have visited their primary care physician within a month prior to their suicide (Pearson et al., 1997).

Approximately four out of five persons over 64 years of age with a mental illness are treated by general practitioners (Schurman, Kramer, & Mitchell, 1985). Some studies have shown that depression is assessed and treated differently in older and younger patients in primary care settings (Fischer, Wei, Solberg, Rush, & Heinrich, 2003; Stoppe, Sandholzer, Huppertz, Duwe, & Staedt, 1999; Secouler, 1998). Fischer and colleagues (2003) examined possible patterns of under-attention to older depressed patients. They found that primary care physicians were less likely to ask older adults diagnostic-type questions (i.e., affect, past treatments, suicide risk, alcohol abuse). They are also less likely to refer older patients to a mental health practitioner or provide written information on depression. It has also been suggested that physicians may intentionally avoid

diagnosing a mood disorder, even when recognized, to avoid stigmatizing the older patient (Rost, Smith, Matthews, & Guise, 1994).

Depression in Later Life

The Diagnostic and Statistical Manual of Mental Disorders, (DSM-IV-TR; American Psychiatric Association [APA], 2000), classifies depression within the mood disorders category. Mood disorders (e.g., major depressive disorder, dysthymic disorder, bipolar affective disorder) require the presence of a mood episode (e.g., major depressive episode, manic episode, mixed episode) in order to meet diagnostic criteria. Depressed mood in a major depressive episode is characterized by depressed feelings, sadness and hopelessness for a duration of at least two weeks. Loss of interest or pleasure in previously enjoyed activities (or anhedonia) is often present to some degree. These feelings, in addition to five or more of the following symptoms, must be present for a diagnosis of major depressive disorder (i.e., changes in appetite or weight, sleep, and psychomotor activity; decreased energy; feelings of worthlessness or guilt; difficulty thinking, concentrating, or making decisions; or recurrent thoughts of death or suicide-related ideation, plans or attempts; APA, 2000).

Much research has been undertaken examining the epidemiology of depression. Depression is found more commonly in women (Nolen-Hoeksema, 2002), an opposite finding for the sex difference in suicide; however, biological, psychological and social determinants are subject to interpretation. Women account for the majority of depression cases as they traditionally have been socialized to be more emotionally expressive, nurturing and to direct their achievement through their affiliations with others (Mule,

2004). It has also been argued that women's hormonal changes (e.g., menstruation, menopause) affect their experience of depression. Yet some population-based studies do not support this assumption (Nolen-Hoeksema, 2002). Epidemiological research, however, has found no sex differences in depression prior to the age 13 after which point rates among girls begin to increase sharply (i.e., at roughly the point of menses; Nolen-Hoeksema, 2002). Sex differences in depression prevalence then persist across the life span.

Depression among older adults may be of early onset (i.e., a recurring chronic condition beginning in early to mid-life) or late onset, often associated with conditions of aging (e.g., physical illness, disability, bereavement; Fischer, Wei, Solberg, Rush, & Heinrich, 2003). In primary care, older adults are less likely to report the affective symptoms of depression compared to younger patients (Pearson, Conwell, & Lyness, 1997); instead, older adults more commonly report somatic symptoms (e.g., insomnia, loss of appetite, gastrointestinal difficulties). As a result, most instances of geriatric depression go undetected (Pearson et al., 1997). Identifying causes of depression among older women tends to be somewhat easier in primary care settings as they are more likely to report crying spells and related feelings (Allen-Burge, Storandt, Kinscherf, & Rubin, 1994). Consequently, older men are at particular risk for undiagnosed and untreated depression which, in part, may account for their elevated risk of self-harm. Ageist attitudes which persist in healthcare cannot be discounted (Waxman, 1986), one example of which is the erroneous belief that depression is a natural part of later life despite that fact that all mood disorders are most common in middle age (DSM-IV-TR; APA, 2000). However, 40% to 60% of older adults who commit suicide are deemed to meet diagnostic

criteria for major depressive disorder at the time they end their lives (Stolberg, Clark, & Bongar, 2002).

Predictors of Suicide Among Older Adults

As later life is a period often associated with multiple losses (e.g., health, status, roles, relationships), episodes of depression might be an expected outcome. The majority older adults, however, do not experience depression as they age, and the majority of depressed elderly do not commit suicide. Nonetheless, rates of suicide are highest within this group, requiring special attention as to the potential for suicide-related ideation and behaviours. Data on predictors of suicide across older populations are noteworthy. Among those over 84 years of age, Waern, Rubenowitz and Wilhelmson (2003) found that family conflict, serious physical illness and major depression were the strongest predictors of suicide-related behaviour. In addition, economic problems and loneliness also held predictive value for those under 75 years. Among a community sample of older adults in Hong Kong, the single most significant psychological factor was depression (Yip, Chi, Chiu, Chi Wai, Conwell, & Caine, 2003). Among those diagnosed with depression (n=116), 25.9% reported suicide-related ideation, in contrast to only 2.5% of participants deemed to be euthymic. Coren and Hewitt (1999) examined data collected by the National Center for Health Statistics in the U.S. to identify sex differences in elderly suicide rates. They discovered that for older men, factors associated with financial and social status were the strongest predictors of suicide. For older women, the predictors were features of social and environmental stability and stress. These findings suggest that the factors predictive of suicide are not homogenous and that sex differences exist.

Physical illness and impairments in activities of daily living also appear to have a significant relationship with suicide-related ideation and behaviour. An illness almost always results in a change in an individual's self-perception and relationship to family, friends, workplace and society (Goldblatt, 2000). Negative changes in self-perception and relationships can increase the risk of suicide-related behaviour. Some of the characteristics of physical illnesses that may predispose individuals to suicide include the nature of the illness (e.g., chronic vs. acute), whether or not it is debilitating (e.g., interfering with activities of daily living), and if it is painful (Goldblatt, 2000). Juurlink, Herrmann, Szalai, Kopp and Redelmeier (2004) examined the association between medical illnesses and suicide among older Ontarians using a population-based approach. These researchers retrospectively identified 1,354 elderly persons who died by suicide over a 9-year period. Firearms, hanging and poisoning were among the most common methods. The specific illnesses associated with suicide were congestive heart failure, chronic obstructive pulmonary disease, seizure disorders, urinary incontinence, anxiety disorders, depression, psychotic disorders, bipolar affective disorder, moderate and severe pain. Urinary incontinence was also identified as the single strongest predictor of suicide-related ideation in a community based Hong Kong sample (Yip et al., 2003), suggesting that for some individuals, the loss of pride or embarrassment associated with incontinence may be a risk factor for self harm.

It would be incorrect to assume that terminal illness necessarily increases suicidality. In fact, Brown, Henteleff, Barakat and Rowe (1986) found that 77% of terminally ill patients who were questioned in hospice had never wished to hasten their deaths, and all who wished to die were found to be suffering from severe clinical

depression. Primary care providers and mental health professionals need to be more cognizant of their patients' perceptions of chronic or debilitating physical illnesses in order to assess the level of suicide risk, if any. As the incidence of illness and chronic conditions increases with age, better recognition and detection of comorbid depressive symptoms by primary care providers is needed in order to reduce rates of geriatric suicide.

Hopelessness as a Suicide Risk Factor

Hopelessness has also been identified as significant predictor of suicide-related ideation and behaviour, of note, to a greater degree than severity of depressive symptomatology (Hill, Gallagher, & Thompson, 1988). This harbinger of self-harm entails not only a pervasive lack of perceived efficacy and helplessness but also the belief that one's future will be exclusively bleak (Cornette, Abramson, & Bardone, 2000). According to Shneidman (1996), this is the most common emotion experienced among persons with suicide-related ideation. Hopeless individuals systematically misconstrue their experiences such that their confidence in their ability to cope with problems is greatly diminished. Hopelessness leads one to believe that suicide is a viable, maybe the only, available strategy to deal with what are perceived as insoluble problems and a desolate future (Beck, Steer, Kovacs, & Garrison, 1985).

In a prospective study with 1,958 psychiatric outpatients, Beck, Brown, Berchick, Stewart and Steer (1990) reported that 16 of 17 patients (94.2%) who ended their lives initially provided responses suggestive of clinically significant hopelessness; however, not all who ended their lives initially presented within clinical range (Beck et al., 1990).

In other words, hopelessness appears to be a highly sensitive but not an overly specific harbinger of suicide (i.e., considerably higher rates of false-positives than false-negatives). The relationship of hopelessness, depression and physical health to suicide-related ideation was examined in a study of 39 female nursing home residents. Meeks and Tennyson (2003) found positive correlations between depression and hopelessness with suicide-related ideation. In addition, the relationship between suicide-related ideation and hopelessness was not affected by controlling for physical health problems.

In a similar study, social factors, hopelessness and other depression symptoms were examined in a group of older adults with depression to determine which factors placed depressed older adults at risk for suicide (Dennis, Molloy, Andrews, & Friedman, 2005). Compared to controls, hopelessness and a poorly integrated social network were among the factors that differentiated the depressed older adults who engaged in suicide-related behaviour. Hopelessness among older adults therefore deserves clinical attention as well as depressive symptomatology in order to appropriately address the issue of elderly suicide.

