A Review of Suicide Assessment Measures

for Intervention Research with Adults and Older Adults

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According the National Center for Health Statistics, there were 29,199 U.S. suicide deaths, or a rate of 10.7 per 100,000 in 1999. It was the 8th leading cause of death for males, who outnumber female suicide deaths by 4 to1. Half as many African American and Hispanic Americans died by suicide compared to whites. Suicide is the third leading cause of death for adolescents and young adults (ages 15-24 years) and the fourth leading cause for young adults (ages 25-44 years). These mortality statistics also indicate that older white males aged 85 or older have the highest rates of suicide, exceeding the national average by 6-fold (Hoyert, Airas, Smith, Murphy, & Kochanek 2001).

Recognizing that suicide has profound public health significance, the United States Senate (Resolution 83: Recognizing Suicide as a National Problems and Declaring Suicide Prevention to be a National Priority, Congressional Record, 1997) and the Surgeon General (The Surgeon General's Call to Action to Prevent Suicide, U.S. Public Health Service, 1999) have declared suicide prevention to be a national public health priority. The Surgeon General has recommended the implementation of a National Strategy for Suicide Prevention. Among the many recommendations made, the Surgeon General encouraged the development of scientific strategies for evaluating suicide prevention interventions. Specifically, the evaluation of neurobiological and psychosocial interventions for individuals at risk for suicide (e.g., patients with mental disorders) was strongly endorsed and seen as necessary for achieving the goal of suicide prevention (U.S. Department of Health and Human Services, 2001).

Unfortunately, information on whether biological or psychosocial treatment actually reduces suicidality is limited. One reason for this limited information is that most randomized clinical trials have attempted to examine the efficacy of a targeted intervention while excluding those individuals who are clinically determined to be at high risk for suicide (Pearson, Stanley, King & Fisher, 2001). The exclusion of individuals from studies may be attributed to the belief that the randomization of suicidal individuals to a treatment condition is unethical or too risky (Linehan, 1997). A second reason for this limited information may be that reliable and valid measures of suicidal behavior are not commonly used in clinical trials. As the National Institute of Mental Health (NIMH) continues to encourage intervention research to include heterogeneous samples that are more representative of the general mental health population, clinical researchers are more likely to encounter patients with suicidal ideation or behavior. Therefore, established assessment instruments that measure changes in suicidality are required to determine whether efficacious treatments or prevention programs have a beneficial effect.

The purpose of this review is to provide a systematic examination of the psychometric properties of measures of suicidal ideation and behavior for younger and older adults. Although several of the measures in this review may be utilized with children and adolescents, a more detailed and comprehensive review of suicide measures for these populations is available (see Goldston, 2000). Instruments were selected if they focused on suicidal behaviors or other behaviors that are closely associated with suicidal risk. Hence, the following categories of assessment instruments are reviewed: (1) Suicide ideation and behavior, (2) lethality of suicide attempts, (3) brief screening measures, (4) hopelessness, (5) reasons for living, (6) provider

attitudes and knowledge concerning suicide and (7) measures in development. Athough some measures do not directly assess suicidal behavior, such as measures concerning hopelessness or reasons for living, these variables have been closely associated with suicide and are potentially modifiable with treatment. Therefore, these measures have been included in the review.

The present review includes suicide assessment instruments with published reliability and validity. Measures were identified through searching the following computerized databases (English only): Medline, PsycINFO, Health and Psychosocial Instruments, and Social Sciences Citation Index using "suicide" or "suicidal" as keywords. Researchers who may have published or used standardized suicide assessment measures were also contacted in order to identify additional instruments or to obtain further information on the psychometric characteristics of the measures.

Several categories of assessment instruments were not selected for inclusion in this review. For example, measures that assess the occurrence or the severity of psychopathology, such as the severity of mood, psychosis or substance abuse, were not reviewed even though these variables are often associated with the risk of suicide. Other measures of personality such as the Minnesota Multiphasic Personality Inventory were also not reviewed. A recent systematic evaluation of this literature concluded that such objective personality instruments offer only marginal utility as sources of clinical information in comprehensive suicide risk evaluations (Johnson, Lall, Bongar, & Nordlund, 1999).

Several notable reviews have included measures of suicide ideation or behavior (e.g., Beck, Resnik, & Lettieri, 1974, Rothberg, & Geer-Williams, 1992), but these reviews have focused on the prediction of suicide. Many of the instruments in these reviews typically included demographic variables or other variables associated with psychiatric history or functioning. Although such measures may be useful for targeting populations to screen to identify those with high suicide potential, these measures often do not assess behaviors that are modifiable with treatment. The present review, in contrast, provides a systematic evaluation of those measures that may be most appropriate for intervention studies.

An additional problem in developing and evaluating suicide measures is that there are numerous definitions of suicidal behavior, many of which are vague. The lack of consistent definitions of suicidal behavior across studies has led to confusion in the field of suicidiology. In 1973, a NIMH Task Force, chaired by Aaron T. Beck, developed a classification scheme for suicidal behavior (Beck, Davis, Frederick, Perline, Pokorny, Schulman, Seiden, & Wittlin, 1973). According to this classification scheme, suicidal phenomena are described as completed suicides, suicide attempts or suicide ideation.

In an attempt to build upon this nomenclature and further improve communication in the field, Patrick O'Carroll and colleagues (O'Carroll, Berman, Maris, Moscicki, Tanney, & Silverman, 1996) have provided definitions for commonly used terms in suicide research. "Suicide" or "completed suicide" is defined as "a death from injury, poisoning, or suffocation where there is evidence (either explicit or implicit) that the injury was self-inflicted *and* that the decedent intended to kill himself or herself." A "suicide attempt" is defined as "a potentially self-injurious behavior with a nonfatal outcome, for which there is evidence (either explicit or

implicit) that the person intended at some (nonzero) level to kill himself/herself". "Suicidal ideation" refers to "any self-reported thoughts of engaging in suicide-related behavior."

These definitions are useful because the instruments in this review may evaluated with regard to how closely the specific items correspond to the definitions proposed by O'Carroll et al. (1996). Given these definitions, David Goldston (2000) has raised a number of questions for evaluating suicide assessment measures:

(1) *Do the suicidal ideation questions specifically focus on thoughts of wanting to kill oneself, rather than being so inclusive as to include thoughts of death or thoughts of wanting to die without specifying an intent to kill oneself?* According to O'Carroll et al. (1996), thoughts of death or wanting to die without specific thoughts of killing oneself are not considered to be suicidal ideation.

(2) *Are the items for detecting the presence/absence of suicide attempts confounded with the clinical characteristics of the attempt (e.g., degree of certainty, intent, or medical lethality)?* According to the recommendations from the 1973 NIMH Task Force (Beck et al., 1973), questions regarding the clinical characteristics of suicide attempts should be considered separately from questions regarding the occurrence of suicide attempts.

(3) *Is it implicit or explicit in the suicide attempt detection items that the behaviors of interest were associated with some "nonzero" intent to kill himself/herself?* According to O'Carroll et al. (1996), intentional self-injury behavior should be associated with at least some "non-zero" intent to kill oneself if it is to be defined as a suicide attempt. Items measuring suicide attempts should not be worded so broadly as to include intentional (non-suicidal) self-injury behavior.

(4) *Are the suicide attempt detection items confounded with questions of whether or not the behaviors resulted in identifiable injury or required medical attention?* According to the O'Carroll et al. (1996) definitions, a suicide attempt is a potentially self-injurious behavior with a nonfatal outcome. An identifiable injury does not need to occur for a behavior to be classified as a suicide attempt.

In addition to evaluating each of the suicide assessment measures with respect to these questions, the present review describes and summarizes the psychometric properties of the each measure. The primary samples used to establish the psychometric properties of each instrument are described and information with respect to differences in the scales properties among samples with various demographic charteristics are also presented if available. Information regarding the reliability (test-retest stability, internal consistency, inter-rater reliability), dimensionality and concurrent validity (discriminant validity, construct validity) is described (for information regarding the psychometric evaluation of psychological tests, see Robinson, Shaver, & Wrightsman, 1991). If information is available, the predictive validity of each measure is presented with respect to the ability of the measure to predict future suicide attempters or completed suicide. Finally, the sensitivity of each measure to change is reported and whether each measure has been used in randomized clinical trials.

Suicide Ideation and Behavior

Scale for Suicide Ideation

Description. The Scale for Suicide Ideation (SSI; Beck et al., 1979) is a 21-item, interviewer-administered rating scale that measures the current intensity of patients' specific attitudes, behaviors, and plans to commit suicide on the day of the interview. Each item consists of three options graded according to suicidal intensity on a 3-point scale ranging from 0 to 2. The ratings for the first 19 items are summed to yield a total score, ranging from 0 to 38. The SSI consists of five screening items. Three items assess the wish to live or the wish to die and two items assess the desire to attempt suicide. If the respondent reports any active or passive desire to commit suicide, then 14 additional items are administered. Individual items assess suicidal risk factors such as the duration and frequency of ideation, sense of control over making an attempt, number of deterrents, and amount of actual preparation for a contemplated attempt. Two additional items record incidence and frequency of previous suicide attempts. The SSI takes approximately 10 minutes to administer.

Samples studied. The SSI has been standardized with adult psychiatric patients in psychiatric inpatient (Beck et al., 1985) and outpatient settings (Beck, Brown, & Steer, 1997). For the inpatient sample, 54% were female, 60% were White, 34% were African-American; and the mean age was approximately 34 years (Beck et al., 1979). For the outpatient sample, 56% were female, 91% were White, 6% were African American, and the mean age was 36 years, ranging from 13 to 79 years. The SSI has been utilized in a wide variety of settings such as primary care practices, emergency rooms, rehabilitation programs, private practice, etc. The SSI also has been administered to college students (Clum & Curtin, 1993; Clum & Yang, 1995; Dixon, Heppner & Anderson, 1991), including African American college students (Blanton-Lacy, 1996; Molock, Kimbrough, Lacy, McClure & Williams, 1994). This measure has been utilized with elderly clinical populations as well (Mireault & de Man, 1996; Rifai, George, Stack, Mann et al., 1994; Szanto, Reynolds, Frank, Stack, Fasiczka, Miller, Mulsant, Mazumdar, & Kupfer, 1996).

