

DISTINGUISHING SUICIDE ATTEMPTERS FROM SUICIDE IDEATORS

by

ALEXIS MERRY MAY

B.A., Wesleyan University, 2005

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF ARTS

in

THE FACULTY OF GRADUATE STUDIES

(Psychology)

THE UNIVERSITY OF BRITISH COLUMBIA

(Vancouver)

August 2010

© Alexis Merry May, 2010

Abstract

Suicidal ideations and attempts are a major public health problem. Most known risk factors predict suicidality overall, rather than attempt or ideation specifically. Limited research has investigated risk factors that distinguish individuals who attempt suicide from individuals who only think about suicide. Existing demographic, psychological, personality, and sociodemographic risk factors were investigated in 3 samples using validated questionnaires and structured interviews. Cross-sectional data was gathered from 1,348 college students and 2,011 military recruits. Ten-year longitudinal data was gathered from 49 clinically depressed adults. Results from the cross-sectional samples (college students and military recruits) suggest that most risk factors for suicidality do not differentiate attempters from ideators. Risk factors that did appear associated with attempts over ideation were female gender, non-suicidal self-injury, amphetamine use, and a domain of impulsivity - lack of premeditation. Among women, the personality trait of manipulateness was associated with ideation over attempts. Results from the longitudinal sample (depressed adults) suggest that co-morbid personality disorders, co-morbid anxiety disorders, co-morbid substance use disorders, social adjustment difficulties, and a poor maternal relationship predict suicide attempts in the next 10 years among suicide ideators. Co-morbid personality disorder, especially in Cluster B, appear to be the strongest predictors of attempts in the depressed ideating sample. Further research is needed to replicate these findings and identify further unique predictors of suicide attempts among ideators. This will aid in suicide risk assessment and the development of a comprehensive theory of suicidality.

Preface

Approval to use existing data sets for these analyses was obtained from the UBC Behavioural Research Ethics Board. The Certificate Number is H10-01595. A copy of the certificate is included in Appendix 2.

The data examined in this thesis was originally collected for projects headed by Dr. Daniel N. Klein, Dr. E. David Klonsky, Dr. Thomas F. Oltmanns, Dr. Eric Turkheimer, and Jared McIntyre.

Table of Contents

Abstract.....	ii
Preface.....	iii
Table of Contents.....	iv
List of Tables.....	v
Acknowledgements.....	vi
Chapter 1: Introduction.....	1
Chapter 2: Literature Review - Risk Factors for Suicidality.....	3
Demographic Variables.....	3
Axis I Disorders.....	8
Axis II Disorders.....	14
Personality Traits.....	18
Sociodemographic Factors.....	23
Chapter 3: Literature Review - Factors that Differentiate Attempters from Ideators.....	27
Demographic Variables.....	27
Psychological Diagnoses and Symptoms.....	28
Personality Disorders and Traits.....	30
Sociodemographic and Other Factors.....	30
Chapter 4: Summary of Research Project.....	34
Chapter 5: Methods.....	35
Sample 1.....	35
Sample 2.....	37
Sample 3.....	38
Chapter 6: Results.....	42
Sample 1.....	42
Sample 2.....	46
Sample 3.....	49
Chapter 7: Discussion.....	53
Overview.....	53
Cross-sectional Associations.....	53
Longitudinal Predictors.....	61
Integration of Findings and Future Directions.....	66
References.....	95
Appendix 1: Studies Assessing Variables that Distinguish Attempters from Ideators.....	119
Appendix 2: UBC Research Ethics Board's Certificates of Approval.....	124

List of Tables

Table 1. Group Differences in Demographic Characteristics in Sample 1	70
Table 2. Group Differences in Psychological and Personality Disorders in Sample 1.....	71
Table 3. Group Differences in UPPS Impulsivity Scales in Sample 1	72
Table 4. Group Differences Sociodemographic Variables in Sample 1	73
Table 5. Group Differences in Drug and Alcohol Use in Sample1	74
Table 6. Group Differences in Drug and Alcohol Use for Variables with Expected Cell Counts Less than 5 in Sample 1	75
Table 7. Group Differences in Negative Substance Use Consequences in Sample 1.....	76
Table 8. Unique Effects of Significant Predictors of Attempt Status in Sample 1	77
Table 9. Group Differences in Demographic Characteristics in Sample 2.....	78
Table 10. Group Differences in Personality Traits (T-scores) in Sample 2.....	80
Table 11. Group Differences in Personality Disorder Symptoms (T-scores) in Sample 2.....	81
Table 12. Group Differences in Psychological Disorder Symptoms and Treatment in Sample 2.....	82
Table 13. Associations of SNAP Items with Ideator versus Attempter Status in Sample 2.....	83
Table 14. Relationships between Demographic Variables and Attempter Status in Sample 3	84
Table 15. Relationships between Axis I Variables and Attempter Status in Sample 3	85
Table 16. Relationships between Axis II Variables and Attempter Status in Sample 3	86
Table 17. Relationships between Personality Traits and Attempter Status in Sample 3	87
Table 18. Relationship between Sociodemographic Variables and Attempter Status in Sample 3.....	88
Table 19. Relationship between Individual Variables and Suicide Status Controlling for Past Attempts in Sample 3.....	90
Table 20. Predicting Suicide Attempts from Personality Disorder Diagnosis and Baseline Anxiety Disorder in Sample 3.....	92
Table 21. Predicting Suicide Attempts from Personality Disorder Diagnosis and Lifetime Substance Use Disorder in Sample 3	92
Table 22. Predicting Suicide Attempts from Personality Disorder Diagnosis and Poor Relationship with Mom in Sample 3	92
Table 23. Predicting Suicide Attempts from Personality Disorder Diagnosis and Social Adjustment Difficulty in Sample 3	92
Table 24. Predicting Suicide Attempts from Baseline Anxiety Disorder and Lifetime Substance Use Disorder in Sample 3	93
Table 25. Predicting Suicide Attempts from Baseline Anxiety Disorder and Poor Relationship with Mom in Sample 3.....	93
Table 26. Predicting Suicide Attempts from Baseline Anxiety Disorder and Social Adjustment Difficulty in Sample 3.....	93
Table 27. Predicting Suicide Attempts from Lifetime Substance Use Disorder and Poor Relationship with Mom in Sample 3	93
Table 28. Predicting Suicide Attempts from Lifetime Substance Use Disorder and Social Adjustment Difficulty in Sample 3	94
Table 29. Predicting Suicide Attempts from Poor Relationship with Mom and Social Adjustment Difficulty in Sample 3.....	94

Acknowledgements

I extend my sincere gratitude to my supervisor, Dr. E. David Klonsky. Without his enthusiasm, inspiration, and guidance this thesis would not have been possible.

I would also like to thank the members of my thesis committee, Dr. Paul Hewitt and Dr. Colleen Brenner for their advice and assistance throughout this process.

Finally, I am most honored to thank my parents, Marianne K. O'Brien and Tom May, for their unwavering support, endless patience, and quiet encouragement when it was most needed.

Chapter 1: Introduction

Suicide is the 9th leading cause of death in Canada and the 11th leading cause of death in the United States, killing approximately 3,700 Canadians and 30,000 Americans yearly (Centers for Disease Control (CDC), 2009; Statistics Canada, 2008). To facilitate suicide prevention, risk factors must be identified that pinpoint the individuals who are at the greatest danger. Though the vast majority of suicide attempts are preceded by suicide ideations, most people who think about suicide do not go on to make an attempt (Kessler, Borges, & Walters, 1999). It is estimated that for every completed suicide there are approximately 25 attempts and for every attempt countless others suffer with suicidal thoughts (Goldsmith, Pellmar, Kleinman, & Bunney, 2002). This leads to an important question: what factors differentiate the small number of suicide attempters from the much larger group of suicide ideators. By better understanding the demographic, psychological, personality, and sociodemographic factors that predispose an individual who considers suicide to actually make an attempt, researchers, clinicians, and society can design better interventions, target the groups found to be at highest risk, and allocate resources more efficiently and effectively.

Much of the suicide literature thus far has served an important goal – using cross-sectional and, to a lesser degree, longitudinal studies to identify variables that differentiate suicide attempters from controls or suicide ideators from controls. As will be reviewed, there is a vast literature that details the demographic, psychological, personality, and sociodemographic risk factors for suicidality *in general*. The next step is to develop a similarly robust body of literature examining which variables differentiate suicidal individuals from each other. That is, what distinguishes a suicide attempter from a suicide ideator. This thesis will use two cross-sectional community data sets to examine which variables are associated with a history of suicide attempt as opposed to suicide ideation. One longitudinal clinical data set will be examined to identify variables that predict future attempts among depressed participants who reported

ideation at baseline. In this thesis I will a) review the literature on risk factors for suicidality in general, focusing on demographic, psychological, personality, and sociodemographic risk factors, b) review studies specifically contrasting risk factors for ideators versus attempters, c) introduce the research plan and analyses, d) report the results, and e) discuss the implications of the findings and the future directions they suggest.

Chapter 2: Literature Review - Risk Factors for Suicidality

Demographic Variables

Gender.

Suicide death. Men have 3-4 times the odds of dying from suicide compared to women (Miniño, Anderson, Fingerhut, Boudreault, & Warner, 2006; Moscicki, 1997; Qin, Agerbo, & Mortenson, 2003; Singh, Kochanek, & MacDorman, 1996). This gender difference is one of the most consistent findings regarding suicide risk in North America and exists across age groups and ethnicities. In 2006, among American females aged 15-24, 7.5% of deaths were caused by suicide, while among males, 13.5% of the deaths were caused by suicide. Among adults the ratio is similar. Overall, men account for 79% of the suicide deaths in the United States (CDC, 2007).

Suicide ideation and attempt. Conversely, women have 2-3 times the odds of attempting suicide when compared to men, a finding that holds across ages and ethnicities (Kessler, Borges, & Walters, 1999; Moscicki, 1988; Swahn & Bossarte, 2007). The 2007 Youth Risk Behavior Survey, a school-based nationally representative survey of health risk behaviors in American adolescents, found that 9.3% of girls compared to 4.6% of boys reported attempting suicide in the past year and 18.7% of girls compared to 10.3% of boys seriously considered attempting suicide in the past year (CDC, 2008). In a similar pattern, a nationally representative study of American adults found that 5.8% of women reported a lifetime suicide attempt, compared to only 2.7% of men (Cogle, Keough, Riccardi, & Sachs-Ericsson, 2009). The odds of reporting lifetime suicide ideation are also greater among American women than American men, though there are some differences cross-culturally (Kessler et al., 1999; Thomas, Crawford, Meltzer, & Lewis, 2002; Vilhjalmsson, Kristjansdottir, & Sveinbjarnardottir, 1998). The discrepancy between attempts and deaths has been partially explained by males' use of more lethal or irreversible means (e.g. guns) (Brent, Baugher, Bridge, Chen, & Chiappetta, 1999; Canetto & Sakinofsky, 1998; Spicer & Miller, 2000).

Age.

Suicide death. Suicide completion rates are the highest in the elderly, with an annual rate of 15-21 deaths per 100,000 in those over 65 years of age as compared to 10-13 deaths per 100,000 in Americans aged 15-24 (McKeown, Cuffe, & Schulz, 2006). However, suicide is not a leading cause of death among the elderly, as it is among youth. It is the 18th leading cause of death for individuals 65 and older and the third leading cause of death for individuals 15-24 (WISQARS, 2009). Because the elderly primarily die from chronic and infectious diseases, the number of deaths by suicide does not approach the number of deaths by other causes. There is some evidence that, like men, older adults use more lethal means when they attempt suicide. However, even when means are controlled for, the fatality rate is still higher among older adults (Spicer and Miller, 2000).

Suicide ideation and attempt. The relationship between suicide attempts and age is reversed. Suicide attempts are more commonly reported among younger individuals than older individuals (Kessler, Berglund, Borges, Nock, & Wang, 2005). For example, in an examination of the first wave of the Epidemiological Catchment Area data, Moscicki et al. (1988) found that lifetime attempts were significantly more prevalent in respondents less than 44 years of age. The lowest prevalence of attempts was in individuals 65 and older. A cross-national study found declining odds ratios for suicidal behavior as age increased, a trend that was observed in 16 of the 17 countries examined (Nock et al., 2008a). In fact, data suggests that adults over 65 have the lowest attempt to suicide completion ratio of any age group (Moscicki, 1995). Similarly, reports of ideation decrease as age increases (Duberstein et al., 1999; Gallo, Anthony, & Muthen, 1994).

Comment. Cohort and recall effects potentially complicate understanding the relationship between age and suicidality. Kessler et al. (1999) found that a significant portion of the cohort difference in suicide attempts in the United States was accounted for by psychiatric diagnoses, suggesting that higher rates of mental disorders in more recent cohorts may account for at least

some of the difference observed in attempts. The cohort effect may also be reflected in a decreased willingness of older adults to report suicide attempt or ideation, due to stigma. Research has shown that older adults hold more misconceptions about suicide as compared to younger adults (Segal, 2000). Recall effects may also explain some of the differences, as older adults may be more likely to have either forgotten or re-interpreted suicide attempts that occurred earlier in their lives.

Race and ethnicity.

Suicide death. In the United States, suicide death rates vary by race and ethnicity (Perez-Rodriguez, Baca-Garcia, Oquendo, & Blanco, 2008). Historically, studies have found that Native Americans have the highest rate of suicide death compared to other racial groups, though the gap seems to be closing somewhat (CDC, 2009; Wallace, Calhoun, Powell, O'Neil, & James, 1996). In general, whites have demonstrated higher rates of suicide when compared to African Americans, who have the lowest rate of suicide death. For example, in 2003 the risk of dying by suicide for whites was almost three times that the rate of blacks, 13 deaths per 100,000 people versus 5 deaths per 100,000 people (Joe, Baser, Breeden, Neighbors, & Jackson, 2006). Some have suggested that suicide deaths in African Americans are underreported or misclassified, contributing to the perceived gap in rates (Mohler & Earls, 2001). Research also suggests that whites have higher rates of suicide death when compared to their Hispanic and Asian American counterparts (Buescher, 2003; Grunbaum, Lowry, Kann, & Pateman, 2000; Sorlie, Backlund, Johnson, & Rogot, 1993). There are also interactions between age, gender, and ethnicity in suicide death. The highest rate of suicide death among whites and Asian Americans is in males over the age of 85. The highest rate of suicide death in Native Americans is among males 25 to 29 and in African Americans is among males aged 20 to 24 (CDC, 2009).

Suicide ideation and attempt. The findings on suicide attempts and ethnicity are sparse and the results that are available are mixed. Nationally representative studies of the United States

have reported lower suicide attempt rates in African Americans when compared to whites (Kessler et al., 1999). Nationally representative studies and studies of Hispanics specifically are mixed, finding either lower or similar rates of suicide attempts as whites (Fortuna, Perez, Canino, Sribney, & Alegria, 2007; Kessler et al., 1999). The grouping of many different ethnicities within the label Hispanic blurs the picture, as research has suggests some variability of rates depending on the Hispanic ethnicity (Oquendo, Lizardi, Greenwald, Weissman, & Mann, 2004). Another nationally representative study found lower rates of attempts in Asian Americans as compared to other racial groups (Duldulao, Takeuchi, & Hong, 2009).

Among youth, the picture appears different. Counter to the trends in the adult population, two nationally representative surveys found that African American and Hispanic youth report more suicide attempts than their white peers and Hispanic girls report more suicidal ideation than their white or African American classmates (Alaimo, Olson, & Frongillo, 2002; CDC, 2008). Additionally, self-reported suicide ideation and attempts among Asian American youth were not significantly different than those of other races (Grunbaum et al., 2000).

Comment. There are a number of possible factors that explain the differing rates of suicidality by ethnicity. Chandler and Lalonde (2008) suggest that higher rates of suicidality in indigenous people are caused by a loss of cultural identity and continuity due to the oppression these communities have faced. Additionally rates of risk factors such as substance abuse, psychiatric illness, and childhood abuse are higher among Native Americans and may contribute to the increase in suicide risk. Other researchers have suggested that religiosity and strong family ties may be protective factors against suicidality and may be more prevalent among African American, Hispanic, and Asian American communities (Dervic, et al., 2004; Fortuna et al., 2007).

Contradictory and complex findings underscore the need for more comprehensive and larger scale research on the relationship between ethnicity/race and suicide ideation, attempts,

and completion. Additionally, future work must adjust for confounding factors such as socioeconomic status. Further research should also attempt to differentiate among ethnic groups within an ethnic category, as there may be important differences lost when groups are combined.

Socioeconomic status (SES).

Suicide death. Research on the relationship between socioeconomic status and suicide generally suggests that SES is negatively associated with suicide death rate, though the indicator used to operationalize SES has important effects. The National Health Interview Study examined suicide deaths and demographic data in over a million US adults between 1986 and 2002. Lower educational attainment was predictive of suicide death and the relationship was especially strong among men (Denney, Rogers, Krueger, & Wadsworth, 2009). Family income and unemployment were not associated with suicide death when other socioeconomic variables were included in the model (Cubbin, LeClere, & Smith, 2000; Denney et al., 2009). An exception was among individuals who were not in the labor force, who were at significantly higher risk. People with a psychiatric disability are included in this group, which may partially explain the higher rates of suicide death. Thus it seems that educational attainment may drive the relationship between suicide death rates and SES, which in itself may be influenced by psychiatric illness. Higher suicide rates in other Western countries have been associated with indicators of lower SES, generally more strongly for men than women (Page, Morrell, Taylor, Carter, & Dudley, 2006; Qin, Agerbo, & Mortenson, 2003).

Suicide ideation and attempt. Most studies support the relationship between lower socioeconomic status and increased suicide attempts, though findings are usually attenuated when other variables such as race and psychiatric diagnosis are included. In the National Comorbidity Survey and the Epidemiological Catchment Area study, lower educational levels were significantly or marginally significantly related to lifetime suicide attempts, though not to attempts in the past 12 months (Kessler et al., 2005; Kessler et al., 1999; Kuo, Gallo, & Tien,

2001; Petronis, Samuels, Moscicki, & Anthony, 1990). Though the effects were weakened when controlling for psychiatric disorders, they remained significant. Zhang, McKeown, Hussey, Thompson, & Woods (2005) found that in another nationally representative American sample, low-income men had higher rates of attempt than high-income men and women with low educational attainment had higher rates of attempts than women with higher educational attainment when all other factors were controlled for. This suggests that composite SES variables may mask some important differences in risk factors between men and women. Cross-nationally, the risk of both ideation and attempts appears to be greater with fewer years of education (Nock et al., 2008a).

The relationship between SES and suicidality in youth is unclear. A number of large studies have found no consistent relationship between adolescent lifetime suicide attempts or ideation and family income, parental education, or parental occupation (Fergusson, Beautrais, & Horwood, 2003; Goodman, 1999). In a separate study, Alaimo, Olson, & Frongillo (2002) found different relationships depending on the indicator of socioeconomic status. Adolescents from low-income households had the lowest rates of suicidal ideation, but did not differ from other income levels in the rate of suicide attempts. Conversely, adolescents from families in which the head of the household was unemployed had a greater rate of suicide attempts but did not differ from their peers in ideation. These mixed findings warrant further investigation.

Axis I Disorders

Overwhelming evidence supports the link between suicidality and mental disorders. Reviews of psychological autopsy studies of those who die by suicide find that 87-91% had a diagnosable mental health disorder (Arsenault-Lapierre, Kim, & Turecki, 2004; Cavanagh, Carson, Sharpe, & Lawrie, 2003). Studies of suicide attempts and suicidal ideation in clinical samples find a similar preponderance of mental illness. Suicidal individuals identified in community samples demonstrate significant, but lower, rates of mental disorders (Nock et al.,

2009). The National Comorbidity Study – Replication (NCS-R) is the largest American study of suicidality and mental disorders in a community sample (Nock, Hwang, Sampson, & Kessler, 2009). Independently, each of the 16 disorders examined increased the odds ratio of a suicide attempt. However, the odds ratios for different disorders ranged from 2.7-6.7 suggesting that not every disorder is equally predictive of suicidality. Furthermore, disorders were related differently to various aspects of suicidality. For example, depression was one of the strongest predictors of ideation, but it did not significantly predict the occurrence of attempts among ideators. Instead, anxiety, impulse control, and alcohol use disorders were more predictive of attempts.

Comorbidity of disorders is another risk factors for suicidal behavior (Sareen et al., 2005). When the NCS-R results were examined in the context of comorbidity, the odds ratios of a number of disorders (GAD, social phobia, agoraphobia, separation anxiety, and dysthymia) dropped considerably, suggesting that the results in the bivariate analysis may be driven by the disorders they occur alongside (such as depression). Additionally, as the number of disorders present rose, the odds ratio for an attempt grew (from 3.7 with one disorder to 6.8 with two disorders, up to 29.0 for 6 or more disorders). These patterns were generally consistent with a large cross-cultural World Health Organization (WHO) study spanning 21 countries (Nock et al., 2009).

Mood disorders.

Suicide death. Mood disorders are the most studied diagnoses in relation to suicidality, with major depressive disorder the most researched among them. Approximately 2-8% of individuals with mood disorders will die of suicide and overwhelmingly they die within their first depressive episode (Bostwick & Pankratz, 2000; McGirr, Renaud, Seguin, Alda, & Turecki, 2008a). Clearly only a minority of depressed individuals die by suicide, suggesting that other factors, such as the interaction among risk factors, increase the risk of suicide death (Ilgen et al., 2009). Certain aspects of a depressive episode may also put an individual at risk. Using a

psychological autopsy method, McGirr et al. (2007) found that among subjects with major depressive disorder, loss of appetite, weight loss, insomnia, feelings of worthlessness, and inappropriate guilt were predictive of suicide death while fatigue, indecisiveness, and difficulty concentrating were less common. Though slightly lower than in major depressive disorder, the mortality rate by suicide among individuals with bipolar disorder is vastly higher than in the general population (Osby, Brandt, Correia, Ekborn, & Sparen, 2001).

Suicide ideation and attempt. Similarly, mood disorders are highly associated with suicide attempts and thoughts. Major depressive episode is the only Axis I condition to include suicidality as a symptom. In one of many examples, a study of a Canadian population sample looked at suicide attempts in the past 12 months and found that a major depressive episode in the past 12 months was predictive of a suicide attempt (Blackmore et al., 2008). While depression is clearly a major risk factor for suicidality, its presence does not make it inevitable. In a sample of depressed young adults, 50% reported a lifetime history of suicidal ideation, while only 16.3% reported a history of attempts (Fergusson, Beautrais, & Horwood, 2003). A number of other vulnerability and protective factors appear to modify the effect of depression on suicidal behaviors, as 28% of depressed individuals with the highest level of vulnerability attempted suicide, while only 4% of the depressed individuals with the lowest level of vulnerability attempted.

Furthermore, within depression there are a number of psychiatric variables, aside from comorbidity, that increase the risk of suicide attempts. These include inpatient status, psychotic symptoms, and being early in the course of the disorder (as reviewed in Rihmer, 2007 and Niernberg, Gray, & Grandin, 2001). Bipolar disorder is also associated with suicide attempt and ideation. Though evidence is mixed as to whether unipolar or bipolar depression reflects a greater risk of suicidality, experiencing a mixed state is more consistently associated with suicidal ideation and attempt (see Rihmer, 2007 and Hawton, Sutton, Haw, Sinclair, & Harriss).

Anxiety disorders.

Suicide death. Though mood disorders have long been recognized as risk factors for suicidality, whether anxiety disorders are related has been controversial (Noyes, 1991; Placidi et al., 2000). The largest study on suicide death and anxiety took place in Sweden and compared released inpatients who had been diagnosed with pure anxiety disorders or pure depressive disorders (Allgulander, 1994). The sample included approximately 38,000 depressed and 9,900 anxious subjects. The risk of suicide death was approximately 6 times that of the general population for those with anxiety disorders and 13 times that of the general population for those with depressive disorders. Despite the strengths of this study offered by its size, it is limited by its exclusion of comorbidity, which is more often the rule than the exception when it comes to depression and anxiety diagnoses. Another population based mortality study found that only comorbid anxiety and depression was associated with suicide death, rather than either of the diagnoses independently (Mykletun et al., 2007). A very large sample of depressed veterans replicated that result, finding increased risk of suicide death in subject with comorbid panic disorder, generalized anxiety disorder, or anxiety disorder not otherwise specified (Pfeiffer, Ganoczy, Ilgen, Zivin, & Valenstein, 2009). Comorbid PTSD, OCD and social phobia were not related to an increased risk of suicide.