Impulsivity and Suicide Risk

The association between impulsivity and suicide has become a burgeoning area of study in recent years (Conner, Meldrum, Wieczorek, Duberstein & Welte, 2004; Horesch, 2001). Among adolescents, reduced impulse control is associated with a range of problematic behaviours such as kleptomania, compulsive gambling, substance abuse, violence as well as suicide (Hendren & Butler, 1998). It is believed that impulsivity becomes an impetus for self-harm because patients act rashly without considering the full

consequences of their actions or alternate courses of action. Even among adolescents reporting no suicide-related ideation at baseline, suicide-related ideation and behaviour have been shown to subsequently increase in lockstep with greater levels of impulsivity (McKeown, Garrison, Cuffe, Waller, Jackson, & Addy, 1998). In research comparing inpatients, out-patients and non-psychiatric controls, reduced impulse control has been shown to distinguish suicidal adolescents (Grosz, Lipschitz, Eldar, & Finkelstein, 1994; Lehnert, Overholser, & Spirito, 1994; Sadowski, 1995).

These studies also demonstrate a link between impulse control and depression. In research comparing adolescent suicide attempters to non-attempters, elevated levels of depressive symptomatology predicted both suicide-related ideation and impulsivity (Eliason, 2001; Horesch, Orbach, Gothelf, Efrati & Apter, 2003; Kashden, Fremouw, Callahan & Franzen, 1993; Klerman, 1987). This research suggests an as of yet unidentified pattern of causal associations among depression, suicide-related ideation and impulsivity.

Unplanned or impulsive acts of suicide-related behaviour involve minimal preparation or forethought. Compared to *planned* suicide-related behaviour (i.e., behaviour preceded by premeditation and preparation), there are different factors associated with both (Connor, 2004). Reports based on clinical samples have shown that greater planning among suicide attempters is associated with men (Weyrauch, Roy-Byrne, Katon et al., 2001) and older age (Hamdi, Amin, & Mattar, 1991). However, a multi-site European study of suicide attempts sponsored by the WHO showed that there were no significant age- or sex- related differences in planning of attempts (Hjelmeland, Nordvik, Bille-Brahe et al., 2000).

The relationship between impulsivity and suicide among older adults requires further elucidation. In a study comparing young and older intentional self-harm patients, participants were compared with respect to factors that contributed to suicide-related behaviour (Hjelmeland & Groholt, 2005). Few differences were found among precipitating factors such as level of lethal intent, physical illness, depression, hopelessness and self-esteem. Differences that emerged were related to factors such as cognitive maturity, impulse control and problem solving inexperience.

Impulsivity research underscores the fact that suicide attempts are not always pre-meditated. As previously noted, Wyder (2006) reported that 51% of patients 17 to 65 years attempted suicide after deliberating for 10 minutes or less; an additional 16% contemplated suicide for less than half an hour. In this sample, the impulse to self-harm was often fuelled by drugs and alcohol, especially for men who were more likely to be intoxicated (Wyder, 2006). In a study in China, Li and colleagues (2003) reported that suicide attempters 'thought about suicide' less than two hours before acting on their thoughts. In addition, these attempters were more likely to have experienced a negative life event in the preceding month.

There is also an argument that impulsivity is less prevalent in later life. Deakin, Aitken, Robbins and Sahakian (2004) indicated with a large cohort of adults, risk taking decreases with age. Performance was assessed on a computer based gambling task which provided a variety of behavioural measures corresponding to different aspects of impulsivity. Findings showed that increasing age was associated with longer deliberation times, poorer decision making and reduced risk taking. Since risk taking is one aspect of impulsivity, the findings of this study suggest that increasing age reduces the likelihood

for impulsivity. In a comparative personality study of younger versus older law-offenders, McCreary and Mensh (1997) found decreased impulsivity and acting out behaviours in the oldest group (60 to 85 years of age). Although a forensic sample, this study also suggests that increasing age is accompanied by a decline in impulsivity. The question remains whether impulsivity is as strongly associated with suicide-related ideation and behaviour among older adults as it is with their younger counterparts.

Proposed Theory/Conceptual Framework

There have been many attempts to understand the phenomenon of suicide. From psychoanalytic theories (e.g., aggression turned inward) to process-oriented theories of suicide (e.g., originating from childhood trauma), existing theoretical approaches appear to complement each other, rather than fully explaining the behaviour. This thesis draws upon the Escape Theory of Suicidality (Baumeister, 1990) to assist in understanding the possible role of impulsivity as a predictor of suicide-related ideation among older adults.

The Escape Theory of Suicidality views suicide as a desire to alleviate aversive self-awareness and negative affect (Vohs & Baumeister, 2000). From a social psychological perspective, escape theory emphasizes the role of unfavourable self-comparisons, due to which negative affect and self-blame occur. In Escape Theory, suicide-related ideation is not necessarily a result of negative life circumstances but the contrast between high expectations and negative outcomes. In other words, failures and setbacks lead to suicide if they produce internal negative self-attributions (Baumeister, 1990).

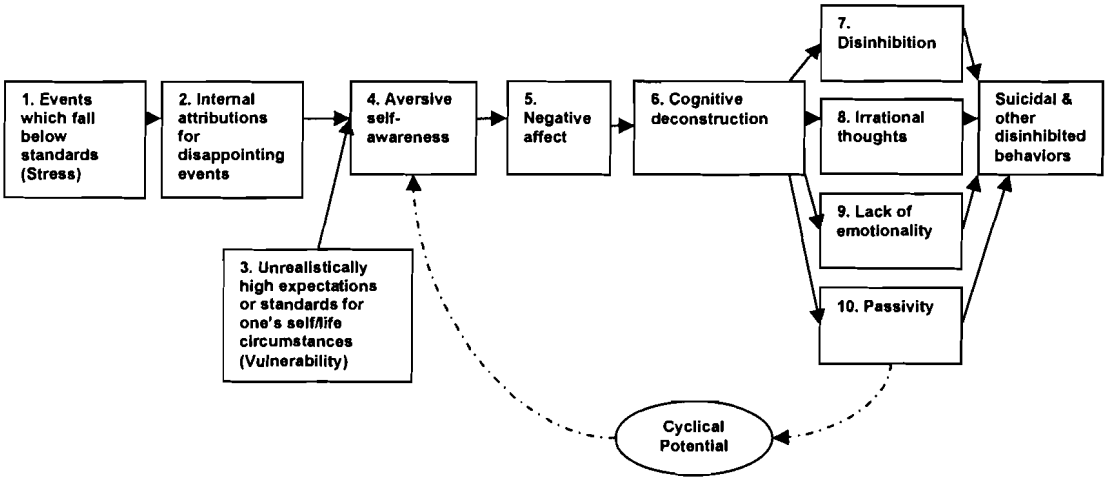
In this sequential model, the process starts with some event that produces a discrepancy between one's goals or expectations and one's perceived current state. Should the individual fall short of his/her expectations, feelings of self-blame result, creating doubts about the attainment of future goals and shifting focus onto personal shortcomings. Individuals who attribute negative life events to internal, stable and global factors are likely to have more depression, hopelessness and suicide-related ideation than do those who do not (Dean & Range, 1999). This negative self-focus creates a heightened state of negative affect from which one seeks escape. Chronic states of negative self-focused attention have also been demonstrated in depression (Dean & Range, 1999).

When heightened self-awareness and negative affect co-exist, Baumeister (1990) postulates that people engage in a process of cognitive deconstruction (see Figure 1). This process involves narrowing attentional focus to relatively concrete and comparatively pointless stimuli which serve to limit capacity for significant interpretation of events or information that would give rise to self-reflection. There is a lack of affect (i.e., emotion) as meaningful analysis of the self's goals and expectations is avoided. Behavioural outcomes of this deconstructed state include disinhibition, passivity, flat or absent affect and irrational thoughts. Devoid of meaningful thoughts, emotion and/or evaluative powers, irrational ideas that would normally be rejected by the individual now seem plausible or even appealing.

Given that higher order cognitions are abandoned in this state (e.g., meaningful thoughts, emotions, evaluative abilities), inhibitions including those that guard against destructive behaviours are also absent (Vohs & Baumeister, 2000). In this disinhibited state, the individual is more inclined to consider thoughts of suicide. Impulse control

becomes an important factor in this deconstructed state if the individual considers suicide as a means to avoid negative thought processes.

Figure 1: The Escape Theory of Suicidality



The Escape Theory of Suicide has cyclical properties, in part, because the cognitive deconstruction is difficult to sustain. One possibility is that an individual can move out of the deconstructive state back into the meaningful thought from which they were trying to escape. This move can occur, for example, through contact with events that elicit memories of the negative self-awareness. Again facing their self-awareness, an individual can move through the process again or perhaps reinterpret his/her life situation in a positive fashion. According to Baumeister (1990), those whose troubling thoughts and feelings are neither adequately ignored through cognitive deconstruction, nor addressed successfully through reinterpretation, will find suicide as a means of escape from psychic suffering.

In sum, the Escape Theory of Suicide goes beyond hopelessness and depression to hypothesize what happens to those who attribute negative circumstances to their own perceived shortcomings. Escape Theory goes further by describing the thought processes (e.g., narrowing attentional focus) and behaviours (e.g., disinhibition) of the suicidal individual in increasing proximity to the suicide attempt. Thus, the Escape Theory elaborates upon the processes which occur further down the causal chain after an individual comes to experience negative affect (Cornette, Abramson, & Bardone, 2000) and wants to escape from this unpleasant state.

The theory's applicability to this thesis lies in the significance of deconstruction which places an individual in a disinhibited state, increasing the risk for irrational and perhaps dangerous behaviours. Impulsivity, combined with a lack of consequential evaluation, is believed to increase the potential for self-harm.