Reliability. The SSI has been found to have moderately high internal consistency with Cronbach coefficient alphas ranging from .84 (Beck et al., 1997) to .89 (Beck et al, 1979). The SSI also has high interrater reliability with correlations ranging from .83 (Beck et al., 1979) to .98 (Beck et al., 1997).

Dimensionality. Beck and colleagues (1997) reported that the SSI represents two positively related underlying dimensions of Preparation (9 items) and Motivation (8 items) in psychiatric outpatients. The overall compositions of these two dimensions correspond to the Active Suicidal Desire and Preparation dimensions that Beck et al. (1979) had been previously found with patients hospitalized for suicide ideation.

Concurrent validity. The SSI has been found to be significantly associated with the suicide items from the Beck Depression Inventory and the Hamilton Rating Scale for Depression (Beck et al., 1979; Beck et al., 1985; Beck et al., 1997; Hawton, 1987). The SSI has also been associated with previous suicide attempts and severity of depression (Beck et al., 1997; Molock et al., 1994). The SSI discriminated suicidal inpatients from depressed outpatients (Beck et al., 1979) as well as suicide attempters from nonattempters (Mann, Waternaux, Haas, & Malone, 1999). In addition, the SSI has significant, positive correlations with daily self-monitoring of suicidal ideation (Clum & Curtin, 1993). Prigerson and Slimack (1999) reported that the SSI was

more highly correlated with aggression in young adult males whereas the SSI was correlated with depression and posttraumatic stress disorder in young adult females.

Predictive validity. The predictive validity of the SSI for completed suicide has been established for patients seeking outpatient psychiatric treatment (Beck et al., 1999; Brown et al., 2000). Specifically, patients who scored in the higher risk category (i.e., SSI total score greater than 2) were approximately seven times more likely to commit suicide than those who scored in the lower risk category (Brown et al., 2000). Although suicide ideation is a criterion for a major depressive episode in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV; American Psychiatric Association, 1994), the Brown et al. (2000) study found that the presence of suicidal ideation provides an independent estimate of the risk for suicide for psychiatric patients.

Sensitivity to change. In a sample of psychiatric outpatients who sought treatment for depression, the SSI one week prior to treatment was moderately correlated (.51) with scores at the end of treatment (Beck et al., 1979). Changes in the SSI were moderately correlated with changes in levels of depression ($r = .65$) and hopelessness ($r = .57$) from pretreatment to post-treatment. The SSI has also been found to be sensitive to change in randomized clinical trials for patients at high risk for suicide (Linehan, Armstrong, Suarez, Allman & Heard, 1991; Patsiokas & Clum, 1985; Salkovskis, Atha, & Storer, 1990). In addition, the SSI has been found to be sensitive to change in suicide ideation over a 24 hour period for psychiatric patients who were hospitalized because of suicidal risk (Russ, Kashdan, Pollack, & Bajmakovic-Kacila, 1999).

Summary and evaluation. The SSI is one of the most widely-used measures of suicide ideation. The SSI includes items that measure suicide ideation (thoughts of wanting to kill oneself) as defined by the O'Carroll et al. (1996) nomenclature. The SSI includes an item that assesses the frequency of previous suicide attempts. The degree of intent to kill oneself during the last suicide attempt is also assessed. The internal consistency, interrater reliability, test-retest reliability and concurrent validity of the SSI has been established. Moreover, the SSI is one of the few suicide assessment instruments to have documented the predictive validity for completed suicide.

Scale for Suicide Ideation – Worst

Description. The 19-item Scale for Suicide Ideation – Worst (SSI-W; Beck et al., 1997) is an interviewer-administered rating scale that measures the intensity of patients' specific attitudes, behaviors, and plans to commit suicide during the time period that they were the most suicidal. This instrument was developed to obtain a more accurate estimate of suicide risk. Specifically, interviewers instructed patients to recall the approximate date and circumstances when they were experiencing the most intense desire to commit suicide. Patients are then asked to keep this experience in mind while the interviewer rates patients' responses to the 19 items regarding how suicidal they were at that time. As with the SSI, each SSI-W item consists of three options graded according to the suicidal intensity on a 3-point scale ranging from 0 to 2. The ratings are then summed to yield a total score, which ranges from 0 to 38. Individual items assess characteristics such as wish to die, desire to make an active or passive suicide attempt, duration and frequency of ideation, sense of control over making an attempt, number of deterrents, and amount of actual preparation for a contemplated attempt. The SSI-W takes approximately 10 minutes to administer.

Standardization Sample. The SSI-W has been administered to adult psychiatric patients in outpatient settings (Beck et al., 1997). The sample consisted of 91% White, 6% African American, 56% female and the mean age was 36 years, ranging from 13 to 79.

Reliability. The SSI-W has been found to have moderately high internal consistency (Cronbach alpha = .88) and high interrater reliability (Beck et al., 1997).

Concurrent validity. The SSI-W has been significantly associated with other measures of suicide ideation including the SSI, the suicide item from the Beck Depression Inventory, and the suicide item from the Hamilton Rating Scale for Depression (Beck et al., 1997). The SSI-W has been found to be more highly associated with the frequency of previous suicide attempts, a previous history of psychotherapy, previous psychiatric hospitalization, and a family member with a mental disorder than the SSI (Beck et al., 1997).

Dimensionality. As with the SSI, factor analysis has indicated that the SSI-W consists of two correlated factors: Preparation (9 items) and Motivation (8 items) (Beck et al., 1997).

Predictive validity. In a prospective study, psychiatric patients who scored in the higher risk category (i.e., SSI-W total score greater than 14) were 14 times more likely to commit suicide than patients who scored in the lower risk category (Beck et al., 1999).

Summary and evaluation. Although the SSI-W has been used less frequently than the SSI, the reliability and validity of this measure have been established. Items of the SSI-W measure suicide ideation that is consistent with the O'Carroll et al. (1996) nomenclature. In addition, this measure was found to be associated with a high risk for completed suicide in one study with psychiatric outpatients.

Beck Scale for Suicide Ideation

Description. The Beck Scale for Suicide Ideation (BSI; Beck & Steer, 1991) is a 21-item self-report instrument for detecting and measuring the current intensity of the patients' specific attitudes, behaviors, and plans to commit suicide during the past week. The BSI was developed as a self-report version of the interviewer-administered Scale for Suicide Ideation. The first 19 items consist of three options graded according to the intensity of the suicidality and rated on a 3-point scale ranging from 0 to 2. These ratings are then summed to yield a total score, which ranges from 0 to 38. Individual items assess characteristics such as wish to die, desire to make an active or passive suicide attempt, duration and frequency of ideation, sense of control over making an attempt, number of deterrents, and amount of actual preparation for a contemplated attempt. The last two items assess the number of previous suicide attempts and the seriousness of the intent to die associated with the last attempt. As with the SSI, the BSI consists of five screening items. If the respondent reports any active or passive desire to commit suicide, then an additional 14 items are administered. The BSI takes approximately 10 minutes to administer.

Dimensionality. A principal factor analysis with psychiatric inpatients (Steer, Rissmiller, Ranieri, & Beck, 1993) revealed that the BSI is composed of three factors: Desire for Death (5 items), Preparation for Suicide (7 items) and Actual Suicide Desire (4 items). Two BSI items, Deterrents to Death and Deception or Concealment, did not load on any factor.

Samples studied. The BSI scale development samples included adolescent (Steer, Kumar, & Beck, 1993) and adult patients in psychiatric outpatient and inpatient settings (Beck & Steer, 1991). For the inpatient adult sample, 50% were female, 81% were White, 15% were African-American, and 4% were Asian; the mean age was 37 years (SD = 13.3). For the outpatient adult sample, 60% were female, 88% were White, and 12% were African American. The mean age was 34 years (SD = 9.3). The adolescent sample was composed of 65% female,

66% White, 20% African American, 14% Hispanic; the mean age was 15 years, ranging from 12 to 17 years.

Reliability. The BSI has highly internal reliability with Cronbach alpha coefficients ranging from .87 to .97 (Beck et al., 1988; Beck & Steer, 1991; Steer et al., 1993). The BSI has moderate test-retest reliability ($\underline{r}$ = .54) over a one week period with psychiatric inpatients (Beck & Steer, 1988).

Concurrent Validity. The BSI is highly correlated with the clinically rated SSI with correlation coefficients ranging from .90 for psychiatric inpatients to .94 for outpatients (Beck, Steer, & Ranieri, 1988). These data suggest that patient responses to the self-report and clinician-administered versions are consistent regardless of the mode of administration. In addition, the BSI is moderately correlated with the Beck Depression Inventory Suicide Item with correlation coefficients ranging from .58 to .69. Furthermore, the BSI has been found to be moderately correlated with the Beck Depression Inventory (.64 to .75) and the Beck Hopelessness Scale (.53 to .62; Beck, Steer, & Ranieri, 1988).

Summary and evaluation. The internal reliability, test-retest stability and concurrent validity of this measure have been established. The suicide ideation items conform to the definition of suicide ideation established by O'Carroll et al. (1990). As with the SSI, the last two items assess the number of previous attempts and the seriousness of the intent to die associated with the last attempt. Although the BSI is less widely used than the SSI, the BSI may be a viable alternative for measuring suicide ideation using a self-report format.

