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Utility of the Personality Assessment Inventory in Assessing Suicide Risk

By

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Suicide prevention can be accomplished only if clinicians can accurately identify suicidal individuals. In the realm of suicide research and clinical practice there has been an increasing recognition of the factors that elevate suicide risk. Moreover, attempts have been made to use personality assessment instruments to better understand suicide risk. The present study examined the usefulness of the Personality Assessment Inventory (PAI) in assessing suicide risk. As an archival study, clinical records of 85 referrals at the University of Toledo Psychology Clinic were utilized for the purposes of this study. As a measure of convergent validity and discriminant validity in suicide risk assessment, the results of all the Personality Assessment Inventory (PAI) scales and subscales were correlated with the two suicide risk scores as obtained from applying the two suicide assessment checklists – Suicide Assessment Checklist, Yufit (SAC-Y) and Suicide

Assessment Checklist, Rogers (SAC-R) - to the intake interview reports and therapy process notes of the clients. Furthermore, a series of regression analyses were conducted in which the PAI-Depression scale (DEP), Suicide Ideation scale (SUI), and the Suicide Potential Index (SPI) served as the independent variables and the SAC-Y, SAC-R, and the presence or absence of a no-suicide contract served as dependent variables. The SAC-Y and SAC-R showed small to moderate correlations with the PAI scales and subscales. The SAC-Y showed the highest correlation with DEP, whereas the SAC-R showed the highest correlation with the SUI. The SUI and SPI displayed substantial incremental validity over DEP in predicting the SAC-R score; however DEP showed substantial incremental validity over SUI and SPI in predicting the SAC-Y score. Furthermore, SUI showed greater incremental validity than did the SPI. The findings of the present study suggest that DEP, SUI and SPI of the PAI make important contributions in suicide risk assessment and that the SAC-R may be a more sensitive measure of suicide risk than the SAC-Y.

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Chapter One

Introduction

Personality Assessment Inventory and Suicide Risk

Suicide was the eleventh leading cause of death in the United States in 2004, accounting for 32,439 deaths. On an average, one person killed himself or herself every 16.2 minutes. In 2004, suicide was the third leading cause of death for young people (ages 15 to 24), and on an average, one young person killed himself or herself every 2 hours. Elderly (65+) have a higher suicide rate than the general population, and on an average, one old person killed himself or herself every 1 hour and 41.4 minutes (Centers for Disease Control and Prevention, 2005). These statistics suggest that suicide is a major public health problem.

Suicide Risk Factors

Suicide results from an interaction of risk and protective factors both external and internal to the individual (Moscicki, 2001). Research has focused on identifying the risk and protective factors associated with suicide. These risk and protective factors have been integrated to develop theoretical models to facilitate comprehensive suicide risk assessment (Joiner, Walker, Rudd, & Jobes, 1999; Metha, Chen, Mulvenon, & Dode, 1998; Moscicki, 2001; O'Connor, Warby, Raphael, & Vassallo, 2004; Packman, Marlitt, Bongar, & Pennuto, 2004; Sanchez, 2001). The risk factors are often classified into the following categories.

Sociodemographic Factors. Research on sociodemographic factors suggests that important gender, age, and racial differences exist in the risk for suicide. Membership in certain groups amplifies the risk for suicide because larger number and/or greater intensity of risk factors are an integral part of the group membership.

In terms of gender differences, men have a higher frequency of suicide and a greater overall mortality from suicide than women (Skogman, Alsen, & Ojehagen, 2004). Almost four times more men than women die by suicide in the United States annually (Centers for Disease Control and Prevention, 2005). An overwhelmingly large number of studies suggest that men resort to more lethal methods (e.g., firearms) than women (e.g., overdosing on pills) (Rich et al., 1988). Men and women appear to differ in terms of presentation of their suicidal behavior, as women show more frequent suicide thoughts and attempts, while men show predominantly attempts that are more risk-taking and injury-producing (Langhinrichsen-Rohling, et al., 1998; Wunderlich, Bronisch, Wittchen, & Carter, 2001). In this context, different sets of factors have been associated with the suicidal risk in both men and women. Sexual abuse, anxiety disorders, feelings of guilt or shame, prior suicide attempt, prior psychiatric hospitalization, presence of suicidal impulses, poor self-evaluated health, and low educational attainment have been implicated as more important risk factors for women; whereas alcohol abuse, financial problems, antisocial behavior, depression, low income, smoking, and poor occupational status have been identified as more important risk factors for men (Fennig et al., 2004; Kwan, Ip, & Kwan, 2005; Motto, Bostrom, & Cox, 1997; Wunderlich, et al., 2001; Zhang, Mckeown, Hussey, Thompson, & Woods, 2005).

In terms of age, youth (15-24) and elderly (65+) have been identified as two high suicide risk groups. It is important to mention that although these two age groups have been identified as high suicide risk groups, the rates of completed suicide are higher for the elderly than for the youth. In 2004, of 100,000 people 14.3 elderly individuals died by suicide as against 8.2 adolescents (ages 15 to 19) and 12.5 young adults (ages 20 to 24) (Centers for Disease Control and Prevention, 2005). Among youth, alcohol use beginning in preteens; social and educational disadvantage; childhood and family adversity; psychopathology; individual and personal vulnerabilities; exposure to stressful life events and circumstances; and adverse social, cultural and contextual factors have been identified as suicide risk factors (Beautrais, 2000; Swahn & Bossarte, 2007). Presence of a physical illness (against psychiatric symptoms in young adults), physical pain, depression, functional impairment, lack of future orientation, and the death of partner have been identified as risk factors in the elderly (Erlangsen, Jeune, Bille-Brahe, & Vaupel, 2004; Hirsch et al., 2007; Tadros & Salib, 2007).

In terms of ethnic background, the suicide rate for Whites was two times higher than that for Non-Whites in 2004 (Centers for Disease Control and Prevention, 2005). Several studies have compared the suicide rates among Caucasians and African Americans and have found that Caucasians are at a greater risk for suicide than African Americans (Bingham, Bennion, Openshaw, & Adams, 1994). The presence of an anxiety disorder, younger age, and a family history of suicide have been identified as some of the risk factors in Whites; whereas being a male, and lack of social support have been identified as some of the important risk factors in African Americans (Abe, Mertz, Powell, & Hanzlick, 2006; Vanderwerker, et al., 2007). Chiles et al. (1989) found that

depression was a more important risk factor among the Chinese, whereas hopelessness was more important among Americans. Furthermore, African American suicide attempters have been found to report less childhood emotional neglect, family history of suicide, depression, and ongoing legal problems than White suicide attempters (Abe et al., 2006; Roy, 2003). Although historically African American individuals have been found to have relatively low rates of completed suicide, in the past few decades there has been a significant increase in suicide rates in this population (Chance, Kaslow, Summerville, & Wood, 1998).

Immigration and the accompanied acculturative stress have been explored as suicide risk factors in a number of studies. For instance, Mexican immigrants and Latino-American adolescents experiencing high levels of acculturative stress have been found to be at an elevated suicide risk level (Hovey, 1996; 2000).

In terms of socioeconomic status (SES), Taylor, Page, Morrell, Harrison, and Carter (2005) found a strong link between SES and suicide risk wherein lower SES was associated with higher suicide risk. Moreover, they found that this relationship is independent of the diagnosis of mental disorders. Also, suicide risk is higher among individuals who are unemployed (Kwan, et al., 2005).

With regards to marital status, it has been consistently found that married persons have lower suicide rates than people who are single, widowed, or divorced (Smith, Mercy, & Conn, 1988; Yip & Thorburn, 2004).

In terms of sexual orientation, homosexual and bisexual individuals present with increased suicide risk only during youth (McDaniel, Purcell, & D'Augelli, 2001; Pinhey & Millman, 2004; Russel & Joyner, 2001) and suicide risk is higher for bisexual or

homosexual males than females (Remafedi, French, Story, Resnick, & Blum, 1996). These age and gender differences are similar to those found in heterosexual individuals. Homosexual and bisexual individuals' suicide risk has been associated with feminine gender roles, and adopting bisexual or homosexual identity at younger ages (Remafedi, Farrow, & Deisher, 1991). More recent research suggests that cross-gender role (i.e., personality traits associated with the opposite sex) is a more important risk factor than sexual orientation (Fitzpatrick, Euton, Jones, & Schmidt, 2005).

Axis I Disorders. A large number of studies suggest that the presence of a major psychiatric disorder is a strong risk factor for suicide. In fact, completed suicide in the absence of psychiatric disorders is rare (Clark & Fawcett, 1992).

Suicide risk is substantially higher in the presence of an affective disorder, including major depression and bipolar disorder than any other mental illness (Roy, 1994; Tanney, 1992). Persson, Runeson, and Wasserman (1999) found that mood disorders were the most common diagnosis in their sample of suicide attempters. Affective disorders that co-occur with psychic anxiety, panic attacks, loss of pleasure and interest, diminished concentration, and global insomnia particularly amplify the suicide risk (Fawcett et al., 1987). Within the group of patients with a bipolar disorder diagnosis those with an early onset, interpersonal problems with partner, and occupational maladjustment represent a high suicide risk group independent of demographic characteristics (Tsai, Lee, & Chen, 1999). Furthermore, a history of alcohol abuse and deterioration in function has been found to predict suicide in bipolar disorder (Dutta, Boydell, Kennedy, Os, Fearon, & Murray, 2007).

Anxiety disorders too have been associated with suicidal risk (Khan, Leventhal, Khan, & Brown, 2002) with the suicide risk increasing with the number of anxiety disorders present (Boden, Fergusson, & Horwood, 2007). Posttraumatic stress disorder has been associated with suicide risk (Tarrier & Gregg, 2004) especially when present with high levels of depression, hostility, arousal and low levels of avoidance (Yoram, 2004). Alcoholism (Berglund, 1984; Klatsky & Armstrong, 1993; Murphy & Wetzel, 1990; Roy & Linnoila, 1986; Sher & Zalsman, 2005) and substance abuse (Rowan, 2001) are important risk factors for suicide. Based on a review of studies on alcoholism and suicidal behavior, Sher (2006) found that alcoholism is a strong risk factor for suicide and its strength is increased when it occurs along with major depressive episodes, stressful life events, interpersonal difficulties, poor social support, living alone, high aggression/impulsivity, negative affect, hopelessness, comorbid substance abuse (especially cocaine abuse), serious medical illness, suicidal communication, and prior suicidal behavior. Furthermore, the risk for suicide is heightened with the diagnosis of schizophrenia (Bongar, 2002; Caldwell & Gottesman, 1992; Harris & Barraclough, 1997; Heila et al., 1997, 1999).

Personality Disorders. The Diagnostic and Statistical Manual of Mental Disorders – Fourth Edition - Text Revision's (DSM-IV-TR; American Psychiatric Association, 2000) personality disorders represent personality trait constellations in extreme, rigid form. Suicide risk is strongly associated with and determined by personality disorders because personality disorders, by definition, involve chronic difficulties in relationships and poor coping strategies (Schneider et al., 2006). Thus, the reactivity and hypersensitivity that is often manifested by individuals with personality disorders

warrants further examination of whether individuals with personality disorders are particularly vulnerable to suicidal risk.

An overwhelmingly large number of statistical studies suggest links between suicide and personality disorders. To illustrate, using psychological autopsies¹, Portzky, Audenaert, and Van Heeringen (2005) found that almost half of the adolescents in their sample who committed suicide were diagnosed with personality disorders. According to Duberstein and Conwell (1997) approximately 30 to 40% of all suicides are completed by patients diagnosed with personality disorder. Moreover, 55% to 70% of individuals who attempt suicide meet diagnostic criteria for a personality disorder (Casey, 1989; Clarkin, Friedman, Hurt, Corn, & Aranoff, 1984). Suicide risk among people with personality disorder is seven times the expected value, and among people treated for attempted suicide 38 times the expected value (Harris & Barraclough; 1998). Suicide attempters with personality disorders have the highest level of repeat attempts (Casey, 1992). More specifically, Harwood, Hawton, Hope and Jacoby (2001) found that 16% of elderly who had attempted suicide had a personality disorder and an additional 28% had accentuated obsessive, anxious, and dependent personality traits. Engstrom et al. (1996) using cluster analysis identified that individuals with high psychoticism and low socialization [(closely resembling Cluster A characteristics of the DSM-IV-TR)] were most likely to be considered as ‘repeaters’ and ‘completers.’

Although the association of personality disturbances and attempted suicide is well known, the clinical characteristics of subjects with personality disorders after a recent

¹ Psychological autopsy involves investigating a person's death by reconstructing what the person thought, felt, and did preceding his or her death. Personal documents, police reports, medical records, and face-to-face interviews with families, friends, and others who had contact with the person before the death are used to formulate the reconstruction.

suicide attempt are much less investigated. Earlier it was generally held that personality disorders characterized by traits such as aggression, hostility, or impulsivity increase risk for suicide. In fact, a considerable amount of research has indicated that the personality disorders in the Cluster B are commonly associated with a history of suicidal and self-destructive behaviors.² Within this cluster, antisocial personality disorder (Kullgren, Tengstrom, & Grann; 1998; Stalenheim, 2001; Verona, Hicks, & Patrick, 2005; Verona, Patrick, & Joiner, 2001) and borderline personality disorder (Corbitt, Malone, Haas, & Mann, 1996; Reich, 1998) have been related to an increased risk for suicidal behavior and completed suicide. This is because suicide risk in borderline personality disorder is attributed impulsive aggression and affective instability; and in antisocial personality disorder to negative emotionality and low constraint (Verona, et al., 2001).