Statement of Hypothesis

The literature indicates that suicide-related ideation among older adults is associated with a variety of factors, including depression, physical illness and hopelessness. Among young adults, impulsivity has been shown to play a role in the suicidal behaviours. It is hypothesized that among a participant sample of adults over 49 years of age, impulsivity will predict suicide-related ideation. More precisely, impulsivity is assumed to predict suicide-related ideation over and above that provided by socio-demographic variables, depressive symptomatology and hopelessness.

CHAPTER 3: METHODOLOGY

Participants

The recruitment of participants with pronounced depressive symptomatology and/or suicide-related ideation is particularly challenging with older adults. For this study, psychiatrists, geriatricians and family physicians in Metro Vancouver were contacted to provide patient referrals. Prepared questionnaire packages (with postage-paid return envelopes) were provided to healthcare practitioners to distribute to their patients meeting any of the following criteria: suspected or manifest suicide-related ideation; elevated depressive symptomatology; a previous suicide attempt, and/or a combination of affective disorder(s) and physical health problems (e.g., chronic pain). The majority of practitioners who responded to this request reported recruitment challenges such as apathy or a lack of interest/energy among their older adult patients. Cognitive impairment was the most frequently mentioned impediment in addition to a hesitancy to directly ask about suicidal feelings (either past or present) for the purposes of a research study.

Newspaper advertisements (The Vancouver Sun, The Province, 24 Hours) generated inquiries from across British Columbia. In addition, recruitment was conducted by contacting previous participants from the senior supervisor's web-based mental health research. A total of 117 men ($n = 41$) and women ($n = 76$) over 49 years of age provided responses for this study over a 1-year period. To facilitate data collection, a $500 response incentive was awarded to one randomly selected participant.

Recruitment

Multiple methods were employed to derive a broad cross-section of older adults for this thesis. The majority (50%) were recruited from web-based research completed over the past five years. Those who had provided scores within clinical range on the Center for Epidemiologic Studies – Depression Scale (CES-D; Radloff, 1977) were notified of the current study and invited to contact the student if they wished to participate. Those who expressed interest were mailed questionnaire packages along with postage-paid return envelopes. Separate postage-paid envelopes were also included within which participants were asked to separately post lottery ballots. This was done so that clinically sensitive responses were not included in the same mailing as identifying information to protect participant privacy and to foster candid reporting.

Newspaper advertisements generated 27% of the participant sample. Prospective participants left phone messages at the lab of the senior supervisor and were initially interviewed to ensure that they met the age requirement and espoused feelings of hopelessness, pronounced sadness or worthlessness. Questionnaire packages were mailed along with postage-paid return envelopes if these criteria were met. The remaining 23% of the sample was generated through referrals by healthcare practitioners (e.g., geriatric psychiatry out-patients).

Study participants were encouraged to contact their primary care physician or psychiatrist to discuss any apprehension or distress that arose as a function of completing these questionnaires. The toll-free telephone number of a 24-hour crisis intervention line was also included in the package of materials.

Each package was assigned a unique participant number that could be cross-referenced to a recruitment source. For instance, if a participant endorsed specific scale items suggestive of imminent self-harm, the referring practitioner could be notified and intervene as required. Participants recruited via newspapers and previous web-based studies were cross-referenced to contact information. Upon receipt, questionnaires were first examined for specific responses to red flagged items suggestive of active suicide-related ideation (e.g., positive endorsement of "I want to end my life"). When identified, suicide assessment calls were made by the senior supervisor (registered psychologist) to rule out the immediate risk of self-harm and also to provide participants mental health contact information within their respective communities as well as the location of the nearest hospital emergency room. Follow up was performed with three study participants based on their responses to specific scale items. None were determined to be at imminent risk for suicide-related behaviour.

Study Measures

All test materials were self-administered and printed in Times New Roman 12pt type-font. Completion of the scales required approximately 10 to 15 minutes. All study measures can be found in the Appendix.

Geriatric Suicide Ideation Scale (GSIS). The Geriatric Suicide Ideation Scale (GSIS; Heisel & Flett, 2006; Heisel, Flett, & Besser, 2002) is a multidimensional measure of suicide-related ideation developed for use with older adults. The GSIS is composed of 31 questions with scores ranging from 31 to 165. Participants provided responses on a 5-point Likert-type scale ranging from *strongly disagree* (1) to *strongly*

agree (5). The GSIS was initially validated with institutionalized and community-residing seniors over 64 years of age (Heisel & Flett, 2001). Test-retest reliability of responses by a sample of 32 nursing home residents was $r = .86$ (one to two months between points of measurement), and $r = .77$ for a sample of 13 nursing home residents (1 to 1.5 years between points of measurement; Heisel & Flett, 2001).

The GSIS has four factors: Suicide ideation (e.g., "I want to end my life."); Perceived Meaning in Life (e.g., "Life is extremely valuable to me", reverse keyed); Loss of Personal and Social Worth (e.g., "I generally feel pretty worthless"); Death Ideation (e.g., "I often wish I would pass away in my sleep"); and one additional item (e.g., "I have tried ending my life in the past"). Cronbach's alpha for responses to the GSIS ($\alpha = .90$) and its subscales ($.74 \leq \alpha \leq .86$) suggest acceptable to good internal consistency (Heisel & Flett, 2006). Responses to the GSIS have exhibited strong concurrent validity vis-à-vis the Scale for Suicide Ideation ($r = 0.65$) and the Geriatric Depression Scale ($r = 0.77$; Heisel, Flett, Duberstein, & Lyness, 2005).

Center for Epidemiologic Studies Depression Scale (CES-D). The Center for Epidemiologic Studies – Depression Scale (CES-D; Radloff, 1977) is a 20-item instrument to which respondents rate the frequency of various depressive symptoms over the past week. Responses are provided along a 4-point Likert-type scale ranging from *rarely or none of the time* (0) to *most or all of the time* (3). Internal consistency of CES-D responses has been estimated to be within optimal parameters for both community and clinical older adult samples (e.g., $\alpha = .85$ to $\alpha = .91$; Himmelfarb & Murrell, 1983). Results of a meta-analytic study by O'Rourke (2004) suggest little variability in the reliability of CES-D

responses, nor do there appear to be gender differences in the interpretation of CES-D items (O'Rourke, 2005).

In their study, Hertzog and colleagues (1990) concluded that responses to the CES-D reflect a higher-order structure with four separate factors contributing significantly to measurement of an overarching depression construct (i.e., depressive affect, absence of well-being, somatic symptoms, interpersonal affect). Although alternate factor structures have been reported with younger samples (Breithaupt & Zumbo, 2002), support for this higher-order structure has been supported with both English and French language versions of the CES-D among older adults (O'Rourke, 2003).

Beck Hopelessness Scale. The Beck Hopelessness Scale (BHS; Beck & Steer, 1988) was designed to measure negative attitudes about one's future and perceived inability to avert negative life occurrences. Twenty true/false questions measure three aspects of hopelessness: negative feelings about the future (e.g., "my future seems dark to me"); loss of motivation (e.g., "there is no use in trying to get what I want"); and pessimistic expectations (e.g., "I do not expect to get what I really want"). BHS totals range from 0 to 20 with higher scores indicating greater hopelessness. Though not developed specifically for use with older adults, responses have demonstrated good psychometric properties with other populations (Beck & Steer, 1988). Across seven clinical samples, reported internal consistency of BHS responses range from $\alpha = .82$ to $\alpha = .93$. When comparing clinical ratings and BHS scores, reported correlation coefficients between BHS responses and ratings of hopelessness have been reported as $r = .74$ ($p < .01$) in a general practice sample and $r = .62$ ($p < .05$) in a self-harm sample. Test-retest

reliability coefficients are modest ($r = 0.69$ and $r = 0.66$ one and six weeks thereafter; Center for Psychological Studies, 2007) suggesting variability in hopelessness over time.

Psychometric properties of BHS responses have been less than ideal with older adult samples. While the BHS is well accepted for use in clinical contexts, some contend it is insufficiently sensitive (Hill et al., 1988; Abraham, 1991; Hayslip, Lopez & Nation, 1991). Although the T/F response format for the BHS enables rapid completion, it has been suggested that this forced-choice format is too limiting (Owen, 1992). To increase response sensitivity, the BHS response format was broadened for this thesis to a 4-point Likert-type scale, with response alternatives ranging from *rarely or none* (1) to *most days* (4), same as the CES-D. It was assumed that adopting the CES-D response format would increase measurement sensitivity and minimize positive skewness as reported in previous studies with older adults (O'Rourke, Haverkamp, Tuokko, Hayden, & Beattie, 1997).

The Barratt Impulsiveness Scale. The 11th version of the Barratt Impulsiveness Scale (BIS; Patton, Stanford, & Barratt, 1995) is a self-report questionnaire developed to assess the frequency of impulsive and impulse-related thoughts and behaviours. Participants respond to 30 statements with response alternatives ranging from *rarely or never* (1) to *almost always or always* (4). The BIS measures impulsivity across three factors: attentional impulsiveness (e.g., "I have racing thoughts"); motor impulsiveness (e.g., "I find it hard to sit still for long periods of time"); and non-planning impulsiveness (e.g., "I am happy-go-lucky"). Across four samples (i.e., undergraduates, substance abuse patients, general psychiatric patients, prison inmates), internal consistency of responses to the BIS has been reported to range from $\alpha = .79$ to $\alpha = .83$. In addition, Fossati, Di

Ceglie, Acquarini and Barratt (2001) found BIS responses to be moderately correlated with aggression ($r = .30, p < .01$) and ADHD symptoms ($r = .36, p < .01$).