Suicide ideation and attempt. Analyses of community and clinical samples have reliably shown that anxiety disorders are related to suicidal ideation and attempt. However, as described above, these disorders are highly comorbid with mood disorders and with each other, bringing in to question whether they are independent risk factors. More recent research has increasingly supported the role of anxiety disorders in suicide attempts (Bolton et al., 2008). A population-based study in the Netherlands found in both cross-sectional and longitudinal analyses that anxiety disorders increased the odds ratio for both suicide ideation and suicide attempts when mood, substance, and psychiatric disorders were controlled (Sareen et al., 2005). When

examining an FDA database of participants in clinical trials of anti-anxiety medication (who had very minimal comorbidity), rates of suicide attempt and death were 10 times higher than in the general population (though lower than in a depressed populations) (Khan, Leventhal, Khan, & Brown, 2002). Analysis of a 25-year longitudinal study of young adults found that anxiety disorders increased the odds ratio of suicide ideation and attempt 2-3 times, even when other disorders and stressful life events were accounted for (Boden, Fergusson, & Horwood, 2006). Still, it remains unclear which of the anxiety disorders are specifically related to the increase in suicidal ideation and attempt.

Substance abuse and dependence.

Suicide death. A recent review of studies on suicide and substance abuse finds that approximately 30% of men who die by suicide and 15% of women who die by suicide have a substance abuse disorder, though the percentages reported in the literature vary widely (Schneider, 2009). The lifetime risk for suicide death among those with alcohol dependence is estimated by a meta-analysis to be 8% (Inskip, Harris, & Barraclough, 1998). However, accurate estimates of suicide death risk among substance abusers are difficult to calculate given the challenge in distinguishing accidental from purposeful overdoses. Those with substance dependence are far more likely than those without to be intoxicated at the time of their death. Both the chronic and acute aspects of substance abuse have been implicated in suicide deaths in these populations. For example, alcohol consumption can decrease inhibition and mood and increase aggressiveness, creating a hospitable environment for a suicide attempt. Much of the research focuses on alcohol as opposed to other substances and finds the strongest relationship between alcohol dependence and suicide death as opposed to alcohol abuse (Conner & Duberstein, 2004). Additionally, there have been a number of reports that document an association between cigarette smoking and suicide, though findings are mixed as to whether

smoking contributes unique variance to suicide risk when sociodemographic and psychiatric variables are controlled for (reviewed in Schneider, 2009).

Suicide ideation and attempt. Substance dependence is strongly associated with suicide ideations and attempts in adults and adolescents (Crumley, 1990; Sher, 2006). In the cross-national WHO study of suicide, Nock et al. (2008a) found that the odds ratio for ideation was 2.8 and for an attempt was 4.2 for a substance use disorder when controlling for sociodemographic factors. Furthermore, when examining the transition from ideation to attempt, though all odds ratios were weakened, substance abuse disorders was more predictive than mood or anxiety disorders (OR = 1.4-1.6). Similarly, the US National Comorbidity Survey found that substance use, abuse, and dependence were all predictive of suicide attempts, though dependence was much more predictive than abuse, and abuse more predictive than use (Borges, Walters, & Kessler, 2000). Substance abuse also appears to interact with many of the other risk factors for suicide ideation and attempts, such as depression. For example, Sher et al. (2005) found that depressed individuals reported higher levels of ideation if they had a history of alcoholism than if they did not.

Schizophrenia.

Suicide death. Suicide deaths are also associated with schizophrenia. The most recent estimated lifetime risk of suicide death in schizophrenia is 4.9% (Palmer, Pankratz, & Bostwick, 2005). Most studies find higher rates of suicide death in schizophrenic populations than the general population, though these rates are generally lower than depressed populations (Limosin, Loze, Philippe, Casadebaig, & Rouillon, 2007). As with other disorders, comorbidity with depression, anxiety, and substance use appear to increase the risk. Specific aspects of an episode of psychosis may be uniquely related to suicide deaths, such as hearing voices that command an individual to kill himself or experiencing an increase in illogical thinking (Siris, 2001).

Suicide ideation and attempt. A small longitudinal study of chronic schizophrenics found that 38% attempted suicide and 57% report ideation during the follow-up period (an average of 6 years) (Breier, Schreiber, Dyer, & Pickar, 1991). The emergence of the diagnosis has been identified as a particularly risky time for suicidal behavior. Being early in the course of the illness and having high premorbid functioning may be related to suicidality as these individuals are often more aware of the life potential that their illness may take from them (e.g. leaving college, interfering in career) (Roy & Pompili, 2009; Siris, 2001). Additionally, schizophrenia is characterized by impaired cognitive abilities and difficulty problem solving, which in other populations have been related to suicidality (Falloon, Barbieri, Boggian, & Lamonaca, 2007; Pollock & Williams, 2004; Rudd, Rajab, & Dahm, 1994). Limited evidence suggests the increased risk for suicide attempts extends beyond schizophrenia to other Axis I psychotic disorders (Randsky, Hass, Mann, & Sweeney, 1999).

Axis II Disorders

Study of the relationship between personality disorders and suicide is in a much earlier stage than the study of the role of Axis I disorders. It was only in the early-1980's that research began to focus on personality disorders as a risk factor, though it was quickly observed to be an important one. Two comprehensive reviews of the literature estimate that 15-40% of suicides are completed by individuals with personality disorders (Bertolote, Fleischmann, De Leo, & Wasserman, 2004; Duberstein & Conwell, 1997). Among the personality disorders, cluster B disorders have been most highly associated with suicidality. Though clusters A and C have been much less widely studied, research on completed suicide has found that the presence of any personality disorder significantly increases the odds of suicidal behavior or death (Chioqueta & Stiles, 2004; Foster, Gillespie, McClelland, & Patterson, 1999; Schneider et al., 2006).

Comorbidity amongst personality disorders or between Axis I and Axis II disorders heightens the risk (Schneider et al., 2008).

Cluster B.

Suicide death. Borderline personality disorder is the only personality disorder diagnoses in the DSM-IV-TR (APA, 2000) that includes suicidal behavior as a symptom. It has been the personality disorder most strongly linked, both through research and in popular opinion, with suicidal thoughts, attempts, and death, as well as non-suicidal self-injury. Between 12-33% of all suicides are estimated to occur among individuals with borderline personality disorder (Kullgren, Renberg, & Jacobsson, 1986; Runeson & Beskow, 1991). Based on small longitudinal clinical samples, lifetime risk of suicide death among borderline personality disorder patients is estimated to be 3-10% (Paris & Zweig-Frank, 2001; Pompili, Ruberto, Girardi, & Tatarelli, 2004). Clinicians often see borderline individuals with high levels of suicidal thoughts and attempts (see next section). However, these individuals may be diagnostically different than the majority of those who die of suicide.

Antisocial personality disorder (ASPD) is the other more commonly studied personality disorder. A review of research on completed suicides that included personality disorder diagnoses found that 0-16% of suicide completers had antisocial personality disorder (Duberstein & Conwell, 1997). Reliable estimates of lifetime risk of suicide death in patients with ASPD do not exist, though a review of the little available literature suggests that antisocial personality disorder may be more of a risk factor for suicide attempts than for suicide deaths (Bronisch, 1996).

No studies were identified that examined the risk of suicide death in narcissistic or histrionic personality disorders, however research that examined the category “cluster B” diagnoses found a strong relationship with suicide death (Dumais et al., 2005). Comorbidity is high between Axis I and Axis II disorders, but when Axis I and comorbid diagnoses were controlled for in a psychological autopsy study in Germany, a large odds ratio for cluster B disorders remained (Schneider et al., 2006). Findings in adolescents have supported the

association between cluster B diagnoses and suicide death (Brent et al., 1994a). Perhaps the combination of difficulties with emotion regulation and negative affect that characterizes cluster B disorders may contribute to its unique relationship with suicidal behavior.

Suicide ideation and attempt. As mentioned above, borderline personality disorder is associated with increased suicide attempts and ideation. The Collaborative Longitudinal Personality Disorders Study (CLPS) is a large, multi-site study of 4 personality disorders. Within a 2-year follow up period, 20% of the borderline patient made a suicide attempt and 75% of the attempts made were by patients with borderline personality disorder, as opposed to avoidant, schizotypal, or obsessive compulsive personality disorders (Yen et al., 2003). Studies in inpatient and outpatient psychiatric settings have found that approximately 70% of borderline patients reported a past suicide attempt (Soloff, Lis, Kelly, Conrelius, & Ulrich, 1994; Zisook, Goff, Sledge & Schuchter, 1994). Though characteristics of suicide attempts do not seem to differ between those with only a borderline diagnosis or only a major depressive diagnosis, those with just borderline do report a greater number of attempts than those with just depression (Soloff, Lynch, Kelly, Malone, & Mann, 2000). Furthermore, individuals with borderline personality disorder experience more chronic suicidal ideation than those with other mental health difficulties. A study of inpatients in Norway followed participants for 3 years and found that the level of ideation reported by borderline patients was persistently higher than that of the other participants (Mehlum, Friis, Vaglum, & Karterud, 1994).

Antisocial personality disorder appears to have a strong relationship with suicide attempts as well. Most studies find a higher rate of attempt in ASPD samples than in samples without ASPD. In a study examining medically serious suicide attempts, Beautrais et al. (1996) found that after controlling for other mental illnesses, the risk of a serious suicide attempt was almost 4 times higher among individuals with ASPD than those without. A study of British inmates found that ASPD was a risk factor for both suicidal ideation and attempts (Jenkins et al., 2005). One

review suggests that suicide attempts may serve a different function among patients with ASPD, as they tend to be less lethal and use less violent means than attempts by a psychiatrically ill population without ASPD (Pompili, Ruberto, Girardi, & Tatarelli, 2004). As may also be the case in borderline personality disorder, there may be a subset of attempters with antisocial personality disorder for whom the primary function of the suicide attempt is not to die, but is to communicate emotional pain or change their environment. No research was located that examined suicide attempts or ideations in narcissistic or histrionic personality disorders.

Clusters A and C.

Suicide death. The association between other personality disorders and suicide death has received much less attention, though overall, the presence of any personality disorder appears to be at least somewhat of a risk factor. Case-based studies suggest that avoidant personality disorder and schizoid personality disorder may increase the risk of suicide death, as the prevalence of these disorders in community populations is lower than in case-based studies of suicide victims (Duberstein & Conwell, 1997). However, these analyses do not adjust for the presence of other disorders or risk factors, so the unique contribution of these personality disorders is unknown. Findings in youth have supported the relationship between cluster C disorders and suicide death (Brent et al., 1994a).

Suicide ideation and attempt. Little research was located examining suicidal thoughts and behaviors and the other personality disorders and the findings available are mixed. One examination of personality disorders and depression in inpatients found that all personality disorders were associated with suicide attempts, but after controlling for depression, only cluster A, not C, remained a significant predictor of attempts (Chioqueta & Stiles, 2004). Cluster C personality disorders appear to be related to increased suicidal ideation, but rarely attempts (Dervic, Grunebaum, Burke, Mann, & Oquendo, 2007). However, when a small sample of patients with obsessive-compulsive personality disorder and comorbid depression were

examined, those with OCPD did have a higher rate of attempts than in the simply depressed group (Diaconu & Turecki, 2009). Research suggests that the relationship between cluster A personality disorders and suicidality is not strong, but the inconclusive findings suggest more research is needed on to uncover any associations that may exist.

Personality Traits

Though psychopathology is clearly the primary predictor of suicidality, it does not possess a great deal of specificity, as most people with psychological illnesses will not attempt or die from suicide. Other personality traits may be risk factors on their own or may interact with psychiatric diagnosis to increase the risk of suicidality. The personality traits that have been most researched and associated with suicidality are examined below.

Three major dimensions of personality.

Suicide death. Three major personality traits often identified in the literature, extraversion, neuroticism, and psychoticism (Eysenck, 1990). Due to the difficulty of assessing personality traits post-humously the literature on suicide deaths is quite limited. The one study assessing these traits in suicide completers found that completers were higher on neuroticism and lower on extraversion than age-matched controls (Duberstein, Conwell, & Caine, 1994). Other research has found traits related to neuroticism, such as depressivity and self-consciousness, are also higher among those who die by suicide (Brezo, Paris, & Turecki, 2006). No studies were located relating suicide death to psychoticism.

Suicide ideation and attempt. Neuroticism is the trait most strongly associated with suicidal ideation and attempts. This association stands in many studies irrespective of a diagnosis of depression and across age groups (Brezo et al., 2006). However, the NCS study referred to above found that after controlling for a number of sociodemographic and diagnostic variables the relationship between neuroticism and suicide attempts disappeared (Cox et al., 2004). Low levels of extraversion have also been correlated with suicidal thoughts and behaviors in clinical

and non-clinical samples across age groups (reviewed in Brezo et al., 2006). Finally, psychoticism has also been associated with suicide ideation and attempts in a number of populations including women, substance abusers, and college students (Lester, 1987; Lolas, Gomez, & Suarez, 1991; Roy, 2003).

Impulsivity and aggression.

Suicide death. The relationship between suicide death and impulsivity appears to be a function of the instrument used to assess impulsivity. One study using the Barratt Impulsivity Scale did not find a difference between suicide completers and healthy controls, while two studies that used impulsivity variables derived from other scales or proxy assessments found that higher impulsivity was associated with completed suicide (Brezo et al., 2006; Dumais et al., 2005; Ernst et al., 2004; Maser et al., 2002). Research suggests that there may be an interaction between impulsivity and age, such that younger suicide completers were more likely to exhibit impulsivity than older suicide completers (McGirr et al., 2008b). Among individuals with psychotic disorders impulsivity does not appear to be related to suicide death (McGirr et al., 2006).

Suicide ideation and attempt. Impulsivity and aggression have been associated with suicidal thoughts and behaviors, though, as mentioned above, these findings are complicated by the diversity of measures used to assess these personality traits. Less research exists on the relationship between impulsivity and ideation, though the evidence available suggests a weak relationship (Dougherty, Mathias, Marsh, Moeller, & Swann, 2004). One study that specifically addressed the relationship between ideation and impulsivity found that among a sample of young men, the higher the level of suicide ideation, the higher the level of impulsivity (Conner, Meldrum, Wiczorek, Duberstein, & Welte, 2004).

In regards to attempts, while much of the literature suggests that greater impulsivity is associated with suicide attempts, a substantial portion found mixed or null results. For example,

a study of over 300 consecutive admissions to a psychiatric hospital found that impulsivity was significantly higher among those with a history of attempt than those without (Mann, Waternaux, Haas, & Malone 1999). Using a lab-based measure of behavioral impulsivity, one research group found that impulsive responses increased as a factor of the number of past suicide attempts (Dougherty et al., 2004b). Alternatively, an analysis of patients with depression and/or borderline personality disorder that controlled for hostility and aggression found that impulsivity was not related to suicide attempts (Keilp et al., 2006).

The field has come to view impulsivity as a broad multidimensional trait. Perhaps some of the conflicting findings may be explained by different domains of impulsivity interacting with suicidal behavior in differing ways. The various scales and behavioral measures of impulsivity tap into these domains to differing degrees and therefore find different associations with suicide attempts. For example, the UPPS impulsive behavior scale is a self-report measure that assesses 4 domains of impulsivity: Urgency, (lack of) Perseverance, (lack of) Premeditation, and Sensation-seeking. Perhaps these different domains are related to different aspects of suicidality.

A related but distinct trait, impulsive-aggression has more consistently been found to be related to suicide attempts. Indirect, verbal, general, and lifetime aggression were all found to be higher in diverse samples of attempters than in non-attempters (as reviewed in Brezo et al., 2006). As mentioned above, when other variables were controlled for, aggression emerged as a significant predictor of suicide attempts in a clinical sample (Keilp et al., 2006).

Perfectionism.

Suicide death. No studies were located that examined the relationship between perfectionism and suicide death.

Suicide ideation and attempt. Perfectionism, particularly the socially prescribed perfectionism dimension, has been repeatedly demonstrated to be related to suicide ideation and attempt in both clinical and community samples and above and beyond the contributions of

depression and hopelessness (as reviewed in O'Connor, 2007). A large study of adolescents found perfectionism was elevated in both youth who had ideated and those who had made attempts (Gould et al., 2005). Among adolescents attempters, those who selected "to die" as the primary reason for their attempts had significantly higher levels of socially prescribed perfectionism than youth who selected other motivations (Boergers, Spirito, & Donaldson, 1998).

Self-oriented perfectionism may be related to suicidality, though the findings are mixed. In a 2-part study of inpatients and college students, Hewitt, Flett, and Weber (1994) found higher levels of socially prescribed and self-oriented perfectionism in ideators as opposed to those without ideation. In further studies of adolescent psychiatric inpatients, adult alcoholics, and college students, socially prescribed perfectionism, but not self-oriented perfectionism was associated with suicidal ideation (Blankstein, Lumley, & Crawford, 2007; Hewitt, Newton, Flett, & Callander, 1997; Hewitt, Norton, Flett, Callander, & Cowan, 1998). There may be moderating factors that change the relationship between self-oriented perfectionism and suicidality.

Hopelessness.

Suicide death. The bulk of the evidence supports the relationship between increased hopelessness and suicide death. Studies have found higher levels of hopelessness in suicide completers in both inpatient and outpatient samples. For example, a large 20-year prospective study of psychiatric outpatients found that, in univariate models, high levels of hopelessness increased the risk of death five fold (Brown, Beck, Steer, & Grisham, 2000).

However, in differentiating attempters from those who will go on to complete suicide, hopelessness may function only as a proximal risk factor. A 12-year longitudinal study of predictors of suicide death among patients referred for a suicide attempt did not find a correlation between initial hopelessness and eventual suicide death (Suominen, Isometsa, Ostamo, & Lonnqvist, 2004). A separate study that followed outpatients with affective disorders for 14

years found that initial hopelessness differentiated those who completed suicide in the first year of follow up from attempters, but did not predict suicide over the rest of the follow-up period (Maser et al., 2002).

Suicide ideation and attempt. One of the most widely found correlates of suicidal ideation is hopelessness. Though it may function differently for different age groups, among adolescents and adults it has been identified as a risk factor for ideation, predictive of future ideation, and perhaps a mediator of ideation, linking stress and problem-solving deficits to suicidality (reviewed in Brezo et al., 2006). In one large community study, the odds ratios for hopelessness ranged from 1.6-4.6 for current, past, and lifetime ideation and attempts even when controlling for demographic and diagnostic factors (Cox, Enns, & Clara, 2004). Interestingly, the odds ratios are similar or slightly higher for ideation than for attempt, suggesting that though hopelessness may be a good predictor of suicidality, it may not function well in differentiating ideators from attempters.

In relation to attempts, the findings regarding hopelessness are more mixed. Among adults about two thirds of the studies found that hopelessness differentiated attempters from controls, while about one third did not (reviewed in Brezo et al., 2006). Among youth the findings are even more equivocal. This review of the literature calls into question the prevailing notion that hopelessness is the most reliable predictor of suicide attempts. Some of the confusion in these findings may result from the mixed characterization of hopelessness as both a state and a trait. An interesting examination of this distinction found that among a sample of 316 individuals with mood disorders, baseline hopelessness (the estimated level of hopelessness when one is not depressed) predicted subsequent suicide attempts over an eight-year period, while level of hopelessness during a particular mood episode did not (Young et al., 1996).

Sociodemographic Factors

Childhood abuse.

Suicide death. Few studies have investigated whether childhood abuse increases the risk of completed suicide. Of three studies reviewed in Wagner (1997), the one that compared suicide completers against psychiatric controls found no difference in the presence of abuse in the 6 weeks preceding the suicide (Brent et al., 1988). The two other studies compared suicide completers to normal controls and found higher rates of physical and emotional abuse among suicide completers (Brent et al., 1994b; Shafii, Carrigan, Whittinghill, & Derrick, 1985). In the one prospective study located, rates of suicide death among Australian young adults who had experienced childhood sexual abuse were significantly greater than a control group, though results were not adjusted for psychiatric diagnosis (Plunkett et al., 2001).

Suicide ideation and attempt. A wide body of research supports the association between childhood abuse and future suicide attempts, though the strength of this relationship varies greatly among studies (Santa Mina & Gallop, 1998). Various types of abuse increase the risk of suicide attempt, including physical, sexual, and emotional (Dube et al., 2001; Malinosky-Rummell & Hansen, 1993). Joiner et al. (2007) found that more violent forms of abuse (physical and sexual) were associated with a greater number of suicide attempts than less violent forms (verbal and molestation) when controlling for a number of other risk factors. Similarly, Brezo et al. (2008) report that participants with no history of child abuse had the lowest odds of suicidal thought and behaviors, while those reporting physical abuse, sexual abuse, or both types of abuse had progressively higher odds of suicidality. The time course of the effects also varies; childhood sexual abuse has generally been correlated with earlier onset suicidality, while physical and emotional abuse may result in suicide attempts later in life (Enns et al., 2006). A study of over 100,000 6th-12th grade students found that sexually abused students had significantly greater odds of thinking about (OR = 3.7-8.2) and attempting (OR = 3.3-21.8) suicide (Eisenberg, Ackard, &

Resnick, 2007). A study of older depressed women found that women with sexual abuse histories were more likely to report suicide ideation and a history of multiple suicide attempts, though there was no difference in the presence or absence of a single attempt (Talbot, Duberstein, Cox, Denning, & Conwell, 2004). Childhood sexual abuse is highly correlated with future psychopathology and other childhood adversities such as parental separation and parental psychopathology. When all such factors are included in a model, though the majority (70-80%) of the suicide attempts could be accounted for by psychopathology, a sizable minority of suicide attempts (3-14%) were accounted for by the childhood sexual abuse independent of psychiatric diagnosis or other childhood adversities (Molnar, Berkman, & Buka, 2001).

Social support or isolation.

Suicide death. The relationship between social integration and suicide was first identified by Emile Durkheim, who theorized that the social integration of the group impacts the suicides that occur in that society (Durkheim, 1897/1951). Social support and its antithesis, isolation, are operationalized in a number of ways, for example marriage status, living alone, strength of social network, number of close confidants, and composite social support scales. The variables that are often used to represent social support/isolation are closely tied to many other risk factors for suicidality. For example, having a serious psychiatric illness is correlated with being single and living alone. Similarly, isolating oneself from one's social network can be a symptom of depression. Among adults, social support is often measured by marital status and living situation. For example, Kposowa, Breault, & Singh (1995) found that men who were separated or divorced and living alone had greater odds of suicide death, while men who were widowed or single and living alone did not after controlling for demographic factors (psychological variables were not included). Another study found that having never been married and reporting a lack of a social network independently differentiated individuals who died by suicide from those who attempted (Innamorati et al., 2008).

Suicide ideation and attempt. Adolescents are the focus of much of the research on isolation and social support. Most of the research examines community samples and finds somewhat mixed results. This may be in part due to wide methodological differences in operationalizing social support. Additionally, during adolescence young people transition from primarily relying on their families for support to leaning more heavily on their friendship networks. This complicates the definition of the social network, as it is in flux. In a review of the literature, Evans, Hawton, & Rodham (2004) concluded that among adolescents, poor peer relationships are strongly associated with suicidal ideation and to some extent suicide attempts. Positive peer relationships were somewhat protective against suicidal thoughts, but the relationship was weaker. More recent research, or research with clinical samples that was not included in the review is described below and generally supports the complex relationship between social integration and suicidality in youth.

Among adolescents hospitalized for suicidal ideation, the lack of close friendships and perceived peer rejection were both significant risk factors for more severe ideation when accounting for psychological symptoms (Prinstein, Boergers, Spirito, Little & Grapentine, 2000). An interesting school-based study of 7th-12th graders examined the strength of the social network, as measured by the number of close friends, and suicidal ideation. Among girls, experiencing peer isolation substantially increased the odds of thinking about suicide (OR=2.0) while the effect was not significant among boys while controlling for other psychological and demographic risk factors (Bearman & Moody, 2004).

In another sample of adolescents, peer isolation was associated with suicide attempts in both boys and girls, but when family connectedness was included in the model the effects were no longer significant, suggest that among adolescents, both peer and family support are risk and protective factor (Hall-Lande, Eisenberg, Christenson, & Neumark-Sztainer, 2007). A case-control study of young adults with and without medically serious suicide attempts found that

social connectedness was a significant protective factor while distress over friendships and romantic break-ups were risk factors while controlling for depression and substance use (Donald, Dower, Correa-Valez, & Jones, 2006). Conversely, whether participants thought their friends cared about them a lot was not associated with suicide attempts in a large sample of New Zealand high school students (Fleming, Merry, Robinson, Denny, & Watson, 2007).

Fewer studies were located that were designed to specifically examine the relationship between suicidality and social networks in adults. One study examined the different suicide risk profiles in whites and African Americans and found that the lack of social support increased the odds of suicidal thoughts and behaviors in both races even when many other psychological and demographic variables were included in the model (Vanderwerker et al., 2007). Research among the elderly, community samples, and among prisoners has also found that reduced social support and a small social circle is associated with increased suicidal ideation and attempts though these studies did not account for the effect of psychiatric illness (Gunnell, Harbord, Singleton, Jenkins, & Lewis, 2004; Jenkins et al., 2005; Vanderhorst & McLaren, 2005). Much of the research, as with studies of completed suicide, uses proxies for isolation such as number of friends or divorce status, to represent social isolation (Blackmore et al., 2008).

Chapter 3: Literature Review - Factors that Differentiate Attempters from Ideators

While there is a significant body of research on predictors and correlates of suicide deaths, attempts, and ideation, there is less work addressing the important question of what differentiates an individual who thinks about suicide from one who actually attempts suicide. As the prevalence rates indicate, suicide ideation is clearly more common than suicide attempts, and suicide ideation generally precedes a suicide attempt, so factors must exist that separate those who think from those who act (Brezo et al., 2007; De Leo et al., 2005).