However, at the same time, several studies have identified that cluster B is not the only cluster that appears to be exclusively at risk for suicide. To illustrate, Schenider et al. (2006) in their review of studies found that suicide risk was associated with all the three clusters of personality disorders. Thus, suicide risk is not confined to just the “dramatic” Cluster B but also accompanies the personality traits associated with the “odd” Cluster A³ and “anxious” Cluster C⁴. To illustrate, suicide risk has been associated with schizotypal personality (combination of low cooperativeness and low self-directedness) as measured by the Temperament and Character inventory (TCI)

² People with Cluster B disorders act in a dramatic, emotional and erratic fashion. Typically, they exhibit impulsivity, violation of social norms, and acting out behaviors. They can be self-abusive and hostile to others. This cluster includes Antisocial, Borderline, Histrionic, and Narcissistic Personality disorders.

³ People with Cluster A disorders are often viewed as odd or eccentric. They have abnormal cognitions or ideas, they speak and act in strange ways, and they have difficulty relating to others. This cluster includes the Paranoid, Schizoid, and Schizotypal Personality disorders.

⁴ People with Cluster C disorders are often viewed as anxious and fearful. People with these disorders are excessively afraid of social relations and of feeling out of control. This cluster encompasses Avoidant, Dependent, and Obsessive-Compulsive Personality disorders.

(Cloninger, Bayon & Svrakic; 1998); dependent personality disorder (only when there is a comorbid lifetime depressive disorder) (Chioqueta & Stiles, 2000; Portzky, Audenaert, & Van Heeringen, 2005); and a combination of borderline and avoidant traits (Raczek, True, & Friend; 1989).

In their longitudinal study Maser et al. (2002) found that suicide completed within 12 months of data collection was predicted by clinical variables unlike suicide completed beyond 12 months that was predicted by personality variables. Furthermore, in their study, impulsivity and assertiveness were the best prospective predictors of completed suicides beyond 12 months. They found evidence of trait accentuation in patients with a diagnosis of personality disorder with trait accentuation being the highest in adolescents with a diagnosis of borderline personality disorder (Portzky, Audenaert, & Van Heeringen, 2005). Schneider et al. (2006) found that the presence of a personality disorder alone, that is, independent of an Axis I diagnosis, increases the suicide risk seven times for men and six times for women. Furthermore, they found that the presence of two or more personality disorders belonging to the different clusters elevated suicidal risk 16-fold in men and 20-fold in women. Most importantly, cluster B disorders in women and cluster C in men independently contributed to suicidal risk thereby suggesting the possible interaction of personality influences and gender.

Comorbidity. As is evident from the previous discussion, comorbid diagnoses have been associated with elevated suicide risk. Comorbid anxiety disorders and depression (Pawlak, Pascual-Sanchez, Rae, Fischer, & Ladame, 1999); comorbid anxiety disorders and bipolar disorder (Simon et al., 2007); severe mental illness and substance abuse (Buckley, 2007); and comorbid alcohol use and depression (Cornelius, Salloum,

Mezzich, & Cornelius, 1995) are some of the examples where comorbidity elevates suicide risk over that produced by individual diagnoses. Wunderlich, Bronisch, and Wittchen (1998) stated that the risk resulting from comorbidity is the highest when anxiety disorders are one of the comorbid diagnoses. Hawton, Houston, Haw, Townsend, and Harriss (2003) found that comorbidity increased suicidal risk because it was associated with other suicide risk factors. In their sample, more patients with comorbid psychiatric and personality disorders had made previous attempts, and repeated attempts. Also, suicide attempters with comorbid diagnosis were found to have more depression, hopelessness, aggression, and impulsivity along with lower self-esteem and poorer problem-solving skills than patients without diagnostic comorbidity.

Personal factors. Personal factors include the individual's emotional, cognitive, and personality characteristics (Sanchez, 2001). Several personal characteristics have been considered to be indicators of suicide risk.

The presence of neuroticism has been found to amplify suicide risk (Chioqueta & Stiles, 2005; Lester, 1987; Mehryar, Hekmat, & Khajavi, 1977; Velting, 1999). Perfectionism (Burns, 1980; Hewitt, Flett & Turnbull-Donovan; 1992; Hollender, 1965) – self-oriented perfectionism (high personal standards) and socially-prescribed perfectionism (Hewitt, Flett & Weber; 1994) - has been associated with suicide risk. In fact, Hamilton and Schweitzer (2000) found a significant and positive relationship between increased levels of perfectionism and suicidal ideation in university students although this relationship held true only for passive perfectionists, who are extremely afraid of mistakes, tend to procrastinate and frequently second-guess their decisions.

Impulsivity has been strongly associated with suicide risk and is a particularly strong risk factor when the individual is younger, exhibits more aggressive behaviors, has a Cluster B diagnosis, and presents with alcohol and drug abuse/dependence (Maser, et al., 2002; Plutchik & van Praag, 1995; Zouk, Tousignant, Segium, Lesage, & Turecki, 2006). Within this realm, childhood conduct problems, identity problems, and emotional instability have been strongly associated with suicide risk (Brezo et al., 2006).

Aggression (impulsive, indirect, verbal, general and lifetime), aggressiveness (spontaneous aggression, reactive aggression, excitability); and hostile disagreeableness have been found to be relevant suicide risk factors (Brezo et al., 2006; Clayton, Ernst & Angst, 1994).

Based on a review of literature of existing suicide risk studies, Brezo et al. (2006) found that hopelessness predicts suicide ideation; mediates the relationships between cognitive bias, stress, problem-solving and suicidal ideation; and is associated with suicide attempts and completions.

Furthermore, cognitive attributes such as impaired reality testing (Maltsberger, 1988), dichotomous thinking, cognitive distortions, irrational beliefs, dysfunctional assumptions, and impaired decision-making are important considerations in suicide risk assessment (Jollant et al., 2007; Weishar & Beck, 1992). These cognitive deficits can further intensify other suicide risk factors. For instance, Jollant et al (2007) hold that the impaired decision-making present in individuals at high risk for suicide might further worsen close interpersonal relationships. Lastly, individuals at high risk for suicide have been found to exhibit deficient problem solving strategies (Pollock & Williams, 1998).

In addition to the personal risk factors mentioned above, several other factors have been implicated as important considerations in suicide risk assessment. These include low levels of self-consciousness (Chioqueta & Stiles, 2005); lack of future orientation, psychoticism, low levels of extroversion, self-criticism, cynicism, harm avoidance⁵ (Brezo, Paris, & Turecki, 2006; Hirsch et al., 2007); introversion (Roy, 2003; Brezo et al., 2006); self-transcendence (Van Heeringen, 2003); low self-esteem; permissive attitude toward committing suicide; higher state and trait anxiety (De Wilde, Keinhorst, Diekstra & Wolters; 1993); high reward dependence⁶ (Van Heeringen et al., 2000); low cooperativeness and low self-directedness (Cloninger, Bayon & Svrakic; 1998).

Historical Factors. This category includes events from the past that elevate suicide risk (Sanchez, 2001). Childhood physical abuse, sexual abuse (Coll, Law, Tobais, & Hawton, 1998; Joiner, et al., 2007; Thakkar, Gutierrez, Kuczen, & McCanne, 2000) neglect and psychological abuse (Enns, et al., 2006) have been strongly associated with suicide risk. In this context, Joiner et al. (2007) found that childhood physical and violent sexual abuse have more deleterious effects than molestation and verbal abuse. Several aspects of the family can function to amplify suicide risk. To illustrate, family history of suicide has been strongly associated with suicide risk (Brent, Bridge, Johnson, & Connolly, 1996; Roy, 1992). Family history of suicide may be associated with an earlier age of the first suicide attempt (Qin, Agerbo, & Mortensen, 2002; Roy, 2004; Roy &

⁵ Harm avoidance involves a heritable bias in the inhibition of behavior in response to signals of punishment and frustrative non-reward.

⁶ Reward Dependence reflects a heritable bias in the maintenance of behavior in response to cues of social reward. It is manifested as sentimentality, social sensitivity, attachment, and dependence on social approval. Individuals high in reward dependence are tender-hearted, sensitive, socially dependent, and sociable.

Janal, 2005). A family history of suicide can contribute to suicidal behavior through genetic influences and/or environmental processes such as abuse, imitation, or transmission of psychopathology (Brent & Mann, 2005). Suicide risk among adolescents has been associated with perceived conflict with parents, unmet family goals, and family depression; whereas perceived parental involvement and family support for school serve as suicide protective factors (Randell, Wang, Herting, & Eggert, 2006). Another historical risk factor is the presence of previous suicidal behavior. Numerous studies have found that prior suicide attempts are strong predictors of future behavior. Joiner, Walker, Rudd, and Jobes (1999) state the baseline suicide risk is higher for multiple attempters than for single attempters or ideators. This is because individuals who make repeated attempts are particularly fearless to make another attempt; feel a sense of competence to make another attempt; have means and opportunities, specific plans and preparations to make the attempt; and use suicidal behavior as the primary coping strategy in the face of stress (Joiner et al., 2007). Other historical risk factors include a history of violence (Plutchik & van Praag, 1995) and head injury (Mann, Waternaux, Haas, & Malone, 1999).

Situational Factors. Most suicidal behaviors are triggered by an acute stressor. Suicidal individuals report experiencing high amounts of stress months prior to the attempt (Paykel, Prusoff, & Myers, 1975), and their entire life span (Cohen-Sandler, Berman, & King, 1982; De Wilde, Kienhorst, Diekstra, & Wolters, 1992). Certain events (loss of an important relationship due to death, divorce, separation; interpersonal difficulties; financial constraints; legal issues) that either cause stress or dissipate the existing social support systems have been often associated with elevated suicide risk. For

instance, Erlangsen, et al. (2004) found that the elderly men are at an increased risk for suicide during the first year of their partner's death.

The positive link between financial constraints and suicide risk has been replicated across numerous studies (Kposowa, 2001; Qin, Agerbo, & Mortensen, 2003). Stack and Wasserman (2007) further examined this link and found that financial constraints coexisted with other suicide risk factors like anticipated loss of a home, loss of a car, disrupted interpersonal relationships, medical problems, death of a significant other, and legal problems.

Ongoing pain has been shown to be one of the suicide risk factors (Fishbain, 1996; Smith, Edwards, Robinson, & Dworkin, 2004). In this context, Edwards, Smith, Kudel, and Haythornthwaite (2006) explored factors associated with pain that increase suicidal risk and found that the presence and degree of suicidal ideation could be predicted from the magnitude of depressive symptoms and the degree of pain-related catastrophizing.⁷ This arena of investigation has also explored certain physical conditions that heighten suicide risk. Based on a review of research studies, Kleepsies, Hughes, and Gallacher (2000) found that patients with HIV/AIDS, cancers of the brain and nervous systems, and multiple sclerosis are overrepresented in the high suicide risk group. Kaplan, McFarland, Huguet, and Newsom (2007) state that functional limitations imposed by the physical conditions significantly predict suicide.

Persson et al. (1999) found that the impact of stress on functioning is greater for suicidal individuals who meet criteria for both Axis I and Axis II disorders than for suicidal individuals who meet criteria for only Axis I disorders. They used this finding to

⁷ Pain catastrophizing involves ruminating over, exaggerating and magnifying the experience of pain to the extent that pain is perceived as unbearable, horrible, and awful.

suggest that in addition to the Axis I and Axis II disorders; it is relevant to include information from Axes III (medical conditions), IV (stressors) and V (adaptive functioning) of the DSM-IV-TR, as these are important pointers to be included in suicide risk assessment. Furthermore, the impact of life events on suicidal risk among individuals with personality disorder has been found to depend on the nature of the life event (Weyrauch et al., 2001). To illustrate, Yen et al. (2005) studied the relationship between life events, suicide attempts and personality disorders considering that personality disorders, particularly Cluster B personality disorders, manifest high reactivity and sensitivity, thereby making them vulnerable when faced with stress. They found that negative life events, specifically relating to love-marriage or crime-legal matters were significant predictors of suicide attempts (Horesch et al., 2003). Moreover, Yen et al. (2005) suggested that life events that have implications for suicide among individuals with a personality disorder are not independent of their personality disorder diagnosis, that is, they are in fact internally generated by their personality characteristics. Thus, maladaptive personality traits and patterns impact multiple domains of a person's life and consequently impair family, social and interpersonal relationships. These relationships then not only become sources of stress but unavailable as means of social support needed to buffer suicidal tendencies (Brezo et al., 2006).

Current Suicide Symptoms. Based on the factor analysis of the Modified Scale for Suicidal Ideation, Joiner, Rudd, and Rajab (1997) hold that of all the suicidal symptoms, two symptoms are particularly important indicators of suicide risk: resolved plans and preparation; and suicidal desire and ideation, with the former being more detrimental than the latter. Resolved plans and preparations comprises sense of courage to make an

attempt, a sense of competence to make an attempt, availability of means to and opportunity for attempt, specificity of plan for attempt, preparations for attempt, duration of suicidal ideation, and intensity of suicidal ideation; whereas suicidal desire and ideation comprises reasons for living, wish to die, frequency of ideation, wish not to live, passive attempt, desire for attempt, expectancy of attempt, lack of deterrents to attempt, and talk of death and/or suicide. Furthermore, Joiner, Walker, Rudd, and Jobes (1999) state that intensity and duration of suicidal ideation are more detrimental than the frequency of ideation.