Analytic Procedures

In order to test the aforementioned hypothesis, hierarchical regression analysis was initially performed. Linear regression attempts to model the relationship between variables by fitting a linear equation to observed data. With hierarchical regression, the order of entry of the predictors is specified, rather than all predictors being entered simultaneously into the equation. This study used a hierarchical regression to test impulsivity as a predictor of suicide-related ideation among older adults over and above that provided by socio-demographic variables, depressive and hopelessness symptomatology.

Regression is sensitive to high correlations or multicolinearity among predictor variables (Tabachnick & Fidell, 2001). Since the variables of this study have strong relationships, a bivariate correlations analysis, with a Pearson correlation threshold of 0.8, was used to determine variable colinearity and observed variance. A total of 117 participants were recruited for this study, sufficient to detect medium to large effect sizes at $\alpha = .01$ (Cohen, 1992).

Suicide-related ideation served as the dependent variable for this thesis. Independent variables for the hierarchical model include socio-demographic variables, depressive symptomatology, hopelessness and impulsivity as a separate and final step. Step 1 included age, sex, and health conditions (i.e., summed scores from an abridged listing of items from the Canadian Study of Health and Aging, 2001). Step 2 included

responses to the CES-D and the Beck Hopelessness Scale. Lastly, Step 3 tested the predictive strength of impulsivity to suicide-related ideation. It was hypothesized that impulsivity scores would have a statistically significant association with suicide-related ideation, controlling for other variables in the regression model. This would signify impulsivity as a significant and distinct predictor of suicide-related ideation among the selected sample over and above demographic factors and depressive symptomatology.

Canonical correlation was also computed for this study and might best be described as the multivariate equivalent of multiple regression (Tabachnick & Fidell, 2001). With regression, several variables are used to predict scores of a single dependent (or outcome) variable. The contribution of each independent (or predictor) variable is weighted to optimize prediction of responses to one dependent variable.

With canonical correlation, in contrast, there are several variables on both sides of the equation. Sets of variables are grouped to capture significant variance within both sets of responses and to maximize association between pairs of linear combinations (pairings of canonical variates). This unfolds in a hierarchical manner such that successive pairings of canonical variates account for variance not previously captured by previous linear combinations. These linear composites can be thought of as dimensions relating sets of predictor and outcome variables (Tabachnick & Fidell, 2001). The number of possible pairings is equal to the smaller number of predictor or outcome variables.

An additional feature of canonical correlation is the potential to discern latent constructs that underlie groupings of variables allowing for interpretation of shared variance within groupings. Similar to factor analyses, significant proportions of variance may align to suggest intrinsic relationships among related constructs (Tabachnick &

Fidell, 2001). Similar to linear regression, linearity, homoscedasticity, normality and lack of multicollinearity are assumed.

For this study, responses to each of the four GSIS subscales served as dependent variables: suicide ideation; perceived meaning in life (reverse keyed); loss of personal and social worth and; death ideation. The corresponding grouping of predictor variables included the four CES-D depressive symptomatology factors (i.e., depressive affect, absence of well-being, somatic symptoms, interpersonal affect), as well as hopelessness and impulsivity. In addition, sex, educational attainment (as an index of socioeconomic status), physical health and pain were examined as these have been identified in previous research to be associated with suicide-related ideation and behaviour among older adults.

Canonical correlation was undertaken for this study for a number of reasons. As depression, hopelessness and impulsivity (independent variables) and suicide-related ideation (GSIS subscales; dependent variables) are multivariate in nature, an analytic approach that allows for multiple independent and dependent variables is preferable. While hierarchical regression examines the impact of depression, hopelessness and impulsivity on a single outcome variable (total score on GSIS), there is also a potential loss of information on how these independent variables work together to influence the four factors of suicide-related ideation (as measured by the GSIS subscales). The GSIS was intended to measure the subjective experiences of suicide-related ideation in older adults across a broad spectrum of cognitive, physical and emotional functioning (Heisel & Flett, 2006) suggesting that the scores on the GSIS subscales are related yet distinct constructs of suicide-related behaviour (i.e., suicidal ideation; perceived meaning in life; loss of personal and social worth; death ideation).

Previously reported correlation coefficients between GSIS subscales range from r = .49 to r = .80 suggesting that as little as 24% of variance is shared between factors. These correlations are comparable to Chou, Jun and Chi (2005) who found a similar range of coefficients. Therefore use of hierarchical regression alone to examine suicide-related ideation as a single construct may suppress the emergence of significant associations. Thus, the addition of canonical correlation to the analytic procedure provided a more in-depth analysis of the data.

CHAPTER 4: RESULTS

The order of questionnaire presentation was counterbalanced creating two alternate formats for this study. Initial comparative analyses indicated that response levels did not significantly differ between the two. It can therefore be concluded that it is unlikely that order effects confounded participant responses.

Descriptive Features

Similar to most self-selected studies with older adults, the majority of participants were female (n = 76 of 117) with an overall average age of 68.47 years (SD = 9.02, range 50 to 92). The majority of were Caucasian (n = 108) with smaller numbers of Asians, Aboriginals, persons of African ancestry and mixed/multiple ethnicities in descending order of frequency. Participants lived in all regions of Canada, with the majority residing in British Columbia (n = 49) and Ontario (n = 48).

The majority were currently married (n = 62) with a sizeable number of widows and widowers (n = 27). Not surprisingly, the majority resided with a spouse (n = 60) with the remainder either living alone (n = 40), with family (n = 12), in hospital (n = 1) or an assisted living facility (n = 4).

In terms of their socioeconomic status, equal proportions worked now or prior to retirement in either professional (n = 46) or clerical/administrative positions (n = 38) with the remainder reporting work as skilled, semi-skilled or unskilled labourers. The participants' education level averaged in the post-secondary range (14.06 years, SD = 3.11, range 8 to 26). When describing their general health, the majority of respondents rated their health as very good (n=41) to good (n=33). Participants' stress levels were in

the lower range with 38 percent scoring life as a bit stressful (n=44) to not very stressful (n=37).

The majority of participants (n = 57) provided CES-D responses suggestive of clinically significant levels of depressive symptomatology (M = 17.56, SD = 15.39; range 0 to 56). Reported levels among these participants did not significantly differ between older men (M = 17.00, SD = 13.82) and women (M = 16.77, SD = 12.42; t[115] = .09, *ns*); however, men reported significantly higher levels of suicide-related ideation (M = 33.78, SD = 25.21) than their female counterparts (M = 23.40, SD = 20.51; t[115] = 2.40, $p < .05$).

Despite these pronounced symptom levels, the majority were not currently seeing a mental health professional (n = 77) although a quarter of the sample were taking antidepressant medication or an alternate form of treatment (i.e., St. John's Wort; n = 29), and a similar number had done so in the past (n = 26). Just over half of the participant sample reported feeling moderate pain or discomfort on a daily basis (n = 65). Of further note, close to half of the sample (n = 59) indicated that they had never been treated for depression consistent with previous findings indicating that the majority of depressed older adults *suffer in silence* with a condition amenable to treatment (Pearson, Conwell, Lindesay et al. 1997; Pearson, Conwell, & Lyness, 1997).

Levels of hopelessness did not significantly differ between men (M = 22.02, SD = 15.98) and women (M = 19.39, SD = 11.84; t[115] = 1.01, *ns*), nor did levels of impulsivity (men, M = 33.00, SD = 12.21; women, M = 31.51, SD = 10.14; t[115] = .70, *ns*). A significant difference was found, however, between sex and the use of alcohol

with women ($M = 4.12$, $SD = 1.10$) scoring higher than men ($M = 3.54$, $SD = 1.47$; $t[114] = -2.24$, $p<.05$).

When examining responses to study measures by recruitment source (i.e., health practitioner, newspaper advertisement, online participants) no differences emerged between referrals from health practitioners and participants recruited from the newspaper advertisements. Significant differences were found between referrals from healthcare practitioners and the online participants across all scaled scores, as expected given that participants were being referred from a *treating* practitioner. However, the participants recruited via the newspapers reported significantly higher CES-D scores than the online participants ($M = 23.13$, $SD = 13.77$ vs. $M = 12.59$, $SD = 10.67$ respectively; $t[88] = 4.02$, $p < .01$), hopelessness ($M = 25.19$, $SD = 15.72$ vs. $M = 16.42$, $SD = 11.32$ respectively; $t[88] = 3.04$, $p < .01$), impulsivity ($M = 34.74$, $SD = 12.59$ vs. $M = 29.53$, $SD = 9.45$ respectively; $t[88] = 2.21$, $p < .05$), and suicide-related ideation ($M = 36.00$, $SD = 24.60$ vs. $M = 19.53$, $SD = 20.08$ respectively; $t[88] = 3.42$, $p < .01$).

Differences among health-related behaviours were also found across recruitment methods. The group of referrals from healthcare practitioners ($M = 4.44$, $SD = .80$) consumed more alcohol than the participants recruited via the newspapers ($M = 3.81$, $SD = 1.40$; $t[56] = 2.09$, $p < .05$) and more than the participants recruited online ($M = 3.72$, $SD = 1.32$; $t[83] = 2.61$, $p < .01$). Interestingly, the participants recruited online ($M = 3.43$, $SD = 1.01$) reported greater use of anti-depressants than the participants recruited via the newspapers ($M = 2.86$, $SD = 1.19$; $t[85] = -2.33$, $p < .05$) and than the group of referrals from healthcare practitioners ($M = 2.33$, $SD = 1.36$; $t[83] = -4.67$, $p < .01$).