Modified Scale for Suicide Ideation

Description. The Modified Scale for Suicide Ideation (MSSI; Miller, Norman, Bishop, & Dow, 1986) is a revised version of the Scale for Suicide Ideation (SSI; Beck et al., 1979). The MSSI is an 18 item scale that contains 13 items from the SSI and 5 additional items. These new items are related to intensity of ideation, courage and competence to attempt, and talk and writing about death. The MSSI was designed to be a semi-structured interview that could be administered by both professionals and paraprofessionals. The MSSI assesses suicide symptoms over the past year. The first 4 items have been designated as screening items to identify those individuals whose suicide ideation is severe enough to warrant the administration of the entire scale. Each item is rated on a 0-3 point scale and the ratings are summed to yield a total score ranging from 0 to 54. The MSSI takes approximately 10 minutes to administer.

Samples studied. The MSSI has been administered to adults in psychiatric inpatient (Miller et al., 1986) and outpatient settings (Rudd, Rajab, Orman, Stulman, Joiner, & Dixon, 1996). The characteristics of the outpatient sample included 82% male, 61% White, 26% African American, and 11% Hispanic; the mean age was 22 years (SD = 2.3) (Rudd et al., 1996). The MSSI also has been given to college students who were seeking treatment for their suicidality (Clum & Yang, 1995). In this sample, 48% were men, 71% were White, 12% were Asian; the mean age was 20 years, ranging from 18 to 24 years. A French-Canadian self-report adaptation of the MSSI has also been developed for use with adolescents and adults (de Man, Leduc, & Labreche, 1993).

Dimensionality. The MSSI has been found to consist of two to three factors. One study with college students found three factors: Suicidal Desire (9 items), Preparation for Attempt (6 items) and Perceived Capability of Making an Attempt (3 items) (Clum & Yang, 1995). A subsequent study with a larger sample size with psychiatric patients revealed two factors:

Suicidal Desire and Ideation (9 items) and Resolved Plans and Preparation (9 items) (Joiner, Rudd, & Rajab, 1997).

Reliability. The MSSI has high internal consistency, with Cronbach alpha coefficients ranging from .87 (Clum & Yang, 1995) to .94 (Miller et al., 1986) and good item-total correlations (.41 to .83; Miller et al., 1986). The MSSI also has adequate test-retest reliability (r = .65) over a two-week period (Clum & Yang, 1995).

Concurrent validity. Concurrent validity of the MSSI has been established. The MSSI has a moderately high correlation with the SSI (r = .74; Clum & Yang, 1995) and a moderate correlation with the suicide item from BDI (r = .60; Miller et al., 1986). Also, the MSSI is significantly correlated with the total BDI (r = .34; Miller et al., 1986), the Zung Depression Scale (r = .45; Clum & Yang, 1995), and the Beck Hopelessness Scale (r = .46; Clum & Yang, 1995). In addition, patients who had multiple suicide attempts scored higher on the MSSI than patients who had attempted suicide only one time or suicidal patients who had not attempted suicide (Rudd, Joiner, & Rajab, 1996).

Sensitivity to change. The MSSI has been found to be sensitive to change in randomized clinical trial of psychiatric outpatients who were at a high risk for suicide (Rudd, Rajab, Orman, Stulman, Joiner, & Dixon, 1996).

Summary and evaluation. The MSSI is a modification of the SSI that includes the addition of several items that assess aspects of suicide thinking. Ratings of individual MSSI items use a 4-point scale instead of the 3-point scale. The reliability and concurrent validity of the MSSI has been established. MSSI items measure suicide ideation as defined by O'Carroll et al. (1996). This scale is less frequently used than the SSI and there is a little research on the predictive validity of this measure.

Self-Monitoring Suicide Ideation Scale

Description. The Self-Monitoring Suicidal Ideation Scale (SMSI; Clum & Curtin, 1993) was adapted from three items from the Scale for Suicide Ideation that measure the intensity and duration of ideation and level of control in making a suicide attempt. The intensity of ideation item ("Today I have had thoughts of making an actual suicide attempt") uses a 4-point scale ranging from 0 ("none") to 3 ("strong"). The duration of ideation item ("Today I have thought about making an active suicide attempt") employs a 5-point scale ranging from 0 ("not at all") to 4 ("continuously"). The control over suicide ideation item ("Today I have felt that the control I have over making an active suicide attempt was") uses a 4-point scale ("strong; no doubt I had control") to 3 ("absent; no sense of control"). The SMSI is a self-report measure designed to be administered on a daily basis.

Standardized sample. The SMSI has been administered to college students who were chronically and severely suicidal (Clum & Curtin, 1993). The mean age of the sample was 20 years, (18 to 24 years), 80% were White and 59% were female.

Concurrent validity. Scores on the three SMSI items were averaged during a 2-week period prior to the beginning of psychiatric treatment and during a 2-week period at the end of treatment. The averaged SMSI items were found to be moderately correlated with the Scale for Suicide Ideation (SSI) and the Modified Scale for Suicide Ideation (MSSI) during the pretreatment interval (i.e., correlations ranged from .46 to .56). Stronger associations were observed between the SMSI and the SSI /MSSI during the post-treatment interval (correlations ranged from .71 to .82). The averaged SMSI items were also found to be significantly correlated

with the Beck Hopelessness Scale and the Zung Depression Inventory during the post-treatment interval (Clum & Curtin, 1993).

Sensitivity to change. The SMSI has been used to measure change in suicidal thinking a randomized clinical trial with suicide attempters (Patsiokas & Clum, 1985).

Summary and evaluation. The SMSI has been developed to assess suicide ideation that is proximate to the time it was experienced and to document fluctuations in ideation. Although the items measure the strength, duration and level of control in making a suicide attempt, these items do not specifically assess the intent to kill oneself as recommended by O'Carroll et al. (1996). The concurrent validity for this measure has been established and the SMSI may be useful in treatment outcome studies as a frequently used measure of ideation.

Suicide Probability Scale

Description. The Suicide Probability Scale (SPS; Cull & Gill, 1988) is a 36-item self-report measure of current suicide ideation, hopelessness, negative self-evaluation and hostility. Respondents answer each item on a 4-point scale ranging from 1 ("None or a little of the time") to 4 ("Most or all of the time"). There are three summary scores: A Suicide Probability Score, a total weighted score and a normalized T-score. The Suicide Probability Score can be adjusted to reflect different a priori base rates for particular clinical populations. In addition, the SPS has four clinical subscales: Hopelessness, Suicidal Ideation, Negative Self-Evaluation, and Hostility. The SPS scale takes approximately 10 minutes to administer.

Samples studied. The SPS was standardized on a sample of adolescents and adults randomly selected from the general population. Participants were selected if they did not have a psychiatric history and did not attempt suicide. This nonclinical sample was compared with psychiatric inpatients and suicide attempters (Cull & Gill, 1988). For the nonclinical sample, 61% were female, 60% were White, 28% were Hispanic, and 12% were African-American or other minority; 10% were less than 20 years old, 53% were 20 to 39 years old, 13% were 41 to 59 years old, and 24% were 60 years or older. For the psychiatric inpatient sample, 67% were female, 38% were White, 15% were Hispanic, and 15% were African-American or other minority; 25% were less than 20 years old, 39% were 20 to 39 years old, 21% were 41 to 59 years old, and 15% were 60 years or older. For the suicide attempter sample, 70% were female, 31% were White, 57% were Hispanic, and 12% were African-American or other minority; 20% were less than 20 years old, 43% were 20 to 39 years old, 16% were 41 to 59 years old, and 21% were 60 years or older. Total SPS scores were relatively unaffected by age, sex and ethnicity (Cull & Gill, 1988). Other studies have employed the SPS with college students (Osman, Barrios, Grittman, & Osman, 1993) and adults (Grella, Anglin, & Wugalter, 1995).

Dimensionality. A principal components analysis identified the following six factors: Suicide Ideation (6 items), Hopelessness (12 items), Positive Outlook (6 items), Interpersonal Closeness (3 items), Hostility (7 items) and Angry Impulsivity (2 items). This factor structure has been found to be highly consistent across a wide variety of clinical samples (Cull & Gill, 1988).

Reliability. The internal reliability for the SPS is high (Cronbach alpha = .93). Internal reliability for the subscales is generally adequate with Cronbach alpha efficients ranging from .62 to .89. The SPS has high test-retest reliability over a three-week period (r = .92; Cull & Gill, 1988).

Concurrent validity. The SPS has differentiated among normals, psychiatric inpatients and suicide attempters (Cull & Gill, 1988). The SPS total score and subscales were positively

correlated with the Depression (rs = .44 to .73), Psychopathic Deviate (rs = .48 to .63), Paranoia (rs = .47 to .61) and Schizophrenia (rs = .56 to .68) scales of the MMPI (Cull & Gill, 1988). In addition, SPS total score was moderately correlated (rs = .67 to .71) with the Suicide Threat Scale that was developed for the MMPI (Farberow & DeVries, 1967). Suicide probability was correlated with irrational beliefs (Woods, Silverman, Gentilini, Cunningham, & Grieger, 1991). The total SPS scale was significantly associated with the Social Problem Solving Scale, the Beck Hopelessness Scale and the Beck Depression Inventory in college students and adult psychiatric inpatients (D'Zurilla, Chang, Nottingham, & Faccini, 1998).

Sensitivity to change. The SPS was significantly associated with changes in suicidality in a randomized clinical trial of psychiatric outpatients who were at a high risk for suicide (Rudd, Rajab, Orman, Stulman, Joiner, & Dixon, 1996).

Summary and evaluation. The SPS has good internal consistency and test-retest reliability. The concurrent validity of this measure also has been established. The individual items, however, do not measure suicide ideation or suicide attempts as defined by O'Carroll et al. (1996). Although the SPS was designed to be a measure of suicide risk, there is a paucity of research studies that have tested the predictive validity of this measure.