Suicide Protective Factors

Several factors have been identified as protective against suicide risk. Completed suicides have been associated with a lack of friends (Allebeck et al., 1988); whereas social support derived from significant relationships within and outside family and effective use of leisure time have been identified as protective factors (Stack, 1992). In fact, even the perceived presence of social support has been found to act as a buffer against suicide risk (D'Attilio, Campbell, Lubold, Jacobson, & Richard, 1992). Level of religiosity has been found to inversely associated with suicide risk because religious groups provide social support that acts as a buffer against suicide risk and/or because religious groups strongly prohibit suicide (Greening & Stoppelbein, 2002; Hilton, Fellingham, & Lyon, 2002; Huguelet, et al., 2007; Neeleman, 1998; Nonnemaker, McNeely, & Blum, 2003; Stack & Wasserman, 1995; Van Tubergen, Te Grotenhuis, & Ultee, 2005). Meaning in life (Edwards & Holden, 2003), satisfaction in life (Heisel & Flett, 2004), and hopefulness (Kaslow et al., 2002) may act as protective factors. Problem-solving confidence has been found to be a significant predictor of severity of

suicidal ideation; and perceived problem-solving skills and social support have been found to mediate the relationship between stress and level of suicide ideation (Clum & Febraro, 1994).

Suicide Assessment

Research has focused on suicide risk factors with the hope that the clinician can reduce the suicide risk by addressing the suicide risk factors that are amenable to intervention. Consequently, suicide risk assessment instruments based on risk factors have been developed to bridge the gap between science and practice. Some of the commonly used suicide risk assessment instruments are The Scale for Suicide Ideation (SSI; Beck, Kovacs, & Weissman 1979), Suicide Behaviors Questionnaire (SBQ; Linehan, 1981), Reasons for Living Inventory (RFL; Linehan et al., 1983), Suicide Assessment Checklist (SAC; Yufit, 1989), Suicide Ideation Scale (SIS; Rudd, 1989), Adult Suicide Ideation Questionnaire (ASIQ; Reynolds, 1991), Life Attitudes Schedule (LAS; Lewinsohn et al., 1996), Hopelessness Depression Symptom Questionnaire (HDSQ; Metalsky & Joiner, 1997), The Suicide Status Form (SSF; Jobes, Jacoby, Cimboic, & Hustead, 1997), Depression Symptom Inventory – Suicidality Subscale (DSI-SS; Joiner et al., 2002), and Suicide Assessment Checklist (SAC; Rogers, Lewis, & Subich, 2002).

Challenges in Suicide Assessment Research. Despite the efforts to improve suicide risk assessment, accurate suicide prediction is precluded by a number of factors.

First, suicide is a low base rate occurrence and therefore, suicide prediction inevitably leads to a large number of false positives (Clark & Fawcett, 1992; Leonard,

1977; Reinecke & Franklin-Scott, 2005). In this context, Stelmachers (1995) suggests that the predictive power of 80 % in relation to suicidal risk can be achieved only with a psychological test that has sensitivity and specificity close to 99%. Thus, it is more accurate to predict suicidal ideation, threats, and attempts because their base rates are higher than completed suicides (Nichols, 1988). Considering the difficulties inherent in predicting suicide, Clopton (1978) suggested prediction of suicide potential rather than suicide completion. Thus, the existing knowledge of risk factors and suicide risk assessment instruments allows us to make predictions of imminent risk but not long-term risk (Reinecke & Franklin-Scott, 2005). This shift in thinking parallels the shift in forensic psychology from making long-term predictions of specific acts of dangerousness and violence to predicting probability of an act of violence in a shorter duration of time. This is explained by the fact that much like violent behavior, suicidal behavior too is influenced by more transient factors like loss of support, business losses, medical condition, exacerbation of severe psychiatric symptoms and so on (Friedman, Archer, & Handel, 2005).

Secondly, studying suicide ideators, attempters, and completers as one group does not address the issue of low base rate because there are important differences between these three groups. This is because a large number of people think about suicide; however, very few make actual attempts and of those who make attempts only a small subset complete the act (Hovey & King, 2002). This issue is made more complex by variations within each of these groups. To illustrate, even suicide completers are a heterogeneous group with varying and unique events preceding actual suicide completion (Leonard, 1977). For instance, Angst and Clayton (1998) state that although 10% of

patients who attempt suicide go on in their lifetime to complete suicide, the vast majority of suicide attempters do not. Likewise, 40% of completed suicides have had previous suicide attempts but again the majority has not. So, the completers and attempters represent two separate but overlapping populations and attempters may not resemble completers in demographics, diagnostic, psychological and personality variables. Thus, Heisel et al. (2006) aptly state that the clinician's experience with suicidal patients is insufficient to infer about completed suicide. Despite this fact, most investigators in this area have used criterion groups consisting of suicide attempters, threateners, and/or ruminators rather than actual suicides. Because suicide committers differ in many ways from those who attempt, threaten, or ruminate about self-destruction, they are unlikely to produce indices that predict suicide. Thus, research on attempted suicide and suicidal ideation does not necessarily substitute for research on completed suicide (Friedman et al., 2005). Given this spectrum of suicidality, Angst and Clayton (1998) opine that the process of suicide screening and prevention would involve assessing and following up an extremely large number of individuals so that we might be able to assess patterns that develop much before suicidal ideation or behavior are actually manifested.

Thirdly, unlike the traditional assumption, the number and intensity of suicide risk factors is not highest in the context of suicide completions as has been traditionally assumed. For instance, Tiller et al. (1998) using a sample of persons aged 15 to 24 compared the biopsychosocial backgrounds of suicide completers with those of suicide attempters who presented to the hospital after the attempt and found some important differences between these two groups. In contrast to the existing research on stress and suicide risk, suicide attempters were found to have experienced more stressful events

than completers. Also, suicide attempters were more likely to seek help prior to the attempt than completers. They also found that it is more valuable to explore the antecedents of suicidal behavior rather than the suicidal behavior and that psychiatric problems, feelings of worthlessness, and interpersonal problems are stronger suicide risk indicators than suicide threats, attempts, unemployment or homelessness. Similarly, Daigle (2004) found in their sample of male inmates in federal penitentiaries that suicide completers were more similar to non-suicidal controls than to attempters on the MMPI, that is, suicide completers were not as “pathological” as expected and that, in fact, they were much more like individuals with no prior suicidal behavior. Engstrom et al. (1996) found a group of suicide attempters who scored normal on all dimensions they employed for the study. Thus, attempters can seem more pathological than completers, which can mislead clinicians screening for suicide. Similar trend of results has been obtained across a number of studies (Shea, 1993). Therefore, a prominent process in risk assessment is to screen patients to identify those that constitute moderate and high potential for suicide behavior. Overall, as Clark and Fawcett (1992) point out, accurately assessing suicide risk can mimic the process of searching for a needle in a haystack. This is because a large number of patients present with what have been considered as risk factors; however, not all of these patients present extreme imminent risk.

Fourthly, suicide risk assessment has serious methodological limitations. Friedman et al, (2005) opine that patients may deny suicidal feelings when responding to a self-report measure. Furthermore, patients may not be completely aware of their own intentions. This is particularly true when a suicidal gesture is marked by impulsivity. Furthermore, Range (2005) states that the use of existing suicide risk assessment

instruments is limited by the tendency of the clinician to accept responses on the instruments uncritically, viewing the risk assessment instruments as more important than the alliance between the clinician and the client, and the assumption that suicide risk is static.

In summary, accurate assessment of suicide continues to be a challenge. In this context, Shea (2002) precisely states that “if the client does not invite the clinician into the nitty-gritty details of his or her suicidal planning, the best clinician in the world, armed with the best risk factor analysis available, can only proffer a wild guess as to the client’s immediate dangerousness” (p. 125). To further illustrate, Bongar (1991) noted: “The enormous amount of information available to clinicians on the psychological, psychodynamic, behavioral, epidemiological, and biological risk factors in attempted and completed suicide – as well as psychological tests and sophisticated suicide rating scales – are not adequate to allow one to answer directly the most critical question of all: “Is this patient...about to commit suicide?” The problem is not resolved by relying on the two most common methods used to assess suicide danger: the mental health status examination and the examiner’s intuition about the patient.” (p. 61) Furthermore, he noted that suicide assessment instruments appear to be used infrequently and are rated by clinicians as having limited usefulness.

Suicide Risk Assessment and Personality Assessment Instruments

In an effort to improve clinicians’ ability to predict suicidal potential, many researchers have attempted to use psychological assessment instruments to augment clinical judgment. As discussed above, the goal here is to predict suicide potential rather

than actual suicide. In this context, Rudd, Joiner, and Rajab (2001) maintain: “we are not in the business of predicting suicide, simply assessing risk in a reasonable, reliable, consistent, and clinically useful manner...by utilizing all available clinical data to assess for suicidal potential, clinicians may be able to identify a number of individuals who can benefit from heightened levels of clinical monitoring, thereby increasing the quality of care provided to potentially suicidal patients” (p.128). Based on previous research, Rudd et al. suggested that personality testing could provide greater understanding of the personality structure and organization that in turn can help in the formulation of a conceptual model of predisposing vulnerabilities of suicide. They outlined the following advantages of using psychometric testing in suicide assessment: 1) An additional and potentially more objective data source; 2) Clarification of different aspects or factors of suicidality (e.g., specificity of ideation, plan, intent); 3) A potentially less threatening mechanism for the patient to express current thoughts and feelings; 4) Introduction of reliability to the assessment process; and 5) A means to measure potentially subtle changes in suicidality over time and during the course of treatment (and possibly after a particular intervention). Also, once a person has been identified as at risk, a thorough battery of psychological tests can answer questions about the patient’s personality makeup, characteristics that contribute to suicidality, and the circumstances that might lead to suicidal behavior. Thus, according to them, the use of assessment tools, either specific instruments or personality tests, can provide information not otherwise available. However, combining such methods with a clinical interview is the approach that yields the best results, especially as regards suicide prevention (Daigle, 2004). In summary, the goal of the research studies in this arena of investigation is to determine the utility of

personality assessment data (in addition to interview data, therapy data and other psychometric data) to estimate suicide potential, as suicide potential is too complex to be predicted by a single measure.

Not surprisingly, there have been several attempts to use personality assessment instruments in the arena of suicide research. The most commonly used personality assessment instrument has been the Minnesota Multiphasic Personality Inventory (MMPI) (Clopton & Baucom, 1979; Daigle, 2004; Spirito, Faust, Myers, & Bechtel, 1988). Additionally, researchers have employed a wide variety of personality assessment inventories like the Revised Neuroticism, Extraversion, Openness Personality Inventory (NEO-PI-R;⁸ Chioqueta & Stiles, 2005; Heisel et al., 2006); Temperament and Character Inventory (TCI)⁹ (Cloninger, Bayon, & Svrakic, 1998); Millon Adolescent Clinical Inventory (MACI)¹⁰ (Velting, Rathus, & Miller 2000); Millon Clinical Multiaxial Inventory (MCMI)¹¹ (Craig & Bivens, 2000); Eysenck's Personality Questionnaire (EPQ)¹² (Boyle & Brandon, 1998; Roy, 2003); Hare's Psychopathy Checklist-Revised

⁸ The NEO PI-R is a concise measure of the 5 major domains of personality as well as the 6 facets that define each domain. Together, the 5 domain scales and 30 facet scales of the NEO PI-R allow a comprehensive assessment of adult personality. The five domains are: Neuroticism (N), Extraversion (E), Openness (O), Agreeableness (A), and Conscientiousness (C).

⁹ The Temperament and Character Inventory identifies the relationships between and the intensity of seven basic personality dimensions. The seven personality dimensions include four Temperament dimensions (Novelty Seeking, Harm Avoidance, Reward Dependence, and Persistence); and three Character dimensions (Self-Directedness, Cooperativeness, and Self-Transcendence).

¹⁰ Millon Adolescent Clinical Inventory addresses the unique concerns, pressures and situations facing teens using 27 scales in three categories of Personality Patterns, Expressed Concerns, and Clinical Syndromes.

¹¹ Millon Clinical Multiaxial Inventory assesses psychopathology with by generating 20 scores: 8 basic personality styles (schizoid, avoidant, dependent, histrionic, narcissistic, antisocial, compulsive, passive-aggressive); 3 pathological personality syndromes (schizotypal, borderline, paranoid); 6 symptom disorders scales of moderate severity (anxiety, somatoform, hypomanic, dysthymia, alcohol abuse, drug abuse); 3 symptoms disorders scale of extreme severity (psychotic thinking, psychotic depression, psychotic delusions); and 2 additional validity scales.

¹² Eysenck's Personality Questionnaire measures three personality traits of Extraversion, Psychoticism, and Neuroticism.

(PCL-R)¹³ (Verona, Patrick, & Joiner, 2001; Verona, Hicks & Patrick, 2005); Freiburg Personality Inventory (FPI)¹⁴ (Angst & Clayton, 1998); and Personality Disorders Examination¹⁵ (Raczek, True & Friend; 1989).

Minnesota Multiphasic Personality Inventory. MMPI has been extensively researched and used to estimate suicide potential and to differentiate suicidal from nonsuicidal patients. It was held that because suicide stems from both personality characteristics and transient environmental factors, tests such as MMPI could help in suicide prediction (Leonard, 1977). Clopton and Baucom (1979) carried out an interesting investigation. They asked clinicians to classify MMPI profiles of either suicidal or nonsuicidal patients and rate eight variables that may be relevant to suicide risk assessment. However, they found that clinicians could not accurately judge suicidal from nonsuicidal patients based on the MMPI profiles and that the ratings of eight suicide variables did not sufficiently differentiate the two groups from one another. They found that MMPI scale scores are unrelated to the method or lethality of suicide attempts. Based on the review of previous attempts to use MMPI in suicide risk assessment, they noted: “to date there has been no indication that standard MMPI scales, MMPI profile analysis, or specially developed MMPI suicide scales can reliably predict suicide at useful levels” (p. 162).