The age of the participants differed by method of recruitment. Referrals from health practitioners generated older participants ($M = 73.33$, $SD = 10.39$), followed by participants recruited online ($M = 67.32$, $SD = 8.24$; $t[84] = 2.88$, $p<.01$) and participants recruited via the newspapers ($M = 66.42$, $SD = 7.79$; $t[56] = 2.89$, $p<.01$).

No significant differences were found among participants' marital status, sex, ethnicity, education or occupation when examined across recruitment methods. Similarly, no mean differences were found across socio-demographic variables or total scaled scores when examining the participant sample by age group (i.e., young-old vs. old-old).

Pearson product-moment correlation was used to examine the relationships among socio-demographic variables and scores on depression (CES-D), hopelessness (BHS), impulsivity (BIS) and suicide-related ideations (GSIS) scales (see Table 1). Moderate, positive correlations were found between scores on the GSIS, CES-D, BHS and BIS. Similar correlations were found between GSIS scores and health status and physical pain responses.

Analysis of GSIS subscales (i.e., suicidal ideation, meaning in life, loss of worth, death ideation) also revealed strong, positive correlations with scores on the CES-D ($r=.47$ to $r=.72$, $p < .01$ respectively), the BHS ($r=.57$ to $r=.76$, $p < .01$ respectively), the BIS ($r=.25$ to $r=.45$, $p < .01$ respectively), health status ($r=.25$ to $r=.41$, $p < .01$ respectively) and physical pain ($r=.26$ to $r=.41$, $p < .01$ respectively). Increasing age was not significantly correlated with GSIS scores; however, a moderate association was found between age and CES-D responses. As would be expected with this participant sample, the number of health conditions increased with advancing age.

Table 1: Correlation Coefficients Between GSIS Subscales, Combined Scale Scores and Socio-demographic Variables (N = 117)

MEASURES	1	2	3	4	5	6	7	8
GSIS SUBSCALES								
(1) IDEATION								
(2) MEANING	.68**							
(3) WORTH	.79**	.73**						
(4) DEATH	.85**	.61**	.72**					
(5) CES-D	.62**	.56**	.73**	.48**				
(6) BHS	.70**	.72**	.76**	.58**	.83**			
(7) BIS	.27**	.26**	.46**	.16	.52**	.45**		
(8) HEALTH	.25**	.33**	.41**	.28**	.28**	.20*	.21*	
(9) PAIN	.31**	.27**	.41**	.27**	.30**	.27**	.11	.41**

Note. CES-D=Center for Epidemiologic Studies-Depression Scale; BHS=Beck Hopelessness Scale (revised 4 point, Likert-type scoring protocol); BIS=Barratt Impulsivity Scale; GSIS=Geriatric Suicide Ideation Scale

*$p<.05$, **$p<.01$

Another finding of note pertains to the good psychometric properties of BHS responses. As previously described, the CES-D 4-point Likert-type response key for this study was used in place of the original BHS true/false forced-choice format (Beck & Steer, 1988). In contrast to previous research (e.g., O'Rourke et al., 1997), derived skewness and kurtosis values are within normal parameters (Tabachnick & Fidell, 2001).

As also presented in Table 2, internal consistency of BHS responses (α = .93), as well as those for other study measures, are within optimal parameters with the exception of positive skewness for responses to the suicide ideation GSIS subscale.

Table 2: Psychometric Properties of Study Variables (N = 117)

Instrument	*M*	*SD*	Range	α	Kurtosis	Skewness
Geriatric Suicide Ideation Scale:	27.04	22.72	0-110	.96	1.90	1.29
Suicide Ideation	6.34	7.65	0-35	.91	3.24	1.72
Meaning in life	7.72	6.12	0-27	.91	.23	.80
Loss of worth	8.32	6.30	0-26	.87	.09	.70
Death ideation	4.07	4.60	0-20	.88	1.36	1.60
CES – Depression Scale	16.85	12.87	0-56	.93	.55	.98
Depressive affect	5.14	5.18	0-21	.89	1.05	1.30
Absence of well-being	3.93	3.69	0-12	.86	-.78	.61
Somatic symptoms	6.83	4.91	0-20	.83	-.27	.72
Interpersonal rejection	.96	1.56	0-6	.86	1.70	1.64
Beck Hopelessness Scale	20.32	13.43	2-55	.93	.07	.87
Barratt Impulsivity Scale	32.03	10.88	10-62	.83	.29	.71
Health Conditions	3.22	1.97	0-9	--	.13	.46
Years of Education	14.06	3.11	8-26	--	1.75	.90

Hierarchical Linear Regression

Hierarchical regression analysis was computed to determine whether impulsivity predicted suicide-related ideation after controlling for socio-demographic factors,

depression and hopelessness. It should be noted that colinearity was not found among the independent variables as none of the variables exceeded $r = .79$.

With combined GSIS scores as the dependent variable, socio-demographic variables were first entered to control for age, sex and health status. The second block entered in the analysis included scores on the CES-D (measure for depressive symptomatology) and scores on the BHS (measure of hopelessness). This block of variables served to control for affective factors known to contribute to the prediction of suicide-related ideation. Impulsivity (BIS) was added as a final step hypothesized to add to the prediction of suicide-related ideation over and above depressive symptomatology and hopelessness.

As shown in Table 3, the initial block of variables contribute significantly to prediction of GSIS scores ($R^2 = .18, p < .01$). These socio-demographic variables of age, sex and health accounted for 18% of the variance in suicide-related ideation. The addition of depression and hopelessness accounted for a further 50% of the variance. Impulsivity as a final step in the regression equation did not significantly increase prediction of suicide-related ideation as hypothesized (see Table 3).

Examining socio-demographic variables as predictors for suicide-related ideation revealed a moderate inverse relationship between sex and suicide-related ideation (β=-.23, $F[3, 113]=6.69, p < .05$). A stronger positive relationship was found between health and suicide-related ideation (β=.34, $F[3, 113]=15.13, p < .01$) suggesting that an increase in the number of health conditions (i.e., hypertension, arthritis) results in a moderate increase in suicide-related ideation.

Table 3: Regression Analysis of Socio-demographic, Depression, Hopelessness and Impulsivity Variables on Suicide-Related Ideation (N=117)

Variable	*B*	*SE B*	β
Step 1			
Age	.08	.23	.03
Sex	-10.53	4.07	-.22*
Health	4.01	1.03	.35**
Step 2			
CES-D[a]	.24	.16	.14
BHS[b]	1.05	.15	.61**
Step 3			
BIS[c]	-.20	.13	-.10

Notes: R^2 = .18** for socio-demographic variables; ΔR^2 = .50** subsequent to entry of depression and hopelessness scores; ΔR^2 = .01** subsequent to entry of impulsivity scores.

[a] CES-D = Center for Epidemiologic Studies-Depression Scale

[b] BHS = Beck Hopelessness Scale (revised 4-point, Likert-type scoring protocol)

[c] BIS = Barratt Impulsivity Scale

* $p < .05$, ** $p < .01$

The addition of depression and hopelessness scores into the regression equation indicated that depression is not a significant predictor of suicide-related ideation when controlling for socio-demographic variables and hopelessness, despite moderate to strong correlation coefficients between responses to the GSIS and CES-D. Hopelessness, however, showed a strong positive relationship with suicide-related ideation (β=.61, *F*[5,

111]=46.13, $p < .01$) lending support to previous findings that higher levels of hopelessness predict higher levels of suicide-related ideation (Beck, Brown, Berchick et al., 1990; Dennis, Molloy, Andrews, & Friedman, 2005; Hill, Gallagher, & Thompson, 1988; Meeks & Tennyson, 2003).

Contrary to the hypothesis, the addition of impulsivity as a final step did not emerge as a statistically significant predictor of suicide-related ideation. With hopelessness accounting for approximately half of observed variance (β=.61, F[5, 111]=46.13, $p < .01$), it is not unexpected that impulsivity did not emerge significantly. The same holds true for depression, which when entered into the same step as hopelessness, did not emerge as a significant predictor as the majority of its variance is parceled out to hopelessness. Therefore the results of this regression analysis showed that within this participant sample, hopelessness was the strongest predictor for suicide-related ideation when controlling for depression, impulsivity and socio-demographic factors.

Canonical Correlation

As previously mentioned, canonical correlation allowed for a more in-depth analysis of the relationships among independent variables (i.e., socio-demographic variables, depression, hopelessness, impulsivity; also called *predictor variables*) and GSIS subscale scores (i.e., suicide ideation, perceived meaning in life, loss of personal and social worth, death ideation; the *outcome variables*) - this, in contrast to examining suicide-related ideation as a single outcome variable.

The correlation coefficients between GSIS subscales within this sample further supports the assertion that suicide-related ideation should be examined as a multifaceted construct as coefficients between factors range from r =.61 to r = .85 (see Table 1).

Preliminary analyses were undertaken to identify variables which did not significantly contribute to the canonical correlation. These variables included perceived physical well-being, reported levels of life stress, ethnicity and occupation (now or prior to retirement). Surprisingly, current medication usage (either prescribed or over-the-counter medication; e.g., St. John's Wort), alcohol consumption, marital status and age were also unrelated to responses to either grouping of predictor or outcome variables (aside from shared variance with other variables).