Out of the hundreds of studies on predictors of suicidality, 15 studies were identified that compared suicide ideators to attempters. Methods and findings from these studies are summarized in Appendix 1. As a review of these studies will illustrate (below), most of the risk factors that are currently identified appear to be equally predictive of suicide ideation and suicide attempt. A number of the standard variables that predict suicidality overall do not distinguish attempters from ideators. Many findings are not replicated and differences exist between adolescent and adult samples. Results from these 15 studies do not yield clear patterns of findings, although they are reviewed because they are the only data available to date on the important question of what differentiates suicide attempters from the larger group of suicide ideators.

Demographic Variables

All of the 15 studies located comparing suicide ideators to attempters examined demographic variables. Many studies simply controlled for the possible effects of sex, age, and race/ethnicity when analyzing other variables of interest. Of the studies that explicitly addressed sex, four found that female gender was a risk factor for attempter versus ideator status (Brezo et al., 2007; Friedman, Asnis, Boeck, & DiFiore, 1987; Gould et al., 1998; Kessler et al., 1999) and six found no effect (Conrad et al., 2009; Fairweather, Anstey, Rodgers, & Butterworth, 2006; Gureje et al., 2007; Pirkis, Burgess, & Dunt, 2000; Rudd, Joiner, & Rajab, 1996; ten Have et al.,

2009). Both the studies that found an effect and those that did not included adult and youth samples and population-based as well as smaller samples. Age and race/ethnicity was not a significant predictor of attempter versus ideator status in any study.

Factors that measure socioeconomic status, such as education, employment, family income, and a composite SES index were included in 12 of the studies. Ten of the 12 found no effects related to a sociodemographic indicator (Asarnow et al., 2008; Bearman & Moody, 2004; Benda, 2003; Brezo et al., 2007; Conrad et al., 2009; Fairweather et al., 2006; Gould et al., 1998; King et al., 2001; Rudd et al., 1996; ten Have et al., 2009). One study found that being a non-student with less than a high school education was associated with a much higher odds ratio for attempts than for ideation, though this analysis did not account for psychological diagnoses which may disrupt education (Kessler et al., 1999). A large community study in Australia examined suicidality in the past 12 months and found that unemployment was the only factor distinguishing attempters from ideators when adjusting for psychological diagnosis (Pirkis et al., 2000).

Psychological Diagnoses and Symptoms

All studies but one examined depression and most included other major Axis I disorders, such as anxiety and substance use, as well. Eleven of the 15 studies did not find any differences between ideators and attempters in Axis I diagnoses (Bearman & Moody, 2004; Benda, 2003; Conrad et al., 2009; Fairweather et al., 2006; Gureje et al., 2007; Kessler et al., 1999; King et al., 2001; Pirkis et al., 2000; Rudd et al., 1996; ten Have et al., 2009; Wild, Flisher, & Lombard, 2004). One large community study in Nigeria did find that having 3 or more disorders predicted attempts among ideators (Gureje et al., 2007). In the largest study done to date, Kessler et al. (1999) examined the National Comorbidity Study data and found that the presence of any of the Axis I disorders was more strongly associated with ideation than with the progression from

ideation to attempt. Though odds ratios for all disorders were elevated among both ideators and attempters, they did not generally differ from one another.

Only studies of youth found significant support for diagnosis as a predictor of attempts among ideators. A community study of young adults found that disruptive disorders (e.g. ADHD, conduct disorder) increased the odds of making an attempt (Brezo et al., 2007). Another community sample of youth aged 9-17 found the presence of a substance use disorder increased the odds of an attempt as opposed to ideation alone (Gould et al., 1998). Asarnow et al. (2008) examined differential risk factors in a sample of adolescents who presented to the emergency department with suicidality. Using an ordinal logistic model examining ideators, single attempters, and multiple attempters the authors found that depression, thought disturbances, and externalizing symptoms were all associated with increasing levels of suicidality. Their significant results reflect the increased odds of passing from one category to another (ideator to single attempter or single attempter to multiple attempter), but the statistics presented do not elucidate whether any of the predictors are significant specifically for the transition from ideator to attempter. In fact, if their findings are similar to Rudd et al.'s (1996) study of young adult ideators, single attempters, and multiple attempters, all of the findings may be predictive of the transition from single to multiple attempts.

Notably, the method of assessment of psychological illness varied across the studies from full SCID diagnoses to self-report measures of a sub-set of symptoms. However, the pattern of results did not correspond with the method used. Overall psychological diagnosis does not appear especially useful in distinguishing ideators from attempters among adults, though it may have some utility in youth. Additionally, excessive co-morbidity may be predictive of attempts among ideators in some cultures.

Personality Disorders and Traits

Only two studies examined Axis II personality disorders. Among a sample of depressed outpatients, attempters were more likely to have borderline personality disorders than ideators (Conrad et al., 2009). Rudd et al. (1996) broke their sample into 3 groups: ideators, attempters, and multiple attempters. They found no difference between ideators and single attempters on any of the personality disorders, though multiple attempters had higher rates of borderline personality disorder.

Many studies included personality traits in their analyses, though what was included varied widely and was rarely included in more than one study. The only personality trait of those studied to distinguish ideators from attempters was harm avoidance. Conrad et al. (2009) found that among depressed outpatients a higher level of harm avoidance, a trait characterized by fearfulness, pessimism, worry, and shyness, was associated with attempters rather than ideators. Hopelessness, extraversion, neuroticism, psychoticism, novelty-seeking, stimulus-seeking, impulsivity, self-directedness, resiliency, cooperativeness, reward dependence, fearfulness, aggression, and perfectionism were each examined in one study and none were found to differentiate ideators from attempters (Benda, 2003; Brezo et al., 2007; Conrad et al., 2009; Fairweather et al., 2006; Gould et al., 1998; Rudd et al., 1996; ten Have et al., 2009).

Sociodemographic and Other Factors

A wide variety of sociodemographic factors have been studied, generally with mixed results. The most commonly researched are childhood abuse, social support, and life stress. A composite child abuse variable encompassing emotional, physical, and sexual abuse was not significantly different between ideators and attempters (ten Have et al., 2009). One of the studies of childhood sexual abuse found that it significantly, but weakly, differentiated female attempters from ideators (OR= 1.21) while two found no effect (Bearman & Moody, 2004; Benda, 2003;

Brezo et al., 2007). Two studies that examined physical abuse found no effect (Benda, 2003; Brezo et al., 2007).

The three studies that looked at social support measures found no effect (Benda, 2003; Brezo et al., 2007; ten Have et al., 2009). A large community survey in Australia found negative interactions with friends was one of only two variables that differentiated attempters from ideators, though friendship difficulties were not a significant factor in a U.S sample of homeless veterans (Benda, 2003; Fairweather et al., 2006). Among youth, measures of family support, parental involvement, and family conflict are not significant predictors of attempts among ideators (Asarnow et al., 2008; Bearman & Moody, 2004; King et al., 2001).

Four studies included a life stress variable, though the operationalization of the construct is so wide ranging it is difficult to draw conclusions. The two studies that found stress did discriminate between ideators and attempters defined stress as 1) stressful events in the last 6 months across many domains and 2) negative life events in the last year (Asarnow et al., 2008; King et al., 2001). The two studies that did not find an effect defined life stress as 1) lifetime occurrences of negative events and 2) lifetime general stress (Benda, 2003; Rudd et al., 1996). It is possible that temporal proximity between the stressful event and the emergence of suicidality is driving the results. In the two positive findings, stressful events from the recent past were measured. In contrast, the negative findings measure stressful event *throughout* the lifetime in adults or young adults.

Other sociodemographic factors with conflicting findings include self-esteem and physical health. Self-esteem was not significant in two studies (Bearman & Moody, 2004; Benda, 2003). However, another study of South African students found that low self-esteem in the family context was predictive of attempts over ideation, though self-esteem in another context (e.g. peer, academic) was not (Wild et al., 2004). A large community study in the Netherlands did not find that the presence of a medical condition, defined as chronic pain,

asthma, cardiovascular problems, or a digestive disorder, differentiated ideators from attempters (ten Have et al., 2009). Conversely, the presence of a medical condition, defined as heart problem, cancer, arthritis, diabetes or head injury, was one of only two significant predictors of attempts in an Australian community study (Fairweather et al., 2006). Perhaps this difference could be explained by the different conditions included in each study. Traumatic brain injury, a type of head of head injury, for example, has been associated with suicide attempt and death (Wasserman et al., 2008).

The sociodemographic variable in youth that was most consistently related with suicide attempters as opposed to ideators was having a suicidal friend (Asarnow et al., 2008; Bearman & Moody, 2004; Friedman et al., 1987). Though each factor was only examined in a single study, other significant variables associated with attempts versus ideation among youth were early onset of sexual activity, marijuana use, daily cigarette smoking, insecure attachment, frequency of drunkenness, and the presence of guns in the home (Bearman & Moody, 2004; Brezo et al., 2007; King et al., 2001).

While the studies discussed above examined lifetime risk factors that may distinguish ideators from attempters, one small study sought to examine the acute differences in the suicidal episodes of ideators compared to attempters (Negron, Piacentini, Graae, Davies, & Shaffer, 1997). While this study was exploratory and used an unvalidated interview, it is unique in its efforts to examine specific differences between suicidal crises. Increased hopelessness before the precipitant stressor, isolation during the period of ideation, and more persistent ideation characterized the experience of the attempters as compared to ideators. Both groups had similar levels of depression.

Overall, the factors that differentiate ideators from attempters that have been replicated in more than one study are female gender, recent stressful life events, and having a suicidal friend, though they were not consistently found. Among youth, the presence of substance abuse or a

disruptive disorder may play a role. Clearly, more work is needed in both clinical and community samples to reliably identify specific risk factors for the occurrence of suicide attempts among suicide ideators.

Chapter 4: Summary of Research Project

This study contributes to the literature by examining variables that distinguish ideators from attempters in community samples of youth as well as a clinical sample of adults. First, data from a sample of college students is examined to see which variables predict the history of a suicide attempt as opposed to suicide ideation. Second, data from a community sample of adults is examined to see which variables predict a history of suicide attempt as opposed to suicide ideation. Third, a longitudinal clinical data set is used to assess, among individuals reporting ideation at baseline, which variables predict the occurrence of a suicide attempt over the next 10 years.

The variables examined were chosen based on their empirically supported relationship to suicidality in general. Because little is known about variables that separate suicide ideators from attempters, the analyses conducted are exploratory and examine a wide range of variables regarded as suicide risk factors. The exploratory approach allows for the most thorough examination of the possible factors and is appropriate given the early stage of research in this specific area. Results help generate testable hypotheses and set the stage for future work. At the same time, it is recognized that an exploratory approach does not permit definitive conclusions.

Chapter 5: Methods

Sample 1

Participants and procedures. The data analyzed were collected as part of a study on personality pathology and drug use among college students. Participants were a randomly selected group of 5,000 undergraduate students at a public university in the northeastern United States. They were contacted first by letter and invited to participate in the study. They then received an email with instructions as to how to complete the study measures online after completing an online Informed Consent. Data collection was anonymous. Students were provided with a \$2 check along with the invitation to complete the study and an opportunity to enter themselves in a prize drawing at the conclusion of the study.

1,655 students participated, resulting in a response rate of 33%. All participants completed a series of questionnaires assessing depression, anxiety, substance use, borderline personality disorder, impulsivity, and past abuse. 1,348 students responded to the questions regarding suicidality. Ninety-eight (7.3%) students reported a lifetime suicide attempt, 155 (11.5%) students reported ideation, but no attempt and 1,095 (81.2%) reported no suicidality.

Measures.

Suicidal ideation and attempted suicide. The Youth Risk Behavior Survey (YRBS; Brener et al., 2002) was developed by the United States Centers for Disease Control to assess health-risk behaviors, including suicidality. A history of suicidal ideation is measured by the item: “Have you ever seriously thought about killing yourself?” A history of attempted suicide is measured by the item: “How many times have you actually tried to kill yourself?” YRBS suicide questions have been found to have good reliability and validity (Brenner et al., 2002; May & Klonsky, in press).

Psychological disorders. The Patient Health Questionnaire (PHQ; Spitzer & Johnson, 1995) is an 83-item self-report questionnaire developed by the authors of the Structured Clinical

Interview for DSM-IV (SCID-I) that assesses four classes of Axis-I disorders: mood, anxiety, eating, and substance/alcohol disorders. The measure yields prevalence rates of Axis-I disorders comparable to those generated by structured interviews, and has demonstrated diagnostic accuracy rates between 92% and 99% for the Axis-I disorders (Johnson, Harris, Spitzer, & Williams, 2002). The PHQ will identify the presence of clinical symptoms of depression and anxiety.

The McLean Screening Instrument for Borderline Personality Disorder (MSI-BPD; Zanarini et al., 2003) is a 10-item self-report measure of Borderline Personality Disorder (BPD) features. When compared to a validated structured interview, sensitivity and specificity of the MSI-BPD were both above .90 in participants under the age of 25 (Zanarini et al., 2003). The item related to suicidality was not included in the MSI-BPD total.

Substance use and abuse. The Modified CORE Drug and Alcohol Survey Short Form (CORE; Presley & Meilman, 1994) is a validated questionnaire that assesses history of drug and alcohol use for a variety of substances (e.g., marijuana, cocaine, amphetamines, sedatives, hallucinogens, opiates, inhalants, ecstasy/MDMA, tobacco, and alcohol), including age of onset, frequency of use in the past year, frequency of use in the past 30 days, and contextual variables.

Impulsivity. The UPPS Impulsive Behavior Scale – Short Form (UPPS; Whiteside & Lynam, 2001) is a factor-analytically derived, 16-item self-report measure that assesses four domains of impulsivity: urgency in the face of negative affect, poor planning, poor perseverance, and sensation-seeking.

Sociodemographic variables. An item from the Patient Health Questionnaire (PHQ; Spitzer, Keoenke, Williams, & PHQ Primary Care Study Group, 1999), “In the last year, have you been hit, slapped, kicked, or otherwise physically hurt by someone, or has anyone forced you to have an unwanted sexual act?” was used to assess recent abuse.

An item from the Trauma Symptom Inventory (TSI; Briere, 1995), “Have you ever intentionally hurt yourself (ex: by scratching, cutting, burning, etc.) even though you were NOT trying to commit suicide?” was used to assess non-suicidal self-injury.

Data analysis for Sample 1.

Analysis of variance and chi square tests were used to examine omnibus differences in demographic, psychological, personality, and sociodemographic variables among the 3 groups: attempters, ideators, and those without suicidality. Planned comparisons identified where significant differences existed. Next separate analyses by gender were conducted. Finally, a logistic regression was run to examine the unique contribution of each of the significant variables in distinguishing ideators from attempters by including all statistically significant predictors in a model.

Sample 2

Participants and procedures. The data were collected as part of a larger project on the peer assessment of pathological personality traits (Thomas, Turkheimer, & Oltmanns, 2003). Participants were 2,011 United States military recruits in basic training. The participants were enlisted personnel who would eventually receive assignments as military police, mechanics, computer technicians, or other supportive roles. All participants completed a large battery of measures that included assessment of suicide ideation, attempted suicide, depression, anxiety, personality disorders, and personality traits. After complete description of the study to the participants, written informed consent was obtained. Forty-six (2.3%) participants reported a lifetime suicide attempt, 129 (6.4%) reported ideation, but no attempt and 1,095 (91.3%) reported no suicidality.

Measures.

Suicidal ideation and attempts, personality traits, and personality disorders. All participants were administered the Schedule for Nonadaptive and Adaptive Personality (SNAP;

Clark, 1993). The SNAP is a factor-analytically derived, self-report questionnaire composed of 375 true/false items designed to assess trait dimensions in the domain of personality pathology. Three SNAP items, “sometimes I think suicide is the only way out of my troubles,” “sometimes I think that trying to commit suicide is the only way to get people to take me seriously,” and “I sometimes wonder if I would be better off dead,” were used to measure suicide ideation. Participants endorsing any of these items were considered to have a history of suicide ideation. One SNAP item, “I have tried to commit suicide,” was used to assess lifetime history of attempted suicide. Participants endorsing this item were considered to have a history of attempted suicide. Fourteen personality traits and 13 personality disorders were also assessed by scales on the SNAP.

Depression. Depression was assessed using the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961). The BDI comprises 21 questions answered on a 4-point scale, which were coded from 0-3. One item was omitted due to the sensitivity of a military sample.

Anxiety. Anxiety was assessed using the Beck Anxiety Inventory (BAI; Beck & Steer, 1990). The BAI comprises 21 questions answered on a 4-point scale, coded 0-3.

Data analysis for Sample 2. Analysis of variance and chi square tests were used to examine omnibus differences in demographic, psychological, and personality variables among the 3 groups: attempters, ideators, and those without suicidality. Planned comparisons identified where significant differences existed. Next, separate analyses by gender were conducted. Any significant predictors would be entered into a logistic regression to determine their unique effects.

Sample 3

Participants and procedures. Data analyzed were collected as part of a project that examined the naturalistic course of dysthymic disorder, nonchronic major depressive disorder,

and double depression over the course of 10 years. Participants were outpatients recruited from a University hospital and community mental health centers in the northeastern United States. Written informed consent was obtained from all study participants after a complete description of the study. Participants completed an initial evaluation and a series of self-report questionnaires detailed below. These measures assessed Axis I and II diagnoses, symptom severity, personality traits, hopelessness, trauma, and social support. Follow-up evaluations were conducted at 30, 60, 90, and 120 months. For the purposes of this analysis, the only data used from the follow-up visits was the question, “Since our last interview, have you attempted suicide?” Participants were included as long as they had completed the final interview or had reported an attempt at one of the follow up interviews (n=107, 75% of the original sample).

Measures.

Axis I diagnoses and symptoms. Axis I disorders were assessed using the Structured Clinical Interview for DSM-III-R (SCID; Spitzer, Williams, Gibbon, & First, 1990). The severity of depressive symptoms was assessed using the Hamilton Depression Rating Scale (HAM-D; Miller, Bishop, Morman & Maddeyer, 1985), a 21-question clinician-rated measure that focuses on the worst week of the patient’s current major depressive episode.

Axis II diagnoses. Axis II disorders were assessed using the Personality Disorder Examination (PDE; Loranger, Susman, Oldham, Russakoff, 1987). Through a semi-structured interview, the PDE provides suspected Axis II diagnoses and dimensional scores for each of the 10 current personality disorders as well as self-defeating and passive aggressive personality disorders.

Personality traits. The Eysenck Personality Questionnaire (EPQ; Eysenck, Eysenck, & Barrett, 1985) is a widely used personality inventory consisting of three scales: neuroticism, extroversion, and psychoticism. The Depressive Experiences Questionnaire (DEQ; Blatt, D’Afflitti, & Quinlan, 1976) was constructed to assess two distinct characterological

configurations associated with depression - the anaclitic (dependent) and introjective (self-critical). The DEQ is widely used as a measure of these two personality constructs. The Beck Hopelessness Scale (BHS; Beck, 1988) is a 20-item self-report inventory that was designed to measure three major aspects of hopelessness: feelings about the future, loss of motivation, and expectation.

Sociodemographic variables. The Longitudinal Interval Follow-Up Evaluation Baseline (LIFE-Base; Keller et al., 1987) is a semi-structured interview and rating system used to assess and track the course of psychiatric disorders and psychosocial functioning. Of importance in this analysis is the average of the scores on the seven social adjustment scales (work, family, friends, sexual functioning, recreation, satisfaction, and global adjustment). The Weissman Social Adjustment Scale (SAS; Weissman & Bothwell, 1976) is a self-report measure that assesses behavior, interpersonal functioning, and affect related to six role areas that are summed to a total score. The Interpersonal Support Evaluation List (Cohen, Mermelstein, Kamarck, & Hoberman, 1985) is a widely used measure of perceived social support. The Early Home Environment Interview (EHEI; Lizardi et al., 1995) is a semi-structured interview that assesses five aspects of the early home environment before age 15: loss (parental death, divorce, or separation from a parent for at least 6 months), physical abuse (being hit hard or often enough to leave bruises, draw blood, or require medical attention), sexual abuse (nonconsenting genital contact initiated by someone at least 5 years older), and the quality of the relationship with each parent (two scales). Loss, physical abuse, and sexual abuse are scored as present or absent. Parental relationships are rated on a continuous scale.

Data analysis for Sample 3.

Participants who expressed suicide ideation at their baseline assessment ($n = 49$) were examined to determine what factors (also measured at baseline) predicted whether they made an attempt over the next 10 years. This resulted in a comparison of 13 attempters to 36 non-

attempters. The relationship between predictors of interest and future attempts was examined by calculating phi coefficients (ϕ) for dichotomous predictor variables and point-biserial correlations (r_{pb}) for dimensional predictor variables. Next logistic regressions were used to control for the presence of past attempts. Finally, exploratory logistic regressions were run to examine the unique effects of significant predictors.

Chapter 6: Results

Sample 1

Sample 1 consisted of 1,656 college students at a large university in the Northeast of the United States. 3 groups of participants were identified: those who reported a past suicide attempt ($n = 98$), those who reported past suicidal ideation, but no attempts ($n = 155$), and those who reported no suicidality ($n = 1,098$). Additionally, 305 students did not respond to the suicidality items. Those students were compared to the students who did respond to the suicidality items on gender, age, grade, GPA, and race. The groups only differed on gender, in that a higher proportion of females answered the suicidality item (87.0%) than males (83.2%) ($\chi^2 = 4.47$, $df = 1$, $p = .035$). Analyses were limited to the 1,351 students who responded to the suicidality items.

For continuous independent variables, differences in scores among the 3 groups were examined using one-way ANOVA. The Brown-Forsyth statistic ($p < .10$) was used to test for homogeneity of variance. In cases where there was heterogeneity of variance, Welch's F was reported. Where significant difference ($p < .05$) were detected by ANOVA and variances were equal, Hochberg's GT2 multiple-comparison test was used to distinguish between which groups differences exist. This test is better suited when there are differences in sample size. Where significant differences were detected by ANOVA and variances were unequal, the Games-Howell procedure was used to identify differences between groups. Sample sizes differ slightly due to missing data. For dichotomous independent variables, chi-square analyses were used.

Demographic variables. First, the groups were compared on demographic variables (Table 1). A chi-square test suggested significant differences in gender among the groups ($\chi^2 = 9.90$, $df = 2$, $p = .007$). Post-hoc 2 x 2 analyses showed that there were a higher proportion of women in the attempter group compared to the non-suicidal group ($\chi^2 = 8.86$, $df = 1$, $p = .003$). There were no significant difference between ideators and the other two groups.

There were no significant differences in omnibus chi-square tests of ANOVA's among the groups in race, class year, age or GPA.

Psychological and personality disorder symptoms. One-way ANOVA's indicated that the groups differed significantly on depression, $F_{\text{Welch}}(2, 175.48) = 44.86, p < .001$, anxiety, $F_{\text{Welch}}(2, 182.58) = 58.64, p < .001$, and borderline personality disorder symptoms, $F_{\text{Welch}}(2, 182.01) = 81.77, p < .001$ (Table 2). Games-Howell post-hoc tests revealed that both the ideator group ($M = 7.41, 95\% \text{ CI } [6.57, 8.24]$) and the attempter group ($M = 8.29, 95\% \text{ CI } [7.16, 9.41]$) had significantly higher depression symptom scores than the non-suicidal group, ($M = 4.34, 95\% \text{ CI } [4.11, 4.57]$) $p < .001$. Similarly, Games-Howell post-hoc tests revealed that both the ideator group ($M = 12.46, 95\% \text{ CI } [11.34, 13.57]$) and the attempter group ($M = 13.83, 95\% \text{ CI } [12.46, 15.19]$) had significantly higher generalized anxiety symptom scores than the non-suicidal group, ($M = 7.95, 95\% \text{ CI } [7.60, 8.30]$) $p < .001$. Additionally both the ideator group ($M = 4.35, 95\% \text{ CI } [3.95, 4.74]$) and the attempter group ($M = 4.56, 95\% \text{ CI } [4.01, 5.12]$) had significantly higher borderline personality disorder scores than the non-suicidal group, ($M = 2.17, 95\% \text{ CI } [2.04, 2.30]$) $p < .001$. The depression, anxiety, and borderline scores did not differ significantly between the attempter and ideator groups.