Initially this arena of investigation was marked by lot more enthusiasm than it is today. Watson, Klett, Walters, and Vassar (1984) maintained that researchers and

¹³ Hare’s Psychopathy Checklist-Revised consists of two parts, a semi-structured interview and a review of the client’s file records and history to determine his or her score on the 20 items that are a measure of psychopathy or antisocial tendencies.

¹⁴ Freiburg Personality Inventory is a multidimensional personality test that consists of 9 independent scales. The scales are as follows: Nervousness, Aggressiveness, Depressiveness, Excitability, Sociability, Composure, Dominance, Inhibition, and Frankness.

¹⁵ Personality Disorders Examination is a semistructured diagnostic interview for DSM-III-R personality disorders.

clinicians frequently use the MMPI to predict potential for suicide and self-destruction although literature does not provide strong support for the use of the MMPI to predict suicide. They discussed three types of MMPI suicide –prediction research.

By their report, the most common is the comparison of the MMPI scale means of suicidal and control participants to identify suicide-relevant scales. This type of research has typically led to remarkably inconsistent findings. The usual paradigm employed by researchers hoping to identify suicidal potential on the MMPI involves a retrospective comparison of the MMPIs of suicide attempters with psychiatric patients without a history of suicide attempts. Watson et al. (1984) reviewed eight published studies comparing the MMPI profiles of suicidal and control participants and found that 11 of the 13 standard MMPI scales had been implicated as either positive or negative predictors of suicide. However, none of the 13 scales yielded positive results in more than three of the eight studies. This finding indicates that, although most of the standard MMPI scales are sensitive to suicidal potential in general, none is able to differentiate consistently between suicidal and nonsuicidal individuals across different patient populations. These inconsistent findings have led some researchers to conclude that the MMPI cannot be used to predict suicide.

Second, sets of items that might be combined to develop suicide-prediction scales have been developed in a small number of studies. To illustrate, Farberow and Devries (1967) have published a set of items more frequently endorsed by suicide threateners than by controls. On the basis of MMPI items, they constructed a valid Suicide Threat Scale for the purposes of identifying suicide threateners.

Third, a few authors have described profile patterns said to be more or less common among groups who had committed, threatened, or ruminated about suicide than among nonsuicidal groups. Daigle (2004) provided an overview of the profile research and found that suicidal behaviors have been associated with high Depression, Psychopathic Deviate, Masculinity-Femininity, Paranoia, and Psychasthenia scores for female suicide attempters and high Depression, Psychopathic Deviate, Paranoia, Psychasthenia, and Schizophrenia scores for male suicide attempters. Suicide attempts have been associated with a lower score on the K scale as compared to the control group (Spirito, Faust, Myers, & Bechtel; 1988); and suicide completions with a high score on Masculinity-Femininity (Daigle, 2004). In summary, a number of MMPI scales have been implicated as important for suicide prediction. Some studies have found that suicide attempters obtain more deviant MMPI profiles than comparison psychiatric groups whereas other studies have not detected differences between suicidal and nonsuicidal psychiatric patients. Although this line of investigation has led to better results, the results have nevertheless remained inconsistent. Daigle (2004) attributed this inconsistency to factors like the variety of samples used and to their respective heterogeneity especially as regards gender, to the varying interval between MMPI administration and the suicidal acts, and to the definition of the suicidal acts themselves. In summary, attempts to use the MMPI data to predict suicidal behavior among psychiatric patients have not produced encouraging results.

Millon Clinical Multiaxial Inventory (MCMI). Craig and Bivens (2000) found that patients with a suicide attempt history scored higher on schizoid, avoidant, dependent, passive-aggressive, self-defeating, and paranoid personality style/syndrome scales;

significantly lower on histrionic and compulsive personality style scales; and scored higher on all clinical syndrome scales except for drug dependence and delusional disorder.

Millon Adolescent Clinical Inventory (MACI). Velting, Rathus, and Miller (2000) using the MACI found that the attempters presented with more severe overall levels of personality dysfunction than did nonattempters. Attempters obtained higher scores on the forceful and borderline tendency scales of the MACI, lower scores on the submissive and conforming scales, and showed higher both passive-aggressive and overt aggressive behaviors than the nonattempters. The authors concluded that the MACI personality subscales might discriminate depressed adolescents with and without suicide attempt histories. Although findings involving the use of MACI sound very optimistic these findings need to be replicated.

Personality Assessment Inventory (PAI). Unlike the widespread use of the MMPI in assessing suicidal risk there have been only two studies that have used the PAI to assess suicidal threats and gestures (Rogers, Ustad & Salekin, 1998; Wang et al., 1997). However, these studies have looked at the specific scales and subscales rather than the entire PAI profile to assess suicidal risk. There is some evidence to suggest that the PAI Suicidal Ideation (SUI) scale may provide valuable information about the patients' potential for serious suicidal gestures. Rogers et al. (1998) found moderate correlations between the SUI scale and Suicide Potential Index (SPI). Wang et al. (1997) used the PAI with male inmates in a correctional setting and found that the SUI was the most highly correlated with suicide risk, followed by Borderline Features, Depression, Paranoia, Anxiety, and Warmth. The most notable subscale and index correlations included:

Depression-Cognitive, Borderline-Self-Harm, Borderline-Affective Instability, SPI, Depression-Affective, and Schizophrenia-Social Detachment. Furthermore, they found that SUI separated those patients who exhibited no suicidal behavior from those whose verbal threats led to their placement in a more restrictive environment (i.e., seclusion). More importantly, the SUI separated those who made serious suicidal gestures from all other patients, including those who did not act on their verbal threats. On the basis of these findings, they concluded that the elevation of the SUI scale might provide valuable information about the patient's potential for serious suicidal gestures. Lastly, they suggested that future research focus on the ability of the SUI scale and the SPI to predict the degree of lethality as well as the timing of serious gestures.

Problems with Using Personality Assessment Instruments in Assessing Suicide Risk. Investigation of the utility of personality assessment instruments in identifying suicide risk poses unique research and clinical challenges. These challenges have resulted from the very nature of both suicide as well as the existing research. These challenges are as follows:

Firstly, representativeness of the sample limits the generalizability of findings. Links found in clinical populations may not apply in the community (Brezo et al. 2006). Furthermore, there has been wide variation in the comparison groups (college students, community sample, and nonsuicidal patients) used across research studies. The number of participants used in suicide studies often has been small – presumably because suicide is uncommon - sometimes placing severe limitations on the statistical power available in them.

Secondly, studies often investigate whether personality profiles of patients who had attempted suicide could have been identified, not whether patients who had been predicted to be suicidal on the basis of their personality profiles would actually attempt suicide. Hence, the results of these studies do not indicate if the results would help clinicians make accurate predictions of future suicide attempts (Clopton et al., 1979). Thus, these results do not suggest that the patient is currently at suicidal risk nor do they imply that the patient is at risk for making another suicide attempt. However, these findings could be placed into algorithms and programmed into computer-generated reports to alert the clinician that a patient's scores do or do not suggest the possibility of suicide attempt history (Craig & Bivens, 2000). This information is particularly important considering that past attempts are important risk factors for future attempts.

Thirdly, there is often variation between the length of time between suicide attempt and the administration of the personality assessment measures across studies. Time intervals limit the assessment of the personality factors that were at work at the time of the suicide attempt because assessment instruments measure not only relatively stable characteristics but also transitory reactions (Clopton et al., 1979).

Fourthly, Brezo et al. (2006) maintain that both personality traits and suicidal behaviors are complex phenotypes that result from an interaction of genetic and environmental influences. This complexity makes it difficult to trace the independent contribution of personality to suicidal risk. Given this complexity, they suggested that it is important that research focus on narrow/lower-order traits and not just broadly defined personality traits. For instance, neuroticism, a higher-order trait, appears to contribute to suicidal ideation, attempts, and completions. Nevertheless, it is unclear how its narrow-

trait components – anxiety and angry hostility, for example – are related to these suicidal behaviors. These authors also suggest focusing on trait profiles rather than on individual or a small number of personality traits.

Fifthly, relatively few investigators have come to the conclusion that there might be several different personality “types” among suicide attempters although the heterogeneity among suicide ideators, attempters and completers explains why several different personality traits have been associated with suicidality. To illustrate, Engstrom et al., (1996) used cluster analysis to identify temperamental heterogeneity in suicide attempters and found that a single “suicidal personality” cannot be isolated. They explained this finding with the fact that several different temperaments are associated with suicidality. In fact, they found that the distribution of temperaments as measured using the Karolinska Scales of Personality (KSP)¹⁶ in the suicidal sample was wider than the distribution found in the general population.

Lastly, these difficulties are further augmented by the lack of a theory or theories to unify the identified personality risk factors. However, there have been some sporadic but interesting efforts to theorize in this realm of investigation. For instance, Faza and Page (2005) have extended Blatt’s (1976) model of personality to distinguish between two major types of suicidal individuals: anaclitic/dependent and self-critical/introjective. They emphasize that these two subgroups entail different therapeutic efforts as they differ in their concerns, vulnerabilities, life stressors, motivations, and expressions of suicidal behavior relating to intent and lethality. Similarly, Chioqueta and Stiles (2005) explain

¹⁶ The Karolinska Scales of Personality (KSP) is an inventory constructed for research purposes to assess stable personality traits. Most of the scales are based on hypotheses of biologically relevant dispositions associated with vulnerability for psychological deviance.

the positive association between suicide and neuroticism by suggesting that emotional instability and maladjustment play a significant role in the development and maintenance of negative affectivity. Fergusson, Woodward, and Horwood (2000) hypothesize that neuroticism increases the vulnerability to common psychiatric disorders that are associated with suicidal behavior. Similarly, low scores on extraversion have often been associated with suicidality and are explained by suggesting that introverted individuals lack the social support that can protect them against suicidal risk (Kendler, 1997; Furukawa and Shibayama, 1997). Mann et al., (1999) in their clinical model of suicidal behavior suggested that suicidal behavior results from a combination of underlying trait vulnerability, including biological and psychological characteristics, and more state-dependent factors such as psychiatric and social variables.

Recommendations. In response to the clinical value of the existing research, Nichols (1988) suggested improvising the research design by including adequate sample sizes of suicide completers within a short time frame after having completed the MMPI. He opined that “since suicide may more closely approximate the final common pathway of a concatenation of demographic, situational, and personologic variables than a unitary trait disposition, the constitution of suicidal and appropriate comparison groups may require the institution of more extensive and sophisticated inclusion criteria and controls than those found tolerable in previous studies” (p. 103). Clopton (1979) recommended analyzing the MMPI data from the two sexes separately as there are important differences in the MMPI profile patterns of male and female patients. Furthermore, he recommended considering the length of time between the MMPI administration and the suicidal act because MMPI measures not just enduring traits but also more transient psychological

states. Friedman, Archer, and Handel (2005) suggested that information about factors that correlate with suicide but do not predict suicide would still broaden our understanding of suicide.

The first goal of this study was to identify PAI scale correlates of suicide risk. It was hypothesized that (1) There will be a positive correlation between the severity of suicide risk and Somatic Complaints (SOM), Anxiety (ANX), Anxiety-Related Disorders (ARD), Depression (DEP), Mania (MAN), Paranoia (PAR), Schizophrenia (SCZ), Borderline Features (BOR), Antisocial Features (ANT), Alcohol Problems (ALC), Drug Problems (DRG), Aggression (AGG), Suicidal Ideation (SUI), Stress (STR), Nonsupport (NON) scales, and the Suicide Potential Index (SPI). Furthermore, based on the review of literature, it was hypothesized that this positive correlation will be stronger for Anxiety, Anxiety-Related Disorders, Depression Borderline Features, Suicidal Ideation, Stress scales and the SPI than for Somatic Complaints, Mania, Paranoia, Schizophrenia, Antisocial Features, Alcohol Problems, Drug Problems, Aggression, and Nonsupport; (2) There will be a negative correlation between the severity of suicide risk and the Warmth and Treatment Rejection scales; and (3) The severity of suicide risk will be unrelated to the Dominance scale. A second purpose of this study was to examine whether the suicide measures of the PAI (SUI and SPI) have incremental validity over the non-suicide measures of the PAI (in this case, DEP) in the prediction of suicide risk. A third purpose of this study was to determine whether the SPI demonstrates incremental validity over the SUI in predicting suicide risk. A fourth purpose of this study was to examine whether the SUI and SPI demonstrate incremental validity over DEP in discriminating between

clients who were engaged in a no-suicide contract and those who were not engaged in a no-suicide contract.

Chapter Two

Method

Participants

PAI profiles were obtained for 85 patients seeking treatment from the Psychology Clinic of the University of Toledo (UT). A power analysis was conducted to determine the number of subjects needed for this study. Based on previous research, in order to have 80% confidence of detecting a medium effect ($r = .30$) in the current study (i.e., power = .80) with alpha set at .05, 2-tailed, Cohen's (1992) power tables indicated that a total of 85 participants were needed. Cohen (1992) labeled an effect size as medium if $r = .30$ and it represents an effect likely to be visible to the naked eye of a careful observer.