Between groupings of predictor and outcome variables, two pairings emerge as statistically significant ($\lambda_1 = 2.69$, $F[df=40] = 6.25$, $p < .01$; $\lambda_2 = .31$, $F[df=27] = 2.12$, $p < .01$, respectively). The first grouping of linear composites appear to delineate an omnibus affective construct composed of significant amounts of variance for each of the CES-D subscales (most notably, absence of well-being at 61%), a considerable amount of reported hopelessness (83% of variance) as well as a significant proportion of reported impulsivity (23% or variance). Of the remaining predictor variables, significant amounts of pain variance (19%) and number of physical health conditions (18%) also emerge along this linear composite.

Among outcome variables, significant amounts of variance for each of the four suicide-related ideation subscales are subsumed along this canonical variate, most notably virtually all variance in loss of personal and social worth at 93%. Remarkably, two-thirds of all variance in suicide-related ideation is accounted for by the

corresponding set of predictor variables (depressive symptomatology, hopelessness, impulsivity, pain) and 33% of all observed variance within this grouping of predictor variables. See Table 4.

Table 4: Canonical Correlations, Coefficients and Percentages of Variance for Predictor and Outcome Variables (N = 117)

	Canonical Variate 1			**Canonical Variate 2**		
	Coefficient	Correlation	Variance (Sig)	Coefficient	Correlation	Variance (Sig)
Predictor Variables						
Hopelessness	.63	**.91**	83%	-.60	-.05	
Impulsivity	.01	**.48**	23%	.71	**.57**	32%
Affect	-.01	**.67**	45%	.69	**.42**	18%
Well-being	.16	**.78**	61%	-.29	-.11	
Somatic	.14	**.69**	48%	.18	**.45**	21%
Interpersonal	.02	**.53**	28%	-.34	-.02	
Health	.22	**.42**	18%	-.13	.10	
Education	-.01	-.11		-.10	**-.35**	12%
Sex	-.22	-.25		.22	**.31**	10%
Pain	.11	**.44**	19%	.27	.24	
Proportion of Variance			33%			10%
Outcome Variables						
Suicide ideation	.11	**.78**	61%	.33	-.08	
Meaning in life	.34	**.85**	72%	1.17	**.49**	24%
Loss of worth	.75	**.97**	93%	1.30	.17	
Death ideation	-.16	**.66**	43%	-.79	-.29	
Proportion of Variance			68%			9%
Canonical Correlation		.86	$p < .01$		.49	$p < .01$

Note. Significance specified only for variables that load significantly onto their respective vectors (i.e., correlation > .30 or variance > 10%)

The second pairing of linear composites captured significant proportions of variance for two of four CES-D subscales (i.e., depressive affect, somatic symptoms). Virtually no variance in hopelessness was captured by this linear composite; however, an even greater proportion of impulsivity was subsumed by this linear composite as compared to the first pairing (32% vs. 23%). In addition, this vector was more likely to be composed of responses by women (10% of variance) and participants with lower levels of educational attainment (12% of variance).

Of the suicide-related ideation subscales, a significant proportion of residual variance in *meaning in life* was the sole predictor variable captured along this vector. This canonical variate accounted for 10% of unique variance among predictor variables and a further 9% of variance in suicide-related ideation. This pattern suggests that higher levels of impulsivity and greater depressive affect and somatic symptoms are related to the perceived meaning in life subscale of suicide-related ideation, particularly among women and those with lower levels of education. This relationship suggests that individuals with depressive affect (i.e., "I felt lonely") and somatic symptoms (i.e., "I did not feel like eating") also experience an absence in perceived meaning of life (i.e., "I am certain I have something to live for"). The proportion of variance accounted for by impulsivity along this vector (32%) further suggests that greater impulsivity levels are associated with absence of meaning in life and aspects of depressive symptomatology.

The relationships found with canonical correlation provided partial support for the initial hypothesis that impulsivity would predict suicide-related ideation over and above that provided by depression and hopelessness. Depression, hopelessness and impulsivity were found significantly associated with GSIS subscales along the first vector; however,

only impulsivity and two facets of depressive symptomatology emerged as associated with suicide-related ideation in the second vector, lending support to the hypothesis of impulsivity's significance when determining risk for suicide-related ideation.

CHAPTER 5: DISCUSSION

Hierarchical regression and canonical correlation were used to examine the association between suicide-related ideation and depression, hopelessness and impulsivity. It was hypothesized that impulsivity would predict suicide-related ideation over and above that provided by socio-demographic variables, depression and hopelessness. In the regression analysis, hopelessness emerged as the strongest predictor for total suicide-related ideation scores. Canonical correlation provided partial support to the hypothesis as results showed that suicide-related ideation among older adults, particularly the absence of meaning in life, is significantly associated with impulsivity. Significant amounts of observed variance in impulsivity emerged along both canonical variates.

As found in comparable studies on suicide (Conwell, 1995; Fairweather, Anstey, Rodgers, et al., 2007; Hunt, Sweeting, Keoghan et al., 2006), sex differences emerged in the experience of suicide-related ideation, as the men in this sample reported significantly higher levels than women. Interestingly, increasing age was not a significant factor in relation to suicide-related ideation, hopelessness or impulsivity. Increasing age, however, was positively correlated with depressive symptomatology and worsening health within this participant sample, suggesting that as an individual ages and experiences increasing health problems, depressive symptoms also are more likely to result.

The relationship between suicide-related ideation and physical pain among this sample is notable. Research suggests that pain is a risk factor for suicide-related ideation, and in some cases, the risk for suicide doubles among chronic pain patients (Tang & Crane, 2006). More than half of the participants in this study reported that they were not

pain-free and the intensity of their pain was, on average, in the moderate range. Greater pain severity, in addition to the *perception* of increasing severity is significantly associated with suicide-related ideation (Edwards, Smith, Kudel et al., 2006; Karp & Dew, 2005). These findings highlight the need to focus on the prevention and management of pain in order to reduce the risk of suicide-related ideation. As Tadros and Salib (2007) recently demonstrated, older adults commonly present with physical pain in their doctors' offices in the months preceding their suicide.

Within this participant sample, sex, health and hopelessness emerged as statistically significant predictors of suicide-related ideation. The lack of predictive strength of depressive symptomatology is worth noting as previous studies have demonstrated the association between depression and suicide-related ideation and behaviour (Pearson, Conwell, & Lyness, 1997; Stolberg, Clark, & Bongar, 2002; Waern, Rubenowitz, & Wilhelmson, 2003). In this regression analysis, however, the grouping of depression and hopelessness in the same step resulted with hopelessness accounting for the majority of the variance explained (50%) in relation to total GSIS scores (in addition to the 18% accounted for by age, sex and health); therefore it was not unexpected that depression (or impulsivity) did not emerge as significant as comparatively little variance remained unaccounted for, much of which is likely measurement error.

Both sex and health also emerged as significant predictors of combined GSIS scores, suggesting that the women and those with higher levels of illness or chronic health conditions were more likely to experience higher levels of suicide-related ideation. This finding corresponds to the findings of previous studies suggesting that physical

health and impairments in activities of daily living are significantly associated with suicide-related ideation and behaviour (Goldblatt, 2000; Juurlink, Herrmann, Szalai et al., 2004; Yip et al., 2003).

The statistical significance of hopelessness as a predictor for total GSIS scores is also noteworthy. Hopelessness emerged in the regression analysis as the single strongest predictor of suicide-related ideation. It is possible that by changing the format of the Beck Hopelessness Scale to a 4-point Likert-type (in place of the original BHS true/false forced-choice format; Beck & Steer, 1988), the sensitivity of the measure increased and is reflected by its level of significance in the regression analysis. Nevertheless, this finding supports the assertion that hopelessness is an integral to assessment of suicide-related ideation and behaviour.

Canonical correlation results indicate that along the first vector, fully 68% of variance in suicide-related ideation (all subscales) is captured by each facet of depressive symptomatology, most notably the *absence of well-being*; however, the single strongest predictor among these independent variables is *hopelessness* at 83%. As noted above, this finding supports the assertion that hopelessness is strongly associated with suicide-related ideation in conjunction with, but to a greater degree than, depressive symptomatology (Beck et al., 1990; Beck et al. 1985). Ascertaining the presence of hopelessness appears warranted among older adults at risk for self-harm. Also of note is the significant percentage of variance in impulsivity captured along this vector at 23% marking its association with suicide-related ideation.

Results of this canonical correlation suggest that impulsivity may be a more ubiquitous construct than hopelessness. Whereas the first linear composite captured a

significant proportion of variance in GSIS responses, an even greater proportion of impulsivity emerged along the second vector at 32%. This result supports the finding that, like their younger counterparts, impulsivity is significantly associated with suicide-related ideation among older adults, particularly among those with an absence in meaning in life. As the items suggest (i.e., "I feel that I am needed in this world" "I am certain I have something to live for"), participants without a sense of meaning in life and with a greater association with impulsivity may be at increased risk for suicide-related behaviour. How the meaning in life subscale of the GSIS and impulsivity might be related requires further research and consideration.

Furthermore, depressive symptoms may be less immediately apparent where impulsivity is most pronounced as only two of four CES-D subscales (depressive affect and somatic symptoms) emerged as statistically significant along this vector. This result suggests that older adults at risk for self-harm who are more likely to act impulsively may be those less likely to appear overtly depressed. As these results suggest, the somatic symptoms of depression (i.e., sleep disturbance, weight loss) are more likely to be evident underscoring the degree to which this clinical presentation may go undetected. As previously noted, older adults are more likely to report somatic symptoms of depression rather then affective symptoms to their primary care physician (Pearson, Conwell & Lyness, 1997) creating more difficulty for the recognition of an affective disorder and the associated risk of suicide-related behaviour.