Positive and Negative Suicide Ideation Inventory

Description. The Positive and Negative Suicide Ideation Inventory (PANSI; Osman, Gutierrez, Kopper, Barrios, & Chiros, 1998) is a 20-item self-report measure of positive and negative thoughts related to suicide attempts. Respondents rate each item during the past two weeks using a 5-point Likert scale, ranging from 1 ("none of the time") to 5 ("most of the time"). The inventory consists of two scales, Positive Ideation and Negative Ideation. The PANSI takes approximately 5 minutes to administer.

Sample studied. The PANSI was standardized using undergraduate college students (Osman et al., 1998). The mean age of the sample was 20 years; 67% were female and 96% were Euro-American.

Dimensionality. Exploratory and confirmatory factor analyses have been conducted on separate samples of college students. These analyses indicated that a two-factor solution provided an excellent fit to the data (Osman et al., 1998).

Reliability. The internal reliability for both the Positive Ideation and Negative Ideation scales is high; coefficient alphas ranged from .80 to .93 (Osman et al., 1998).

Concurrent validity. The Positive Ideation scale correlated moderately and negatively with the Suicide Probability Scale (r = -.47) and with items from the Suicide Behaviors Questionnaire (rs = -.21 to -.45). Scores on the Negative Ideation scale correlated moderately and positively with the Suicide Probability Scale (r = .59) and with items from the Suicidal Behaviors Questionnaire (rs = .39 to .61; Osman et al., 1998).

Summary and evaluation. The internal reliability and concurrent validity have been established in a college student sample. Items from the Negative Suicide Ideation scale measure suicide ideation that are consistent with the O'Carroll et al. (1996) definition of suicide ideation. Further studies are needed to replicate these findings and investigate the psychometric properties of this measure in other samples.

Adult Suicidal Ideation Questionnaire

Description. The Adult Suicidal Ideation Questionnaire (ASIQ; Reynolds, 1991b) is a 25-item self-report measure of suicide ideation and behavior in adults. The ASIQ was derived

from the 30-item Suicidal Ideation Questionnaire (Reynolds, 1987), developed to assess suicide ideation in adolescents. Respondents rate the frequency of suicidal thoughts or behavior during the past month using a 7-point scale for each item. The scale ranges from 0 ("never had the thought") to 6 ("almost every day"). Item content ranges from general wishes that one were dead or never born to distinctive risk factors such as thoughts of how and when to kill oneself. Other items evaluate the perceived response of others to a suicide attempt the belief that suicide is a possible solution to one's problems. The ASIQ yields a total score, ranging from 0 to 150. Corresponding T-scores and percentile scores are also calculated based on normative samples. A cut-off score is used to identify individuals who need further evaluation of suicidal behavior. The measure takes approximately 5 minutes to complete.

Samples studied. The ASIQ has been administered to undergraduate college students (Reynolds, 1991a). For this sample, 63% were female, 96% were White and the mean age was 21 years (SD = 3.4). The ASIQ has also been given to adults seeking outpatient psychiatric treatment and adults in the community (Reynolds, 1991b). For the psychiatric sample, 57% were female, 97% were White, 14% were 18 to 24 years old, 46% were 25 to 39 years old, 35% were 40 to 64 years old and 5% were 65 years or older. For the nonclinical (community) sample, 63% were female, 95% were White, and the mean age was 43 years, ranging from 18 to 88 years. For this sample, mean ASIQ scores were significantly higher for young adults (age 18 to 24) than other age groups (Reynolds, 1991b). More recently, the ASIQ has been administered to psychiatric patients in long-term care facilities (Osman, Kopper, Linehan, Barrios, Gutierrez, & Bagge, 1999).

Dimensionality. Although principal component factor analyses revealed three correlated factors for samples of college students, community adults and psychiatric outpatients, a strong principle factor was found in each of the samples (Reynolds, 1991b). More recently, a confirmatory factor analysis indicated that a one-factor model fit moderately well for long-term psychiatric inpatients (Osman et al., 1999). This study indicated that the ASIQ taps a single dimension of suicide ideation.

Reliability. The ASIQ has high internal consistency with Cronbach alpha coefficients ranging from .96 to .98 in clinical and nonclinical samples (Reynolds, 1991a, 1991b; Osman et al., 1999). The ASIQ also has high test-retest reliability in psychiatric outpatient and community adults (r = .95; Reynolds, 1991b) and in undergraduate college students (r = .86; Reynolds, 1991a) over a one week period.

Concurrent validity. In a mixed sample of psychiatric outpatient and community samples (Reynolds, 1991b), the ASIQ was highly correlated (r = .77) with clinician ratings of suicidal ideation as measured by the suicide item of Hamilton Rating Scale for Depression. Significant correlations were also found between the ASIQ and measures of depression (r = .60), anxiety (r = .41), and a history of prior suicide attempts (r = .36). The ASIQ distinguished individuals with a history of suicide attempts from individuals without a history of suicide attempts for college student and psychiatric outpatient samples (Reynolds, 1991b; Osman et al., 1999). Although no difference in ASIQ scores by gender was reported for community and psychiatric patients who did not attempt suicide, male suicide attempters obtained higher ASIQ scores than female attempters (Reynolds, 1991b). A similar finding (trend) was also observed for college students. The ASIQ also differentiated psychiatric patients from community samples. The ASIQ was significantly correlated with measures of depression (r = .60), hopelessness (r = .53), anxiety (r = .38), low self-esteem (r = .48), and a history of prior suicide attempts (r = .33) in a sample of college students (Reynolds, 1991a).

Predictive validity. Baseline ASIQ scores significantly predicted suicide attempts in a 3-month follow-up study in a sample of psychiatric inpatients who had previously attempted suicide (Osman et al., 1999).

Summary and evaluation. The ASIQ is a self-report measure of suicide ideation and is consistent with the O'Carroll et al. (1996) definition of suicide ideation. Internal consistency, test-retest reliability and concurrent validity of this measure have been established. It is noteworthy that the predictive validity of this measure has been documented for (nonfatal) suicide attempts.

Suicide Ideation Scale

Description. The Suicidal Ideation Scale (SIS; Rudd, 1989) is a 10-item self-report scale designed to assess the severity or intensity of suicidal ideation. Each item is scored from 1 ("Never or none of the time") to 5 ("Always or a great many times") according to how often the respondent felt or behaved during the past year. The total score ranges from 10 to 50.

Standardization sample. The SIS has been administered to college students who received credit toward completion of an introductory psychology course (Rudd, 1989). For this sample, 61% were female, 79% were White, 10% were Hispanic and 7% were Asian. The sample ranged in age from 16 to 30 years and 93% were less than 22 years old.

Reliability. The SIS has a high level of internal consistency (Cronbach alpha = .86) as well as adequate item-total correlations ($\underline{r}$s = .45 to .74; Rudd, 1989).

Concurrent validity. The SIS was moderately correlated with the Center for Epidemiologic Studies - Depression scale ($\underline{r}$ = .55) and the Beck Hopelessness Scale ($\underline{r}$ = .49). Students who had attempted suicide scored higher than students who had not done so (Rudd, 1989).

Summary and evaluation. Preliminary evidence of the internal consistency and concurrent validity of the SIS has been provided in a sample of college students. The SIS items does not address suicide intent, however, as suggested in the O'Carroll et al. (1996) definitions of suicide ideation and suicide attempts. Further research is needed to evaluate the psychometric properties of the measure in other samples.

Suicide Status Form

Description. The Suicide Status Form (SSF; Jobes, Jacoby, Cimbolic, & Hustead, 1997) consists of six self-report and six corresponding clinician-administered items measuring psychological pain, external pressures (stressors), agitation (emotional upset), hopelessness, low self-regard and overall risk of suicide. Each item is rated on a 5-point Likert scale ranging from 1 ("low") to 5 ("high"). The SSF is designed to be routinely administered to any patient who has indicated any suicidal thoughts, feelings or behaviors and takes about 5 to 10 minutes to complete.

Samples studied. The SSF has been standardized using a sample of nonclinical undergraduate college students and suicidal college students at a university counseling center (Jobes et al., 1997). For the suicidal students, 60% were female and 79% were White; the mean age was 23 years (ranging from 17 to 55 years). For the nonclinical sample, 56% were female and 80% were White; the mean age was 20 years (ranging from 18 to 26 years).

Dimensionality. Factor analysis of the six self-report items revealed a single underlying factor. However, the limited shared variance among the six items, the low communalities in the

factor analysis, and the lack of inter-item correlation suggested that the SSF is not unidimensional (Jobes et al., 1997).

Reliability. The SSF items have poor to moderate level of test-retest reliability over a two week period with correlations ranging from .35 (hopelessness) to .69 (pain). Eddins and Jobes (1994) reported a high level of agreement between clinician-administered and self-report items.

Concurrent validity. The six self-report SSF items differentiated suicidal from nonsuicidal students. The risk item was moderately and negatively correlated (r = -.42) with the Linehan Reasons for Living Scale. The self-report SSF ratings also significantly discriminated students whose suicidal ideation had resolved from students who had chronic suicidal ideation (Jobes et al., 1997).

Sensitivity to change. In a clinical sample of suicidal students, combined client-clinician SSF items significantly decreased from pretreatment to post-treatment (Jobes et al., 1997).

Summary and evaluation. Preliminary evidence indicates that the SSF has good convergent validity and moderate test-retest reliability. The overall suicide risk item is consistent with the O'Carroll et al. (1996) definition of suicide ideation. The instrument may be particularly useful if administered during the course of treatment. The psychometric properties of the SSF needs to be investigated with other samples.