Impulsivity. The UPPS consists of 4 domains of impulsivity (Table 3). The (lack of) Perseverance domain did not differ significantly among the groups. There were group differences on the other 3 domains at a $p < .05$ level. Post-hoc analyses were conducted. The Urgency domain was significantly higher among the attempter ($M = 10.13, 95\% \text{ CI } [9.56, 10.70]$) and ideator ($M = 9.99, 95\% \text{ CI } [9.56, 10.42]$) groups compared with the non-suicidal group ($M = 9.05, 95\% \text{ CI } [8.89, 9.22]$). Similarly, the Sensation-seeking domain was also significantly higher among the attempter ($M = 10.60, 95\% \text{ CI } [9.99, 11.21]$) and ideator ($M = 10.70, 95\% \text{ CI } [10.24, 11.16]$) groups compared with the non-suicidal group ($M = 9.98, 95\% \text{ CI } [9.81, 10.16]$). There were no differences between the ideators and attempters in these two

domains. Scores in (lack of) Premeditation domain were significantly higher in the attempter group ($M = 7.73$, 95% CI [7.27, 8.19]) as compared to the ideator ($M = 7.19$, 95% CI [6.87, 7.50]) and non-suicidal groups ($M = 6.90$, 95% CI [6.77, 7.03]). This was the only impulsivity domain to distinguish attempters from ideators.

Sociodemographic variables. Chi-square tests revealed significant differences among the groups in current medication use ($\chi^2 = 19.15$, $df = 2$, $p < .001$), the occurrence of physical or sexual assault in the past year ($\chi^2 = 33.64$, $df = 2$, $p < .001$) and lifetime occurrence of non-suicidal self-injury ($\chi^2 = 165.53$, $df = 2$, $p < .001$). Post-hoc 2 x 2 analyses showed that a higher proportion of both attempters ($\chi^2 = 15.66$, $df = 1$, $p < .001$) and ideators ($\chi^2 = 7.77$, $df = 1$, $p = .005$) used medications for depression, anxiety, or stress as compared to non-suicidal individuals. A higher proportion of attempters ($\chi^2 = 18.50$, $df = 1$, $p < .001$) and ideators ($\chi^2 = 22.60$, $df = 1$, $p < .001$) had experienced physical or sexual assault in the past year as compared to non-suicidal individuals. For these two variables there were no significant differences between ideators and attempters.

Alternatively, the lifetime occurrence of non-suicidal self-injury differentiated all three of the groups. A significantly higher proportion of attempters had experienced non-suicidal self-injury when compared to ideators ($\chi^2 = 9.20$, $df = 1$, $p = .002$). Furthermore, a significantly higher proportion of ideators engaged in NSSI when compared to non-suicidal individuals ($\chi^2 = 69.25$, $df = 1$, $p < .001$).

Substance abuse variables. Tables 5 and 6 display group differences in the lifetime use of various substances. Use of alcohol was equal among the 3 groups. There were no significant differences among the groups in the current frequency of binge drinking, $F(2, 1343) = .587$, $p = .556$. Use of tobacco, illegal prescription drugs, marijuana, salvia, and cocaine was more common among ideators and attempters than non-suicidal individuals. Hallucinogen use was marginally more common among attempters ($\chi^2 = 3.54$, $df = 1$, $p = .060$) and ideators ($\chi^2 = 3.46$,

df = 1, $p = .063$) compared to non-suicidal individuals, though it did not reach statistical significance. Use of designer drugs ($\chi^2 = 8.67$, df = 1, $p = .003$) and opiates ($\chi^2 = 4.43$, df = 1, $p = .035$) were more common in ideators than non-suicidal individuals. Only one drug, amphetamines, differentiated ideators from attempters ($\chi^2 = 6.42$, df = 1, $p = .011$). 12.2% of attempters reported using amphetamines, while only 3.2% of ideators and 1.8% of non-suicidal individuals reported using them.

Regarding negative consequences of substance use, the occurrence of negative consequences did not differentiate attempters from ideators (Table 7). Having been criticized about substance use, thinking that one had a substance use problem, having memory loss, having been taken advantage of sexually, trying unsuccessfully to stop using, and having been hurt or injured while intoxicated were all more common among ideators and attempters than non-suicidal individuals. Having been nauseated or vomiting was more common in attempters than in non-suicidal individuals ($\chi^2 = 5.97$, df = 1, $p = .015$). Having done something that was later regretted was more common in ideators than in non-suicidal individuals ($\chi^2 = 4.64$, df = 1, $p = .031$).

Separate analyses by gender. Analyses were repeated separately for men and women. All of the findings remained the same except one. Non-suicidal self-injury was significantly associated with attempters compared to ideators among women ($\chi^2 = 5.68$, df = 1, $p = .017$) while the association did not reach significant among men ($\chi^2 = 2.95$, df = 1, $p = .086$). Among women, 60.9% of the attempters and 41.9% of the ideators reported NSSI. Among men, 58.6% of the attempters and 39.0% of the ideators reported NSSI.

Unique effects of significant predictors. The 4 significant predictors of attempt status were entered into a logistic regression to examine their unique effects (Table 8). Only non-suicidal self-injury and amphetamine use remained significantly associated with attempt status. The logistic regression was examined separately for men and women. Among women, only

NSSI remained a significant predictor of attempt. Among men, none of the predictors retained their significance.

Sample 2

Sample 2 consisted of 2,011 United States military recruits in basic training. Three groups of participants were identified: those who reported a past suicide attempt ($n = 46$), those who reported past suicidal ideation ($n = 129$), and those who reported no suicidality ($n = 1,095$). For continuous independent variables, differences in scores among the 3 groups were examined using one-way ANOVA. The Brown-Forsyth statistic ($p < .10$) was used to test for homogeneity of variance. In cases where there was heterogeneity of variance, Welch's F was reported. Where significant differences ($p < .05$) were detected by ANOVA and variances were equal, Hochberg's GT2 multiple-comparison test was used to distinguish between which groups differences exist. This test is better suited when there are differences in sample size. Where significant differences were detected by ANOVA and variances were unequal, the Games-Howell procedure was used to identify differences between groups. Sample sizes differ slightly due to missing data. For dichotomous independent variables, chi-square analyses were used.

Demographic variables. First, the groups were compared on demographic variables (Table 9). The education level of the participants' mothers differed significantly among the groups, $F(2, 2008) = 3.04, p = .048$. Post-hoc Hochberg GT2 tests indicated that participants who attempted suicide reported mothers with lower education levels ($M = 2.41, 95\% \text{ CI } [2.10, 2.72]$) than non-suicidal participants ($M = 2.79, 95\% \text{ CI } [2.75, 2.84]$), $F(1, 1880) = 6.46, p = .014$. There were no statistically significant differences between the ideator group and the other two groups in the mother's reported education level.

Though the omnibus chi-square test was not significant, there was a trend towards a higher proportion of women in the attempt group as compared to the ideator or non-suicidal groups ($\chi^2 = 5.20, df = 2, p = .074$).

Personality traits. The SNAP consists of 15 trait and temperament scales (Table 10). The Self-Harm scale was not assessed as it was confounded by the items used to define the groups. The Exhibitionism scale, Entitlement scale, and Workaholism scale did not differ significantly among any of the groups. There were group differences on the 11 other scales at a $p < .05$ level. Post-hoc analyses were conducted. Seven of the scales were significantly higher both among attempters and among ideators as compared to non-suicidal individuals: Aggression, Detachment, Disinhibition, Eccentric Perceptions, Impulsivity, Manipulativeness, and Negative Temperament. The Positive Temperament scale was significantly lower in both the attempter group and ideator group as compared to the non-suicidal group.

Scores on the Propriety scale differed significantly among the groups, $F_{\text{Welch}}(2, 93.46) = 6.81, p = .002$. Games-Howell post-hoc tests revealed that ideator group ($M = 46.39, 95\% \text{ CI } [44.32, 48.46]$) had significantly lower Propriety scores than the non-suicidal group, ($M = 50.28, 95\% \text{ CI } [49.83, 50.73]$) $p = .001$. Comparisons between the attempter group and the other two groups were not statistically significant at $p < .05$.

The Dependency scale differed significantly among the groups, $F_{\text{Welch}}(2, 92.47) = 22.05, p < .001$. Games-Howell post-hoc tests revealed that ideator group ($M = 57.16, 95\% \text{ CI } [54.79, 59.54]$) had significantly higher Dependency scores than the non-suicidal group, ($M = 49.42, 95\% \text{ CI } [48.96, 49.85]$) $p < .001$. Comparisons between the attempter group and the other two groups were not statistically significant at $p < .05$. None of the personality trait scales differentiated the overall attempter group from the ideator group.

Personality disorder symptoms. The SNAP consists of 13 personality disorder symptom scales (Table 11). ANOVA's indicated that 12 of the 13 scales differed significantly among the groups. There were no significant differences among the groups on the Obsessive-Compulsive Scale, $F(2, 2008) = 2.86, p = .058$.

Post-hoc analyses showed that on the following 11 scales, the attempter group and the ideator group both had significantly higher mean scores than the non-suicidal group: Paranoid, Schizoid, Schizotypal, Antisocial, Borderline, Narcissistic, Avoidant, Dependent, Passive-Aggressive, Sadistic, and Self-defeating. The Histrionic scale differed significantly among the groups, $F(2, 2008) = 13.47, p < .001$. Hochberg's GT2 post-hoc tests revealed that ideator group ($M = 54.19, 95\% \text{ CI } [52.41, 55.97]$) had significantly higher Histrionic scores than the non-suicidal group, ($M = 49.66, 95\% \text{ CI } [49.20, 50.11]$) $p < .001$. Comparisons between the attempter group and the other two groups were not statistically significant at $p < .05$. None of the personality disorder scales differentiated attempters from ideators.

Psychological disorder symptoms and treatment. Symptoms of psychological disorders and psychological treatment were examined (Table 12). One-way ANOVA's indicated that the groups differed significantly on the Beck Depression Inventory (BDI), $F(2, 2000) = 99.19, p < .001$, and the Beck Anxiety Inventory (BAI), $F(2, 1999) = 71.32, p < .001$. Hochberg's GT2 post-hoc tests revealed that both the ideator group ($M = 11.45, 95\% \text{ CI } [10.07, 12.83]$) and the attempter group ($M = 11.54, 95\% \text{ CI } [9.56, 13.53]$) had significantly higher BDI scores than the non-suicidal group, ($M = 4.88, 95\% \text{ CI } [4.67, 5.10]$) $p < .001$. Similarly, Hochberg's GT2 post-hoc tests revealed that both the ideator group ($M = 16.15, 95\% \text{ CI } [14.20, 18.10]$) and the attempter group ($M = 15.74, 95\% \text{ CI } [12.94, 18.54]$) had significantly higher BAI scores than the non-suicidal group, ($M = 8.03, 95\% \text{ CI } [7.70, 8.36]$) $p < .001$. The BDI and BAI scores did not differ significantly between the attempter and ideator groups.

A chi-square test suggested significant differences in whether or not the groups had participated in psychological treatment in the past year ($\chi^2 = 12.39, df = 2, p = .002$). Post-hoc 2 x 2 analyses showed that both attempters ($\chi^2 = 8.63, df = 1, p = .003$) and ideators ($\chi^2 = 5.47, df = 1, p = .019$) were more likely to have participated in psychological treatment in the past year

than non-suicidal individuals. There were no significant difference between attempters and ideators ($\chi^2 = .54$, $df = 1$, $p = .461$).

SNAP items. To explore the associations between individual SNAP items and attempt versus ideator status, phi coefficients (ϕ) were examined specifically in the suicidal subset. Endorsement of 10 individual items was correlated with thinking about suicide, but not attempting it (Table 13).

Separate analyses by gender. Analyses were repeated separately for men and women. All of the findings remained the same except one. Among women, the personality trait of manipulateness was significantly associated with ideator status, while it was not in the overall sample and was not among men. Among women, the Manipulateness scale differed significantly among the groups, $F_{\text{Welch}}(2, 42.28) = 13.03$, $p < .001$. Games-Howell post-hoc tests revealed that female ideators ($M = 56.86$, 95% CI [53.00, 60.71]) had significantly higher Manipulateness scores than either the non-suicidal females, ($M = 47.35$, 95% CI [46.76, 47.95]) $p < .001$ or the female attempters ($M = 49.95$, 95% CI [46.76, 53.14]) $p = .017$. Comparisons between the attempter group and the non-suicidal group were not statistically significant ($p = .242$).

Sample 3

Sample 3 consisted of 49 adults recruited from the community who had diagnoses of depression. 2 groups of participants were identified: those who reported ideation at baseline, but did not report an attempt over the next 10 years ($n = 36$) and those who reported ideation at baseline and did report an attempt over the next 10 years ($n = 13$). A square root transformation was used to adjust continuous variables that were not normally distributed. To examine the relationship between attempter status and predictors of interest, phi coefficients (ϕ) were calculated for dichotomous predictor variables and point-biserial correlations (r_{pb}) were calculated for dimensional predictor variables. Subsequently, logistic regression was used to

control for the presence of past suicide attempts. Finally, exploratory logistic regressions were run to examine the unique effects of significant predictors.

Demographic variables. First, the two groups were compared on demographic variables (Table 14). The only variable that was correlated with attempt status was a lower socioeconomic level (as reflected by a higher Hollingshead social class) ($r_{pb} = .310, p = .034$). Gender, marital status, race, age, and education were not significantly related to attempt status.

Axis I variables. The relationship between attempt status and Axis I variables was examined (Table 15). A comorbid diagnosis of an anxiety disorder at baseline was correlated with a future suicide attempt ($\phi = .303, p = .034$), although a lifetime anxiety disorder diagnosis was not associated with attempt status ($\phi = .159, p = .265$). A substance abuse diagnosis, whether current at baseline ($\phi = .283, p = .048$) or lifetime ($\phi = .404, p = .005$) was associated with a future attempt among ideators. The severity of depression at baseline was not significantly related to future attempt status ($r_{pb} = .133, p = .364$).

Axis II variables. The relationship between dimensional measures of personality disorders and attempt status was examined (Table 16). The presence of any personality disorder diagnosis was significantly associated with attempt status ($\phi = .450, p = .002$). In fact, 92.3% of ideators who went on to attempt had a personality disorder diagnosis, compared with 41.7% of ideators who did not make a future attempt. Cluster B personality disorder symptoms were the most strongly related to attempt status ($r_{pb} = .500, p < .001$). Each of the 4 cluster B personality disorders, antisocial, borderline, histrionic, and narcissistic, were each significantly associated with attempt status. Overall, cluster A personality disorder symptoms were predictive of attempt status ($r_{pb} = .405, p = .004$). Paranoid and schizotypal personality disorder symptoms were significantly predictive of attempts ($r_{pb} = .379$ and $.295$, respectively), however schizoid personality disorder symptoms were not ($r_{pb} = .153, p = .295$). While cluster C personality disorder symptoms were associated with attempt status ($r_{pb} = .314, p = .028$), only dependent

personality disorder symptoms were significantly associated with future attempts ($r_{pb} = .298, p = .037$). Avoidant and obsessive-compulsive disorder symptoms had no significant association with attempt status.

Personality traits. The relationship between personality traits and attempt status was examined (Table 17). Most of the traits measured were not significantly associated with attempt status: extraversion, neuroticism, psychoticism, self-criticism, and dependency. Only higher levels of hopelessness were associated with attempt status ($r_{pb} = .351, p = .017$).

Sociodemographic variables. The relationship between sociodemographic predictors and attempt status was examined (Table 18). A past suicide attempt was associated with a future attempt ($\phi = .320, p = .025$). Of the variables reflecting early life (i.e. loss of a parent, physical abuse, sexual abuse, neglect, a poor relationship with mom, a poor relationship with dad) only a poor relationship with mom was significantly associated with a future suicide attempt ($r_{pb} = .367, p = .009$). Among the variables reflecting social relationships the presence of a close friend and interviewer-rated social adjustment were not associated with a future suicide attempt. Self-reported social adjustment difficulties were significantly associated with attempt status ($r_{pb} = .409, p = .005$).

Controlling for past suicide attempts. Variables that were significantly related to attempt status were individually entered into separate logistic regressions with the presence of a past suicide attempt as a covariate (Table 19). The one demographic variable that was associated with future suicide attempts, socioeconomic status, was no longer significantly predictive of future suicide attempts when past attempts were controlled for (Wald's $\chi^2 = 2.77, p = .096$). Of the Axis I disorders, lifetime substance use remained significantly predictive, while current substance use did not. Among the Axis II personality disorders, only the Cluster C personality disorders, histrionic (a Cluster B disorder), and dependent personality disorder were no longer significantly predictive of future attempts after past attempts were controlled for. Additionally

hopelessness was no longer significantly associated with future attempt status after adjusting for past attempts (Wald's $\chi^2 = 2.88, p = .090$). All other significantly predictive variables remained significant.

Unique effects of significant predictors. The remaining significant predictors were entered into separate logistic regression in pairs. Multicollinearity was examined for each pair of variables. The Variance Inflation Factors (VIF) for all were less than 2.5 and the tolerance values were all above .2.

Personality disorder diagnosis accounted for unique variance in each of the 4 models, while the other variable in the model did not (Tables 20-23). Baseline anxiety disorder diagnosis did not account for unique variance in any of the models (Table 20, Tables 24-26). Lifetime substance use disorder accounted for unique variance in all the models, except the one with personality disorder diagnosis (Table 21, Table 24, Tables 27-28). Having a poor maternal relationship accounted for unique variance in the model with substance use disorder diagnosis and social adjustment difficulties, but not the models with personality disorder diagnosis or anxiety disorder diagnosis (Table 22, Table 25, Table 27, Table 29). Social adjustment difficulty accounted for unique variance in the models with anxiety disorder diagnosis, substance use disorder diagnosis, and poor maternal relationship, but not in the model with personality disorder diagnosis (Table 23, Table 26, Tables 28-29).

Chapter 7: Discussion

Overview

Suicide is a pressing mental and public health problem in North America. In addition to the loss of the life and potential societal contribution of the individual who dies, suicide death causes extensive suffering for the friends and family of the deceased. People who attempt suicide and survive risk permanent injury, major life disruptions, and much humiliation and stigma. Individuals who think about suicide often experience overwhelming levels of mental stress, fear, shame, and isolation. Additionally, the friends and family members of suicidal individuals often experience anxiety and apprehension as they worry about and try to ensure their loved one's safety. In order to reduce the mortality, injury, and mental suffering associated with suicide, the progression of suicidality from thoughts to actions to death must be better understood.

Most of the research thus far has compared suicidal individuals to non-suicidal controls. This has resulted in a long list of risk factors that predict suicidality overall. Little is known about what factors distinguish suicide attempters from suicide ideators. Identifying specific factors that predict attempts above and beyond ideation is important for risk assessment, clinical decision-making, and development of a theoretical model of suicidality.

This thesis seeks to build on the growing body of work by examining whether frequently cited risk factors for suicidality can differentiate attempters from ideators. Overall, most of the traditionally studied variables were not effective in distinguishing the two groups, however there were a few significant findings that suggest directions for future work. The result from the cross-sectional studies will be discussed first, as these were both community samples of young adults. Next, the findings from the longitudinal study of depressed adults will be addressed.

Cross-sectional Associations

Prevalence. Among the college students, 11.5% reported thinking about suicide during their lifetimes and 7.3% reported attempting during their lifetime. Ideation rates were similar to

nationally representative samples of college students who report an annual ideation prevalence of 9.5-10.3% (Brener, Hassan, & Barrios, 1999; Kisch, Leino, Silverman, 2005). No similar estimates of lifetime ideation or attempt rates were located among college students, however a statewide high school survey in Massachusetts reported the lifetime attempt rate of students was 9.4% (Woods et al., 1997). The percent of the college student sample reporting suicidality is within the expected range. The anonymous nature of responding to the study online may have increased willingness to disclose this sensitive information.

Among the military recruits, the reports of ideation and attempt were lower (6.4% reported ideation and 2.3% reported an attempt). These is potentially caused by two factors: 1) the stigmatizing and sensitive nature of mental health difficulties in the military may have discourage full disclosure and 2) the selective nature of military service may have screened out individuals with more severe mental health histories. No reliable estimates of attempt and ideation were located for this type of population.

Variables that distinguished suicidal participants from non-suicidal participants.

The vast majority of the risk factors examined differentiated suicidal individuals (attempters or ideators) from non-suicidal individuals. Higher levels of psychopathology, personality disorder symptoms, historical trauma, negative personality traits, and drug use characterized suicidal individuals. These findings replicate previous literature that demonstrates that most negative attributes and life experiences are higher among suicidal individuals. This long and non-specific list of variables motivated the original question, which of these factors will be useful in distinguishing *among* suicidal individuals.

Variables that *failed* to distinguish attempters from ideators. There was no significant relationship found between the great majority of the variables examined and attempter versus ideator status. Most of the demographic variables (e.g. race, ethnicity, academic achievement, socioeconomic status) did not distinguish attempters from ideators. This finding is somewhat

consistent with the literature in that none of these variables have been found to consistently differentiate the two groups. Among adults, lower rates of suicide attempts have been reported among African Americans and Hispanics compared to Caucasians, while among youth these findings are reversed. The average age of our participants was 20 years old, placing them in between these two age categories and perhaps in an age bracket where the rate of attempts is similar among racial and ethnic groups. Socioeconomic status, as measured by paternal and maternal education did not distinguish attempters from ideators, which is consistent with the literature. The age range of these samples was constricted, limiting the conclusions that can be drawn about age as a predictor of attempt or ideation status.

Symptoms of anxiety, depression, and personality disorders are likely the most commonly examined risk factors for suicidality. Indeed, they were elevated among suicidal individuals as compared to their non-suicidal peers. However, none of the Axis I or Axis II variables were useful in distinguishing ideators from attempters cross-sectionally. This is consistent with the literature, which has found overwhelmingly that Axis I diagnoses do not predict attempt versus ideation status. Our results suggest that dimensional measures of these diagnoses are also not useful in identifying attempters. Very little research has examined personality disorders and attempter versus ideator status. One study suggests that personality disorder diagnoses may be associated with multiple attempts rather than with a single attempt (Rudd et al., 1996). Though personality disorders, especially borderline personality disorder, are often associated with suicidality, our results indicate that among young adults those symptoms may elevate suicidality in general but will not distinguish those who have thought about suicide from those who have acted on those thoughts.

Most personality traits, which were examined in the military recruits, differed between the suicidal group and the non-suicidal group but generally did not differentiate ideators from attempters. This is consistent with the limited literature on the topic, which has only identified

one trait, harm avoidance, that differs between the two groups. None of the SNAP scales clearly align with harm avoidance as it is delineated on the Temperament and Character Index, though harm avoidance somewhat overlaps with negative temperament. Negative temperament scores were virtually identical among our ideators and attempters. The TCI study was done with a clinical sample which may contribute to the different findings. These results suggest that most personality traits, at least as measured by a broad instrument such as the SNAP, will not be helpful in distinguishing attempters from ideators.

Other variables that are often associated with suicidality overall, such as physical abuse, sexual abuse, and substance use, were generally found to be more common among individuals with a history of suicidality as compared to those without, but they did not differentiate attempters from ideators. This is consistent with the majority of the limited literature. Of the 13 substances examined, 12 did not differentiate ideators from attempters. Similarly, the likelihood of experiencing a negative consequence from substance use, such as vomiting or getting in trouble with the police, was not different for ideators as compared to attempters. Though sociodemographic and life history variables are often recognized as markers for suicidality, they do not seem to identify which individuals acted upon their thoughts.

Variables that distinguished attempters from ideators. Of the multitude of demographic, psychological, personality, and sociodemographic variables examined cross-sectionally, only 5 emerged that significantly differentiated attempters from ideators. As these were exploratory analyses, significant results must be viewed in light of the number of tests conducted and the risk of Type I error.

The first of these variables was gender. Women were more likely to report an attempt, but the groups were similar in reporting ideation. This may be in part because men die by their suicide attempts at three to four times the rate as women, while women are two to three times as

likely as men to attempt. This results in more female attempts to begin with, compounded by the fact that women are more likely to survive their attempts and are, therefore, able to report them.

Though an omnibus measure of impulsivity did not distinguish attempters from ideators, a sub-domain, lack of premeditation, did. Higher scores on this factor, reflecting difficulty thinking through the consequences of actions, characterized attempters. One interpretation of this finding is that individuals who act on their suicidal thoughts, yet survive their attempts, have not fully thought out the consequences of their attempts and act on the spur of the moment. Ideators, conversely, may be more likely to think through their actions and fully consider the consequences of dying by suicide. They may then be less likely to carry through with their thoughts.

An alternative explanation is that individuals who have difficulty thinking through the consequences of their actions experience many more painful and provocative events in their lives and, thus, are more prone to act on their suicidal thoughts. The second explanation is supported by Witte et al. (2008) who found that youth who engaged in more “impulsive” behaviors, such as impaired driving, poor safe sex practices, and binge drinking, were more likely to engage in planned rather than unplanned suicide attempts, suggesting that is not the attempt that is impulsive, but the lifestyle that leads up to it. Our data do not allow us to distinguish between these explanations. However, our findings do suggest that more nuanced measures of constructs of interest may be needed to identify difference between those who attempt and those who think about attempting suicide. Clearly ideators and attempters are closely related groups and the differences between them are likely to be more subtle than omnibus instruments can detect.

Another personality trait, manipulativeness was associated with female ideators as compared to attempters (though there was no relationship overall or among men). Interestingly, scores on this scale were equal for attempters and non-suicidal individuals and thus were only elevated among ideators. Sharing thoughts of suicide with others may, in some cases, be used as

a form of communication while actually acting on the thoughts may be prompted by other motivations.