Also of note is the virtual absence of hopelessness along this second vector suggesting that screening for hopelessness alone may be insufficient to identify all older adults at risk for self-harm. Given the finding that the majority of older adults who

commit suicide visit a primary care physician within the last month of their lives (Pearson, Conwell, Lindesay et al., 1997) and commonly present with physical pain (Tadros & Salib, 2007), the addition of an impulsivity screening measure may be necessary to detect the full spectrum of older adults at risk for self-harm.

From a theoretical point of view, canonical correlation results lend partial support to Baumeister's Escape Theory of Suicide which contends that individuals engage in a process of cognitive deconstruction whereby they experience a disinhibited state; they are believed to be neither hopeless nor depressed as the person intentionally avoids experiencing emotion. In this deconstructive state, an individual is more inclined to consider irrational thoughts such as suicide-related behaviour and may act impulsively as their higher order cognitions (i.e., evaluative abilities, meaningful thoughts) are deliberately circumvented.

In comparing the results of the canonical correlation to the theory, hopelessness is virtually absent, yet two of the four depression subscales are present along the second vector in relation to suicide-related ideation. According to the deconstructive state of the Escape Theory, individuals whose troubling thoughts and feelings that are not adequately resolved in this state, (or through re-interpretation), will find suicide-related behaviour as a means of escape. The results of the study show, however, that individuals with higher levels of impulsivity, combined with depressive affect and somatic symptomatology are at greater risk for suicide-related behaviour. In other words, according to Baumeister's theory, the individual's mindset is devoid of emotion in their suicidal state, yet the findings of this study show that this may not be the case. In fact, the mindset (or deconstructive state) is not emotionless as the coupling of depressive affect and somatic

symptomatology with impulsivity increases suicide-related risk. Therefore the results indicate that the Escape Theory may not fully account for suicide-related ideation among older adults as only partial support was provided for the deconstructive state; support was not provided for the exclusion of experienced emotion.

In addition to the theoretical perspective, the clinical perspective is also of importance. The findings of this study provide support for the assertion that impulsivity is significantly associated with suicide-related ideation, particularly among individuals with an absence of meaning in life. Impulsivity appears to predict suicide-related ideation more broadly than hopelessness alone, with and without a broad presentation of depressive symptomatology. These findings have considerable implications for both suicide research and clinical practice as higher levels of impulsivity should be considered a risk factor when assessing older adults at risk for suicide-related behaviour, in addition to hopelessness. The significant association between impulsivity and an absence in meaning in life warrants further attention. Healthcare practitioners should ascertain the presence (or lack of) this meaningful aspect in patients' lives when assessing suicide-related ideation. Ongoing research into impulsivity among older adults may help to further elucidate the age-specific risk factors for suicide-related ideation and behaviour and add to the literature on prevention and intervention.

Limitations and Future Research

Various limitations should be noted reducing the ability to generalize findings. For instance, this was a self-selected sample which may not be representative of the population of older adults at risk for self-harm. It is probable that the most severely

depressed persons or those who did not want to discuss their suicide-related thoughts chose not to take part in this study. As previously noted, healthcare practitioners who responded to recruitment requests cited a hesitancy to directly ask their older patients about suicidal feelings (either past or present) for the purposes of a research study.

Participant recruitment via the Internet and newspaper advertisements added to the diversity of the sample. Results of this study might have yielded different outcomes had only one method of recruitment been adopted and/or by constricting the participant age range (e.g., over 59 years of age). The number of older adults who expressed interest in this study after receiving an e-mail request suggests that online recruitment for even a sensitive topic such as suicide is feasible. One might expect that the Internet provides a sense of anonymity which further allows participants to divulge suicide-related ideations more readily than through other means of recruitment; however the participant sample recruited through the newspaper advertisements rated the highest for suicide-related ideation.

With respect to sample size, the total number of participants was sufficiently large to detect medium to large effect sizes with hierarchical regression. This sample was also predominantly female which potentially limits our ability to draw conclusions. Furthermore, this sample was predominantly Caucasian and may not sufficiently account for the relationship between impulsivity and suicide-related ideations in non-Caucasian populations. Future work should consider examining these relationships in diverse cultural and ethnic groups, as well as in more diverse venues and situations, such as among older adults living in institutional care.

Hierarchical regression and canonical correlation each have their own limitations. As noted above, hierarchical regression examines the impact of multiple independent variables on a single outcome variable (i.e., total score on GSIS) creating the potential for a loss of information, particularly with a multi-dimensional construct such as suicide-related ideation. As shown by this study, absence in meaning in life had a nuanced association with impulsivity, depressive affect and somatic symptomatology, a finding that did not emerge with hierarchical regression.

On the other hand, while canonical correlation, allows for more in-depth analyses, the procedure is a more exploratory statistical procedure than more typical hypothesis-driven modes of analyses. However, the use of this statistical procedure was appropriate in this study given that no previous research has examined the inter-relation among impulsivity, hopelessness and suicide-related ideation with older adults.

Sex differences relative to suicide-related ideation and behaviour are well established in the research literature; the reasons for sex differences in impulsivity remain unknown, particularly among older adults (Chapple & Johnson, 2007). As impulsivity is positively correlated with suicide-related ideation, consideration of possible sex by impulsivity interaction effects may further illucidate the association between these constructs. Further analyses of the current data as well as future research are warranted.

Additional avenues for future research include consideration of protective factors such as *resiliency* or psychological hardiness which buffer young and older adults from suicide-related ideation (i.e., familial bonds, religious affilitation, less disease burden). As this thesis focused primarily on the risk factors associated with suicide-related

ideation, protective factors must also be considered to gain a more complete understanding of suicide-related ideation risk factors.

The course and point of onset of depressive symptomatology should also be considered to further understanding of suicide-related ideation (e.g., late vs. early onset; Bellini & Matteucci, 2001). For instance, Reynolds and colleagues (1998) found that older adults with early-onset depression required greater clinical management than older adults with late-onset depression. Although the onset of symptomatology was not assessed for this thesis, its relation to impulsivity and suicide-related ideation is a worthwhile avenue for future exploration.

The subscales of the Barratt Impulsivity Scale were not individually examined in the regression analysis or in the canonical correlation to determine their relative strength in predicting suicide-related ideation. As the BIS considers impulsivity as a multi-dimensional construct by measuring attentional impulsivity (i.e., not focusing on the task at hand), motor impulsivity (i.e., acting on the spur of the moment) and non-planning (i.e., not thinking carefully); examining each of these in relation to GSIS responses and individual subscales is warranted. It is possible that associations exist between these aspects of impulsivity.

Further validation of responses to the Barratt Impulsivity Scale should be undertaken. Clinicians and researchers currently have the option of choosing among various measures of this construct, some which examine impulsive as an aspect of personality (i.e., Plutchik & Van Praag, 1989) or cognitive inhibition (i.e., Stroop, 1935). Of note, the Barratt Impulsivity Scale conceptualizes impulsivity as having cognitive, behavioural and psychological components. Development and validation of other self-

report impulsivity measures for use with older adults would be ideal. At present, those most commonly are clinician administered (e.g., Wisconsin Card Sort; Grant & Berg, 1993).

The addition of a qualitative component should also considered for future research. Qualitative methods involve studies with comparatively small groups to obtain open-ended verbal data in addition to or in place of responses to standardized measures (Neuman, 1994). Participants would be able to describe the thoughts, feelings and motives that may have led to a suicide attempt; these may not be captured fully by questionnaires alone. Few studies have examined suicide-related ideation among older adults from a qualitative perspective, suggesting the exigence for this type of approach.

Research examining the correlates of impulsivity and suicide-related ideation among older adults is gaining momentum; however, experts agree that knowledge in this area, particularly surrounding impulsive suicide-related behaviour is in its infancy (Connor, 2004). This study examined the predictive strength and the relationship between impulsivity and suicide-related ideation among older adults. Despite the above limitations, the findings of this study provide support for the assertion that impulsivity is significantly associated with suicidal ideation, and thereby has clinical implications as well as for future research. Ongoing study with a gerontological focus that addresses these limitations may help to further advance the understanding and prevention of suicide-related ideation and behaviours among older adults.

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APPENDIX

Center for Epidemiologic Studies Depression Scale (CES-D)

This questionnaire asks you about how you have been feeling. The following is a list of ways you might have felt or behaved. After each statement, please indicate how often you felt this way **during the past week** using the response key.

1 Rarely or none (< 1 day)	**2** Some (1-2 days)	**3** Occasionally (3-4 days)	**4** Most (5-7 days)

1. I was bothered by things that don't usually bother me	1 2 3 4
2. I did not feel like eating; my appetite is poor	1 2 3 4
3. I felt that I could not shake off the blues even with help from my family or friends	1 2 3 4
4. I felt that I was just as good as other people	1 2 3 4
5. I had trouble keeping my mind on what I was doing	1 2 3 4
6. I felt depressed	1 2 3 4
7. I felt that everything I did was an effort	1 2 3 4
8. I felt hopeful about the future	1 2 3 4
9. I thought my life had been a failure	1 2 3 4
10. I felt fearful	1 2 3 4
11. My sleep was restless	1 2 3 4
12. I was happy	1 2 3 4
13. I talked less than usual	1 2 3 4
14. I felt lonely	1 2 3 4

Questionnaire 1 cont'd

15. People were unfriendly	1 2 3 4
16. I enjoyed life	1 2 3 4
17. I had crying spells	1 2 3 4
18. I felt sad	1 2 3 4
19. I felt that people dislike me	1 2 3 4
20. I could not 'get going'	1 2 3 4

Beck Hopelessness Scale (BHS)

Please read the statements carefully one by one. If the statement describes your attitude for the ***past week including today***, circle the number to the right of the statement based on the following response key.