Firestone Assessment of Self-Destructive Thoughts

Description. The Firestone Assessment of Self-Destructive Thoughts (FAST; Firestone & Firestone, 1996) is a self-report questionnaire consisting of 84 items. The FAST contains 11 levels of self-destructive thoughts including Self-Depreciation (8 items), Self-Denial (8 items), Cynical Attitudes (8 items), Isolation (8 items), Self-Contempt (6 items), Addictions (8 items), Hopelessness (6 items), Giving Up (8 items), Self-Harm (8 items), Suicide Plans (8 items) and Suicide Injunctions (8 items). Each item is designed to assess the current frequency of a self-destructive thought and is rated using a 5-point Likert scale ranging from 0 ("Never") to 4 ("Most of the Time"). The total FAST score is the sum of all 84 items. In addition, there are four composite subscales: Self-Defeating, Addictions, Self-Annihilating and Suicide Intent. The Suicide Intent Composite subscale is composed of 27 items drawn from the Hopelessness, Giving Up, Self-Harm, Suicide Plans and Suicide Injunctions levels. Each level and composite subscale is converted to a T-score. The FAST takes approximately 20 minutes to administer and score.

Samples studied. The FAST has been administered to adult patients in psychiatric hospital settings and a variety of outpatient treatment settings as well as nonclinical college students (Firestone & Firestone, 1996).

Dimensionality. Principal axis factoring identified three factors: Self-Defeating Composite (Levels 1 to 5), Addictions Composite (Level 6), and Self-Annihilating Composite (Levels 7 to 11).

Reliability. The internal reliability of the FAST has been established using Cronbach's alpha coefficients. The internal consistency coefficients for the 11 level scores ranged from .76 to .91. Internal reliability for the four composite subscales and the total scale ranged from .84 to .97. The FAST has high test-retest reliability with correlations ranging from .63 to .94. The test-retest reliability of the Total score ranges from .88 to .94 in psychiatric inpatients, psychotherapy outpatients and nonclinical college student samples (Firestone & Firestone, 1998).

Concurrent validity. Convergent and discriminant validity of the FAST levels, composite scores and total score has been found using the Suicide Probability Scale, the Beck Depression Inventory, the Beck Hopelessness Scale and the Beck Scale for Suicide Ideation (Firestone & Firestone, 1998). The Suicide Intent Composite subscale was empirically derived by summing items that were found to have the most significant discriminatory power for distinguishing patients with and without suicide ideation. The Suicide Intent Composite subscale was highly correlated with the Suicide Ideation subscale of the Suicide Probability Scale ($r = .85$) and the Beck Scale for Suicide Ideation ($r = .81$).

Summary and evaluation. The FAST is a self-report measure of current self-destructive thoughts. The FAST has good internal consistency, test-retest reliability and good convergent validity. The FAST items do not clearly address suicide intent, however, as suggested in the O'Carroll et al (1996) definitions of suicide ideation. Further studies are needed to investigate the psychometric properties in other samples.

Suicide Intent Scale

Description. The Suicide Intent Scale (SIS; Beck, Schuyler, & Herman, 1974) is an interview-administered measure of the seriousness of the intent to commit suicide among patients who have actually attempted suicide. The SIS consists of 15 items that quantify an attempter's verbal and nonverbal behavior prior to and during the most recent suicide attempt. Each item is rated on an ordinal scale from "0" to "2" with the total score ranging from 0 to 30. The first part of the SIS (Items 1-8) covers objective circumstances that surround the suicide attempt and includes items on the preparation and manner of execution of the attempt, the setting, as well as prior cues given by the patient that could facilitate or hamper the discovery of the attempt. This part of the scale can be completed, retrospectively, for patients who have committed suicides (e.g., through review of medical records). The second part of the SIS (Items 9-15) covers the attempter's perceptions of the method's lethality, expectations about the possibility of rescue and intervention, the extent of premeditation, and the alleged purpose of the attempt. The interview takes about 10 minutes to administer. A self-report version of this scale, the Suicide Intent Questionnaire, is also available (Linehan, 1982).

Samples studied. The SIS has been administered to psychiatric patients who have been hospitalized following a suicide attempt (Beck, Weissman, Lester & Trexler, 1976; Kovacs, Beck, & Weissman, 1976). For the Kovacs et al. study (1976), 55% of the sample were female and 51% were White; the mean age was 30 years (ranging from 18 to 63 years).

Dimensionality. Several studies have conducted factor analyses of the SIS and reported between two and six factors (Beck & Lester, 1976; Beck, Weissman, Lester, & Trexler, 1976; Wetzel, 1977; Mieczkowski, Sweeney, Haas, Junker, Brown & Mann, 1993). A recent factor analyses of the SIS, using a factor analytic method more appropriate for polychotomous rating scale data, indicated that there were two dimensions that corresponded with the hypothesized factor structure: Lethal Intent (6 items) and Planning (8 items).

Reliability. The SIS has high internal reliability (alpha = .95; Beck, Schuyler & Herman, 1974) and high inter-rater reliability, ranging from .81 (Mieczowski et al., 1993) to .95 (Beck et al., 1974). The two subscales, Lethality of Intent and Planning, have also been found to possess adequate inter-rater reliability (.90 and .74, respectively; Mieczkowski et al., 1993).

Concurrent validity. Several studies have found that the first part of the SIS (Items 1-8) differentiated fatal and nonfatal suicide attempts (Beck, Schuyler & Herman, 1974; Beck, Morris, & Beck, 1974). Total SIS scores differentiated repeat attempters from those who do not

subsequently attempt suicide (R. W. Beck, Morris & Beck, 1974; Ojehagen, Regnell, & Traskman-Bendz, 1991). Further evidence of validity is found in its moderate correlations (rs =.17 to .62) with measures of depression (Chance, Kaslow, & Baldwin, 1994; Minkoff, Bergman, Beck & Beck, 1973; O'Brien, Holton, Hurren, Watt, & Hassanyeh, 1987; Platt & Dyer, 1987; Silver, Bohnert, Beck & Marcus, 1971) and moderate correlations (rs = .31 to .41) with measures of hopelessness (Beck, Schulyer & Herman, 1974; Beck, Steer, & McElroy, 1982; Brown, Overholser, Spirito, & Fritz, 1991; Dyer & Kreitman, 1984; Kovacs, Beck, & Weissman, 1975; Weissman, Beck, & Kovacs, 1979; Platt & Dyer, 1987; Strosahl, Chiles & Linehan, 1992). The interviewer-administered version of the SIS was found to be highly correlated (r = .87) with the self-report version (Strosahl, Chiles, & Linehan, 1992). Finally, the SIS relates to the lethality of suicide attempts (r = .38; Goldney, 1981; Power, Cooke, & Brooks, 1985). For example, psychiatric inpatients who used a less lethal means (e.g., wrist-cutting) scored lower on the SIS than patients who used more lethal methods (Lester & Beck, 1975; Nielsen, Stenager, & Brahe, 1993). The SIS could not distinguish between patients who actually attempted suicide and patients who aborted a suicide attempt, however (Barber, Marzuk, Leon, & Portera, 1998).

Predictive validity. Two 10-year prospective studies have evaluated the predictive validity of the SIS for completed suicide for patients who were hospitalized after attempting suicide. In both studies the SIS total scale did not predict completed suicide (Beck & Steer, 1989; Tejedor, Diaz, Castillon & Pericay, 1999). However, one of these studies found that the Precautions subscale of the SIS was associated with an increased risk of suicide (Beck & Steer, 1989). In addition, inconsistent findings have been reported with respect to the predictive validity for the SIS for subsequent nonfatal suicide attempts (Beck, Morris, & Beck, 1974; Tejedor, Diaz, Castillon & Pericay, 1999). Although Beck and his colleagues (Beck et al., 1974) reported that the SIS differentiated between patients who subsequently reattempted suicide from patients who did not reattempt suicide within one year of discharge (N = 231). A more recent prospective study with a smaller sample size (N = 132) failed to replicate these findings (Tejedor et al., 1999).

Summary and evaluation. The SIS is a widely-used measure of the degree of intent to commit suicide during a suicide attempt. The SIS may be useful for determining if a patient made a suicide attempt that is consistent with the O'Carroll et al. (1996) nomenclature. In addition, the objective circumstances and clinical characteristics of the most recent attempt are assessed. The internal consistency, inter-rater reliability, and concurrent validity of this measure has been established. The SIS Precautions Subscale has been found to predict subsequent suicide attempts although these findings need to be replicated.

Parasuicide History Interview

Description. The Parasuicide History Interview (PHI; Linehan, Wagner, & Cox, 1983) is a 48-item interviewer-administered measure that assesses the topography, intent, medical severity, social context, precipitating and concurrent events, and outcomes of suicide attempts and other self-injurious behavior during a specific time period. Parasuicide refers to all nonfatal self-injurious behavior with clear intent to cause bodily harm or death (i.e., both the behavioral act and the injurious outcomes are not accidental) that results in actual tissue damage illness, or risk of death or serious injury (Kreitman, 1977). Each self-injury episode is coded separately and details of each episode are obtained. The PHI assesses for self-injury during the first time in one's life, for the most recent time and for the time of the most severe injury. Each self-injury is rated with respect to the intent to die. Major variables include the frequency of self-injury

behaviors (single acts as well as clusters of habitual acts; suicide attempts as well as non-suicidal self-injury), specifics and lethality of the method used, severity of actual physical effects of the parasuicide, and medical treatment received. Four additional scales have been proposed in a revised version of the PHI: Hedonism, Functional Consequences, Emotional Relief and Dissociative scales. The measure was designed to be broad and inclusive; questions unnecessary for a given purpose can be dropped. In order to obtain summary information from this measure, it is recommended that researchers create behavioral subsets that are based on the information obtained (e.g., "most serious," "most recent," "first," "number of different methods").

Samples studied. The PHI was developed on a sample of psychiatric inpatients at the University of Washington Medical Center and the Harborview Medical Center. The sample consisted of 77 patients admitted for suicide attempts and 89 patients admitted for other reasons but who had previously attempted suicide. In a subsequent study, the PHI has been administered to patients who were diagnosed with borderline personality disorder and who had a history of self-injury behavior (Linehan, Armstrong, Suarez, Allmon, & Heard, 1991).