The total sample consisted of 38 males (44.7%) and 47 females (55.3%) ranging in age from 18 to 64 years ($M = 30.76$, $SD = 11.78$). The sample was 77.6% European-American, 11.8% African American, 4.7 % Hispanic, 4.7 % Asian and 1.2% Native American. Of the sample, 1.2 % did not have a high school education, 75.3% had a high school education, 18.8% had a bachelor's degree, 2.4% had a master's degree, and 1.2% had a doctoral degree. In terms of occupational status, 62.4 % were students, 22.4% were employed, 14.1% were unemployed, and 1.2 % were retired. Sixty-nine percent of the clients were single, 23.5% were married, 3.5% were divorced, 2.4% were separated and 1.2 % were widowed. The number of treatment sessions that the clients were involved in ranged from 4 to 81 ($M = 17.18$, $SD = 17.11$). A client was judged to be engaged in a no-suicide contract if the contract was clearly documented in the reports. Eight clients

(9.4%) were engaged in a “no-suicide” contract at the time of the intake interview or during the first four therapy sessions. None of the clients attempted or completed suicide during the interval between the intake interview and the fourth therapy session.

Measures

Three primary measures will constitute the basis of the current study:

Personality Assessment Inventory (PAI; Morey, 1991). The PAI is a self-report personality assessment inventory that provides information on critical clinical variables. It consists of 344-items with a 4-point Likert scale. The PAI has a low reading level (grade 4) and no item overlap across scales for improving discriminant validity. The 22 full scales include: 4 validity, 11 clinical, 5 treatment considerations, and 2 interpersonal scales (Appendix A). The four validity scales are: Inconsistency (INC), Infrequency (INF), Negative Impression (NIM), and Positive Impression (PIM). The eleven clinical scales (nine of which have subscales) are: Somatic Complaints (SOM), Anxiety (ANX), Anxiety-Related Disorders (ARD), Depression (DEP), Mania (MAN), Paranoia (PAR), Schizophrenia (SCZ), Borderline Features (BOR), Antisocial Features (ANT), Alcohol Problems (ALC), and Drug Problems (DRG). The five treatment consideration scales are: Aggression (AGG), Suicidal Ideation (SUI), Stress (STR), Nonsupport (NON), and Treatment Rejection (RXR). The two interpersonal scales are: Dominance (DOM) and Warmth (WRM).

The PAI contains two primary measures that can be used for assessing suicidal risk: the Suicidal Ideation (SUI) scale and the Suicide Potential Index (SPI). The SUI scale items are directly related to suicidal thoughts and behaviors. The SUI is a measure of suicidal ideation rather than suicide prediction. The SUI scale alerts the clinicians to

the need for further evaluation and intervention pertaining to suicidal risk. In contrast, the SPI consists of 20 features of the PAI profile that are considered key risk factors for completed suicide (such as severe psychic anxiety, poor impulse control, hopelessness, and worthlessness) and the SPI is scored by counting the number of positive endorsements on these factors.

Reliability and validity evaluations of the PAI are based on data from a U.S. census-matched normative sample of 1,000 community-dwelling adults (matched on the basis of gender, race, and age), a sample of 1,265 patients from 69 clinical sites, and a college sample of 1,051 students. The PAI normative sample comprised of adults in a variety of clinical and community settings because of which the profiles can be compared with both normal and clinical populations. Combined-gender normative data are provided. Reliability evaluations indicate that the median alphas of the PAI full scales are .81, .86, and .82 for normative, clinical, and college samples respectively. Overall, the PAI has been found to have high degree of internal consistency and stability of results over a period of 2 to 4 weeks. Validity studies demonstrate convergent and discriminant validity with more than 50 other measures of psychopathology (Morey, 1991).

Suicide Risk Assessment Measures. Severity of suicidal risk was assessed using two Suicide Assessment Checklists, one developed by Yufit (2003) and the other by Rogers (1990). For the purposes of the present study, these two checklists will be referred to as SAC-Y and SAC-R respectively.

Suicide Assessment Checklist (SAC; Yufit, 2003). The 60-item SAC-Y (Appendix B) developed by Yufit (2003) provides an estimate of the degree of lethality of a recent suicide attempt and the degree of potential for future suicide attempts. Important clinical

indicators of suicide risk identified in previous empirical research make the SAC-Y items. These SAC-Y items are more heavily weighted in the scoring scheme, with weights of +2 to +6 when the item is scored as being present. The degree of weighting is based on the frequency of citation of the item in published empirical research and the consensus of a number of therapists, each with considerable experience in assessing and treating suicidal persons. In addition, the weighted items that are highly intercorrelated are considered to form a cluster. Thus, when the weighted items are scored as present the resulting cluster of items is also given an additional weighting score. This score is called the cluster weighted score. There are three such cluster scores, which add significantly (60 points or 30%) to the total score of the SAC-Y when scored as being present. In order of importance, these three clusters are: Hopelessness/internalized anger/agitated depression; Time perspective (minimal future, plus a high past orientation); and Family psychopathology (alcoholism, depression, and other major psychiatric illness in family member). The scores of all the items are added and the client is judged to be at low suicide risk if the summed score is below 49, at moderate risk if the summed score ranges from 50-99, at high risk if the summed score ranges from 100 to 149, and at very high risk if the summed score ranges from 150 to 203.

Although there has been no systematic investigation of the reliability and validity of the SAC-Y, it was employed in the present study because it comprises a comprehensive list of empirical suicide risk factors.

Suicide Assessment Checklist (SAC; Rogers, 1990). The SAC-R is a revised form of the Crisis Line Suicide Risk Scale developed in 1988 (Rogers & Alexander, 1989). It consists of 21 items (Appendix C) that assess suicide risk: 12 client status and

demographic items and 9 psychological, psychosocial, and clinical items. The 9 psychological, psychosocial, and clinical items are rated on a 1 to 5 scale and the 12 categorical items are scored based on assigned item values derived from prior research. The scores on all the items are added to create a total score that may range from a minimum of 11 to a maximum of 108, with higher scores indicative of higher suicide risk. To facilitate consistent use, the SAC-R contains definitions and explanations of the terms used in the scale (Appendix D).

Rogers, Alexander, and Subich (1994) outlined the following as the primary considerations in the development of the checklist: (a) it should have a broad population focus, (b) it should be usable across the differential training and experience levels of emergency room clinicians, (c) it should be a brief yet relatively comprehensive measure, and (d) it should have psychometric integrity. Additionally, they outlined the three major objectives underlying the construction of the SAC: (a) to provide a semistructured guide for the assessment interview, (b) to provide a standardized means of risk assessment that could inform the clinical decision process, and (c) to develop a measure that could provide clear documentation of the risk assessment protocol.

Reliability evaluations of 9 rated items identified alpha of .74 for the first version and .87 for the latest version. Interrater reliability coefficients ranged from .83 to .84, and test-retest reliability over a 4-week period was .82. Preliminary criterion- and content-related validity evidence has been reported. Criterion-related validity evaluations have found differences in total scores of the SAC-Y as a function of the restrictiveness of the disposition facility of the client. Examinations of construct-related validity of the SAC-R have found that the SAC-R can differentiate suicide attempters from the suicide ideators

and non-suicidal individuals; that the SAC-R has convergent validity with the conceptually similar items of the Beck Depression Inventory; and that the SAC-R accounts for greater variance in suicide risk at intake than does the Beck Depression Inventory (BDI; Beck, 1970). Lastly, content-related validity examinations of the SAC-Y suggest that 19 of the 21 items significantly contribute to the prediction of membership in the referral groups and that 15 of the 21 items significantly contribute to the prediction of membership in the disposition groups (Rogers, Lewis, & Subich, 2002).

Procedure

The psychology clinic is a practicum setting for doctoral students in clinical psychology at UT. All patients complete a telephone-screening interview prior to the delivery of therapeutic services to ensure that the clinic is the appropriate treatment facility. Patients are declined services only if they have a substance-related problem, are involved in a legal or court issue, and if they are actively psychotic. Patients consent to the research and training nature of the clinic. Patients are assigned to graduate student therapists who are supervised by a licensed clinical psychologist. Following the telephone screening all incoming patients complete the PAI (either computerized or paper-pencil) after the intake interview.

As an archival study, clinical records obtained through the Psychology Clinic were reviewed systematically. Eighty five client records between October, 1998 and April, 2007 that met the inclusion criteria were assigned a suicide risk score using the two suicide assessment checklists by two independent raters based on the information contained in the intake interview report and therapy process notes. The inclusion criteria

were as follows: 1. The client records contain a PAI; 2. The PAI profile is valid. To ensure the validity of the profile, the validity scales of the PAI profiles were evaluated. For this purpose, a cut off score of 64 *T* was used for the ICN scale, 60 *T* for the INF scale, 57 *T* for the PIM scale and 92 *T* for the NIM scale (Morey, 1991; Morey & Quigley, 2002); 3. Client was involved in a minimum of four therapy sessions at the Psychology Clinic; 4. Client's record is complete and adequate for the purposes of the present study.

Two raters independently completed the SAC-Y and SAC-R for each client record. On an average, the raters spent 45 minutes completing the SAC-Y and 10 minutes completing the SAC-R. Both the raters were graduate students. Following the ratings of every 20 client records, the ratings for each client record were compared and the discrepancies were discussed. However, this discussion was not used to resolve the discrepant scores. During the process of this discussion, the two raters mutually devised more elaborate and specific descriptions of the SAC-Y items (Appendix E). The two raters pilot tested the first 65 clinical records. The mean of the two raters' scores were used for the both SAC-Y and SAC-R.

Moreover, the two raters were blind to the PAI protocols of the clients when assigning a suicide risk score to control the influence of rater biases and expectations. To keep the raters blind to the information in the reports that could possibly influence suicide risk ratings; PAI results were blocked out from the reports by another graduate student. To prevent the raters from knowing the client's PAI profile, this graduate student read each of the 85 client records and blocked out any information pertaining to the PAI profile. Following this, the reports were photocopied for the two raters. Despite these

efforts to blind the raters to the PAI protocols, it was a possibility that the PAI protocols influenced the content of the intake report and the therapy process. This influence can artificially inflate association between the PAI scores and scores on the SAC-Y and SAC-R (criterion contamination; Hunsley & Meyer, 2003). In turn, this influence would produce artificially high evidence of validity for the PAI. To address this problem of criterion contamination, 15 client records were randomly selected from the pool of 85 and the unblocked parts of these records were used to infer the corresponding PAI profile. It was found that the PAI profile could not be adequately inferred from the unblocked parts of the records thereby suggesting that the PAI profile did not influence the content of the intake interview report/therapy process notes and consequently, the scores on the SAC-Y and SAC-R.

Data Analyses

Firstly, statistical analyses involved computation of descriptive statistics for demographic factors such as age of client at the time of the PAI administration, sex ratio in the sample, ethnic background of the sample, educational level of the sample, occupational level of the sample, and the number of clients engaged in a no-suicide contract at the time of the intake interview or during the four therapy sessions. Intraclass correlations (two-way random effects model) (Shrout & Fleiss, 1979) were computed between the suicide risk scores assigned by the two raters. Furthermore, means and standard deviations were computed for the PAI scales and subscales, the SAC-Y, and the SAC-R for the entire sample and then exclusively for the clients engaged in a no-suicide contract. Using the SAC-Y cutoff, the 85 PAI profiles were assigned to either the

moderate suicide group or the low suicide risk group (none of the clients obtained a score in the high suicide risk category). For the purposes of illustration, the mean profiles of these two groups were computed and plotted.

Besides the above-mentioned dichotomization, the present study employed a dimensional approach to suicide risk assessment. This is because dimensional models accurately reflect the heterogeneity of psychopathology present in actual clinical populations by providing the quantitative information (e.g., severity) that is not available from the use of categorical methods (Widiger, 1997). Summed dimensional scores of suicidal risk were correlated with each of the PAI scales, subscales, and SPI using Pearson Product Moment Correlation. The magnitude of correlation of the SUI and the SPI with the two SAC checklists was compared.

Following the recommendations of Hunsley and Meyer (2003) hierarchical linear regression analyses and stepwise regression analyses were used to identify which scales (DEP, SUI) or measure (SPI) of the PAI would optimally predict results from the criterion measures (SAC-Y and SAC-R). Lastly, logistic regression analysis was used to predict the absence or presence of a no-suicide contract.

Chapter Three

Results

Interrater Reliability

The intraclass correlation for the 85 client records on the SAC-Y was .89 and on the SAC-R .87. These indicate excellent agreement of ratings between the two raters (Cicchetti, 1994).

Descriptive Statistics

Entire Sample. The mean and standard deviations for the entire sample for the PAI validity and clinical scales are presented in Table 1. This sample produced a mean of 31.9 ($SD = 13.72$) on the SAC-Y and a mean of 31.8 ($SD = 11.01$) on the SAC-R. The scores on the SAC-Y ranged from a minimum of 2 to a maximum of 64.5, and on the SAC-R from a minimum of 16 to a maximum of 66.

Clients engaged in no-suicide contract. The means and standard deviations for the clients engaged in a no-suicide contract for the PAI scales, SAC-Y, and SAC-R are presented in Table 2. This group produced a mean of 48.31 ($SD = 9.19$) on the SAC-Y and a mean of 55.5 ($SD = 6.19$) on the SAC-R. Interestingly, in this subset of individuals, scores on the SAC-Y ranged from a minimum of 30.5 (low suicide risk range) to a maximum of 57.5 (suicide risk range) thereby suggesting that not all of the clients who were engaged in a no-suicide contract were judged as being at moderate level of suicide risk using the SAC-Y. In fact, computation of frequencies suggested that four of the 8

individuals who were engaged in no-suicide contract scored below the cut off on the SAC-Y. On the SAC-R, the scores of this group ranged from a minimum of 47 to a maximum of 66.