Furthermore, an exploratory analysis of the individual items of the personality assessment found that out of 375 items, only 10 were significantly associated with ideation versus attempt. Any interpretation of the meaning of these items is purely speculative, as 19 items could have been statistically significant based purely on chance. Examining the commonalities of the items, however, suggests that endorsement may reflect a distancing from other people, whether through manipulating, lying, or disobeying. This apparent disregard for others and for society appears to be associated with ideation, but not with attempt. Suicidal statements and gestures are sometimes used as a tool to communicate pain or to alter the environment. Perhaps these items, as with scores on the manipulateness scale, reflect the use of suicidal thoughts or statements as a tool for change rather than as a step towards actually ending one's life.

Amphetamine use was elevated among attempters compared to ideators. The class of amphetamines includes both speed and methamphetamine, which can be at different ends of the spectrum in terms of their addictive qualities and potency. There are a number of possible explanations for relationship between attempts and amphetamines. Amphetamines may be associated with suicide attempts because of the intense depression that accompanies withdrawal. Studies indicate that individuals undergoing amphetamine withdrawal have brain abnormalities in areas implicated in depression and anxiety (London et al., 2004).

Alternatively, methamphetamine is one of the "harder" drugs and it may be associated with suicide attempt over ideation because of its use by individuals less averse to fear and danger, therefore increasing (or reflecting) their capability to attempt something as fearsome as taking their own life. This explanation is consistent with Thomas Joiner's theory of acquired capability (Joiner, 2005), which posits that while ideators and attempters may both experience similar feelings of burdensomeness to those around them and lack of belongingness to society, in

order to act on suicidal thought, individuals must have acquired the capability to inflict potentially deadly harm upon themselves. The capability is acquired through experiencing fear, pain, and risk.

Another explanation is that a third variable, sexual orientation, explains the relationship. Methamphetamine use is particularly prevalent among gay and bisexual individuals, a group that is also at increased risk of suicide attempt (Hunt, Kuck, & Truitt, 2006; King et al., 2008). Further research is needed to replicate the amphetamine finding, understand which drugs in the amphetamine class are associated with attempts, and to explore possible explanations.

Non-suicidal self-injury (NSSI) was common in both attempters and ideators, but it was much more strongly associated with having made an attempt than simply thinking about it. When results were examined by gender, they were statistically significant for women and trended towards significance among men. A relationship between NSSI and suicidality has been established in the literature (Nock, Joiner, Gordon, Lloyd-Richardson, & Prinstein, 2006). In a large study of college students, Whitlock, Eckenrode, and Silverman (2006) found that those who reported NSSI had 3.1-7.4 greater odds of having thought about or attempted suicide compared those who did not engage in NSSI. Among self-injurers, the odds increase as the type of suicidality progressed from ideation to planning to attempts (Whitlock & Knox, 2007).

That NSSI is more associated with attempts than with ideation is also in keeping with Joiner's theory of suicidality. Rather than simply being an indicator of underlying distress, engaging in NSSI may either demonstrate an already acquired ability to cause physical harm to one's self or may be a step in desensitizing oneself to self-inflicted pain and danger. Assessing non-suicidal self-injury may be an important part of a suicide risk assessment, especially among women, as it appears to be strongly associated with suicide attempts as opposed to thoughts about suicide.

Strengths. There were a number of strengths in the cross-sectional samples. Due to the relative rarity of suicidal thoughts and behavior, large samples are necessary to generate adequate incidences of suicidality from community populations. Each of these samples was large enough to have a substantial number of ideators and attempters. Furthermore, much of the research on suicidality occurs in clinical populations, as they are most likely to report ideations and attempts; however it is important to explore how risk factors function in community samples as well. Particularly for youth, mental health professionals seek out screening tools to identify those who are most at risk. By observing how these potential risk factors function in a community sample we may be better able to understand the results of such screenings and add items that may be more helpful in identifying those at greatest risk of acting on their suicidal thoughts. Each data set included a wide range of variables covering the major domains of suicide risk factors (e.g. demographic, psychological, personality, and sociodemographic). Given the early stage of this research, the breadth of variables was an asset.

Limitations. It is important to note the limitations of the cross-sectional data sets as well. As they were existing data sets, specific items and scales could not be selected to address the research question precisely. For example, ideally a more comprehensive suicidality measure would have been included to gather greater detail on the level of ideation and the severity of attempts. One possible explanation for the transition from ideation to attempt is simply the severity of the ideation. More detailed measures would have allowed the examination of ideation severity as a continuous variable and would have allowed it to be controlled for. Given the cross-sectional nature, no conclusions about causality may be drawn. Furthermore, though analyses sought to identify variables that distinguished individuals who had thought about suicide from those who had attempted it, the ultimate goal is pinpointing which variables predict *future* attempts among those who are thinking about suicide. This question requires the use of longitudinal data sets.

Finally, the exploratory analytic strategy limits the strength of the conclusions that can be drawn. In order to identify potential variables that may distinguish attempters from ideators, the significance level was not adjusted for multiple comparisons. This analytic strategy was chosen in order to cast the net wide, as this project was designed to set the groundwork for future research rather than to test specific hypotheses.

Longitudinal Predictors

Longitudinal predictors of attempts were examined in depressed adults with suicidal ideation. These results were similar to those of the young adults in that few of the many factors that are associated with suicidality overall were useful in predicting attempts. The few predictors that were identified, however, differed between the cross-sectional and longitudinal samples.

Variables that *failed* to predict attempts among ideators. A number of variables that are associated with suicidality did not predict the occurrence of attempts among depressed ideators, including demographic factors. Our sample was predominantly female, which reduced the power to observe a potential gender difference. In our sample, socioeconomic status was measured by the Hollingshead Index and, after controlling for past attempts, it did not predict future attempts among the ideators. The only studies that have found that socioeconomic status predicts attempts used unemployment and education level as their measures. Our findings align with the literature, which has found mixed result in regards to socioeconomic status.

Neither hopelessness nor the severity of depression predicted future attempts, though these are both considered strong predictors of suicidality. Perhaps these variables are predominantly associated with raising thoughts of suicide and are less instrumental in predicting conversion of those thoughts into actions. Alternatively, they may only have predictive value for a short time span, perhaps just in the day or weeks before an attempt. This is somewhat in contrast to other findings that depression severity and scores on the Beck Hopelessness scale predicted suicide death 5-20 years after they were collected from samples of inpatients and

outpatients seeking treatment for a range of psychiatric illnesses (Beck, Steer, Kovacs, & Garrison, 1985; Brown et al., 2000). In these studies, however, when hopelessness and depression severity were entered into models including depression diagnosis and baseline ideation level, they no longer accounted for unique variance, suggesting that their predictive power may be explained by their association with a mood disorder diagnosis and past suicidal ideation. Furthermore, these studies used these variables to predict suicide death as opposed to attempts among ideators. Just as the risk factors for suicide attempts may differ from those for simply ideating about suicide, risk factors for suicide death may be different as well.

As with the college students and military recruits, the personality traits assessed were generally not associated with attempts. Extraversion, neuroticism, psychoticism, dependency and self-criticism were similar among ideators who went on to attempts and those who did not. Only one other study has assessed some of these personality traits and it found similar results (Fairweather et al., 2006).

Physical and sexual abuse were not associated with attempts over ideation, as was also found in college students. Childhood abuse is clearly associated with suicidality overall and may simply increase the likelihood an individual will consider suicide in the future, perhaps directly or by way of a psychiatric illness. Alternatively, child abuse, like impulsivity, may need to be examined more meticulously to uncover characteristics that may predict attempts over ideation. Joiner et al. (2007) found that more physically painful forms of abuse were associated with a more frequent suicide attempts compared to less physically painful forms of abuse. Another study found that repeated abuse and sexual abuse by a family member were more strongly related to attempts than other types of abuse (Brezo et al., 2008). Perhaps a more nuanced examination of the type of abuse suffered may better predict attempts among ideators.

Variables that predicted attempts among ideators. Though the majority of variables generally associated with suicidality did not predict future attempts among depressed ideators,

some did. Results indicate that co-morbid anxiety and substance use disorders, co-morbid personality disorders, poor maternal relationships, and self-reported social adjustment difficulties all predicted future attempts when controlling for past attempts among depressed ideators.

Though individual diagnoses do not appear to be useful in differentiating attempters from ideators, co-morbidity of diagnoses may be. Our results suggest that among depressed individuals, a co-occurring personality disorder diagnosis was the strongest predictor of a future attempt. The personality disorder symptoms significantly predictive of attempts were paranoid, schizotypal, antisocial, borderline, narcissistic, and self-defeating. A study of inpatients found that those with both major depressive disorder and borderline personality disorder were more likely to have attempted suicide and to have a greater number of suicide attempts than individuals with depression or borderline personality disorder alone (Soloff et al., 2000). Overall, cluster B personality disorder symptoms had the strongest association with future attempts. The combination of difficulty regulating emotion, interpersonal skill deficits, and negative affect that characterizes these disorders may be especially likely to taking action on suicidal thoughts. These findings are consistent with what is suggested by the literature.

Additionally, co-morbid anxiety and substance use disorders were also predictive of future attempts. In a study of psychiatric consultations, individuals with comorbid substance abuse and depressive disorders were more likely to have attempted suicide than those with either disorder alone (Dhossche, Meloukheia, & Chakravorty, 2000). This is in contrast to Kessler et al. (1999), however, who found in cross-sectional study of community participants that, while comorbid Axis I disorders increased the odds of either ideation or attempt in the complete sample, they did not significantly increase the odds of an attempt in a subsample of ideators. The literature is consistent in finding that comorbidity increases suicidality, but is mixed as to whether it uniquely increases the risks of attempt over ideation. Our results suggest that depressed individuals who have also been diagnosed with a personality, substance, or anxiety

disorder are at greater risk of acting on their suicidal thoughts over time than those who are not suffering from multiple diagnoses.

Two other variables appeared to predict future suicide attempts among ideators, difficulties with social adjustment and a reporting a poor maternal relationship in childhood. Social isolation is a powerful risk factor for suicidality and more severe problems in this area could be associated with moving beyond thinking about suicide to acting on those thoughts. Having social difficulties may also reduce the likelihood that a friend or family member would intervene before ideations become an attempt. A poor maternal relationship may be indicative of a number of things including maternal psychopathology or an early onset of psychological or behavioral difficulties in the participant. This finding is difficult to interpret without further detail, though it is interesting to note that neglect, childhood physical abuse, sexual abuse, and parental loss or separation did not predict the occurrence of attempts, suggesting that there may be something specific about the maternal relationship that is important rather than simply the childhood environment overall.

Though examining unique effects was difficult due to the small sample size, each pair of significant predictors was examined in a logistic regression. A personality disorder diagnosis accounted for the unique variance in attempted suicide beyond the variance accounted for by each of the other significant predictors. When personality disorder diagnosis was entered into the model, each of the other predictors lost their significance. As the other significant predictors were variables that are likely related to personality disorder symptoms, such as social adjustment problems and difficult maternal relationship, it is possible that their predictive power may be predominantly explained by co-occurring personality disorders. Substance abuse disorders are also quite common among individuals with personality disorder (reviewed in Verheul, van den Bosch, & Ball, 2005). Due to the small sample size, however, our power is limited and it is possible that these other predictors would account for unique variance in a larger study.

The presence of a previous attempt was significantly predictive of a future attempt, however it had only a moderate association. This was surprising, as the best predictor of future behavior is often thought to be past behavior, and this has been born out in much of the research on suicide. The average age of the depressed ideators was 30 years old and the age at the time of the previous attempt was not known. Though past suicide attempts will likely continue to be a predictor of future attempts, they may lose some of their predictive power over time. Studies have shown that the time of greatest risk for a suicide death is within one year of a suicide attempt (Nordstrom, Samuelsson, & Asberg, 1995). In our sample there may have been many years between a previous attempt and a future one, reducing the strength of the relationship.

Strengths. This unique data set included a number of strengths, most clearly its 10-year longitudinal follow up data and very low attrition rate. Thus the primary question could be addressed: among ideators, who went on to attempt. This data set also included a wide range of variables, allowing for a broad examination of predictive factors. Suicidality occurs predominantly in those with psychiatric illnesses and this data set allowed us to examine how predictive factors function in an already high-risk population.

Limitations. Several limitations should be noted in this study. The biggest limitation of this sample was its small size. This limited the power of the analyses and number of variables that could be included in a single model. Findings are considered exploratory and a jumping off point for future research. The sample consisted of adults with depressive disorders and cannot be generalized to other ages or diagnostic groups. Another limitation is the time between the assessment of the risk factors and the occurrence of the attempt. Some predictive factors, for example symptom severity, may vary greatly with time and may only be predictive of attempts that occur soon after they are assessed. In addition there may be a number of state-dependent predictive variables that are important in the days or weeks before an ideator attempts, but do not appear when assessed years earlier.

Integration of Findings and Future Directions

The two populations examined vary in a number of ways including the age of the participants, the clinical versus community nature of the sample, and the methodological design. All of these factors make it difficult to draw overarching conclusions; however, it is clear that regardless, it is difficult and complex to predict which individuals will act on their suicidal thoughts. Very few of the variables examined had any power to discriminate attempters from ideators, though almost all differentiated suicidal individuals from non-suicidal individuals.

Cross-sectionally, non-suicidal self-injury was the strongest predictor of attempt status. This suggests some support for Thomas Joiner's theory that having acquired the capability to inflict harm and pain on one's self is the distinguishing feature between those who think about suicide and those who seriously attempt it. Amphetamines were the only drug that predicted attempt status, potentially because they include one of the riskier substances (methamphetamine) (Hunt et al., 2006). Perhaps the "fearsomeness" of a drug is related to suicidal behavior versus thoughts. The manner by which the drug is ingested may also play a role. Taking potentially lethal drugs recreationally may be a sort of practice for a suicide overdose with that drug. In contrast, drugs that are less lethal or ingested in a less lethal manner may not parallel a common form of suicide attempt. Future work should focus on factors that differentiate people who engage in activities that either increase their ability or reflect their ability to harm themselves from those who do not in order to more stringently test Joiner's hypothesis. Further work could examine the relationship between the type of drugs individuals use and the method they use to attempt suicide to explore the possibility of a "practice" effect.

Though an omnibus measure of impulsivity did not distinguish ideators from attempters, one domain, lack of premeditation, did. This suggests that the factors that differentiate attempters from ideators may be more nuanced than those that separate suicidal individuals from non-suicidal individuals. Other constructs of interest should be examined in finer detail, as the

differences between attempts and ideators may be subtle. Furthermore, future research should explore the domains of impulsivity in a prospective sample to determine the relationship of lack of premeditation to suicide attempts. Due to the retrospective nature of the data there is the possibility that prior suicidal experiences are reflected in the impulsivity scales. Prospective and longitudinal work is key in understanding what may predict the transition from ideation to attempt, and where, therefore, interventions should be targeted.

Our results suggest that in depressed, though not community, populations a number of trait-like variables, most prominently personality disorders, predict progression from ideation to a suicide attempt. There are a few possible reasons for this difference. The severity of the personality disorder symptoms in non-clinical populations may not be high enough to create a risk of attempt. Alternatively, it may be the combination of a depressive disorder with personality disorder symptomatology triggers an attempt. Additionally, it is important to consider that personality disorders cannot be diagnosed until age 18 and that there are a number of normal behaviors in adolescence that may mimic personality disorder symptoms, but diminish with age. The depressed sample was approximately 30 years old, and their personality disorder symptoms may have been more indicative of true personality disorder diagnoses compared to the community participants who were on average 20 years old. Future research could examine the personality disorder symptoms more closely to determine whether there are certain elements driving the difference. For example, as the manipulateness findings suggest, there may be different motivations for thinking or talking about suicide compared with attempting it. There may also be a threshold of personality disorder severity above which risk of attempts greatly increases.

There is also a need for research that measures state-like predictive variables frequently so that their assessment is temporally related to a possible attempt. State levels of hopelessness and the occurrence of triggering events may contribute greatly to the transition from ideation to

attempt. This research could employ technology, such as palm pilots and text messaging, to gather frequent reports on these predictors from the participants without placing an undue burden on them.

While this study addressed two populations, a community sample of youth and a depressed sample of adults, future research must include a wider range of populations, including other diagnostic groups, older adults, more racially diverse clinical samples, and unique groups, such as active duty military personnel. Predictive factors may function very differently in different populations, as may have been the case with personality disorders in this study. While methodological differences preclude a conclusion, personality disorders appeared to be strong predictors of attempts among depressed adults, while they were not associated with attempts in the young community samples.

Finally, future research must endeavor to include another very important outcome category, those who die by suicide. Suicide kills 1 million people worldwide each year. Clearly, this group is even more difficult to study, but is perhaps the most important, as it is their outcome that society most hopes to prevent. Just as factors that predict ideation are different than those that predict the transition to attempt there may be another important set of variables that forecast suicide deaths.

This study has used existing data to explore variables that differentiate suicide attempters from ideators and predictive factors that mark the transition from suicidal thoughts to suicidal behaviors. Exploratory results have suggested a number of avenues for future study. The next steps must be designed to build on this work and to determine the trajectory of suicidality. Research must employ emerging theories of suicidality to explore new directions, look beyond established suicidality risk factors to identify innovative predictive factors, and use more nuanced measure of constructs to delineate the differences between those who think about

suicide, those who attempt suicide, and those who die by suicide. It is only through untangling the nuances of suicidality that we can begin to intervene more effectively.

Table 1. Group Differences in Demographic Characteristics in Sample 1

Variable	Attempters	Ideators	Non-suicidal	Statistical analysis	
	% (n)	% (n)	% (n)	χ^2	<i>p</i>
Gender				9.90	.007
Female	70.4 (69) ^a	60.4 (93) ^{a,b}	54.8 (601) ^b		
Male	29.6 (29) ^a	39.6 (61) ^{a,b}	45.2 (495) ^b		
Race				5.34	.868
Asian/Pacific Islander	42.9 (42)	36.4 (56)	32.9 (359)		
Black	6.1 (6)	7.1 (11)	7.2 (79)		
Hispanic	9.2 (9)	7.1 (11)	9.0 (98)		
Native American	0.0 (0)	0.0 (0)	0.1 (1)		
Caucasian	36.7 (36)	42.9 (66)	44.1 (482)		
Other	5.1 (5)	6.5 (10)	6.7 (73)		
Class year				8.37	.398
Freshman	10.2 (10)	14.8 (23)	11.2 (123)		
Sophomore	17.3 (17)	21.3 (33)	15.2 (167)		
Junior	28.6 (28)	27.1 (42)	31.1 (341)		
Senior	43.9 (43)	36.8 (57)	41.8 (459)		
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>F</i>	<i>p</i>
Age (years)	20.73 (1.73)	20.32 (1.71)	20.61 (1.61)	2.64	.072
GPA (0-4)	3.04 (0.56)	3.09 (0.57)	3.09 (0.60)	0.38	.682

Note. When omnibus tests indicate group difference, differing superscripts within a row indicate subgroups that are significantly different from one another ($p < .05$).

Table 2. Group Differences in Psychological and Personality Disorders in Sample 1

Variable	Range	Attempters	Ideators	Non-suicidal	Statistical analysis	
		<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>F</i>	<i>p</i>
Depression	0-24	8.29 (5.62) ^a	7.41 (5.27) ^a	4.34 (3.86) ^b	44.86 ¹	<.001
General anxiety	0-34	13.83 (6.81) ^a	12.46 (7.04) ^a	7.95 (5.91) ^b	58.64 ¹	<.001
Borderline personality disorder	0-9	4.56 (2.76) ^a	4.35 (2.50) ^a	2.17 (2.22) ^b	81.77 ¹	<.001

Note. When omnibus tests indicate group difference, differing superscripts within a row indicate subgroups that are significantly different from one another ($p < .05$).

¹Welch *F* reported to account for heterogeneity of variance.

Table 3. Group Differences in UPPS Impulsivity Scales in Sample 1

Variable	Range	Attempters	Ideators	Non-suicidal	Statistical analysis	
		<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>F</i>	<i>p</i>
Urgency	0-16	10.13 (2.86) ^a	9.99 (2.71) ^a	9.05 (2.72) ^b	13.57	< .001
(lack of) Perseverance	0-16	6.84 (2.08)	6.88 (2.03)	6.77 (2.11)	0.25	.783
(lack of) Premeditation	0-16	7.73 (2.27) ^a	7.19 (1.97) ^b	6.90 (2.17) ^b	7.33	.001
Sensation-seeking	0-16	10.60 (3.04) ^a	10.70 (2.89) ^a	9.98 (2.99) ^b	5.33	.005

Note. This table depicts results from one-way analyses of variance. When omnibus tests indicate group difference, differing superscripts within a row indicate subgroups that are significantly different from one another ($p < .05$).

Table 4. Group Differences Sociodemographic Variables in Sample 1

Variable	Attempters	Ideators	Non-suicidal	Statistical analysis	
	% (n)	% (n)	% (n)	χ^2	<i>p</i>
Medication for depression, anxiety, or stress	11.2 (11) ^a	7.7 (12) ^a	3.2 (35) ^b	19.15	< .001
Physical or sexual assault	18.4 (18) ^a	17.4 (27) ^a	6.5 (71) ^b	33.64	< .001
Non-suicidal self-injury	60.2 (59) ^a	40.6 (63) ^b	13.8 (151) ^c	165.53	< .001

Note. When omnibus tests indicate group difference, differing superscripts within a row indicate subgroups that are significantly different from one another ($p < .05$).

Table 5. Group Differences in Drug and Alcohol Use in Sample 1

Variable	Attempters	Ideators	Non-suicidal	Statistical analysis	
	% (n)	% (n)	% (n)	χ^2	<i>p</i>
Alcohol	91.8 (89)	86.5 (134)	86.3 (935)	2.29	.319
Tobacco	61.2 (60) ^a	56.9 (88) ^a	43.4 (474) ^b	19.30	< .001
Marijuana	53.1 (51) ^a	52.6 (80) ^a	42.2 (458) ^b	9.29	.010
Illegal prescription drugs	32.7 (32) ^a	35.3 (54) ^a	17.4 (190) ^b	35.80	< .001
Salvia	12.2 (12) ^a	11.6 (18) ^a	5.8 (63) ^b	11.65	.003
Cocaine	15.3 (15) ^a	11.0 (17) ^a	6.6 (72) ^b	11.95	.003
Hallucinogen	17.3 (17)	16.1 (25)	11.0 (120)	6.14	.047
Designer drugs	8.2 (8) ^{a,b}	11.6 (18) ^b	5.5 (60) ^a	9.04	.011

Note. When omnibus tests indicate group difference, differing superscripts within a row indicate subgroups that are significantly different from one another ($p < .05$).

Table 6. Group Differences in Drug and Alcohol Use for Variables with Expected Cell Counts Less than 5 in Sample 1

Variable	Attempters	Ideators	Non-suicidal	A vs. I		I vs. NS		A vs. NS	
	% (n)	% (n)	% (n)	χ^2	<i>p</i>	χ^2	<i>p</i>	χ^2	<i>p</i>
Amphetamines	12.2 (12) ^a	3.2 (5) ^b	1.8 (20) ^b	6.42	.011	0.72	.397	33.27	< .001
Sedatives	6.2 (6)	5.8 (9)	3.2 (35)	0.00	.999	2.03	.155	1.57	.212
Opiates	3.1 (3) ^{a,b}	5.2 (8) ^a	2.0 (22) ^b	0.22	.642	4.43	.035	0.11	.737
Inhalants	2.0 (2)	6.5 (10)	3.1 (34)	1.70	.192	3.51	.061	0.08	.552

Note. Yate's corrected chi-square and *p* values are reported for each 2x2 table. When omnibus tests indicate group difference, differing superscripts within a row indicate subgroups that are significantly different from one another (*p* < .05).

Table 7. Group Differences in Negative Substance Use Consequences in Sample 1

Variable	Attempters	Ideators	Non-suicidal	Statistical analysis	
	% (n)	% (n)	% (n)	χ^2	<i>p</i>
Had a hangover	64.3 (63)	58.1 (90)	54.6 (595)	3.83	.148
Performed poorly in school	20.8 (20)	18.2 (28)	17.2 (188)	0.83	.660
Been in trouble with the police	14.3 (14)	12.9 (20)	9.1 (99)	4.54	.103
Damaged property	7.1 (7)	6.5 (10)	4.9 (53)	1.54	.464
Got into an argument or fight	33.7 (33)	25.2 (39)	24.0 (262)	4.48	.107
Got nauseated or vomited	62.2 (61) ^a	56.8 (88) ^{a,b}	49.4 (539) ^b	8.19	.017
Missed a class	37.8 (37)	39.9 (61)	34.1 (371)	2.34	.311
Been criticized	41.8 (41) ^a	35.5 (55) ^a	24.9 (271) ^b	18.92	< .001
Thought I had a drinking/drug problem	21.4 (21) ^a	14.2 (22) ^a	9.1 (99) ^b	17.05	< .001
Had memory loss	32.7 (32) ^a	38.8 (59) ^a	23.4 (256) ^b	18.99	< .001
Done something I later regretted	35.1 (34) ^{a,b}	34.6 (53) ^a	26.3 (288) ^b	7.22	.027
Have been taken advantage of sexually	11.2 (11) ^a	10.3 (16) ^a	5.1 (56) ^b	11.02	.004
Tried unsuccessfully to stop using	11.2 (11) ^a	11.6 (18) ^a	5.1 (56) ^b	13.87	.001
Been hurt or injured	19.8 (19) ^a	18.1 (28) ^a	12.1 (132) ^b	7.84	.020

Note. When omnibus tests indicate group difference, differing superscripts within a row indicate subgroups that are significantly different from one another ($p < .05$).