Dimensionality. Factor analyses have indicated that the PHI consists of four factors. Three of the factors (Suicide Intent, Medical Risk, and Impulsivity) represent characteristics commonly associated with suicide attempts and lethality. The fourth factor, Instrumental Intent, represents behaviors labeled by others as "suicide gestures."

Reliability. The four scales, medical risk, suicide intent, instrumental intent, and impulsiveness, are internally consistent, with alpha coefficients ranging from .64 to .86. Average interrater reliabilities over four-month periods range from .59 to .91, with an overall average of interrater reliability of .80.

Concurrent Validity. The PHI was constructed to be content valid by including questions requesting the full range of self-injury characteristics included in other standard interviews, questionnaires, and suicide risk measures. The validity of PHI frequency counts range from 72% to 86% agreement when compared to medical records. Ratings by non-medical clinicians of the lethality of the method used and severity of physical condition following parasuicide are highly correlated with ratings of the same events done by physicians ($\underline{r}$ = .95 for both ratings).

Sensitivity to change. The PHI has been associated with changes in the frequency, treatment, medical risk, and suicidality of self-injury behaviors in patients with borderline personality disorder in clinical trials (Linehan, Armstrong, Suarez, Allman, & Heard, 1991; Linehan, Heard, & Armstrong, 1993).

Summary and evaluation. The PHI is a comprehensive and flexible assessment of self-injury behaviors and is frequently used in studies of suicidal patients with borderline personality disorder. It is one of the few instruments that assesses both suicide attempts as well as self-injury behavior with no intent to kill oneself. The PHI distinguishes between the occurrence of suicide attempts or self-injury behavior and the clinical characteristics of the behavior. Intent to harm oneself or kill oneself is also assessed for each episode. The PHI also assesses whether an identifiable injury has occurred and whether the injury required medical attention.

Suicide Behaviors Questionnaire

Description. The Suicide Behaviors Questionnaire (SBQ; Linehan, 1981) is a self-report measure of suicidal thoughts and behaviors. An abbreviated version of the SBQ was initially used by Cole (1988). This shortened version of the SBQ consists of four questions and uses a Likert scale to measure the frequency of suicide ideation, the communication of suicidal thoughts

to others, and the attitudes and expectations of actually attempting suicide. Specific items include: "Have you ever thought about or attempted to kill yourself?" (rated 1-6); "How often have you thought about killing yourself in the past year?" (rated 1-5); "Have you ever told someone that you were going to commit suicide, or that you might do it?" (rated 1-3); and "How likely is it that you will attempt suicide someday?" (rated 1-5). Total scores range from 5 to 19. The SBQ takes less than 5 minutes to complete.

Samples studied. This abbreviated version of the SBQ has been administered to both psychiatric outpatients and college students (Cotton, Peters, & Range, 1995). The psychiatric patients were female, mostly White (84%), and the mean age was 32 years (SD = 8.5). For the college student sample, 84% were female, 66% were White, and the mean age was 23 years (SD = 5.8). In another study, the sample consisted of female psychiatric outpatients, ages 17 to 35, who were diagnosed with borderline personality disorder (Sabo, Gunderson, Najavits, Chauncey, & Kisiel, 1995). The SBQ has been used to assess suicidal behavior in patients in hospital settings (Linehan, Camper, Chiles, Strosahl, & Shearin, 1987; Linehan, Chiles, Egan, Devine, & Laffaw, 1986; Strosahl, Chiles, & Linehan, 1992).

Reliability. The SBQ has adequate internal consistency in clinical (Cronbach alpha = .75) and nonclinical samples (Cronbach alpha = .80) and high test-retest reliability ($\underline{r}$ = .95) over a two-week period (Cotton, Peters, & Range, 1995).

Concurrent validity. The SBQ was significantly correlated with the Scale for Suicide Ideation in a college student sample ($\underline{r}$ = .69; Cotton et al., 1995). The SBQ was negatively correlated with the Linehan Reasons for Living Inventory in female psychiatric outpatients ($\underline{r}$ = -.34; Cotton et al., 1995). Items measuring self-harm on the SBQ and Diagnostic Interview for Borderlines (Gunderson, Kolb, & Austin, 1981) were moderately to highly correlated ($\underline{r}$s = .61 to .93) for patients with borderline personality disorder (Sabo et al., 1995).

Sensitivity to change. The SBQ was associated with decreases in suicide behavior and self-harm behavior over a 5 year period in patients with borderline personality disorder (Sabo et al., 1995).

Summary and evaluation. The SBQ is a brief measure of suicide ideation. SBQ items are consistent with the O'Carroll (1996) definition of suicide ideation. The internal consistancy, test-retest reliability and concurrent validity of this measure has been established.

Suicidal Behaviors Questionnaire (Revised)

Description. The Suicidal Behavior Questionnaire was recently revised to assess 14 suicidal behaviors (SBQ-14; Linehan, 1996). Respondents complete up to 34 items depending upon the presence or absence of current, past or expected suicidal behaviors. The SBQ-14 items measure the following five behavioral domains: Past suicidal ideation, future suicidal ideation, past suicide threats, future suicide attempts and the likelihood of dying in a future suicide attempt. Each of these items is rated according to the past several days including today, the last month, the last 4 months, the last year and over a lifetime. The five behaviors are scored using a weighted summary score across each time interval. Nine additional items assess the severity of lifetime suicidal behavior, current suicide plan, availability of a method, social deterrents, attitudes towards suicide behavior and distress tolerance. A total SBQ-14 score is also calculated using 10 of the 14 items.

Samples studied. The SBQ-14 was standardized using men (42%) and women (58%) who attended a street fair (Addis & Linehan, 1989). The mean age in this sample was 32 years. The SBQ-14 also has been administered to a clinical sample of female psychiatric outpatients

who were diagnosed with borderline personality disorder and who had a history of parasuicidal behavior (Addis & Linehan, 1989). The mean age in this sample was 27 years and ranged from 18 to 45 years.

Dimensionality. A principal components factor analysis of clinical and nonclinical samples indicated that the SBQ-14 was unidimensional (Addis & Linehan, 1990).

Reliability. The five SBQ-14 behaviors have high internal reliability with coefficients ranging from .73 to .92 (Addis & Linehan, 1989).

Concurrent validity. Four of the five SBQ-14 behaviors were positively correlated (rs = .36 to .51) with items from the Scale for Suicide Ideation and the Suicide Coping Interview. The SBQ-14 total score was positively correlated (rs = .55 to .62) with the Scale for Suicide Ideation, the Beck Depression Inventory and the Beck Hopelessness Scale, and negatively correlated (r = -.46) with the Linehan Reasons for Living Inventory. Differences in the SBQ-14 total scores between clinical and nonclinical samples have been reported after controlling for depression, hopelessness and reasons for living (Linehan & Addis, 1990).

Summary and evaluation. The revised SBQ-14 is a comprehensive assessment of suicide ideation, suicide attempts and suicidal acts (without intent to commit suicide) using a self-report format. The SBQ assesses suicide ideation and related suicide behaviors as defined by the O'Carroll et al. (1996) nomenclature. The intent to die is specifically assessed for each suicide attempt or self-injury behavior. The internal consistency and concurrent validity has been established. Researchers are encouraged to use the 34-item SBQ-14 rather than the abbreviated 4-item SBQ.

Suicidal Behaviors Interview

Description. The Suicidal Behaviors Interview (SBI; Ivanoff & Jang, 1991) is an interview-administered version of the Suicidal Behaviors Questionnaire (Linehan, 1981). The SBI consists of four questions that assess suicidal behavior history, current suicide status and self-appraisal and expectancies about the future likelihood of engaging in suicidal behavior.

Samples studied. The SBI has been used to measure suicidality in incarcerated adult men (Ivanoff & Jang, 1991). The mean age of the sample was 30 years; 29% were African-American, 37% were Hispanic, and 32% were White.

Reliability. Only one question of the SBI, measuring the likelihood of attempting suicide in the future, was found to have a moderate level of test-retest reliability (r = .44) over a one year period (Smyth, Ivanoff, & Jang, 1994).

Summary and evaluation. The SBI is an interviewer-administered version of the abbreviated SBQ. The SBI has only been used in a few studies involving incarcerated adult men and there is a limited amount of information on the psychometric properties of this measure.

Medical Lethality of Suicide Attempts

Risk-Rescue Rating

Description. The Risk-Rescue Rating (Weisman & Worden, 1972, 1974) is a 10-item interviewer-administered measure that is designed to assess the lethality and intent of a suicide attempt. Five of the items measure the risk of suicide and include the type of method of self-injury, the level of consciousness, the extent of lesions or toxicity, the expected degree of recovery from the attempt and the degree of required medical treatment. The other five items indicate the likelihood of intervention as defined by observable circumstances and available

resources present at the time of the attempt. Each of the items has specific values, ranging from 0 to 3. The items are summed to yield a Risk Rating and a Rescue Rating. The Risk Rating ranges from 5 ("low risk") to 15 ("high risk") and the Rescue Rating ranges from 5 ("least rescuable") to 15 ("most rescuable"). Finally, a Risk-Rescue Rating is calculated [(Risk Rating/(Risk Rating + Rescue Rating)) x 100] to measure the overall seriousness of the attempt. The measure takes approximately 5 minutes to complete.

Samples studied. The Risk Rescue Rating has been administered to suicide attempters in hospital settings (Potter, Kresnow, Powell, O'Carroll, Lee, Frankowski, Swann, Bayer, Bautista & Briscoe, 1998; Weisman & Worden, 1972. In the initial sample, 66% were female, 100% were White, 8% were 10 to 19 years old, 53% were 20 to 39 years old, 30% were 40 to 59 years old and 9% were 60 years or older (Weisman & Worden, 1972).