PAI Profile Comparisons

While it is not recommended to dichotomize a continuous variable (Cohen, 1983), for the purpose of illustration, a client was assigned to the moderate suicide risk group if he or she had a summed score of 50 to 64.5 on the SAC-Y and to the low suicide risk group if the SAC-Y score was 49 or below. Consequently, the mean PAI profiles of the moderate suicide risk group ($N = 10$) were compared to the mean profile of individuals with low suicide risk ($N = 75$). The profiles presented in Figure 1 show a strikingly similar pattern of scale elevations between the two groups but with slightly different levels of pathology. Similar pattern of profiles was evident for the subscales as outlined in Figure 2.

Correlation Coefficients indicating Convergent and Discriminant Validity

Suicide Assessment Checklist, Yufit (SAC-Y). Table 3 summarizes the correlations of the PAI clinical and treatment scales with the two suicide risk scores. The table lists the scales that are positively correlated with the SAC-Y first, in order of their strength of correlation; followed by negatively correlated scales again in order of their strength of correlation, and lastly the DOM scale that was hypothesized to be unrelated to the suicide risk measures. In terms of convergent expectations, as predicted, a number of PAI scales were significantly positively correlated with the suicide risk score as measured by

the Yufit's scale (SAC-Y). The PAI Depression scale was the most highly correlated, followed by Stress, Borderline Features, Anxiety-Related Disorders, Anxiety, Schizophrenia, Suicidal Ideation, Somatic Complaints, Paranoia, Aggression, Alcohol Problems, and Nonsupport. Although Mania, Antisocial Features and Drug Problems were positively related to the SAC-Y; in contrast to the expected trend, these correlations were not statistically significant. Furthermore, as predicted, Treatment Rejection was significantly negatively correlated with the SAC-Y. Although Warmth was negatively correlated with the SAC-Y, this correlation was not statistically significant. In terms of discriminant expectations, as expected, the correlation between the SAC-Y and Dominance scale was below the cutoff of .30.

Table 4 summarizes the correlations of PAI subscales with the two suicide risk scores. The most notable subscale correlations of the SAC-Y were: Depression-Affective, Depression-Physiological, Depression-Cognitive, Anxiety-Related Disorders Traumatic Stress, Borderline Features Negative Relationships, Schizophrenia Social Detachment, Anxiety-Affective, Borderline Features Affective Instability, Somatic Somatization, Schizophrenia Thought Disorder, Anxiety Physiological, Somatic Health Concerns, Anxiety Cognitive, Paranoia Resentment, Aggression Aggressive Attitude, Aggression Physical Aggression, Somatic Conversion, Anxiety-Related Disorders Phobias, Paranoia Hypervigilance, Paranoia Persecution, and Borderline Features Self-Harm. Furthermore, Mania-Grandiosity subscale was not associated with the SAC-Y. Lastly, the correlation coefficients for Anxiety-Related Disorders Obsessive-Compulsive subscale, Mania Activity Level subscale, Mania Irritability subscale, Schizophrenia Psychotic Experiences

subscale, Borderline Features Identity Problems subscale, all three Antisocial Features subscales, and Aggression Verbal Aggression subscale were below the cutoff of .30.

Suicide Assessment Checklist, Roger (SAC-R). As shown in Table 3, in terms of the convergent expectations, the SAC-R scale was most significantly positively correlated with Suicidal Ideation, followed by Depression, Schizophrenia, Borderline Features, Stress, Paranoia, Nonsupport, Anxiety-Related Disorders, Anxiety, Antisocial Features, Aggression, Drug Problems, Somatic Complaints, and Alcohol Problems. In contrast to the expected trend, the correlation between SAC-R and Mania was below the cutoff of .30. As expected, SAC-R was significantly negatively correlated with Warmth and Treatment Rejection. In terms of discriminant expectations, as expected, the correlation between SAC-R and Dominance was below the cutoff of .30.

As shown in Table 4, the most notable subscale correlations of the SAC-R were: Depression Cognitive, Schizophrenia Social Detachment, Borderline Features Negative Relationships, Schizophrenia Thought Disorder, Depression Affective, Anxiety-Related Disorders Traumatic Stress, Borderline Features Affective Instability, Paranoia Hypervigilance, Depression Physiological, Anxiety Physiological, Anxiety Affective, Aggression Physical Aggression, Paranoia Persecution, Paranoia Resentment, Antisocial Features Stimulus-Seeking, Antisocial Features Antisocial Behaviors, Borderline Features Self-Harm, Antisocial Features Egocentricity, Aggression Aggressive Attitude, Mania Irritability, Somatic Somatization, Anxiety Cognitive, Schizophrenia Psychotic Experiences, and Somatic Conversion. Furthermore, Mania Grandiosity subscale was not associated with the SAC-R. Lastly, the correlation coefficients for Somatic Health Concerns subscale, Anxiety-Related Disorders Obsessive-Compulsive subscale, Anxiety-

Related Disorders Phobias subscale, Mania Activity Level subscale, Borderline Features Identity Problems subscale, and Aggression Verbal Aggression subscale were below the cutoff of .30.

SPI and SUI. As expected, the SPI was correlated moderately with both the SAC-Y ($r = .61, p < 0.01$) and the SAC-R ($r = .62, p < 0.01$). Also, as mentioned above, the SUI was significantly positively correlated with both the suicide assessment checklists. However, the correlation coefficient was higher between the SAC-R and SUI ($r = .65, p < 0.01$) than between the SAC-Y and SUI ($r = .44, p < 0.01$).

SAC-Y, SAC-R, and no-suicide contract. The correlation between the SAC-Y and SAC-R was .66. The correlation between the no-suicide contract and the SAC-R ($r = .70, p < 0.01$) was higher than the correlation between the no-suicide contract and the SAC-Y ($r = .39, p < 0.01$).

Regression Models Evaluating Incremental Validity

Hierarchical Linear Regression Models Evaluating Incremental Validity. A series of hierarchical linear regression analyses were performed. A separate analysis was conducted for each of the two criterion measures (SAC-Y and SAC-R). In each case, the criterion measure served as the dependent variable. The independent variables were entered into two hierarchical blocks. In these analyses, forced entry rather than stepwise entry was used to be congruent with a theory-driven approach. This entry of the variables was determined by the clinical conceptualization of suicide risk rather than statistical optimization. Consequently, the focus was on the extent to which the independent

variable added to the predictive capacity rather than using statistical significance level of the incremental predictive capacity to determine whether the scale entered the model.

In the first series, regression analyses were performed to examine the incremental validity of the SUI and SPI over PAI Depression (DEP) scale in the prediction of the suicide risk scores as measured by the two scales. DEP was chosen over other scales because it was judged to have a clear and logical relationship to the criterion measures based on its magnitude of correlation with the SAC-Y and SAC-R and based on prior research studies that continually emphasize the role of depression as an important suicide risk factor.

The results of the first set of hierarchical regression analyses are presented in Table 5. In Model 1, the suicide risk score as measured by the Yufit's scale (SAC-Y) served as the dependent variable. DEP was entered in the first step. DEP explained approximately 43% of the variance in the SAC-Y scores and thereby contributed significantly to the prediction of SAC-Y. With the addition of SUI and SPI in the second step, R^2 increased from .43 to .46 ($\Delta R^2 = .03$) and this increase was not statistically significant ($F_{\text{chg}} = 2.37, p = .10$). Thus, adding SUI and SPI in the second step did not add incremental predictive capacity to DEP.

In Model 2 the order of entry of the SUI/SPI and DEP was reversed. Thus, the SUI and SPI comprised Block 1, and DEP comprised Block 2. The purpose of this switch was to determine whether DEP had incremental validity in accounting for the criterion measures beyond the predictive validity of the SUI and SPI. These findings are illustrated in the second part of Tables 5. Thus, in Model 2, the SAC-Y once again served as the dependent variable. SUI and SPI explained approximately 38% of the variance in the

SAC-Y scores and thereby contributed significantly to the prediction of the SAC-Y. With the addition of DEP in the second step, R^2 increased from .38 to .46 ($\Delta R^2 = .08$) and this increase was statistically significant ($F_{\text{chg}} = 11.50, p < .001$). Thus, DEP was found to have significant incremental predictive capacity over SUI and SPI when SAC-Y was the criterion.

These steps were repeated in Models 3 and 4 (Table 6) with the exception that the suicide risk score as measured by the Rogers' scale (SAC-R) was used as the dependent variable. In Model 3, once again, DEP was entered in the first step. DEP explained approximately 35% of variance in the SAC-R scores and contributed significantly to the prediction of SAC-R. The addition of SUI and SPI in the second step increased R^2 from .35 to .52 ($\Delta R^2 = .17$) and this increase was statistically significant ($F_{\text{chg}} = 14.10, p < .001$). Thus, the SUI and SPI were found to have significant incremental predictive capacity over DEP. Overall, these results showed significant incremental validity of the SUI and SPI over DEP in predicting SAC-R but not the SAC-Y.

In Model 4 (Table 6), these steps were repeated with the exception that the order of entry of DEP and SUI/SPI was reversed. Thus, SUI and SPI were entered as Step 1. SUI and SPI explained approximately 50% of variance in the SAC-R scores and contributed significantly to the prediction of the SAC-R. With the addition of DEP in the second block, the R^2 increased from .50 to .51 ($\Delta R^2 = .01$) and this increase was not found to be statistically significant ($F_{\text{chg}} = 1.74, p = .19$). Thus, DEP added no incremental predictive capacity to SUI and SPI. Overall, these results showed significant incremental validity of DEP over SUI and SPI in predicting the SAC-Y but not the SAC-R.

Stepwise Regression Analyses. The preceding regression analyses were designed to examine whether the SUI and SPI as a group have incremental validity over DEP in the prediction of criterion. For this reason, two additional sets of regression analyses were performed in which the incremental validity of the SPI and SUI was examined. Once again, a separate analysis was conducted for each of the two criterion measures. The criterion for including factors in the regression equation was a significance level of $p < 0.05$. For both the models examination of indicators suggestive of problems with collinearity among the predictor variables (e.g., small tolerance values, beta coefficients greater than 1, relatively large variance inflation factors [Tabachnick & Fidell, 1983]) showed no indication of apparent difficulties of collinearity.

In Model 5 (Table 7) SAC-Y served as the dependent variable. SPI explained 37% of variance and contributed significantly to the prediction of SAC-Y ($R^2 = .37$; $F(1, 83) = 48.21, p < .0001$). SPI was the only variable that entered into the equation, meaning that the SUI did not enhance SPI's prediction of SAC-Y.

In Model 6 (Table 8) SAC-R served as the dependent variable. The first variable to enter the prediction equation was the SUI ($R^2 = .41, F(1, 83) = 56.51, p = .0001$). Then, SPI entered the prediction equation. With the addition of SPI, R^2 increased from .41 to .50 ($\Delta R^2 = .09$) and this increase was found to be statistically significant ($F_{\text{chg}} = 16.34, p < .001$). Thus, although it was found that both SUI and SPI explained significantly of the variance in SAC-R, SUI explained significant more of the variance in the SAC-R than did the SPI.

Logistic Regression Models Evaluating Incremental Validity. Table 9 shows the logistic regression analyses performed to examine the relative utility of DEP, SUI and

SPI for predicting whether or not the client was engaged in a no-suicide contract. The statistic for the model ($\chi^2 = 22.63$; $df = 3$; $p < .001$; Nagelkerke $R^2 = .50$) indicated that the model fit very well to data. This is also demonstrated by the fact that the model predicted absence of a no-suicide contract with 98.7% accuracy and the presence of a no-suicide contract with 50% accuracy, with an overall percentage of 94.1%. Of the three independent variables, only SUI was a significant predictor of the presence or absence of the no-suicide contract.

Chapter Four

Discussion

In terms of the PAI scale correlates of suicide risk, the results of this study found small to moderate correlations between the PAI scales and suicide risk as assessed by using the SAC-Y and SAC-R. Overall, as expected, the correlations among the PAI scales and the SAC-Y/SAC-R followed the predicted pattern of convergent and discriminant expectations. That is, the PAI scales and subscales were strongly associated with measures of serious psychopathology; less associated with clinical factors that are less commonly implicated as risk factors; inversely correlated with the factor that has been identified as protective against suicide risk; and not associated with the construct that was hypothesized to be unrelated to suicide risk. More specifically, as hypothesized, the two suicide risk scores were positively associated with depression, suicide ideation, stress, borderline features, specific anxiety disorders, anxiety, and schizophrenic disorders. The patterns of correlations are consistent with prior literature on suicide risk factors and previous PAI studies (Rogers, et al., 1998; Wang, et al., 1997). Overall, the findings suggest that certain clinical variables co-occur with suicide risk among the clinical population. Most prominent among these variables are depressive symptoms (for the SAC-Y) and suicidal ideation (for the SAC-R). Some notable exceptions to the expected correlations were the lack of significant associations between the SAC-Y and Mania, Antisocial Features, and Drug Problems; and between SAC-R and Mania. This likely represents the relative absence of clients with psychotic conditions, substance-

related problems and antisocial involvement that are seen at the Psychology Clinic.

Overall, these correlational findings are consistent with the conceptualization of suicide as resulting from a wide range of clinical factors wherein some clinical factors are more important than the others.