Table 8. Unique Effects of Significant Predictors of Attempt Status in Sample 1

Predictor	β	Wald's χ^2	<i>p</i>
Gender	-0.44	0.29	.132
Lack of premeditation	0.09	1.78	.182
Amphetamines	1.57	7.35	.007
Non-suicidal self-injury	0.53	9.42	.002

Note: Significant predictors of attempt status were entered into a single logistic regression.

Table 9. Group Differences in Demographic Characteristics in Sample 2

Variable	Attempters	Ideators	Non-Suicidal	Statistical Analysis	
	% (n)	% (n)	% (n)	χ^2	<i>p</i>
Gender				5.20	.074
Female	52.2 (24)	33.3 (43)	37.4 (686)		
Male	47.8 (22)	66.7 (86)	62.6 (1150)		
Race				4.08	.944
Caucasian	60.9 (28)	60.5 (78)	64.7 (1188)		
African American	19.6 (9)	19.4 (25)	17.0 (312)		
Asian American	2.2 (1)	3.9 (5)	3.4 (62)		
Bi-racial	2.2 (1)	3.9 (5)	3.8 (69)		
Native American	2.2 (1)	1.6 (2)	0.7 (13)		
Other	13.0 (6)	10.9 (14)	10.5 (192)		
Ethnicity				.333	.846
Hispanic	15.2 (7)	12.4 (16)	14.1 (258)		
Not Hispanic	84.8 (39)	87.6 (113)	85.9 (1578)		
Location				2.49	.646
Urban	32.6 (15)	21.7 (28)	25.8 (474)		
Suburban	43.5 (20)	54.3 (70)	51.0 (937)		
Rural	23.9 (11)	24.0 (31)	23.1 (425)		

Table 9. Group Differences in Demographic Characteristics in Sample 2 (cont.)

Variable	Attempters	Ideators	Non-Suicidal	Statistical Analysis	
	% (n)	% (n)	% (n)	χ^2	<i>p</i>
Parent's marital status				6.96	.728
Married once	28.3 (13)	42.6 (55)	41.4 (760)		
Divorced	30.4 (14)	25.6 (33)	24.6 (452)		
Remarried	10.9 (5)	10.1 (13)	10.6 (195)		
Separated	0.0 (0)	3.1 (4)	2.3 (42)		
Never married	28.3 (13)	17.1 (22)	18.6 (341)		
Widowed	2.2 (1)	1.6 (2)	2.5 (46)		
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>F</i>	<i>p</i>
Mother's education				3.04	.048
Some high school or less	19.6 (9)	10.9 (14)	7.5 (138)		
High school degree	39.1 (18)	36.4 (47)	37.7 (693)		
Some college	23.9 (11)	25.6 (33)	28.5 (524)		
College graduate	15.2 (7)	20.9 (27)	20.4 (374)		
Advanced degree	2.2 (1)	6.2 (8)	5.8 (107)		
Father's education				.83	.437
Some high school or less	8.7 (4)	9.3 (12)	5.7 (104)		
High school degree	41.3 (19)	41.1 (53)	38.9 (714)		
Some college	32.6 (15)	27.9 (36)	32.0 (588)		
College graduate	4.3 (2)	15.5 (20)	17.4 (320)		
Advanced degree	13.0 (6)	6.2 (8)	6.0 (110)		

Table 10. Group Differences in Personality Traits (T-scores) in Sample 2

Variable	Attempters	Ideators	Non-suicidal	Statistical analysis	
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>F</i>	<i>p</i>
Aggression	56.39 (14.20) ^a	55.90 (10.94) ^a	49.47 (9.45) ^b	20.78 ¹	< .001
Dependency	53.15 (11.55) ^{a,b}	57.16 (13.63) ^a	49.42 (9.44) ^b	22.05 ¹	< .001
Detachment	56.17 (11.13) ^a	55.31 (10.50) ^a	49.47 (9.78) ^b	26.00 ¹	< .001
Disinhibition	54.67 (10.90) ^a	57.46 (11.93) ^a	49.36 (9.58) ^b	32.88 ¹	< .001
Eccentric Perceptions	56.93 (10.72) ^a	58.95 (11.10) ^a	49.20 (9.52) ^b	57.26 ¹	< .001
Entitlement	48.73 (10.31)	48.68 (11.21)	50.12 (9.90)	1.64	.195
Exhibitionism	48.27 (10.55)	50.20 (10.19)	50.03 (9.97)	0.72	.487
Impulsivity	54.10 (10.94) ^a	55.30 (11.51) ^a	49.53 (9.73) ^b	18.80 ¹	< .001
Manipulativeness	54.76 (11.64) ^a	58.71 (13.06) ^a	49.27 (9.37) ^b	36.74 ¹	< .001
Mistrust	58.83 (9.12) ^a	59.42 (9.37) ^a	49.19 (9.68) ^b	74.83	< .001
Negative Temperament	60.42 (8.64) ^a	60.40 (9.60) ^a	49.01 (9.48) ^b	115.64	< .001
Positive Temperament	44.80 (13.95) ^a	45.56 (12.26) ^a	50.44 (9.59) ^b	13.17 ¹	< .001
Propriety	48.91 (10.97) ^{a,b}	46.39 (11.89) ^a	50.28 (9.78) ^b	6.81 ¹	.002
Workaholism	48.32 (11.85)	48.30 (10.69)	50.16 (9.89)	2.33 ¹	.103

Note. When omnibus tests indicate group difference, differing superscripts within a row indicate subgroups that are significantly different from one another ($p < .05$).

¹Welch *F* reported to account for heterogeneity of variance.

Table 11. Group Differences in Personality Disorder Symptoms (T-scores) in Sample 2

Variable	Range	Attempters	Ideators	Non-suicidal	Statistical analysis	
		<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>F</i>	<i>p</i>
Paranoid scale	0-100	59.71 (9.11) ^a	59.54 (9.41) ^a	49.08 (9.58) ^b	96.44	< .001
Schizoid scale	0-100	54.65 (11.76) ^a	53.97 (10.46) ^a	49.60 (9.83) ^b	14.24 ¹	< .001
Schizotypal scale	0-100	59.37 (8.59) ^a	60.23 (9.95) ^a	49.05 (9.51) ^b	105.99	< .001
Antisocial scale	0-100	57.24 (13.09) ^a	57.12 (11.85) ^a	49.32 (9.50) ^b	34.16 ¹	< .001
Borderline scale	0-100	63.55 (12.11) ^a	60.91 (12.50) ^a	48.89 (8.99) ^b	88.23 ¹	< .001
Histrionic scale	0-100	51.97 (10.45) ^{a,b}	54.19 (10.24) ^a	49.66 (9.90) ^b	13.47	< .001
Narcissistic scale	0-100	54.67 (10.90) ^a	56.99 (10.40) ^a	49.39 (9.73) ^b	41.49	< .001
Avoidant scale	0-100	58.29 (10.65) ^a	58.05 (10.20) ^a	49.23 (9.62) ^b	67.26	< .001
Dependent scale	0-100	57.49 (11.03) ^a	58.98 (12.28) ^a	49.18 (9.40) ^b	50.71 ¹	< .001
Obsessive-Compulsive scale	0-100	52.16 (9.85)	51.54 (10.46)	49.84 (9.96)	2.86	.058
Passive-Aggressive scale	0-100	56.58 (10.98) ^a	59.08 (11.46) ^a	49.20 (9.48) ^b	54.36 ¹	< .001
Sadistic scale	0-100	55.74 (14.16) ^a	54.77 (13.53) ^a	49.52 (9.44) ^b	16.66 ¹	< .001
Self-defeating scale	0-100	59.67 (10.85) ^a	59.61 (11.09) ^a	49.08 (9.40) ^b	74.25 ¹	< .001

Note. When omnibus tests indicate group difference, differing superscripts within a row indicate subgroups that are significantly different from one another ($p < .05$).

¹Welch *F* reported to account for heterogeneity of variance.

Table 12. Group Differences in Psychological Disorder Symptoms and Treatment in Sample 2

Variable	Range	Attempters	Ideators	Non-suicidal	Statistical analysis	
		<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>F</i>	<i>p</i>
BDI	0-60 ¹	11.54 (6.69) ^a	11.45 (7.84) ^a	4.88 (4.74) ^b	99.19	< .001
BAI	0-63	15.74 (9.43) ^a	16.15 (11.11) ^a	8.03 (7.23) ^b	71.32	< .001
		% (n)	% (n)	% (n)	χ^2	<i>p</i>
In treatment in the last year					12.39	.002
Yes		6.5 (3) ^a	3.9 (5) ^a	1.3 (24) ^b		
No		93.5 (43) ^a	96.1 (124) ^a	98.7 (1812) ^b		

Note. When omnibus tests indicate group difference, differing superscripts within a row indicate subgroups that are significantly different from one another ($p < .05$). BDI = Beck Depression Inventory, BAI = Beck Anxiety Inventory

¹ One BDI item was removed due to the sensitive nature of data collection in a military sample.

Table 13. Associations of SNAP Items with Ideator versus Attempter Status in Sample 2

Variable	Ideator status (ϕ)	<i>p</i>
I sometimes manipulate people. (SNAP76)	.176	.019
I hate having to decide things. (SNAP95)	.183	.015
I base many of my decisions on what other people think. (SNAP100)	.150	.048
I have no problem with stepping on other people's toes a little if it helps me out. (SNAP129)	.154	.041
When I tell a story, I often change the facts a little to make it more interesting. (SNAP159)	.176	.020
I often get out of doing things by making up good excuses. (SNAP186)	.153	.043
I really enjoy beating the system. (SNAP208)	.189	.012
When I was a kid, I sometimes did things I was told not to do. (SNAP330)	.165	.029
I hate it when people try to “improve” my way of doing things. (SNAP352)	.156	.040
I sometimes don't cooperate with people who are trying to help me. (SNAP366)	.202	.007

Table 14. Relationships between Demographic Variables and Attempter Status in Sample 3

Variable	Attempters	Ideators	Statistical analyses	
	% (n)	% (n)	ϕ	<i>p</i>
Gender			.127	.373
Female	84.6 (11)	72.2 (26)		
Male	15.4 (2)	27.8 (10)		
Marital status			.073	.609
Married	23.1 (3)	30.6 (11)		
Not married	76.9 (10)	69.4 (25)		
Race			.010	.942
White	92.3 (12)	91.7 (33)		
Not white	7.7 (1)	8.3 (3)		
	<i>M (SD)</i>	<i>M (SD)</i>	<i>r_{pb}</i>	<i>p</i>
Age	30.46 (7.94)	30.06 (10.0)	.019	.896
SES ¹	3.67 (0.99)	2.86 (1.14)	.310	.034
Education	12.77 (1.64)	13.33 (2.39)	-.114	.437

¹SES reported is the Hollingshead social class (1=highest level, 5=lowest level)

Table 15. Relationships between Axis I Variables and Attempter Status in Sample 3

Variable	Attempters	Ideators	Statistical analysis	
	% (<i>n</i>)	% (<i>n</i>)	ϕ	<i>p</i>
Anxiety at baseline			.303	.034
Present	53.8 (7)	22.2 (8)		
Absent	46.2 (6)	77.8 (28)		
Anxiety lifetime			.159	.265
Present	53.8 (7)	36.1 (13)		
Absent	46.2 (6)	63.9 (23)		
Substance abuse at baseline			.283	.048
Present	30.8 (4)	8.3 (3)		
Absent	69.2 (9)	91.7 (33)		
Substance abuse lifetime			.404	.005
Present	84.6 (11)	38.9 (14)		
Absent	15.4 (2)	61.1 (22)		
	<i>M (SD)</i>	<i>M (SD)</i>	<i>r_{pb}</i>	<i>p</i>
Hamilton depression score	29.64 (8.40)	31.69 (11.84)	.133	.364

Table 16. Relationships between Axis II Variables and Attempter Status in Sample 3

Variable	Attempters	Ideators	Statistical analysis	
	% (<i>n</i>)	% (<i>n</i>)	ϕ	<i>p</i>
Any personality disorder diagnosis			.450	.002
Present	92.3 (12)	41.7 (15)		
Absent	7.7 (1)	58.3 (21)		
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>r</i> _{pb}	<i>p</i>
Cluster A personality disorder symptoms	13.38 (8.85)	6.39 (6.06)	.405	.004
Paranoid	6.31 (3.97)	2.81 (3.33)	.379	.007
Schizoid	1.77 (1.79)	1.19 (1.62)	.153	.295
Schizotypal	5.31 (4.03)	2.39 (2.56)	.295	.039
Cluster B personality disorder symptoms	27.46 (9.31)	13.94 (10.96)	.500	< .001
Antisocial	9.62 (7.40)	3.86 (3.79)	.447	.001
Borderline	11.08 (2.75)	5.64 (4.58)	.505	< .001
Histrionic	5.23 (2.52)	3.22 (3.13)	.347	.015
Narcissistic	5.77 (2.80)	2.56 (2.79)	.478	.001
Cluster C personality disorder symptoms	19.92 (8.62)	14.19 (7.51)	.314	.028
Avoidant	5.00 (3.70)	3.56 (2.47)	.134	.360
Dependent	6.23 (3.66)	4.03 (3.00)	.298	.037
Obsessive-compulsive	3.15 (2.19)	3.14 (2.72)	.003	.986
Passive-aggressive	5.54 (2.40)	3.47 (2.91)	.317	.027
Self-defeating	5.85 (3.31)	2.83 (3.00)	.424	.002

Table 17. Relationships between Personality Traits and Attempter Status in Sample 3

Variable	Attempters	Ideators	Statistical analysis	
	<i>M (SD)</i>	<i>M (SD)</i>	<i>r_{pb}</i>	<i>p</i>
Extraversion	10.95 (6.19)	12.02 (5.56)	-.040	.796
Neuroticism	19.74 (4.17)	15.93 (5.91)	.282	.061
Psychoticism	8.58 (3.30)	6.78 (3.61)	.229	.144
Self-criticism	75.92 (16.83)	67.95 (17.81)	-.032	.833
Dependency	96.03 (23.87)	95.61 (17.94)	.219	.143
Hopelessness	13.20 (5.89)	9.22 (5.47)	.351	.017

Table 18. Relationship between Sociodemographic Variables and Attempter Status in Sample 3

Variable	Attempters	Ideators	Statistical analysis	
	% (<i>n</i>)	% (<i>n</i>)	ϕ	<i>p</i>
Close friendship			-.120	.402
Present	69.2 (9)	80.6 (29)		
Absent	30.8 (4)	19.4 (7)		
Past suicide attempt			.320	.025
Present	69.2 (9)	33.3 (12)		
Absent	30.8 (4)	66.7 (24)		
Loss of parent before age 15			-.029	.840
Present	38.5 (5)	41.7 (15)		
Absent	61.5 (8)	58.3 (21)		
Physical abuse			.009	.950
Present	23.1 (3)	22.2 (8)		
Absent	76.9 (10)	77.8 (28)		
Sexual abuse			.234	.102
Present	46.2 (6)	22.2 (8)		
Absent	53.8 (7)	77.8 (28)		
Neglect			-.015	.915
Present	15.4 (2)	16.7 (6)		
Absent	84.6 (11)	83.3 (30)		

Table 18. Relationship between Sociodemographic Variables and Attempter Status in Sample 3 (cont)

Variable	Attempters	Ideators	Statistical analysis	
	<i>M (SD)</i>	<i>M (SD)</i>	<i>r_{pb}</i>	<i>p</i>
Poor relationship with mom	2.62 (1.61)	1.20 (1.62)	.367	.009
Poor relationship with dad	3.11 (1.74)	2.10 (1.78)	.250	.087
Social adjustment difficulty – interviewer-report	3.57 (0.74)	3.15 (0.67)	.226	.119
Social adjustment difficulty – self-report	2.82 (0.58)	2.30 (0.52)	.409	.005

Table 19. Relationship between Individual Variables and Suicide Status Controlling for Past Attempts in Sample 3

Predictor	β	SE β	Wald's χ^2	df	e^β	95% C.I. for e^β		
						Lower	Upper	p
Categorical								
Anxiety disorder at baseline	1.50	.742	4.10	1	4.49	1.05	19.22	.043
Substance use at baseline	1.52	.906	2.82	1	na	na	na	.093
Substance use lifetime	1.87	.869	4.61	1	6.46	1.18	35.43	.032
Personality disorder diagnosis	2.61	1.11	5.28	1	13.57	1.54	119.30	.019
Continuous								
SES	.595	.357	2.77	1	na	na	na	.096
Cluster A personality disorder symptoms	.826	.391	4.46	1	2.29	1.06	4.92	.035
Paranoid	.851	.382	4.97	1	2.34	1.11	4.95	.026
Schizotypal	.763	.379	4.05	1	2.15	1.02	4.51	.044
Cluster B personality disorder symptoms	1.15	.427	7.21	1	3.14	1.36	7.25	.007
Antisocial	.901	.406	4.93	1	2.46	1.11	5.45	.026
Borderline	1.33	.496	7.19	1	3.78	1.43	10.0	.007
Histrionic	.579	.350	2.74	1	na	na	na	.098
Narcissistic	1.09	.415	6.88	1	2.97	1.32	6.71	.009

Table 19. Relationship between Individual Variables and Suicide Status Controlling for Past Attempts in Sample 3 (cont.)

Predictor	β	<i>SE</i> β	Wald's χ^2	<i>df</i>	e^β	95% C.I. for e^β		<i>p</i>
						Lower	Upper	
Cluster C personality disorder symptoms	.661	.379	3.05	1	na	na	na	.081
Dependent	.679	.374	3.30	1	na	na	na	.069
Passive-aggressive	.672	.375	3.22	1	na	na	na	.073
Self-defeating	.833	.411	4.11	1	2.30	1.03	5.14	.043
Hopelessness	.720	.425	2.88	1	na	na	na	.090
Poor relationship with mom	.713	.349	4.18	1	2.04	1.03	4.04	.041
Social adjustment difficulty -SR	1.09	.450	5.84	1	2.97	1.23	7.17	.016

Note: Separate logistic regressions were run for each significant variable while controlling for past suicide attempts. Continuous variables were entered as standardized z-scores.

Table 20. Predicting Suicide Attempts from Personality Disorder Diagnosis and Baseline Anxiety Disorder in Sample 3

Predictor	β	Wald's χ^2	<i>p</i>
Personality disorder diagnosis	2.66	5.77	.016
Anxiety disorder - baseline	1.09	2.07	.150

Table 21. Predicting Suicide Attempts from Personality Disorder Diagnosis and Lifetime Substance Use Disorder in Sample 3

Predictor	β	Wald's χ^2	<i>p</i>
Personality disorder diagnosis	2.47	4.85	.028
Substance use disorder - baseline	1.74	3.79	.052

Table 22. Predicting Suicide Attempts from Personality Disorder Diagnosis and Poor Relationship with Mom in Sample 3

Predictor	β	Wald's χ^2	<i>p</i>
Personality disorder diagnosis	2.60	5.50	.019
Poor relationship with mom	.606	2.63	.105

Table 23. Predicting Suicide Attempts from Personality Disorder Diagnosis and Social Adjustment Difficulty in Sample 3

Predictor	β	Wald's χ^2	<i>p</i>
Personality disorder diagnosis	2.69	5.60	.018
Social adjustment difficulty	.690	2.09	.148

Table 24. Predicting Suicide Attempts from Baseline Anxiety Disorder and Lifetime Substance Use Disorder in Sample 3

Predictor	β	Wald's χ^2	<i>p</i>
Anxiety disorder - baseline	1.01	1.84	.175
Substance use disorder - lifetime	1.94	5.05	.025

Table 25. Predicting Suicide Attempts from Baseline Anxiety Disorder and Poor Relationship with Mom in Sample 3

Predictor	β	Wald's χ^2	<i>p</i>
Anxiety disorder - baseline	1.12	2.36	.125
Poor relationship with mom	.652	3.48	.062

Table 26. Predicting Suicide Attempts from Baseline Anxiety Disorder and Social Adjustment Difficulty in Sample 3

Predictor	β	Wald's χ^2	<i>p</i>
Anxiety disorder - baseline	.717	.825	.364
Social adjustment difficulty	.899	4.03	.045

Table 27. Predicting Suicide Attempts from Lifetime Substance Use Disorder and Poor Relationship with Mom in Sample 3

Predictor	β	Wald's χ^2	<i>p</i>
Substance use disorder - lifetime	2.29	46.36	.012
Poor relationship with mom	.841	4.81	.028

Table 28. Predicting Suicide Attempts from Lifetime Substance Use Disorder and Social Adjustment Difficulty in Sample 3

Predictor	β	Wald's χ^2	<i>p</i>
Substance use disorder - lifetime	2.35	6.82	.009
Social adjustment difficulty	.924	4.30	.038

Table 29. Predicting Suicide Attempts from Poor Relationship with Mom and Social Adjustment Difficulty in Sample 3

Predictor	β	Wald's χ^2	<i>p</i>
Poor relationship with mom	.921	5.00	.025
Social adjustment difficulty	1.10	5.51	.019

References

- Alaimo, K., Olson, C. M., & Frongillo, E. A. (2002). Family food insufficiency, but not low family income, is positively associated with dysthymia and suicide symptoms in adolescents. *Journal of Nutrition, 132*, 719-725.
- Allgulander, C. (1994). Suicide and mortality patterns in anxiety neurosis and depressive neurosis. *Archives of General Psychiatry, 51*, 708-712.
- American Psychiatric Association. (1987). *Diagnostic and Statistical Manual of Mental Disorders*, Third Edition - Revision. Washington, DC: American Psychiatric Association.
- American Psychiatric Association. (2000). *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition, Text Revision. Washington, DC: American Psychiatric Association.
- Arsenault-Lapierre, G., Kim, C., & Turecki, G. (2004). Psychiatric diagnoses in 3275 suicides: A meta-analysis. *BioMed Central Psychiatry, 4*, 37-47.
- Asarnow, J. R., Baraff, L. J., Berk, M., Grob, C., Devich-Navarro, M., ...& Tang, L. (2008). Pediatric emergency department suicidal patients: Two-site evaluation of suicide ideators, single attempters, and repeat attempters. *Journal of the American Academy of Child and Adolescent Psychiatry, 47*, 958-966.
- Bearman, P. & Moody, J. (2004). Suicide and friendships among American adolescents. *American Journal of Public Health, 94*, 89-95.
- Beautrais, A. L., Joyce, P. R., Mulder, R. T., Fergusson, D. M., Deavoll, B. J., & Nightingale, S. K. (1996). Prevalence and comorbidity of mental disorders in persons making serious suicide attempts: A case-control study. *American Journal of Psychiatry, 153*, 1009-1014.
- Beck A.T. (1988). *Beck Hopelessness Scale*. San Antonio, TX: The Psychological

- Corporation.
- Beck, A. T. & Steer, R.A. (1990). *Manual for the Beck Anxiety Inventory*. San Antonio, TX: Psychological Corporation.
- Beck, A. T., Steer, R. A., Kovacs, M., & Garrison, B. (1985). Hopelessness and eventual suicide: A 10-year prospective study of patients hospitalized with suicidal ideation. *American Journal of Psychiatry*, *142*, 559-563.
- Beck, A. T., Ward, C. H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. *Archives of General Psychiatry*, *4*, 561-571.
- Benda, B. B. (2003). Discriminators of suicide thoughts and attempts among homeless veterans who abuse substances. *Suicide and Life-Threatening Behavior*, *33*, 430-442.
- Bertolote, J. M., Fleischmann, A., De Leo, D., & Wasserman, D. (2004). Psychiatric diagnoses and suicide: Revisiting the evidence. *Crisis*, *25*, 147-155.
- Blackmore, E. R., Munce, S., Weller, I., Zagorski, B., Stansfeld, S. A., Stewart, D. E., Caine, E. D., & Conwell, Y. (2008). Psychosocial and clinical correlates of suicidal acts: results from a national population survey. *The British Journal of Psychiatry*, *192*, 279-284.
- Blankstein, K. R., Lumley, C. H., & Crawford, A. (2007). Perfectionism, hopelessness, and suicide ideation: Revisions to diathesis-stress and specific vulnerability models. *Journal of Rational-Emotive & Cognitive-Behavior Therapy*, *25*, 279-319.
- Blatt, S., D'Afflitti, S., & Quinlan, D. (1976). Experiences of depression in normal young adults. *Journal of Abnormal Psychology*, *85*, 383-389.
- Boden, J. M., Fergusson, D. M., & Horwood, L. J. (2006). Anxiety disorders and suicidal behaviours in adolescence and young adulthood: findings from a longitudinal study. *Psychological Medicine*, *37*, 431-440.
- Boergers, J., Spirito, A., & Donaldson, D. (1998). Reasons for adolescent suicide attempts: associations with psychological functioning. *Journal of the American Academy of Child*

- and Adolescent Psychiatry*, 37, 1287-1293.
- Bolton, J. M., Cox, B. J., Afifi, T. O., Enns, M. W., Bienvenu, O. J., & Sareen, J. (2008). Anxiety disorders and risk for suicide attempts: Findings from the Baltimore Epidemiologic Catchment Area follow-up study. *Depression and Anxiety*, 0, 1-5.
- Borges, G., Walters, E., & Kessler, R. (2000). Associations of substance use, abuse, and dependence with subsequent suicidal behavior. *American Journal of Epidemiology*, 151, 781-789.
- Bostwick, J. M. & Pankratz, V. S. (2000). Affective disorders and suicide risk: A reexamination. *American Journal of Psychiatry*, 157, 1925-1932.
- Breier, A., Schreiber, J., Dyer, J., & Pickar, D. (1991). National Institute of Mental Health longitudinal study of chronic schizophrenia. *Archives of General Psychiatry*, 48, 239-246.
- Brener, N. D., Hassan, S. S., & Barrios, L. C. (1999). Suicidal ideation among college students in the United States. *Journal of Clinical and Consulting Psychology*, 67, 1004-1008.
- Brener, N. D., Kann, L., McManus, T., Kinchen, S. A., Sundberg, E. C., & Ross, J. G. (2002). Reliability of the 1999 Youth Risk Behavior Survey Questionnaire. *Journal of Adolescent Health*, 31, 336-342.
- Brent, D. A., Baugher, M., Bridge, J., Chen, T., & Chiappetta, L. (1999). Age- and sex-related risk factors for adolescent suicide. *Journal of the American Association of Child and Adolescent Psychiatry*, 38, 1497-1505.
- Brent, D. A., Johnson, B. A., Perper, J., Connolly, J., Bridge, J., Bartle, S., & Rather, C. (1994a). Personality disorder, personality traits, impulsive violence, and completed suicide in adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry*, 33, 1080-1086.