1	**2**	**3**	**4**
Rarely or none (< 1 day)	Some (1-2 days)	Occasionally (3-4 days)	Most (5-7 days)

1. I look forward to the future with hope and enthusiasm	1 2 3 4
2. I might as well give up because there is nothing I can do about making things better for myself	1 2 3 4
3. When things are going badly, I am helped by knowing that they cannot stay that way forever	1 2 3 4
4. I can't imagine what my life would be like in ten years	1 2 3 4
5. I have enough time to accomplish the things I want to do	1 2 3 4
6. In the future, I expect to succeed in what concerns me most	1 2 3 4
7. My future seems dark to me	1 2 3 4
8. I happen to be particularly lucky, and I expect to get more of the good things in life than the average person	1 2 3 4
9. I just can't get the breaks, and there's no reason I will in the future	1 2 3 4
10. My past experiences have prepared me well for the future	1 2 3 4
11. All I can see ahead of me is unpleasantness rather than pleasantness	1 2 3 4
12. I don't expect to get what I really want	1 2 3 4
13. When I look ahead to the future, I expect that I will be happier than I am now	1 2 3 4

Questionnaire 2 cont'd

14. Things just don't work out the way I want them to	1 2 3 4
15. I have great faith in the future	1 2 3 4
16. I never get what I want, so it's foolish to want anything	1 2 3 4
17. It's very unlikely that I will get any real satisfaction in the future	1 2 3 4
18. The future seems vague and uncertain to me	1 2 3 4
19. I can look forward to more good times than bad times	1 2 3 4
20. There's no use in really trying to get anything I want because I probably won't get it	1 2 3 4

Geriatric Suicide Ideation Scale (GSIS)

Listed below are a number of statements concerning your feelings and beliefs about your life. Please read each statement carefully, and decide whether you agree or disagree with it, and to what extent, as indicated below. Please be completely honest in your responses, and try to respond to every statement. Do not circle more than one number for each statement.

1 Strongly Disagree	**2** Disagree	**3** Neither Agree Nor Disagree	**4** Agree	**5** Strongly agree

1. Life is extremely valuable to me.	1 2 3 4 5
2. Sometimes my life feels so hard that I just want to escape.	1 2 3 4 5
3. I welcome the thought of drifting off to sleep and never waking up.	1 2 3 4 5
4. I want to end my life.	1 2 3 4 5
5. I feel that I am needed in this world.	1 2 3 4 5
6. I feel like I am a constant burden to my family.	1 2 3 4 5
7. I often wish that I would pass away in my sleep.	1 2 3 4 5
8. I can see no sense in carrying on with this empty existence.	1 2 3 4 5
9. I feel that my life is meaningful.	1 2 3 4 5
10. I never thought that my life would turn out this poorly.	1 2 3 4 5
11. At times I think that if things get much worse for me, I will end my life.	1 2 3 4 5
12. I have recently been thinking a great deal about specific ways of killing myself.	1 2 3 4 5
13. I have come to accept my life with all of its ups and downs.	1 2 3 4 5

Questionnaire 3 cont'd

14. I frequently feel useless.	1 2 3 4 5
15. I am looking forward to my eternal rest.	1 2 3 4 5
16. There are times when I feel like I am wasting away.	1 2 3 4 5
17. I have seriously considered suicide more than once earlier in my life.	1 2 3 4 5
18. I find joy and beauty in life.	1 2 3 4 5
19. I generally feel pretty worthless.	1 2 3 4 5
20. I am preoccupied with wishing that my life were over soon	1 2 3 4 5
21. I frequently think that my family will be better off when I am dead.	1 2 3 4 5
22. I am certain that I have something to live for.	1 2 3 4 5
23. There is nothing further that I can do to help myself or anyone else.	1 2 3 4 5
24. I often wish that someone could give me a pill to make me go to sleep and never wake up.	1 2 3 4 5
25. I might do something to end it all if I could only muster the energy to do so.	1 2 3 4 5
26. I have tried ending my life in the past.	1 2 3 4 5
27. I feel that my life still has dignity.	1 2 3 4 5
28. Lately it seems that my health is really going downhill.	1 2 3 4 5
29. I feel that there is nothing left for me in this world.	1 2 3 4 5
30. I long for the peaceful slumber of death.	1 2 3 4 5
31. I believe that others need me.	1 2 3 4 5

Barratt Impulsivity Scale (BIS)

People differ in the ways they act and think in different situations. These questions measure some of the ways in which you act and think. Read each statement and circle the appropriate response using the following key. Do not spend too much time on any statement. Answer quickly and honestly.

1	**2**	**3**	**4**
Rarely or none (< 1 day)	Some (1-2 days)	Occasionally (3-4 days)	Most (5-7 days)

1. I plan tasks carefully	1 2 3 4
2. I do things without thinking	1 2 3 4
3. I am happy-go-lucky	1 2 3 4
4. I have "racing" thoughts	1 2 3 4
5. I plan trips well ahead of time	1 2 3 4
6. I am self-controlled	1 2 3 4
7. I concentrate easily	1 2 3 4
8. I save regularly	1 2 3 4
9. I find it hard to sit still for long periods of time	1 2 3 4
10. I am a careful thinker	1 2 3 4
11. I plan for job security	1 2 3 4
12. I say things without thinking	1 2 3 4
13. I like to think about complex problems	1 2 3 4
14. I change jobs	1 2 3 4
15. I act "on impulse"	1 2 3 4

Questionnaire 4 cont'd

16. I get easily bored when solving thought problems	1 2 3 4
17. I have regular medical/dental checkups	1 2 3 4
18. I act on the spur of the moment	1 2 3 4
19. I am a steady thinker	1 2 3 4
20. I change where I live	1 2 3 4
21. I buy things on impulse	1 2 3 4
22. I finish what I start	1 2 3 4
23. I walk and move fast	1 2 3 4
24. I solve problems by trial and error	1 2 3 4
25. I spend or charge more than I earn	1 2 3 4
26. I talk fast	1 2 3 4
27. I have outside thoughts when thinking	1 2 3 4
28. I am more interested in the present than the future	1 2 3 4
29. I am restless at lectures or talks	1 2 3 4
30. I plan for the future	1 2 3 4

Demographic & Health Questions

Present age: _____ Gender: _____

What is your present marital status? _____

How would you best describe your ethnicity (select *one* response)?

- ☐ African/African American/Black
- ☐ Asian/Pacific Islander
- ☐ Latina/Latino
- ☐ Middle Eastern/North African
- ☐ White/European
- ☐ Native American/Aboriginal
- ☐ Mixed/Multi

How many years of formal education did you complete? _____

What is/was your work/occupation(s)? _____

What are your current living arrangements? _____
(e.g., living alone? with significant other? with family?)

In general, would you say your physical health is:

- ☐ Excellent
- ☐ Very good
- ☐ Good
- ☐ Fair
- ☐ Poor

In general, how much stress is in your life? Would you say most days are:

- ☐ Not at all stressful
- ☐ Not very stressful
- ☐ A bit stressful
- ☐ Quite a bit stressful
- ☐ Extremely stressful

Questionnaire 5 cont'd

Regarding your physical health over the past year, do you have, or have had any of the following conditions. Please circle either *Yes* or *No* as appropriate:

Allergies of any kind	**Yes**	**No**
Fractures or broken bones	**Yes**	**No**
Chest problems (e.g., asthma, emphysema)	**Yes**	**No**
Heart disease or circulation problems	**Yes**	**No**
High blood pressure	**Yes**	**No**
Kidney condition or disease (e.g., bladder troubles)	**Yes**	**No**
Tumour or cancer	**Yes**	**No**
Diabetes	**Yes**	**No**
Arthritis / rheumatism / fibromyalgia	**Yes**	**No**
Troubles with your stomach or digestive problems	**Yes**	**No**
Stroke or effects of a stroke	**Yes**	**No**
Parkinson's disease	**Yes**	**No**
Other problem(s) not mentioned	**Yes**	**No**

If yes, specify: _____

Have you seen a health professional about your emotional and/or mental health in the past year:

- ☐ Yes
- ☐ No

If yes, please indicate (check all that apply)

- ☐ Family doctor or general practitioner
- ☐ Psychiatrist
- ☐ Psychologist
- ☐ Nurse
- ☐ Social worker or counsellor
- ☐ Not sure
- ☐ Other (specify)

Are you *usually* free of physical pain or discomfort?

☐ Yes ☐ No

If no, how would you describe the *usual* intensity of your physical pain or discomfort?

☐ Severe ☐ Moderate ☐ Mild

Questionnaire 5 cont'd

Please select the response from each of the following groups of statements which best describes your health-related behaviours.

Alcohol

- ☐ I do not drink alcohol
- ☐ I drink 1-2 alcoholic beverages at least once a week
- ☐ I drink 3-4 alcoholic beverages at least once a week
- ☐ I drink 5-6 alcoholic beverages at least once a week
- ☐ I drink daily and/or consume more than 6 drinks per occasion

Antidepressant Medication Use

- ☐ I have never taken antidepressant medication
- ☐ I am not currently taking antidepressant medication, but have in the past
- ☐ I am currently taking antidepressant medication
- ☐ I am taking an alternative medicine (e.g., St. John's Wort)

• • Thank you for your participation • •