As mentioned above, although both SAC-Y and SAC-R followed the predicted pattern of correlations, the SAC-R was most strongly correlated with suicide ideation and the SAC-Y with Depression. This suggests that the SAC-R is more strongly affected by suicidal symptoms than the SAC-Y. This result is not surprising considering the different contents of the two checklists. The SAC-Y is comprised of a comprehensive list of factors that have been traditionally identified to elevate ‘general’ suicide risk, whereas the SAC-R is comprised of factors that are specifically pertinent to ‘current’ suicidal symptoms. To illustrate, the SAC-Y contains elaborate information about remote suicide risk factors such as a family history of mental illness; past sexual or physical abuse; unwanted change of schools; economic downshift in community; contagion suicide in community; and major depression in parent, spouse, and sibling. On the other hand, the SAC-R items are specifically related to current suicide symptoms. This distinction is reflected in the stronger association between the SUI and SAC-R than between the SUI and SAC-Y found in the present study. This distinction also suggests that the SAC-R is a more sensitive measure of “current” suicide risk than the SAC-Y.

As previously mentioned, a second purpose of this study was to examine whether the suicide measures of the PAI (SUI and SPI) have incremental validity over the non-suicide measures of the PAI (in this case, DEP) in the prediction of suicide risk. The SUI and SPI demonstrated significant incremental validity over DEP in the prediction of

SAC-R but not the SAC-Y. Interestingly, for the SAC-Y, DEP was incrementally useful over the SUI and the SPI. Thus, the SUI and SPI as a group were found to be useful predictors of suicide risk as assessed by using the SAC-R, whereas DEP was found to be a useful predictor of suicide risk as measured by the SAC-Y. Against the backdrop of the distinction between the SAC-Y and the SAC-R, SUI and SPI appear to be useful predictors of current suicide risk after accounting for the client's depressive symptoms. On the other hand, the PAI DEP appears more important in the prediction of general suicide risk as measured by the SAC-Y. Finally, the increment gained by the SUI and the SPI over DEP was greater than the increment gained by DEP in the reverse procedure.

In terms of the incremental validity of the SPI over SUI in predicting suicide risk, it was found that SPI explained significantly more of the variance in SAC-Y than did SUI. This is attributable to the similarity of the content (general psychopathological factors that elevate suicide risk) of the SPI and the SAC-Y. However, for the SAC-R, although both SUI and SPI explained variance, SUI explained more of the variance than did SPI. This too can be attributed to the similarity of the focus of the content (current suicide symptoms) of the SUI and SAC-R. Overall, the results of SUI and SPI depended on the criterion measures used.

Lastly, this study examined whether the SUI and SPI demonstrate incremental validity over DEP in discriminating between clients who were engaged in a no-suicide contract and those who were not engaged in a no-suicide contract. It is important that this distinction be made accurately so that clients who need suicide assessment and intervention receive it, whereas those who do not present with suicide symptoms do not receive suicide risk intervention. The results of this analysis indicate that the SUI is

useful in making this distinction. Thus, SUI may provide important information in screening individuals for suicide risk.

In terms of clinical implications, the results of this study support continuing emphasis given to the role of depression and current suicide symptoms to the prediction of suicide risk in a clinical sample. Thus, clinicians may want to monitor clients who report depressive symptoms and suicide ideation on the PAI. Furthermore, current suicide symptoms appear to be more critical for predicting current suicide risk, while depressive symptoms appear to be more critical for predicting general suicide risk. Thus, it appears that the SUI and SPI are useful in providing specific clinical information beyond that provided by DEP in predicting current suicide symptoms. Lastly, as mentioned above, the SAC-R appears to be more sensitive to suicide risk than the SAC-Y. This distinction is particularly important considering that suicide risk can be transient. That is, although the remote risk factors may make an important contribution to current suicide risk level it is particularly important to focus on current suicide symptoms and current suicide risk factors.

The findings of this study are limited by a number of methodological considerations. Firstly, this study employed archival data derived from a clinical database. Although graduate students in the Clinical Psychology program recorded all data, there was no control with regard to the conditions of original recording of the data. This disadvantage was further augmented by the lack of other data to support the information in the intake interview reports and the process notes. Also, because the data was archival it was not possible to add other validation measures. Secondly, the findings of this study are confined to a sample of individuals seeking therapy. The dynamics of

suicide risk identified in this sample may not necessarily generalize to individuals at risk for suicide who do not seek therapy. Despite these limitations, the findings of the present study provide valuable information about the clinical utility of the PAI in assessing suicide risk.

Further study is needed to replicate these findings with new data.

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Table 1

Mean T scores and Standard Deviations of the PAI Validity and Clinical Scales (N = 85)

<i>PAI Scale</i>	<i>M</i>	<i>SD</i>
INC	52.21	8.85
INF	50.73	8.08
NIM	59.95	15.52
PIM	42.84	10.06
SOM	55.58	11.53
ANX	63.85	12.94
ARD	58.67	12.01
DEP	64.78	13.79
MAN	55.89	12.16
PAR	57.71	13.84
SCZ	60.65	13.27
BOR	62.92	11.68
ANT	54.71	12.17
ALC	50.82	9.80
DRG	51.93	11.46
AGG	51.96	10.92
SUI	55.16	12.64
STR	62.80	12.95
NON	57.91	15.32
RXR	38.89	9.93
DOM	49.46	12.44
WRM	49.52	9.50

Note: PAI = Personality Assessment Inventory; INC = Inconsistency; INF = Infrequency; NIM = Negative Impression Management; PIM = Positive Impression Management; SOM = Somatic Complaints; ANX = Anxiety; ARD = Anxiety-Related Disorders; DEP = Depression; MAN = Mania; PAR = Paranoia; SCZ = Schizophrenia; BOR = Borderline Features; ANT = Antisocial Features; ALC = Alcohol Problems; DRG = Drug Problems; AGG = Aggression; SUI = Suicidal Ideation; STR = Stress; NON = Nonsupport; RXR = Treatment Rejection; DOM = Dominance; WRM = Warmth.

Table 2

Mean T scores and Standard Deviations of the PAI Validity and Clinical Scales for the clients engaged in a no-suicide contract (N = 8)

<i>PAI Scale</i>	<i>M</i>	<i>SD</i>
INC	55.38	6.30
INF	50.63	7.41
NIM	74.75	16.80
PIM	40.63	12.36
SOM	59.75	11.56
ANX	69.75	12.08
ARD	63.75	12.02
DEP	79.50	12.90
MAN	55.38	11.48
PAR	66.00	11.29
SCZ	69.38	9.83
BOR	72.50	8.42
ANT	58.38	15.07
ALC	51.38	7.78
DRG	53.25	12.87
AGG	53.25	10.14
SUI	76.38	11.95
STR	74.63	10.34
NON	67.13	17.81
RXR	31.75	6.86
DOM	44.50	8.21
WRM	43.00	8.54

Note: PAI = Personality Assessment Inventory; INC = Inconsistency; INF = Infrequency; NIM = Negative Impression Management; PIM = Positive Impression Management; SOM = Somatic Complaints; ANX = Anxiety; ARD = Anxiety-Related Disorders; DEP = Depression; MAN = Mania; PAR = Paranoia; SCZ = Schizophrenia; BOR = Borderline Features; ANT = Antisocial Features; ALC = Alcohol Problems; DRG = Drug Problems; AGG = Aggression; SUI = Suicidal Ideation; STR = Stress; NON = Nonsupport; RXR = Treatment Rejection; DOM = Dominance; WRM = Warmth.

Table 3

Correlations between the PAI scales/SPI and SAC-Y and SAC-R (N = 85)

<i>PAI Scale</i>	<i>Mean SAC-Y</i>	<i>Mean SAC-R</i>
DEP	.65**	.59**
SPI	.61	.62
STR	.59**	.54**
BOR	.56**	.56**
NIM	.52**	.51**
ARD	.49**	.37**
ANX	.46**	.36**
SCZ	.46**	.57**
SUI	.44**	.65**
SOM	.41**	.25*
PAR	.33**	.44**
AGG	.31**	.29*
ALC	.29**	.23*
NON	.29**	.40**
ANT	.18	.36**
DRG	.17	.29**
MAN	.12	.16
INC	.09	.17
INF	.06	.08
RXR	-.54**	-.47**
PIM	-.26*	-.25*
WRM	-.20	-.34**
DOM	.03	-.09

Note: SAC-Y = Yufit's Suicide Assessment Checklist; SAC-R = Rogers' Suicide Assessment Checklist; PAI = Personality Assessment Inventory; INC = Inconsistency; INF = Infrequency; NIM = Negative Impression Management; PIM = Positive Impression Management; SOM = Somatic Complaints; ANX = Anxiety; ARD = Anxiety-Related Disorders; DEP = Depression; MAN = Mania; PAR = Paranoia; SCZ = Schizophrenia; BOR = Borderline Features; ANT = Antisocial Features; ALC = Alcohol Problems; DRG = Drug Problems; AGG = Aggression; SUI = Suicidal Ideation; STR = Stress; NON = Nonsupport; RXR = Treatment Rejection; DOM = Dominance; WRM = Warmth.

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

Table 4

Correlations between the PAI subscales and SAC-Y and SAC-R (N = 85)

<i>PAI subscale</i>	<i>SAC-Y</i>	<i>SAC-R</i>
SOM-C	.25*	.22*
SOM-S	.43**	.25*
SOM-H	.38**	.18
ANX-C	.38**	.24*
ANX-A	.46**	.37**
ANX-P	.41**	.38**
ARD-O	.20	.08
ARD-P	.25*	.14
ARD-T	.52**	.48**
DEP-C	.52**	.60**
DEP-A	.58**	.49**
DEP-P	.55**	.41**
MAN-A	.20	.20
MAN-G	-.07	-.05
MAN-I	.18	.25*
PAR-H	.25*	.42**
PAR-P	.24*	.35**
PAR-R	.36**	.35**
SCZ-P	.09	.22*
SCZ-S	.49**	.55**
SCZ-T	.42**	.50**
BOR-A	.44**	.46**
BOR-I	.10	.03
BOR-R	.49**	.53**
BOR-S	.22*	.29**
ANT-A	.17	.30**
ANT-E	.07	.26*
ANT-S	.19	.33**
AGG-A	.35**	.25*
AGG-V	.10	.14
AGG-P	.33**	.36**

Note: SAC-Y = Yufit's Suicide Assessment Checklist; SAC-R = Rogers' Suicide Assessment Checklist; PAI = Personality Assessment Inventory; SOM-C = Somatic Conversion subscale; SOM-S = Somatic Somatization subscale; SOM-H = Somatic Health Concerns subscale; ANX-C = Anxiety Cognitive subscale; ANX-A = Anxiety Affective subscale; ANX-P = Anxiety Physiological subscale; ARD-O = Anxiety-Related Disorders Obsessive-Compulsive subscale; ARD-P = Anxiety-Related Disorders Phobias subscale; Anxiety-Related Disorders Traumatic Stress subscale; DEP-C = Depression Cognitive subscale; DEP-A = Depression Affective subscale; DEP-P = Depression Physiological subscale; MAN-A = Mania Activity Level subscale; MAN-G = Mania

Grandiosity subscale; MAN-I = Mania Irritability subscale; PAR-H = Paranoia Hypervigilance subscale; PAR-P = Paranoia Persecution subscale; PAR-R = Paranoia Resentment subscale; SCZ-P = Schizophrenia Psychotic Experiences subscale; SCZ-S = Schizophrenia Social Detachment subscale; SCZ-T = Schizophrenia Thought Disorder subscale; BOR-A = Borderline Features Affective Instability subscale; BOR-I = Borderline Features Identity Problems subscale; BOR-R = Borderline Features Negative Relationships subscale; BOR-S = Borderline Features Self-Harm subscale; ANT-A = Antisocial Features Antisocial Behaviors subscale; ANT-E = Antisocial Features Egocentricity subscale; ANT-S = Antisocial Features Stimulus-Seeking subscale; AGG-A = Aggression Aggressive Attitude subscale; AGG-V = Aggression Verbal Aggression subscale; AGG-P = Aggression Physical Aggression subscale.

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

Table 5

Summary of Hierarchical Linear Regression Analyses of DEP, SUI, and SPI for Predicting SAC-Y (N = 85)

<i>Model 1</i>		<i>B</i>	<i>SE</i>	<i>β</i>
<i>Step 1</i>				
	DEP	.44	.13	.44
<i>Step 2</i>				
	SUI	.07	.11	.07
	SPI	.23	.13	.24
<i>Model 2</i>		<i>B</i>	<i>SE</i>	<i>β</i>
<i>Step 1</i>				
	SUI	.34	.08	.39
	SPI	.22	.10	.28
<i>Step 2</i>				
	DEP	.13	.10	.16

Note. In Model 1, $R^2 = .43$ for Step 1 ($p < .001$); and $R^2 = .46$ for Step 2 ($p = .10$). In Model 2, $R^2 = .38$ for Step 1 ($p < .001$); and $R^2 = .46$ for Step 2 ($p < .001$). Beta weights are shown for all variables only at the final step of the hierarchical model. DEP = Depression scale; SPI = Suicide Potential Index; SUI = Suicide Ideation Scale; SAC-Y = Yufit's Suicide Assessment Checklist.

Table 6

Summary of Hierarchical Linear Regression Analyses of DEP, SUI, and SPI for Predicting SAC-R (N = 85)

<i>Model 3</i>	<i>B</i>	<i>SE</i>	<i>β</i>
<i>Step 1</i>			
DEP	.13	.10	.16
<i>Step 2</i>			
SUI	.34	.08	.39
SPI	.22	.10	.28
<i>Model 4</i>	<i>B</i>	<i>SE</i>	<i>β</i>
<i>Step 1</i>			
SUI	.34	.08	.39
SPI	.22	.10	.28
<i>Step 2</i>			
DEP	.13	.10	.16

Note. In Model 3, $R^2 = .35$ for Step 1 ($p < .001$); and $R^2 = .52$ for Step 2 ($p < .001$). In Model 4, $R^2 = .50$ for Step 1 ($p < .001$); and $R^2 = .51$ for Step 2 ($p = .19$). Beta weights are shown for all variables only at the final step of the hierarchical model. DEP = Depression scale; SPI = Suicide Potential Index; SUI = Suicide Ideation Scale; SAC-R = Rogers' Suicide Assessment Checklist.