Reliability. An adequate interrater reliability, or physician agreement, has been reported for the Risk Rating (kappa = .67) and 12.9% of the physicians disagreed on the risk categories (Potter et al., 1998). The interrater reliability of the Rescue Rating was somewhat lower (kappa = .59) and 22% of the physicians disagreed on the Rescue Rating (Potter et al., 1998).

Concurrent validity. The Risk-Rescue Rating was moderately correlated (r = .60) with the Beck's Lethality Scale. Although a moderate degree of association ($\underline{r}$ = .56) was found between the Risk Rating and the level of medical treatment, a weak association ($\underline{r}$ = .07) was reported between the Rescue Rating and level of medical treatment (Weisman & Worden, 1972). A high degree of intrarater reliability on the method of injury was found between the Risk Rescue Rating and the Self-Inflicted Injury Severity Form (kappa = .88; Potter et al., 1998). Based on a review of medical records, the Risk-Rescue Rating discriminated between those who survived and did not survive a suicide attempt. This measure, however, failed to distinguish between multiple and nonmultiple suicide attempters (Weisman & Worden, 1972). In another study, high scores on the Risk-Rescue rating were positively associated with high scores on the Suicide Intent Scale ($\underline{r}$ = .38; Goldney, 1981).

Predictive validity. The Risk Rescue Rating was administered to a sample of patients who were hospitalized following a suicide attempt (Tejedor, Diaz, Castillon, Pericay, 1999). This study failed to differentiate among patients who reattempted suicide, completed suicide or did not reattempt suicide.

Summary and evaluation. The interrater reliability of the Risk Rescue Rating has been established and there is good concurrent validity of the measure with other ratings of self-injury.

Self-Inflicted Injury Severity Form

Description. The Self-Inflicted Injury Severity Form (SIISF; Potter, Kresnow, Powell, O'Carroll, Lee, Frankowski, Swann, Bayer, Bautista & Briscoe, 1998) is a 7-item interview-administered measure for identifying individuals in hospital emergency departments who have life-threatening self-inflicted injuries. The SIISF focuses on the assessment of injury lethality with no assessment of intent or rescue potential. The method of injury categories include (1) using a gun, (2) jumping or other blunt trauma, (3) trying to hang, (4) trying to drown or otherwise suffocate, (5) laceration or stabbing, (6) ingestion, inhalation, or injection of a potentially lethal substance, and (7) using another method. Each method is rated according to the degree of lethality.

Standardization sample. The SIISF was administered to patients who were seen at the hospital with a purposefully self-inflicted wound (Potter et al., 1998). In this sample, 58% were

female, 60% were White, 38% were African-American; 16% were 13 to 17 years old, 39% were 18 to 24 years old, and 45% were 25 to 34 years old.

Reliability. The interrater reliability, or physician agreement, for the method of injury on the SIISF is excellent (kappa = .94). In addition, the interrater reliability on "near fatality" ratings was .93 (Potter et al., 1998).

Concurrent validity. A high rate of agreement has been found (kappa = .88) between ratings of method of injury on the SIISF and the Risk-Rescue Rating measure. In addition, the SIISF was found to distinguish between more severely injured patients from less severely injured patients (Potter et al., 1998).

Summary and evaluation. The interrater reliability of the SIISF is excellent and there is preliminary evidence of the concurrent validity of this measure. Further studies are needed to replicate the initial findings using the SIISF.

Lethality Scales

Description. The Lethality Scales (LS; Beck, Beck & Kovacs, 1975) are interviewer-administered scales that measures the medical lethality of a suicide attempt on a scale from 0 (e.g., fully conscious and alert") to 10 (e.g., death). There are 8 separate scales according to the method of the attempt (shooting, jumping, drug overdose, etc.). Ratings are based on an examination of the patient's physical condition on admission to the medical, surgical, or psychiatric service and is determined by a review of the medical charts and consultation with the attending physician.

Sample studied. The Lethality Scales were administered to patients who presented at a large urban hospital following a suicide attempt (Beck, Beck & Kovacs, 1975). In this sample, 54% were female, 49% were White and the mean age was 29 years.

Reliability. An adequate level interrater reliability (correlation coefficient of .80) for the Lethality Scales has been reported (Lester & Beck, 1975).

Concurrent validity. The correlation between suicidal intent and medical lethality was found to be low ($\underline{r}$ = .19) for patients who attempted suicide. However, the Lethality Scales were found to be highly correlated ($\underline{r}$ = .73) with the Suicide Intent Scale for those suicide attempters who had an accurate perception of the lethality of their attempt (Beck, Beck & Kovacs, 1975). In addition, another study found that an association between the degree of lethality and the time between the suicide attempt and the discovery of the attempt (Lester & Beck, 1975). The Lethality Scales were also found to be moderately correlated ($\underline{r}$ = .60) with the Risk-Rescue Rating measure (Weisman & Worden, 1974).

Summary and evaluation. The Lethality Scales have good interrater reliability. Concurrent validity of the measure has been established especially when individuals have an accurate conception of the lethality of the suicidal act.

Brief Screening Measures

Paykel Suicide Items

Description. Paykel and his colleagues (Paykel, Myers, Lindenthal & Tanner, 1974) devised the following five interviewer-administered questions with increasing levels of intent: (1) "Have you ever felt that life was not worth living?" (2) "Have you ever wished you were dead? – for instance, that you could go to sleep and not wake up?" (3) "Have you ever thought of taking your life, even if you would not really do it?" (4) "Have you ever reached the point where you seriously considered taking your life or perhaps made plans how you would go about doing

it?" (5) "Have you ever made an attempt to take your life?" The items may also be administered to assess suicidality during the past week, month, year or lifetime. Respondents answer each item "yes" or "no." Although these hierarchical questions were not initially designed as a scale, one study scored these questions on a scale from 0 to 5 (Meneese, & Yutrzenka, 1990). Subjects received a score equal to the greatest magnitude of suicide ideation positively endorsed. This measure only takes a few minutes to administer.

Samples studied. The initial study administered these questions to community residents in a psychiatric catchment area in New Haven, Connecticut (Paykel et al., 1974). In this sample, 56% were female, 88% were White, 12% were African-American, 42% were 18 to 39 years old, 36% were 40 to 59 years old, and 12% were 60 years and older. In this study, a greater percentage of females than males reported suicidal ideation in the past year. No differences in suicidal ideation were reported by age or race. The PSS has also been administered to nondemented 85 year olds (Skoog, Aevarsson, Beskow, Larsson, Palsson, Waern, Landahl & Ostling, 1996).

Concurrent validity. Subjects endorsing any suicidal feelings during the past year had higher rates of psychiatric symptoms, were more likely to be socially isolated, exhibited more somatic complaints and had a greater proportion of two or more negative life events in the past year than nonsuicidal controls. Suicidal subjects were also more likely to have been admitted to a hospital for emotional problems or to have taken tranquilizers in the past year (Paykel et al., 1974). In a nonclinical sample of rural adolescents, suicide ideation, measured by Paykel's questions, was predicted by certain characteristics of the family environment (Meneese & Yutrzenka, 1990).

Summary and evaluation. There is some preliminary evidence that the Paykel Suicide Scale may be very useful as a brief screening instrument for suicidal ideation. The reliability of this measure needs to be established and further studies are needed to investigate its concurrent and predictive validity. The Paykel Suicide Scale does not clearly assess suicide ideation or suicide attempts as suggested by the O'Carroll et al. (1996) nomenclature.

Symptom Driven Diagnostic System for Primary Care (Suicide Items)

Description. The Symptom Driven Diagnostic System for Primary Care (Broadhead, Leon, Weissman et al., 1995; Weissman, Olfson, Leon et al., 1995) contains the following three items from a self-report checklist: (1) "thoughts of death", (2) "wishing you were dead", and (3) "feeling suicidal". These items were designed to assess for suicide risk in primary care practices.

Samples studied. The suicide items were administered to adult patients seeking treatment at private family practices, a family medicine residency, and a prepaid internal medicine group practice (Olfson, Weissman, Leon, Sheehan, & Farber, 1996). In this study, 68% were female; 71% were White, 21% were African American; 14% were 18 to 25 years old, 33% were 26 to 40 years old, 33% were 41 to 55 years old, and 20% were 56 to 70 years old.

Concurrent validity. Olfson and his colleagues (Olfson et al., 1996) reported that approximately 2.44% (67 of 2749) patients reported "feeling suicidal" during the past month. In a subsample of patients ($\underline{n}$ = 1001), the "Thoughts of death" had 100% sensitivity, 81% specificity and 5.9% positive predictive value (PPV) for detecting patients with plans to commit suicide. The "Wishing you were dead" item had 91.7% sensitivity, 93.1% specificity and 13.9% PPV and the "Feeling suicidal" item had 83% sensitivity, 97.7% specificity and 30.3% PPV for identifying patients with plans to kill themselves.

Summary and evaluation. There is very limited data on the concurrent validity of the suicide items in the Symptom Driven Diagnostic System for Primary Care. These items do not measure suicide ideation as proposed by O'Carroll et al. (1996).

Suicidal Ideation Screening Questionnaire

Description. The Suicidal Ideation Screening Questionnaire (SIS-Q; Cooper-Patrick, Crum, & Ford, 1994) consists of four interviewer-administered questions that assess sleep disturbance, mood disturbance, guilt and hopelessness during the past year. These items were extracted from the depression and dysthymia sections of the Diagnostic Interview Schedule.

Samples studied. The sample was drawn from the National Institute of Mental Health Epidemiologic Catchment Area study (Eaton & Kessler, 1985) and included adults who reported receiving care in general medical settings. For patients with suicide ideation, 66% were female, 68% were White, 17% were African-American, 12% were Hispanic; 40% were 18 to 30 years old, 34 were 31% to 50 years old, 12% were 51 to 65 years old, and 15% were 65 and older. For patients without suicide ideation, 63% were female, 61% were White, 27% were African-American, 9% were Hispanic; 25% were 18 to 30 years old, 24% were 31 to 50 years old, 21% were 51 to 65 years old, and 30% were 65 and older. Patients with suicidal ideation were more likely to be between 18 and 50 years of age and were less likely to be African-American (Cooper-Patrick et al., 1994).