- Brent, D.A., Perper, J. A., Moritz, G., Baugher, M., Schweers, J., & Roth, C. (1994b). Suicide in affectively ill adolescents: A case-control study. *Journal of Affective Disorders, 31*, 193-202.
- Brent, D. A., Perper, J. A., Goldstein, C. E., Kolko, D. J., Allan, M. J., Allman, C. J., & Zelenak, J. P. (1988). Risk factors for adolescent suicide: A comparison of adolescent suicide victims with suicidal inpatients. *Archives of General Psychiatry, 45*, 581-588.
- Brezo, J., Paris J., & Turecki, G. (2006). Personality traits as correlates of suicidal ideation, suicide attempts, and suicide completions: a systematic review. . *Acta Psychiatrica Scandinavica, 113*. 180-206.
- Brezo, J., Paris, J., Tremblay, R., Vitaro, F., Herbert, M., & Turecki, G. (2007). Identifying correlates of suicide attempts in suicidal ideators: a population-based study. *Psychological Medicine, 37*, 1551-1562.
- Brezo, J., Paris, J., Vitaro, F., Hebert, M., Tremblay, R., & Turecki, G. (2008). Predicting suicide attempts in young adults with histories of childhood abuse. *The British Journal of Psychiatry, 193*, 134-139.
- Briere, J. (1995). *Trauma Symptom Inventory professional manual*. Odessa, FL: Psychological Assessment Resources.
- Bronisch, T. (1996). The typology of personality disorders – diagnostic problems and their relevance for suicidal behavior. *Crisis, 17*, 55-58.
- Brown, G. K., Beck, A. T., Steer, R. A., & Grisham, J. R. (2000). Risk factors for suicide in psychiatric outpatients: A 20-year prospective study. *Journal of Consulting and Clinical Psychology, 68*, 371-377.
- Buescher, P. A. (2003). A review of available data on the health of the Latino population in North Carolina. *North Carolina Medical Journal, 64*, 97-105.

- Canetto, S. S. & Sakinofsky, I. (1998) The gender paradox in suicide. *Suicide and Life-Threatening Behavior*, 28, 1-23.
- Cavanagh, J. T., Sharpe, C. M., & Lawrie, S. M. (2003). Psychological autopsy studies of suicide: A systematic review. *Psychological Medicine*, 33, 395-405.
- CDC (2007). Centers for Disease Control and Prevention (CDC). Web-based Injury Statistics Query and Reporting System (WISQARS) [Online]. (2007). National Center for Injury Prevention and Control, CDC (producer). Available from URL: www.cdc.gov/injury/wisqars/index.html.
- CDC (2008) Centers for Disease Control and Prevention (CDC). Youth Risk Behavior Surveillance. Surveillance Summaries, [June 6, 2008]. MMWR 2008; 57(No. SS-4).
- CDC (2009). Centers for Disease Control and Prevention (CDC). Web-based Injury Statistics Query and Reporting System (WISQARS) [Online]. (2009). National Center for Injury Prevention and Control, CDC (producer). Available from URL: www.cdc.gov/injury/wisqars/index.html.
- Chioqueta, A. P. & Stiles, T. C. (2004). Assessing suicide risk in cluster C personality disorders. *Crisis*, 25, 128-133.
- Clark, L. A. (1993). *Schedule for Nonadaptive and Adaptive Personality (SNAP)*. Minneapolis, MN: University of Minnesota Press.
- Chandler, M. J. & Lalonde, C. E. (2008). Cultural Continuity as a Protective Factor against Suicide in First Nations Youth. *Horizons --A Special Issue on Aboriginal Youth, Hope or Heartbreak: Aboriginal Youth and Canada's Future*, 10, 68-72.
- Cohen, S., Mermelstein, R., Kamarck, T., & Hoberman, H. (1985). Measuring the functional components of social support. In I. Sarason & B. Sarason (Eds.), *Social Support: Theory, Research and applications* (pp 73-94). Dordrecht, the Netherlands: Martinus Nijhoff.

- Conner, K. & Duberstein, P. (2004). Predisposing and precipitating factors for suicide among alcoholics: empirical review and conceptual integration. *Alcoholism: Clinical and Experimental Research, 28*, 6S-17S.
- Conner, K. R., Meldrum, S., Wiczorek, W. F., Duberstein, P. R., & Welte, J. W. (2004). The association of irritability and impulsivity with suicidal ideation among 15- to 20-year-old males. *Suicide and Life-Threatening Behavior, 34*, 363-373.
- Conrad, R., Walz, F., Geiser, F., Imbierowicz, K., Liedtke, R., & Wegener, I. (2009). Temperament and character personality profile in relation to suicidal ideation and suicide attempts in major depressed patients. *Psychiatry Research, 170*, 212-217.
- Cogle, J. R., Keough, M. E., Riccardi, C. J., & Sachs-Ericsson, N. (2009). Anxiety disorders and suicidality in the National Comorbidity Survey-Replication. *Journal of Psychiatric Research, 43*, 825-829.
- Cox, B. J., Enns, M. W., Clara, I. P. (2004). Psychological dimensions associated with suicidal ideation and attempts in the National Comorbidity Survey. *Suicide and Life-Threatening Behavior, 34*, 209-219.
- Crumley, F. (1990). Substance abuse and adolescent suicidal behavior. *Journal of the American Medical Association, 263*, 3051-3056.
- Cubbin, C., LeClere, F. B., & Smith, G. S. (2000) Socioeconomic status and the occurrence of fatal and nonfatal injury in the United States. *American Journal of Public Health, 90*, 70-77.
- De Leo, D., Cerin, E., Spathonis, K., & Burgis, S. (2005). Lifetime risk of suicide ideation and attempts in an Australian community: Prevalence, suicidal process, and help-seeking behaviour. *Journal of Affective Disorders, 86*, 215-224.
- Denney, J. T, Rogers, R. G., Krueger, P. M., & Wadsworth, T. (2009). Adult suicide mortality in the United States: Marital status, family size, socioeconomic status, and differences by

- sex. *Social Science Quarterly*, 90, 1167-1185.
- Dervic, K., Oquendo, M. A., Grunebaum, M. F., Ellis, S., Burke, A. K., & Mann, J. J. (2004). Religious affiliation and suicide attempt. *American Journal of Psychiatry*, 161, 2303-2308.
- Dhossche, D. M. Meloukheia, A. M., & Chakravorty, S. (2000). The association of suicide attempts and comorbid depression and substance abuse in psychiatric consultation patients. *General Hospital Psychiatry*, 22, 281-288.
- Diaconu, G. & Turecki, G. (2009). Obsessive-compulsive personality disorder and suicidal behavior: Evidence for a positive association in a sample of depressed patients. *Journal of Clinical Psychiatry*, 70, 1551-1556.
- Donald, M., Dower, J., Correa-Velez, I., & Jones, M. (2006). Risk and protective factors for medically serious suicide attempts: a comparison of hospital-based with population-based samples of young adults. *Australian and New Zealand Journal of Psychiatry*, 40, 87-96.
- Dougherty, D. M., Mathias, C. W., Marsh, D. M., Moeller, F. G., & Swann, A. C. (2004a). Suicidal behaviors and drug abuse: impulsivity and its assessment. *Drug and Alcohol Dependence*, 76S, S93-S105.
- Dougherty, D. M., Mathias, C. W., Marsh, D. M., Papageorgiou, T. D., Swann, A. C., & Moeller, F. G. (2004b). Laboratory measured behavioral impulsivity relates to suicide attempt history. *Suicide and Life-Threatening Behavior*, 34, 374-385.
- Dube, S., Anda, R., Felitti, V., Chapman, D., Williamson, D., & Giles, W. (2001). Childhood abuse, household dysfunction, and the risk of attempted suicide throughout the life span. *Journal of the American Medical Association*, 286, 3089-3096.
- Duberstein, P. R. & Conwell, Y. (1997) Personality disorders and completed suicide: A methodological and conceptual review. *Clinical Psychology: Science and Practice*, 4, 359-378.

- Duberstein, P. R., Conwell, Y., & Caine, E. D. (1994). Age differences in the personality characteristics of suicide completers: Preliminary findings from a psychological autopsy study. *Psychiatry: Interpersonal and Biological Processes*, *57*, 213-224.
- Duberstein, P. R., Conwell, Y., Seidlitz, L., Lyness, J. M., Cox, C., & Caine, E. D. (1999). Age and suicidal ideation in older depressed inpatients. *American Journal of Geriatric Psychiatry*, *7*, 289-296.
- Duldulao, A. A., Takeuchi, D. T. & Hong, S. (2009). Correlates of suicidal behaviors among Asian Americans. *Archives of Suicide Research*, *13*, 277-290.
- Dumais, A., Lesage, A. D., Alda, M., Rouleau, G., Dumont, M., Chawky, N., ...Turecki, G. (2005). Risk factors for suicide completion in major depression: A case-control study of impulsive and aggressive behaviors in men. *American Journal Psychiatry*, *162*, 2116-2124.
- Durkheim, E. (1951). *Suicide*. New York: Free Press. (Original work published 1897.)
- Eaton, D. K., Kann, L., Kinchen, S., Ross, J., Hawkins, J., Harris, W. A. ...Wechsler, H. (2006). Youth Risk Behavior Surveillance – United States, 2005. *Journal of School Health*, *76*, 353-372.
- Eisenberg, M., Ackard, D., & Resnick, M. (2007). Protective factors and suicide risk in adolescents with a history of sexual abuse. *Journal of Pediatrics*, *151*, 482-487.
- Enns, M., Cox, B., Afifi, T., Dr Graaf, R., ten Have, M., & Sareen, J. (2006). Childhood adversities and risk for suicidal ideation and attempts: A longitudinal population-based study. *Psychological Medicine*, *36*, 1769-1778.
- Ernst, C., Lalovic, A., Lesage, A., Seguin, M., Tousignant, M., & Turecki, G. (2004). Suicide and no axis I psychopathology. *BMC Psychiatry*, *4*, 7-11.
- Evans, E., Hawton, K., & Rodham, K. (2004). Factors associated with suicidal phenomena in adolescents: a systematic review of population-based studies. *Clinical Psychology*

- Review, 24, 957-979.*
- Eysenck, H. J. (1990). Genetic and individual contributions to individual differences: The three major dimensions of personality. *Journal of Personality, 58, 245-261.*
- Eysenck, S., Eysenck, H., & Barrett, P. (1985). A revised version of the Psychoticism Scale. *Personality and Individual Differences, 6, 21-29.*
- Fairweather, A. K., Anstey, K. J., Rodgers, B., & Butterworth, P. (2006). Factors distinguishing suicide attempters from suicide ideators in a community sample: social issues and physical health problems. *Psychological Medicine, 36, 1235-1245.*
- Falloon, I. R., Barbieri, L., Boggian, I., & Lamonaca, D. (2007). Problem solving training for schizophrenia: Rationale and review. *Journal of Mental Health, 16, 553-568.*
- Fergusson, D. M., Beautrais, A. L., & Horwood, L. J. (2003). Vulnerability and resiliency to suicidal behaviours in young people. *Psychological Medicine, 33, 61-73.*
- Fleming, T., Merry, S., Robinson, E., Denny, S., & Watson, P. (2007). Self-reported suicide attempts and associated risk and protective factors among secondary school students in New Zealand. *Australian and New Zealand Journal of Psychiatry, 40, 87-96.*
- Fortuna, L. R., Perez, D. J., Canino, G., Sribney, W., & Alegria, M. (2007). Prevalence and correlates of suicidal ideation and suicide attempts among Latino subgroups in the United States. *Journal of Clinical Psychiatry, 68, 572-581.*
- Foster, T., Gillespie, K., McClelland, R., & Patterson, C. (1999). Risk factors for suicide independent of DSM-III-R axis I disorder. *British Journal of Psychiatry, 173, 175-179.*
- Friedman, J. M., Asnis, G. M., Boeck, M., & DiFiore, J. (1987). Prevalence of specific suicidal behaviors in a high school sample. *American Journal of Psychiatry, 144, 1203-1206.*
- Gallo, J. J., Anthony, J. C., & Muthen, B. O. (1994). Age differences in symptoms of depression: A latent trait analysis. *Journal of Gerontology: Psychological Science, 49, 251-264.*

- Goldsmith, S. K., Pellmar, T. C., Kleinman, A. M., & Bunney, W. E. (Eds.) (2002). *Reducing suicide: A national imperative*. Washington, D.C.: National Academy Press.
- Goodman, E. (1999). The role of socioeconomic status gradients in explaining differences in US adolescents' health. *American Journal of Public Health, 89*, 1522-1528.
- Gould, M. S., King, R., Greenwald, S., Fisher, P., Schwab-Stone, M., & Shaffer, D. (1998). Psychopathology associated with suicidal ideation and attempts among children and adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry, 37*, 915-923.
- Grunbaum, J.A., Lowry, R., Kann, L., & Pateman, B. (2000). Prevalence of health risk behaviors among Asian American/Pacific Islander high school students. *Journal of Adolescent Health, 27*, 322-330.
- Gunnell, D., Singleton, H., Jenkins, R., & Lewis, G. (2004). Factors influencing the development and amelioration of suicidal thoughts in the general population. *British Journal of Psychiatry, 185*, 385-393.
- Gureje, O., Kola, L., Uwakwe, R., Udofia, O., Wakil, A., & Afolabi, E. (2007). The profile and risks of suicidal behaviours in the Nigerian Survey of Mental Health and Well-Being. *Psychological Medicine, 37*, 821-830.
- Hall-Lande, J., Eisenberg, M., Christenson, S., & Neumark-Sztainer, D. (2007). Social isolation, psychological health, and protective factors in adolescence. *Adolescence, 42*, 265-286.
- Hawton, K., Sutton, L., Haw, C., Sinclair, J., & Harriss, L. (2005). Suicide and attempted suicide in bipolar disorder: A systematic review of risk factors. *Journal of Clinical Psychiatry, 66*, 693-704.
- Hewitt, P. L., Flett, G. L., & Weber, C. (1994). Dimensions of perfectionism and suicide ideation. *Cognitive Therapy and Research, 18*, 439-460.

- Hewitt, P. L., Norton, R., Flett, G. L., Callander, L., & Cowan, T. (1998). Dimensions of perfectionism, hopelessness, and attempted suicide in a sample of alcoholics. *Suicide and Life-Threatening Behavior, 28*, 395-406.
- Hunt, D., Kuck, S., & Truitt, L. *Methamphetamine Use: Lessons Learned*. Cambridge MA: Abt Associates Inc. 2006. Available at: <http://www.ncjrs.gov/pdffiles1/nij/grants/209730.pdf>. Accessed on July 3, 2010.
- Ilgen, M. A., Downing, K., Zivin, K., Hoggatt, K. J., Kim, M., Ganoczy, D....Valenstein, M. (2009). Exploratory data mining analysis identifying subgroups of patients with depression who are at high risk for suicide. *Journal of Clinical Psychiatry, 70*, 1495-1500.
- Innamorati, M., Pompili, M., Masotti, V., Persone, F., Lester, D., Tatarelli, R...& Amore, M. (2008). Completed versus attempted suicide in psychiatric patients: a psychological autopsy study. *Journal of Psychiatric Practice, 14*, 216-224.
- Inskip, H., Harris, C., & Barraclough, B. (1998). Lifetime risk of suicide for affective disorder, alcoholism and schizophrenia. *The British Journal of Psychiatry, 172*, 35-37.
- Jenkins, R., Bhugra, D., Meltzer, H., Singleton, N., Bebbington, P., Brugha, T....Paton, J. (2004). Psychiatric and social aspects of suicidal behaviour in prisons. *Psychological Medicine, 35*, 257-269.
- Joe, S., Baser, R. E., Breeden, G., Neighbors, H. W., & Jackson, J. S. (2006). Prevalence and risk factors for lifetime suicide attempts among blacks in the United States. *Journal of the American Medical Association, 296*, 2112-2123.
- Johnson, J. G., Harris, E. S., Spitzer, R. L., & Williams, J. B. (2002). The Patient Health Questionnaire for Adolescents: Validation of an instrument for the assessment of mental

- disorders among adolescent primary care patients. *Journal of Adolescent Health*, 30, 196-204.
- Joiner, T. (2005) *Why People Die by Suicide*. Cambridge, MA: Harvard University Press.
- Joiner, T., Sachs-Ericsson, N., Wingate, L., Brown, J., Anestis, M., & Selby, E. (2007). Childhood physical and sexual abuse and lifetime number of suicide attempts: A persistent and theoretically important relationship. *Behaviour Research and Therapy*, 45, 539-547.
- Keilp, J. G., Gorlyn, M., Oquendo, M. A., Brodsky, B., Ellis, S. P., Stanley, B., & Mann, J. J. (2006). Aggressiveness, not impulsiveness or hostility, distinguishes suicide attempters with major depression. *Psychological Medicine*, 36, 1779-1788.
- Keller, M., Lavori, P., Friedman, B., Nielsen, E., Endicott, J., MacDonald-Scott, P., & Andreasen, N. (1987). The Longitudinal Interval Follow-up Evaluation: A comprehensive method for assessing outcome in prospective longitudinal studies. *Archives of General Psychiatry*, 44, 540-548.
- Kessler, R. C., Berglund, P., Borges, G., Nock, M., & Wang, P. S. (2005). Trends in suicide ideation, plans, gestures, and attempts in the United States, 1990-1992 to 2001-2003. *Journal of the American Medical Association*, 293, 2487-2495.
- Kessler, R. C., Borges, G., & Walters, E. E. (1999). Prevalence of and risk factors for lifetime suicide attempts in the National Comorbidity Survey. *Archives of General Psychiatry*, 56, 617-626.
- Khan, A., Leventhal, R. M., Khan, S., & Brown, W. A. (2002). Suicide risk in patients with anxiety disorders: A meta-analysis of FDA database. *Journal of Affective Disorders*, 68, 183-190.
- King, M., Semelyn, J., Tai, S. S., Killaspy, H., Osborn, D., Popelyuk, D., & Nazareth, I. (2008). *Mental Disorders, Suicide, and Deliberate Self Harm in Lesbian, Gay and Bisexual*

- People: A Systematic Review of the Literature*. London: National Institute for Mental Health England.
- King, R. A., Schwab-Stone, M., Flisher, A. J., Greenwald, S., Kramer, R....& Gould, M. S. (2001). Psychosocial and risk behavior correlates of youth suicide attempts and suicidal ideation. *Journal of the American Academy of Child and Adolescent Psychiatry*, 40, 837-846.
- Kisch, J., Leino, E. V., & Silverman, M. (2005). Aspects of suicidal behavior, depression, and treatment in college students: Results from the Spring 2000 National College Health Assessment Survey. *Suicide and Life-Threatening Behavior*, 35, 3-13.
- Kposowa, A, Breault, K., & Singh, G. (1995). White male suicide in the United States: A multivariate individual-level analysis. *Social Forces*, 74, 315-325.
- Kullgren, G., Renberg, E., & Jacobsson, L. (1986). An empirical study of borderline personality disorder and psychiatric suicides. *Journal of Nervous and Mental Disease*, 174, 328-331.
- Kuo, W., Gallo, J. J., & Tien, A. Y. (2001). Incidence of suicide ideation and attempts in adults: the 13-year follow-up of a community sample in Baltimore, Maryland. *Psychological Medicine*, 31, 1181-1191.
- Lester, D. (1987). Suicidal preoccupation and dysthymia in college students. *Psychological Reports*, 61, 762.
- Limosin, F., Loze, J., Philippe, A., Casadebaig, F., & Rouillon, F. (2007). Ten-year prospective follow-up study of the mortality by suicide in schizophrenic patients. *Schizophrenia Research*, 94, 23-28.
- Lizardi, H., Klein, D., Ouimette, P., Riso, L., Anderson, R., & Donaldson, S. (1995). Reports of the childhood home environment in early-onset dysthymia and episodic major depression. *Journal of Abnormal Psychology*, 104, 132-139.
- Lolas, F., Gomez, A., & Suarez, L. (1991). EPQ-R and suicide attempt: The relevance of

- psychoticism. *Personality and Individual Differences*, 9, 899-902.
- London, E. D., Simon, S. L., Berman, S. M., Mandelkern, M. A., Lichtman, A. M., Bramen, J. . . .Ling, W. (2004). Mood disturbances and regional cerebral metabolic abnormalities in recently abstinent methamphetamine abusers. *Archives of General Psychiatry*, 61, 73-84.
- Loranger, A., Susman, V., Oldham, J., & Russakoff, L. (1987). The Personality Disorder Examination: A preliminary report. *Journal of Personality Disorders*, 1, 1-13.
- Malinosky-Rummell, R. & Hansen, D. (1993). Long-term consequences of childhood physical abuse. *Psychological Bulletin*, 114, 68-79.
- Mann, J. J., Waternaux, C., Haas, G. L., & Malone, K. M. (1999). Toward a clinical model of suicidal behavior in psychiatric patients. *American Journal of Psychiatry*, 156, 181-189.
- Maser, J. D., Akiskal, H. S., Schettler, P., Scheftner, W., Mueller, T., Endicott, J. . . Clayton, P. (2002). Can temperament identify affectively ill patients who engage in lethal or near-lethal suicidal behavior? A 14-year prospective study. *Suicide and Life-Threatening Behavior*, 32, 10-32.
- May, A. & Klonsky, E. D. (in press). Validity of suicidality items from the Youth Risk Behavior Survey in a high school sample. *Assessment*.
- McGirr, A., Renaud, J., Seguin, M., Alda, M., Benkelfat, C., Lesage, A., & Turecki, G. (2007). An examination of DSM-IV depressive symptoms and risk for suicide completion in major depressive disorder: A psychological autopsy study. *Journal of Affective Disorders*, 97, 203-209.
- McGirr, A., Renaud, J., Seguin, M., Alda, M., & Turecki, G. (2008a). Course of major depressive disorder and suicide outcome: A psychological autopsy study. *Journal of Clinical Psychiatry*, 69, 966-970.