Table 7

Summary of Stepwise Linear Regression Analysis for SUI and SPI Predicting SAC-Y (N = 85)

<i>Model 5</i>	<i>B</i>	<i>SE</i>	<i>β</i>
SUI	.59	.09	.61
SPI	--	--	--

Note. $R^2 = .37$ ($p < .001$).

* $p < .05$; ** $p < .01$; *** $p < .001$

Beta weights are shown for all variables only at the final step of the hierarchical model.

DEP = Depression scale; SPI = Suicide Potential Index; SUI = Suicide Ideation Scale;

SAC-Y = Yufit's Suicide Assessment Checklist.

Table 8

Summary of Stepwise Linear Regression Analysis for SUI and SPI Predicting SAC-R (N = 85)

<i>Model 6</i>	<i>B</i>	<i>SE</i>	<i>β</i>
SUI	.37	.08	.42***
SPI	.30	.07	.38***

Note. $R^2 = .50$ ($p < .001$).

* $p < .05$; ** $p < .01$; *** $p < .001$

Beta weights are shown for all variables only at the final step of the hierarchical model.

DEP = Depression scale; SPI = Suicide Potential Index; SUI = Suicide Ideation Scale;

SAC-R = Rogers' Suicide Assessment Checklist.

Table 9

Summary of Logistic Regression Analysis of DEP, SPI, and SUI distinguishing clients engaged in suicide contract from those not engaged in suicide contract (N = 85)

	<i>B</i>	<i>SE</i>	<i>Wald</i>	<i>Sig.</i>	<i>Exp(B)</i>	<i>95% C.I. for Exp(B)</i>	
DEP	.05	.05	.96	.33	1.05	.95	1.17
SUI	.13	.05	8.02	.01	1.13	1.04	1.24
SPI	-.001	.05	.00	.99	1.00	.91	1.10

Note. DEP = PAI Depression Scale; SUI = Suicide Ideation Scale; SPI = Suicide Potential Index; *N* engaged in a no-suicide contract = 8; *N* not engaged in a no-suicide contract = 77

Figure 1. *Mean PAI Scale Profiles for the Moderate and Low Suicide Risk Groups*

Figure 2 Mean PAI Subscale Profiles for the Moderate and Low Suicide Risk Groups

Appendix A

Personality Assessment Inventory Scales and Subscales

Validity Scales

Inconsistency (INC)

Infrequency (INF)

Negative Impression (NIM)

Positive Impression (PIM)

Clinical Scales

Somatic Complaints (SOM)

Conversion (SOM-C)

Somatization (SOM-S)

Health Concerns (SOM-H)

Anxiety (ANX)

Cognitive (ANX-C)

Affective (ANX-A)

Physiological (ANX-P)

Anxiety-Related Disorders (ARD)

Obsessive-Compulsive (ARD-O)

Phobias (ARD-P)

Traumatic Stress (ARD-T)

Depression (DEP)

Cognitive (DEP-C)

Affective (DEP-A)

Physiological (DEP-P)

Mania (MAN)

Activity Level (MAN-A)

Grandiosity (MAN-G)

Irritability (MAN-I)

Paranoia (PAR)

Hypervigilance (PAR-H)

Persecution (PAR-P)

Resentment (PAR-R)

Schizophrenia (SCZ)

Psychotic Experiences (SCZ-P)

Social Detachment (SCZ-S)

Thought Disorder (SCZ-T)

Borderline Features (BOR)

Affective Instability (BOR-A)

Identity Problems (BOR-I)

Negative Relationships (BOR-N)

Self-Harm (BOR-S)

Antisocial Features (ANT)

Antisocial Behaviors (ANT-A)

Egocentricity (ANT-E)

Stimulus-Seeking (ANT-S)

Alcohol Problems (ALC)

Drug Problems (DRG)

Treatment Scales

Aggression (AGG)

Aggressive Attitude (AGG-A)

Verbal Aggression (AGG-V)

Physical Aggression (AGG-P)

Suicidal Ideation (SUI)

Stress (STR)

Nonsupport (NON),

Treatment Rejection (RXR)

Interpersonal Scales

Dominance (DOM)

Warmth (WRM).

Suicide Assessment Checklist –Yufit (SAC-Y)

<i>Suicide History (max section score = 24)</i>	<i>Yes</i>	<i>No</i>	<i>Uncertain</i>
---	------------	-----------	------------------

- Psychiatric History (max score = 20)*

- ¹⁷ Highly lethal; Low risk for rescue; serious medical injury (comatose); irreversibility.

Yes No Uncertain

School (max score = 8) or Job (max score = 8)

14. Grade failure	14. Demotion
15. Rejection, poor social relations	15. Rejection
16. Probation or school drop-out (x2)	16. Fired (x2)
17. Disciplinary crisis (x2)	17. Discp. Crisis
18. Unwanted change of schools	18. Unwanted change
19. Anticip of severe punishment	19. Criminal act

Family (max score = 28)

20. Recent major negative change (loss: death, divorce (x4)) serious health problem); (irrevers. loss (x4)); (both = 8)
21. Lack of emotional support, estranged (x2)
22. Loss of job (parent, spouse) (x2)
23. Major depression in parent, spouse, sibling (x2)
24. Alcoholism, other drug use in family member (x2)
25. Psychiatric illness in family member (x2)
- 25a. IF 22+24+25 = 6, add 6 more
26. History of physical (2) or sexual abuse (x2); both (x4)

Societal (max score = 8)

27. Contagion suicide in community (x3)
28. Economic down shift in community; financial loss

Yes No Uncertain

29. Loss of major support system (family; job, career (both x4))

Personality/Behavior/Cognitive Style (max score = 85)

30. Hopelessness (x6)

31. Depression (intensely depressed (x2);

agitated depression. (x4); (both x6)

32. Anger, hostility, aggression (all=x3); held in-all (x6)

32a. IF 30+31+32 = 18, add 10 more

33. Mistrust (x2); paranoid level (x4)

34. Disgust or despair (both = x2)

35. Withdrawn, isolated (loneliness = x4)

36. Low, or no, future time perspective (x6)

37. High or dominant orientation to the past (x4)

37a. If 36 +37 = 10, add 10 more

38. Perfectionism, rigidity, obsessive/compulsive (any = x6)

39. Lack of a sense of belonging (x5)

40. Indifference, lack of motivation (boredom = x2)

41. Worthlessness, no one cares (x2); or Helplessness; (both x3)

42. Shame or guilt (both = x4) (either one = x2)

43. High Anxiety (x3) or Disruptive Anxiety (x5)

44. Inability to have fun, lacks sense of humor

45. Extreme mood or energy fluctuation (both = x2)

Yes No Uncertain

46. Giving away valuables

Physical (max score = 14)

47. Male (x2); Caucasian (x2); both yes = x4

48. Markedly delayed puberty

49. Recent injury leads to impairment, deformity

(permanent = x2)

50. Loss of appetite, disinterest in food

51. Marked weight loss (more than 10 lbs in past 6 months = x2)

52. Sleep disturbed (onset, middle, early awakening)

hypersomnia

53. Ongoing physical pain (x3)

Interview Behavior (max score = 16)

54. Pt encapsulated, non-communicative (x2)

55. Negative reaction of pt. to interviewer (x2)

56. Negative reaction of interviewer to pt.

57. Increasing distance in interaction during interview (x4)

58. Increasing hostility, non-cooperation by pt. (x2)

59. Pt. highly self-critical, self-pitying (x2)

60. Discusses death; suicide is only way out (x3)

Sum.....

Chronic Hx of suicide? Yes No

No prior attempts? Yes No

Suicide Risk Potential Guidelines:

Score range

Very high risk

150-230 (prob. hospitalize)

High risk

100-149

Moderate risk

50-99

Low risk

Below 49

Level of ambivalence: High Low

Current intention (underline one):

Seeks attention

Escape pain

Punish self/others

Harm or injure self

Wants to die

Acute, immediate risk (espec. 25a+32a +37a = yes): Yes No

Long term risk: Yes No

Confidence Level: High Low

Reason if low: Manipulating or high level of denial?

Appendix C

Suicide Assessment Checklist – Rogers (SAC-R)

This form is intended to be used to guide and document comprehensive suicide risk assessment. It should be used in conjunction with other interview and historical data as an aid in determining appropriate client disposition. It is not intended as a predictive device and should not be used as such. However, the higher the scores the more concern one should have regarding potential suicidal behaviors.

Client's name: _____ Age: __ Sex: male female

Part 1

Assessing suicidal risk: Circle all of the items relating to the client's situation and sum the corresponding score at the end of Part 1.

Client has definite plan: yes (6)

Previous psychiatric history: yes (4)

Method: firearm (10) car exhaust (7) hanging (9) drowning (6) suffocating (6) jumping (5) drugs/poison (6) cutting (3) other (3): _____

Method on hand: yes (5)

Suicide survivor: yes (6)

Making final plans: yes (6)

Drug and/or alcohol use: yes (5)

Prior attempt(s): yes (5)

Male 15-35 or 65 and older: yes (5)

Suicide note: yes (6)

Dependent children at home: yes (-4)

Marital status: single (3) married (2) divorced (5) separated (5) widowed (5)

Part 1 total**: _____

Part 2

From your interview, rate your impression of the client's status on each of the following items. Ratings should be based on initial perceptions of the client's status rather than on changes resulting from any intervention. Sum the corresponding item ratings at the end of Part 2 (minimum score = 9).

	None				Extreme
Sense of worthlessness:	1	2	3	4	5
Sense of hopelessness:	1	2	3	4	5
Social isolation:	1	2	3	4	5
Depression:	1	2	3	4	5
Impulsivity:	1	2	3	4	5
Hostility:	1	2	3	4	5
Intent to die:	1	2	3	4	5
Environmental stress*:	1	2	3	4	5
Future time perspective:	5	4	3	2	1

* The level of stress precipitated by any actual or anticipated events in the client's

life, such as loss of a loved one, change in life style, humiliation, etc.

Part 2 Total**:_____

Part 1 Total**:_____

Total Score**:_____ (Sum of Part 1 + Part 2)

** Total scores are for research purposes and not intended for use as predictors.

Was the client engaged in a 'no suicide' contract?

Yes No Not Appropriate

Considering all of the information available, indicate the client's level of suicide risk on the following scale:

Low Risk 1 2 3 4 5 High Risk

Disposition or referral:_____

Counselor's Signature:_____ Date:_____

Appendix D

Suicide Assessment Checklist – Rogers (SAC-R) Terminology Sheet

The following are brief definitions or explanations of the terms used in the Suicide Assessment Checklist.

Part 1

Client has a definite plan - Has the client formulated a plan to commit suicide other than a vague 'I'm going to kill myself.'?

Method - If the client does have a concrete plan, which method has she/he chosen?

Method on Hand - Is the method one that is readily available to the client as opposed to one that needs to be obtained?

Previous Psychiatric History - Psychiatric history is used here as a broad term to include the range from inpatient psychiatric care to outpatient psychotherapy.

Making Final Plans - Is the client taking care of "unfinished business" and/or giving away prized possessions?

Prior Attempts - Has the client admitted to having previously attempted suicide or described situations that may have been 'hidden' attempts?

Suicide Note - Has the client written or is he/she planning to write a suicide note placing blame for the action, leaving instructions to survivors, or saying goodbye?

Suicide Survivor - Has the client had a close friend or relative who has committed suicide?

Drug/Alcohol Use - Does the client use alcohol or drugs at any level.

Male 15-35 or 65 and Older - Is the client a male in either of these age categories?

Dependent Children at Home - Does the client have one or more children 18 years or younger living in the household?

Marital Status - What is the marital status of the client?

Part 2

Ratings of the following items are to be based upon your impression of the client's status or 'feelings.' For example, how hopeless does the client 'seem' to feel as opposed to how hopeless do you think the client 'should' feel given the circumstances. Ratings of these items are to be based upon your initial impressions of the client's status rather than on the client's feelings resulting from successful resolution of the presenting situations.

Sense of Worthlessness - To what degree does the client 'feel' that she/he has no personal worth or value to him/herself and others?

Sense of Hopelessness - To what degree does the client 'feel' that there is no hope for improvement in his/her situation in the future?

Social Isolation - To what degree does the client 'feel' that he/she has no friends and relatives to whom he/she can turn?

Depression - To what degree does the client exhibit signs of depression i.e., inactivity, lack of interest, disrupted eating and/or sleeping habits, etc.?

Impulsivity- To what degree does the client exhibit impulsive behavior i.e., acting with little rational thought to outcomes?

Hostility - How much anger does the client seem to have towards him or herself, others, or institutions?

Intent to Die - To what degree does the client seem determined to carry out his/her plans to their conclusion?

Environmental Stress - To what degree does the client “feel” that events in his/her life are “overwhelming”, painful, humiliating or are providing insurmountable obstacles?

Future Time Perspective - To what extent is the client able to focus on the future or positive future events as opposed to focusing on only the present or negative future events? This item is scored in the opposite direction from the previous Part 2 items. That is, the absence of a positive future time perspective is scored 5.