- McGirr, A., Renaud, J., Seguin, M., Lesage, A., & Turecki, G. (2008b). Impulsive-aggressive behaviours and completed suicide across the life cycle: A predisposition for younger age of suicide. *Psychological Medicine*, *38*, 407-417.
- McGirr, A., Tousignant, M., Routhier, D., Pouliot, L., Chawky, N., & Margolese, H. C., & Turecki, G. (2006). Risk factors for completed suicide in schizophrenia and other chronic psychotic disorders: A case-control study. *Schizophrenia Research*, *84*, 132-143.
- McKeown, R. E., Cuffe, S. P., & Schulz, R. M. (2006). US suicide rates by age group, 1970-2002: An examination of recent trends. *American Journal of Public Health*, *96*, 1744-1751.
- Mehlum, L., Friis, S., Vaglum, P., & Karterud, S. (1994). The longitudinal pattern of suicidal behaviour in borderline personality disorder: a prospective follow-up study. *Acta Psychiatrica Scandinavica*, *90*, 124-130.
- Miller, I., Bishop, S., Norman, W., & Maddever, H. (1985). The Modified Hamilton Rating Scale for Depression: Reliability and validity. *Psychiatry Research*, *14*, 131-142.
- Miniño, A. M., Anderson, R. N., Fingerhut, L. A., Boudreault, M. A., & Warner, M. (2006). *Deaths: Injuries, 2002*. (National vital statistics reports, 54 (10). Hyattsville, Maryland: National Center for Health Statistics.
- Mohler, B. & Earls, F. (2001) Trends in adolescent suicide: Misclassification bias? *American Journal of Public Health*, *91*, 150-153.
- Molnar, B., Berkman, L., & Buka, S. (2001). Psychopathology, childhood sexual abuse, and other childhood adversities: relative links to subsequent suicidal behaviour in the US. *Psychological Medicine*, *31*, 965-977.
- Moscicki, E. K. (1995). Epidemiology of suicide. *International Psychogeriatrics*, 7137-7148.
- Moscicki, E. K. (1997). Identification of suicide risk factors using epidemiologic studies. *The Psychiatric Clinics of North America*, *20*, 499-517.

- Moscicki, E. K., O'Carroll, P., Rae, D. S., Locke, B. Z., Roy, A., & Regier, D. A. (1988). Suicide attempts in the Epidemiologic Catchment Area. *The Yale Journal of Biology and Medicine*, *61*, 259-268.
- Mykletun, A., Bjerkeset, O., Dewey, M., Prince, M., Overland, S., & Stewart, R. (2007). Anxiety, depression, and cause-specific mortality: The HUNT study. *Psychosomatic Medicine*, *69*, 323-331.
- Negron, R., Piacentini, J., Graae, F., Davies, M., & Shaffer, D. (1997). Microanalysis of adolescent suicide attempters and ideators during the acute suicidal episode. *Journal of the American Academy of Child and Adolescent Psychiatry*, *36*, 1512-1519.
- Nierenberg, A. A., Gray, S. M., & Grandin, L. D. (2001). Mood disorders and suicide. *Journal of Clinical Psychiatry*, *62*, 27-30.
- Nock, M. K., Borges, G., Bromet, E. J., Alonso, J., Angermeyer, M., Beautrais, A. ... Williams, D. (2008a). Cross-national prevalence and risk factors for suicidal ideation, plans, and attempts in the WHO World Mental Health Surveys. *British Journal of Psychiatry*, *192*, 98-105.
- Nock, M. K., Borges, G., Bromet, E. J., Cha, C., Kessler, R. C., & Lee, S. (2008b). Suicide and suicidal behavior. *Epidemiological Review*, *30*, 133-154.
- Nock, M. K., Hwang, I., Sampson, N. A., & Kessler, R. C. (2009). Mental disorders, comorbidity and suicidal behavior: Results from the National Comorbidity Survey Replication. *Molecular Psychiatry*, 1-9.
- Nock, M. K., Hwang, I., Sampson, N., Kessler, R. C., Angermeyer, M., Beautrais, A. ... Williams, D. R. (2009). Cross-national analysis of the associations among mental disorders and suicidal behavior: Findings from the WHO World Mental Health Surveys. *PLoS Medicine*, *6*, 1-17.
- Nock, M. K., Joiner, T. E., Gordon, K. H., Lloyd-Richardson, E., & Prinstein, M. J. (2006). Non-

- suicidal self-injury among adolescents: Diagnostic correlates and relation to suicide attempts. *Psychiatry Research*, *144*, 65–72.
- Nordstrom, P., Samuelsson, M., & Asberg, M. (1995). Survival analysis of suicide risk after attempted suicide. *Acta Psychiatrica Scandinavica*, *91*, 336-340.
- Noyes, R. (1991). Suicide and panic disorder: A review. *Journal of Affective Disorders*, *22*, 1-11.
- O'Connor, R. C. (2007). The relations between perfectionism and suicidality: A systematic review. *Suicide and Life-Threatening Behavior*, *37*, 698-714.
- Oquendo, M. A., Lizardi, D., Greenwald, S., Weissman, M. M., & Mann, J. J. (2004). Rates of lifetime suicide attempt and rates of lifetime major depression in different ethnic groups in the United States. *Acta Psychiatrica Scandinavica*, *110*, 446–451.
- Page, A., Morrell, S., Taylor, R., Carter, G., & Dudley, M. (2006). Divergent trends in suicide by socio-economic status in Australia. *Social Psychiatry and Psychiatric Epidemiology*, *41*, 911-917.
- Palmer, B., Pankratz, S. & Bostwick, J. (2005). The lifetime risk of suicide in schizophrenia: A reexamination. *Archives of General Psychiatry*, *62*, 247-253.
- Paris, J., & Zweig-Frank, H. (2001). A 27-year follow-up of patients with borderline personality disorder. *Comprehensive Psychiatry*, *42*, 482-487.
- Perez-Rodriguez, M. M., Baca-Garcia, E., Oquendo, M. A., & Blanco, C. (2008). Ethnic differences in suicidal ideation and attempts. *Primary Psychiatry*, *15*, 44-53.
- Petronis, K. R., Samuels, J. F., Moscicki, E. K., & Anthony, J. K. (1990). An epidemiological investigation of potential risk factors for suicide attempts. *Social Psychiatry and Psychiatric Epidemiology*, *25*, 193-199.
- Pfeiffer, P., Ganoczy, D., Ilgen, M., Zivin, K., & Valenstein, M. (2009). Comorbid anxiety as a suicide risk factor among depressed veterans. *Depression and Anxiety*, *26*, 752-757.

- Pirkis, J., Burgess, P., & Dunt, D. (2000). Suicidal ideation and suicide attempts among Australian adults. *Crisis, 21*, 16-25.
- Placidi, G. P., Oquendo, M. A., Malone, K. M., Brodsky, B., Ellis, S. P., & Mann, J. J. (2000). Anxiety in major depression: Relationship to suicide attempt. *American Journal of Psychiatry, 157*, 1614-1618.
- Plunkett, A., O'Toole, B., Swanston, H., Oates, K., Shrimpton, S., & Parkinson, P. (2001). Suicide risk following child sexual abuse. *Ambulatory Pediatrics, 1*, 262-266.
- Pollock, L. R. & Williams, J. M. (2004). Problem-solving in suicide attempters. *Psychological Medicine, 34*, 163-167.
- Pompili, M., Ruberto, A., Girardi, P., & Tatarelli, R. (2004). Suicidality in DSM IV cluster B personality disorders: An overview. *Annali dell'Istituto superiore di sanità, 40*, 475-483.
- Presley, C. & Meilman, P. (1994). Development of the core alcohol and drug survey: Initial findings and future decisions. *Journal of American College Health, 42*, 248-256.
- Prinstein, M., Boergers, J., Spirito, A., Little, T., & Grapentine, W. (2000). Peer functioning, family dysfunction, and psychological symptoms in a risk factor model for adolescent inpatients' suicidal ideation severity. *Journal of Clinical Child Psychology, 29*, 392-405.
- Qin, P., Agerbo, E., & Mortenson, P. B. (2003). Suicide risk in relation to socioeconomic, demographic, psychiatric, and familial factors: A national register – based study of all suicides in Denmark, 1981-1997. *American Journal of Psychiatry, 160*, 765-772.
- Randinsky, E. D., Hass, G. L., Mann, J. J., & Sweeney, J. A. (1999). Suicidal behavior in patients with schizophrenia and other psychotic disorders. *American Journal of Psychiatry, 156*, 1590-1595.
- Rihmer, Z. (2007). Suicide risk in mood disorders. *Current Opinions in Psychiatry, 20*, 17-22.
- Roy, A. (2003). Characteristics of drug addicts who attempt suicide. *Psychiatry Research, 121*, 99-103.

- Roy, A. & Pompili, M. (2009). Management of schizophrenia with suicide risk *Psychiatric Clinics of North America*, 32, 863-883.
- Rudd, M. D., Joiner, T., & Rajab, M. H. (1996). Relationships among suicide ideators, attempters, and multiple attempters in a young-adult sample. *Journal of Abnormal Psychology*, 105, 541-550.
- Rudd, M. D., Rajab, H., & Dahm, F. (1994). Problem-solving appraisal in suicide ideators and attempters. *American Journal of Orthopsychiatry*, 64, 136-149.
- Runeson, B. & Beskow, J. (1991). Borderline personality disorder in young Swedish suicides. *Journal of Nervous and Mental Disease*, 179, 153-156.
- Santa Mina, E.E., & Gallop, R. (1998). Childhood sexual and physical abuse: A literature review. *Canadian Journal of Psychiatry*, 43, 793-800.
- Sareen, J., Cox, B. J., Afifi, T. O., de Graaf, R., Asmundson, G. J., ten Have, M., & Stein, M. B. (2005). Anxiety disorders and risk for suicidal ideation and suicide attempts: A population-based longitudinal study of adults. *Archives of General Psychiatry*, 62, 1249-1257.
- Schneider, B. (2009). Substance use disorders and risk for completed suicide. *Archives of Suicide Research*, 13, 303-316.
- Schneider, B., Schnabel, A., Wetterling, T., Bartusch, B., Weber, B. & Georgi, K. (2008). How do personality disorders modify suicide risk? *Journal of Personality Disorders*, 22, 233-245.
- Schneider, B., Wetterling, T., Sargk, D., Schneider, F., Schnabel, A., Maurer, K., & Fritze, J. (2006). Axis I disorders and personality disorders as risk factors for suicide. *European Archives Psychiatry and Clinical Neuroscience*, 256, 17-27.
- Segal, D. L. (2000). Level of knowledge about suicide facts and myths among younger and older adults. *Clinical Gerontologist*, 22, 71-80.

- Shafii, M., Carrigan, S., Whittinghill, J., & Derrick, A. (1985). Psychological autopsy of completed suicide in children and adolescents. *American Journal of Psychiatry*, *142*, 1061-1064.
- Sher, L. (2006). Alcoholism and suicidal behavior: a clinical overview. *Acta Psychiatrica Scandinavica*, *113*, 13–22.
- Sher, L., Oquendo, M., Galfaly, H., Grunebaum, M., Burke, A., Zalsman, G., & Mann, J. (2005). The relationship of aggression to suicidal behavior in depressed patients with a history of alcoholism. *Addictive Behaviors*, *30*, 1144-1153.
- Singh, G. K., Kochanek, K. D., and MacDorman, M. F. (1996). *Advance Report of Final Mortality Statistics, 1994, Monthly Vital Statistics Report, 45*, National Center for Health Statistics, Hyattsville, MD.
- Siris, S. G. (2001). Suicide and schizophrenia. *Journal of Psychopharmacology*, *15*, 127-135.
- Soloff, P. H., Lis, J. A., Kelly, T., Conrelius, J., & Ulrich, R. (1994). Risk factors for suicidal behavior in borderline personality disorder. *American Journal of Psychiatry*, *151*, 1316-1323.
- Soloff, P. H., Lynch, K. G., Kelly, T. M., Malone, K. M., & Mann, J. J. (2000). Characteristics of suicide attempts of patients with major depressive episode and borderline personality disorder: A comparative study. *American Journal of Psychiatry*, *157*, 601-608.
- Sorlie, P. D., Backlund, E., Johnson, N. J., & Rogot, E. (1993). Mortality by Hispanic status in the United States. *Journal of the American Medical Association*, *270*, 2464-2468.
- Spicer, R.S. & Miller, T. R. (2000). Suicide acts in 8 states: Incidence and case fatality rates by demographics and method. *American Journal of Public Health*, *90*, 1885-1891.
- Spitzer, R. L. & Johnson, J. G. (1995). *The Patient Health Questionnaire, Adolescent Version*. Biometrics Research Unit, New York State Psychiatric Institute.
- Spitzer, R., Keoenke, K., Williams, J., & PHQ Primary Care Study Group. Validation and utility

- of a self-report version of PRIME-MD: the PHQ Primary Care Study. *Journal of American Medical Association*, 282, 1737-1744.
- Spitzer, R., Williams, J., Gibbon, M., & First, M. (1990). *User's guide for the Structured Clinical Interview for DSM-III-R (SCID)*. Washington, DC: American Psychiatric Press.
- Suominen, K., Isometsa, E., Ostamo, A., & Lonnqvist, J. (2004). Level of suicidal intent predicts overall mortality and suicide after attempted suicide: A 12-year follow-up study. *BMC Psychiatry*, 4.
- Swahn, M. H. & Bossarte, R. M. (2007). Gender, early alcohol use, and suicide ideation and attempts: Findings from the 2005 Youth Risk Behavior Survey. *Journal of Adolescent Health*, 41, 175-181.
- Talbot, N. L., Duberstein, P. R., Cox, C., Denning, D., & Conwell, Y. (2004). Preliminary report on childhood sexual abuse, suicidal ideation, and suicide attempts among middle-aged and older depressed women. *American Journal of Geriatric Psychiatry*, 12, 536-538.
- ten Have, M., de Graaf, R., van Dorsselaer, S., Verdurmen, J., van't Landt, H., Vollebergh, W., & Beekman, A. (2009). Incidence and course of suicidal ideation and suicide attempts in the general population. *Canadian Journal of Psychiatry*, 54, 824-832.
- Thomas, H. V., Crawford, M., Meltzer, H., & Lewis, G. (2002). Thinking life is not worth living: A population survey of Great Britain. *Social Psychiatry and Psychiatric Epidemiology*, 37, 351-356.
- Thomas, C., Turkheimer, E., & Oltmanns, T. F. (2003). Factorial structure of pathological personality traits as evaluated by peers. *Journal of Abnormal Psychology*, 112, 81-91.
- Vanderhorst, R. & McLaren, S. (2005). Social relationships as predictors of depression and suicidal ideation in older adults. *Aging & Mental Health*, 9, 517-525.

- Vanderwerker, L., Chen, J., Charpentier, P., Paulk, M., Michalski, M., & Prigerson, H. (2007). Differences in risk factors for suicidality between African American and white patients vulnerable to suicide. *Suicide and Life-Threatening Behavior, 37*, 1-9.
- Verheul, R., van den Bosch, L. M. C., & Ball, S. A. (2005). Substance abuse. In Oldham, J. M., Skodol, A. E., & Bender, D. (Eds.), *Textbook of personality disorders* (pp. 463-476). Washington, D.C.: American Psychiatric Publishing, Inc.
- Vilhjalmsson, R., Kristjansdottir, G., & Sveinbjarnardottir, E. (1998). Factors associated with suicide ideation in adults. *Social Psychiatry and Psychiatric Epidemiology, 33*, 97-103.
- Wallace, L. J. D., Calhoun, A. D., Powell, K. E., O'Neil, J., & James, S. P. (1996). *Homicide and Suicide Among Native Americans, 1979–1992*. Atlanta: Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. Violence Surveillance Series, No. 2.
- Weissman, M. M. & Bothwell, S. (1976). Assessment of social adjustment by patient self-report. *Archives of General Psychiatry, 33*, 1111-1115.
- Whiteside, S. P., & Lynam, D. R. (2001). The Five Factor Model and impulsivity: Using a structural model of personality to understand impulsivity. *Personality and Individual Differences, 30*, 669-689.
- Whitlock, J., Eckenrode, J. & Silverman, D. (2006). Self-injurious behaviors in a college population. *Pediatrics, 117*, 1939-1948.
- Whitlock, J. & Knox, K. L. (2007). The relationship between self-injurious behavior and suicide in a young adult population. *Archives of Pediatric and Adolescent Medicine, 161*, 634-640.
- Wild, L. G., Flisher, A. J., & Lombard, C. (2004). Suicidal ideation and attempts in adolescents: Associations with depression and six domains of self-esteem. *Journal of Adolescence, 27*, 611-624.

- Witte, T. K., Merrill, K. A., Stellrecht, N. E., Bernert, R. A., Hollar, D. L., Schatschneider, C., & Joiner, T. E. (2008). "Impulsive" youth suicide attempters are not necessarily all that impulsive. *Journal of Affective Disorders, 107*, 107-116.
- Woods, E. R., Lin, Y. G., Middleman, A., Beckford, P., Chase, L., & DuRant, R. (1997). The associations of suicide attempts in adolescents, *Pediatrics, 99*, 791-796.
- Yen, S., Shea, M., Pagano, M., Sanislow, C. A., Grilo, C., McGlashan, T. H. . . . Morey, L. C. (2003). Axis I and axis II disorders as predictors of prospective suicide attempts: Findings from the Collaborative Longitudinal Personality Disorders Survey. *Journal of Abnormal Psychology, 112*, 375-381.
- Young, M. A., Fogg, L. F., Scheftner, W., Fawcett, J., Akiskal, H. & Maser, J. (1996). Stable trait components of hopelessness: Baseline and sensitivity to depression. *Journal of Abnormal Psychology, 105*, 155-165.
- Zanarini, M. C., Vujanovic, A. B., Paracini, E. A., Boulanger, J. L., Frankenburg, F. R., & Hennen, J. (2003). A screening measure for BPD: the McLean Screening Instrument for Borderline Personality Disorder (MSI-BPD). *Journal of Personality Disorder, 17*, 568-573.
- Zhang, J., McKeown, R. E., Hussey, J. R., Thompson, S. J., & Woods, J. R. (2005). Gender differences in risk factors for attempted suicide among young adults: Findings from the third National Health and Nutrition Examination Survey. *Annals of Epidemiology, 15*, 167-174.
- Zimmerman, M. & Coryell, W. (1987). The Inventory to Diagnose Depression (IDD): A self-report scale to diagnose major depressive disorder. *Journal of Consulting and Clinical Psychology, 55*, 55-59.
- Zisook, S., Goff, A., Sledge, P., & Schuchter, S. R. (1994). Reported suicidal behavior and current suicidal ideation in a psychiatric outpatient clinic. *Annals of Clinical*

Psychiatry, 6, 27–31.

Appendix 1: Studies Assessing Variables that Distinguish Attempters from Ideators (significant predictors in bold)

Author	Location	Study type	Sample type	Age	N	Variables considered	Notes
Asarnow et al., 2008	U.S.	Cross-sectional	Emergency Department patients	10-18; Mean=14.7	75 ideators; 75 single attempters; 60 repeat attempters	Demographics, depression , PTSD, substance use , externalizing , thought problems , stigma, family conflict, family support, parental depression, stress , exposure to other's suicide attempts , romantic break-up , fight with romantic partner , death, injuries, illness, accident, assault, argument, parental divorce, financial problems, school suspension, arrests.	These variables predicted increased odds in crossing from one category to another (ideation to single attempt or single attempt to multiple attempt) but much of this could potentially be explained by the transition to multiple attempters.
Bearman & Moody, 2004	U.S.	Cross-sectional	Community	Grades 7-12	Not reported; total sample including non-suicidal =13,465	Demographics, depression, self-esteem, religion, parental involvement, single parent household, gun in household , family suicide attempt, friend suicide attempt , trouble getting along with others, isolated, frequency of drunkenness , GPA, minority sexual orientation, sexual abuse, frequency of physical fights	Analyses were a logistic regression. Gun in household was only significant for boys; drunkenness frequency was only significant for girls. All odds ratios were less than 2.0

Author	Location	Study type	Sample type	Age	N	Variables considered	Notes
Benda et al., 2003	U.S.	Cross-sectional	Homeless substance abusing veterans	Mean age = 50	240 ideators; 184 attempters	Demographics, depression, drug abuse, alcohol abuse, disturbing thoughts, number of psychiatric hospitalizations, stress, aggression, fearfulness, self-efficacy, resiliency, self-esteem, religiosity, social support, problems with friends, employment, abuse	Discriminant analysis produced 2 functions, neither of which distinguished ideators from attempters. Only considered attempts in the last 5 years.
Brezo et al., 2007	Canada	Longitudinal	Community	19-24; Mean =21	288 ideators; 139 attempters	Demographics, female gender , mood disorder, anxiety disorder, alcohol or drug dependence, disruptive disorders , smoking, persistent ideation , physical or sexual abuse , social support, impulsivity, identity problems, insecure attachment , stimulus-seeking	For each of these the effect size was small (OR = 1.02-2.95). There were some differences between the predictors for men and for women.
Conrad et al., 2009	Germany	Cross-sectional	Clinical	18-80; Mean=37	133 ideators; 32 attempters	Demographics, depression severity, emotional distress, Axis II comorbidity, borderline personality disorder , novelty-seeking, self-directedness, cooperativeness, reward dependence, harm avoidance	ANCOVA including gender, age and depression severity

Author	Location	Study type	Sample type	Age	N	Variables considered	Notes
Fairweather et al., 2006	Australia	Cross-sectional	Community	20-24, 40-44, and 60-64	549 ideators; 60 attempters	Demographics, depression, anxiety, alcohol use, extroversion, psychoticism employment status, life events, childhood adversity, negative interaction with friends or family, smoker, medical condition	Logistic regression with all predictors
Friedman et al., 1987	U.S.	Cross-sectional	High school students in New York	Mean=16	201 ideators; 33 attempters	Demographics, female gender, religion, suicidal family member, suicidal peer, experience with counseling	Univariate analyses
Gould et al., 1998	U.S.	Cross-sectional	Community	9-17	67 ideators; 42 attempters	Demographics, all Axis I disorders, substance abuse /dependence , panic attacks, runaway behavior, perfectionism, aggressiveness	Analyses were multivariate logistic regressions and controlled for demographic variables
Gureje et al., 2007	Nigeria	Cross-sectional	Community	18+	167 ideators; 47 attempters	Demographics, Axis I disorders, 3+ Axis I disorders , negative childhood experiences	Logistic regressions
Kessler et al., 1999	U.S.	Cross-sectional	Community	15-54	795 ideators; 272 attempters	Demographics, Axis I disorders	Odds ratios were similar for ideation and for attempts

Author	Location	Study type	Sample type	Age	N	Variables considered	Notes
King et al., 2001	U.S.	Cross-sectional	Community	9-17	67 ideators; 42 attempters	Demographics, mood disorders, anxiety disorders, substance use disorders, disruptive disorders, family environment, parental mental illness, life events , grades, vocabulary, social and instrumental competence, early onset sexual activity , physical fights, smoking marijuana , drunkenness, smoking daily	Univariate analyses
Pirkis et al., 2000	Australia	Cross-sectional	Community	18+	367 ideators; 44 attempters	Demographics, 12-month depression, 12-month anxiety, 12-month substance abuse, employment status , disability	Logistic regression. Only looked at suicidality in last 12 months.
Rudd et al., 1996	U.S.	Cross-sectional	Active-duty military personnel	Mean age =22	134 ideators; 128 single attempters	Demographic, all major Axis I disorders, all Axis II disorder symptomatology, problem-solving, degree of ideation, life stress, hopelessness and intellectual functioning	No differences were found between ideators and single attempters. Many differences were found between multiple attempters and single attempters and ideators

Author	Location	Study type	Sample type	Age	N	Variables considered	Notes
ten Have et al., 2009	Netherlands	Longitudinal	Community	18-64	109 first onset ideators; 39 first onset attempters	Demographic, mood disorders, anxiety disorders, substance use disorders, chronic pain, cardiovascular disease, asthma, digestive disorder, life events, neuroticism, parental psychopathology, childhood trauma, perceived social support	The odds ratios did not differ significantly between ideators and attempters for any predictor, suggesting that they would not distinguish some experiencing their first ideation from someone experiencing their first attempt.
Wild et al., 2004	South Africa	Cross-sectional	Community	12-26, mean = 15.8	Not reported	Demographics, depression, self-esteem (peers, school, family , body, sports, global)	Univariate analyses.

Appendix 2: UBC Research Ethics Board's Certificates of Approval

The University of British Columbia
Office of Research Services
Behavioural Research Ethics Board
Suite 102, 6190 Agronomy Road, Vancouver,
B.C. V6T 1Z3

CERTIFICATE OF APPROVAL - MINIMAL RISK

PRINCIPAL INVESTIGATOR: David Klonsky	INSTITUTION / DEPARTMENT: UBC/Arts/Psychology, Department of	UBC BREB NUMBER: H10-01595
INSTITUTION(S) WHERE RESEARCH WILL BE CARRIED OUT:		
Institution	Site	
N/A	N/A	
Other locations where the research will be conducted: UBC Psychology Department		
CO-INVESTIGATOR(S): N/A		
SPONSORING AGENCIES: N/A		
PROJECT TITLE: Distinguishing Suicide Attempters from Suicide Ideators		
CERTIFICATE EXPIRY DATE: June 23, 2011		
DOCUMENTS INCLUDED IN THIS APPROVAL:		DATE APPROVED: June 23, 2010
Document Name	Version	Date
Research Proposal	N/A	June 19, 2010
The application for ethical review and the document(s) listed above have been reviewed and the procedures were found to be acceptable on ethical grounds for research involving human subjects.		
<i>Approval is issued on behalf of the Behavioural Research Ethics Board</i>		

and signed electronically by one of the following:

Dr. M. Judith Lynam, Chair
Dr. Ken Craig, Chair
Dr. Jim Rupert, Associate Chair
Dr. Laurie Ford, Associate Chair
Dr. Anita Ho, Associate Chair