Concurrent validity. The SIS-Q was developed by using stepwise logistic regression analyses. The four items were chosen on the basis of the strength of their association with suicide ideation and behavior. The SIS-Q correctly identified 84% of general medical patients with suicide ideation (i.e., thoughts of committing suicide during the past year).

Summary and evaluation. Although the Suicide Ideation Screening Questionnaire may be useful for screening medical patients who may be at risk for suicide ideation, the items do not assess any suicide-related behaviors (O'Carroll et al., 1996). The Cooper-Patrick et al. (1994) findings need to be replicated in other studies.

Hamilton Rating Scale for Depression (Suicide Item)

Description. The Hamilton Rating Scale for Depression (HRSD; Hamilton, 1960) is a widely used interviewer-administered measure of the depressive symptom severity. The HRSD suicide item consists of 4 ratings of suicidal behavior: 0 ("absent"), 1 ("feels life is not worth living or any thoughts of possible death to self"), 2 ("wishes he were dead"), 3 ("suicidal ideas or gestures"), or 4 ("attempts at suicide").

Reliability. Reynolds (1991b) reported a high level of interrater reliability ($\underline{r}$ = .92) for the HRSD suicide item. The test-retest reliability for this item over a 3-day period is adequate ($\underline{r}$ = .64; Williams, 1988).

Concurrent validity. The HRSD suicide item was found to be highly correlated with the Adult Suicide Ideation Questionnaire (Reynolds, 1991b), the Scale for Suicide Ideation (Beck et al., 1997) and the suicide item of the Beck Depression Inventory (Beck & Steer, 1988). In a sample of elderly psychiatric patients (60 years or older), the seriousness of intent of previous attempts, poor social support and the severity of depression (total HRSD score minus the suicide item) were significant predictors of suicide ideation (HRSD suicide item >0; Alexopolous, Bruce, Hull, Sirey, & Kakuma, 1999).

Predictive validity. The predictive validity of this item was investigated in a prospective

study of risk factors for suicide in psychiatric outpatients (Brown et al., 2000). These (unpublished) results indicated that patients who scored a 2 or higher on the HRSD suicide item were 4.9 times (95% CI: 2.7 – 9.0) more likely to commit suicide than patients who scored less than 2.

Summary and evaluation. Although there is some evidence that the HRSD suicide item is associated with other measures of suicide ideation and completed suicide, this item does not measure suicide ideation or suicide attempts as proposed by O'Carroll et al. (1996).

Beck Depression Inventory (Suicide Item)

Description. Both the Beck Depression Inventory (BDI; Beck & Steer, 1988) and the Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996) are 21-item self-report scales of depressive symptoms. Both scales contain an identical suicide item that consists of 4 ratings: 1 ("I don't have any thoughts of killing myself"), 2 ("I have thoughts of killing myself, but I would not carry them out"), 3 ("I would like to kill myself") and 4 ("I would kill myself if I had the chance").

Concurrent validity. The BDI suicide item has been found to be moderately correlated (r's = .56 to .58) with the Beck Scale for Suicide Ideation for both inpatient and outpatient psychiatric samples (Beck & Steer, 1991).

Predictive validity. The predictive validity of this item was investigated using data from a prospective study of risk factors for suicide in psychiatric outpatients (Brown et al., 2000). These (unpublished) results indicated that patients who scored a 2 or higher on the BDI suicide item were 6.9 times (95% CI: 3.7-12.6) more likely to commit suicide than patients who scored less than 2.

Summary and evaluation. The BDI suicide item has good concurrent and predictive validity in some studies. The item measures suicide ideation that is consistent with the O'Carroll et al. (1996) nomenclature. The item may be beneficial for measuring fluctuations in suicide ideation throughout the course of treatment. This item also may be a useful screening tool indicating the need for a more thorough assessment of suicide ideation throughout the course of treatment.

Hopelessness

Beck Hopelessness Scale

Description. The Beck Hopelessness Scale (BHS; Beck & Steer, 1988) is a self-report instrument that consists of 20 true-false statements designed to assess the extent of positive and negative beliefs about the future during the past week. Each of the 20 statements is scored 0 or 1. A total score is calculated by summing the pessimistic responses for each of the 20 items. The total BHS score ranges from 0 to 20. The BHS takes less than 5 minutes to complete.

Samples studied. The BHS has been standardized using psychiatric inpatients and outpatients (Beck et al., 1974; Beck & Steer, 1988). The primary sample included patients who reported suicide ideation or who had attempted suicide. For the suicide ideators, 54% were female; 62% were White, and 38% were African-American; the mean age was 34 years (SD = 2.5). For the suicide attempters, 58% were female; 51% were White and 48% were African-American; the mean age was 30 years (SD = 10.7). Other samples included patients with alcohol dependence, heroin addiction, single-episode major depression, recurrent major depression, and dysthymic disorder (Beck & Steer, 1988). The BHS has been used in numerous studies involving suicide ideation or behavior.

Dimensionality. A principal components analysis of the BHS for suicide attempters revealed three components: (1) feelings about the future, (2) loss of motivation, and (3) future expectations (Beck et al., 1974). In a subsequent study, Steer, Beck, & Brown (1997) found that the BHS was composed of two factors: Pessimism About the Future (4 items) and Resignation (3 items). This factor structure was maintained for outpatients diagnosed with either primary mood or primary anxiety disorders.

Reliability. Beck and Steer (1988) reported high internal reliability across diverse clinical and nonclinical populations with Kuder-Richardson reliabilities ranging from .87 to .93. The BHS has adequate one-week test-retest reliability in a psychiatric outpatient sample ($\underline{r}$ = .69; Beck & Steer, 1988) and high three-week test-retest reliability in a college student sample ($\underline{r}$ = .85; Holden & Fekken, 1988).

Concurrent validity. The BHS has moderate to high correlations ($\underline{r}$s = .62 to .74) with clinical ratings of hopelessness for patients in primary care practices and for patients who attempted suicide in hospital settings (Beck et al., 1974). Although the BHS was significantly higher in suicide attempters than nonattempters in several studies (Mann, Waternaux, Haas, & Malone, 1999; Rifai, George, Stack, Mann, & Reynolds, 1994), other research has indicated that only multiple attempters had higher scores on the BHS than single attempters or suicide ideators (Rudd, Joiner, & Rajab, 1996). Kaslow et al. (2000) reported that female, African-American suicide attempters scored higher on the BHS than general medical care patients in an emergency room setting. Correlation coefficients between the BHS and the Beck Depression Inventory Pessimism item range from .42 to .64 in clinical samples (Beck & Steer, 1988). Other studies have found significant associations between the BHS and suicide intent as measured by the Suicide Intent Scale (Beck, Steer, & McElroy, 1982; Dyer & Kreitman, 1984; Kovacs, Beck, & Weissman, 1975; Weissman, Beck, & Kovacs, 1979). The BHS has been found to be moderately correlated ($\underline{r}$ = .46) with suicide ideation (SSI) in a sample of psychiatric outpatients (Beck, Steer, Beck, & Newman, 1993).

Predictive validity. The BHS has been established as an important risk factor for suicide in prospective studies for psychiatric patients in hospital and outpatient settings (Beck et al., 1990; Beck et al., 1989; Beck et al., 1985; Brown, Beck, Steer & Grisham, 2000; Drake & Cotton, 1986; Fawcett et al., 1987; Fawcett et al., 1990; Nordstrom et al., 1995). For example, patients who scored a 9 or above on the BHS were approximately 11 times more likely than patients who scored 8 or below to commit suicide (Beck et al., 1989). In fact, recent research has indicated that patients whose hopelessness does not significantly change with psychiatric treatment may be more likely to commit suicide (Dahlsgaard, Beck, & Brown, 1998). Previous research has also indicated that stable levels of hopelessness in those patients with remitted depression was more predictive of suicide attempts than high levels of hopelessness at any one point (Young, Fogg, Scheftner, Fawcett, Akiskal, & Maser, 1996). In a study of hospitalized suicide attempters, Petrie, Chamberlain, and Clarke (1988) found that the BHS provided a unique estimate of subsequent suicide attempts.

Sensitivity to change. Reductions in BHS scores attributable to psychiatric interventions have been reported. For example, Rush, Beck, Kovacs, Weissenberger, and Hollon (1982) found that depressed patients who received cognitive therapy aimed at reducing hopelessness yielded greater decreases in BHS scores than patients who received imipraimine and not cognitive therapy. Changes in BHS scores were also associated with changes in depressive symptomatology. The BHS has been associated with clinical symptom change in many randomized controlled trials for high risk or suicidal patients (e.g., Linehan, Armstrong, Suarez,

Allman & Heard, 1991; McLeavey, Daly, Ludgate, & Murray, 1994; Patsiokas & Clum, 1985; Rudd, Rajab, Orman, Stulman, Joiner, & Dixon, 1996; Salkovskis, Atha, & Storer, 1990; Szanto, Reynolds, Conwell, Begley, & Houck, 1998; Van der Sande, Van Rooifen, Buskens, Allart, Hawton, Van der Graff & Van Engeland, 1997; Verkes, Van der Mast, Hengeveld, Tuyl, Zwinderman, A. H., & Van Kempen, 1998).

Summary and evalution. The BHS is one of the most widely used measures of hopelessness. The scale has excellent internal consistency and test-retest reliability. The concurrent validity is well established across a wide variety of samples and frequently has been used in treatment outcome studies. There have been several studies that have supported the predictive validity of the BHS for suicide attempts and completed suicide.

Reasons for Living

Linehan Reasons for Living Inventory

Description. The Reasons for Living Inventory (LRFL; Linehan, Goodstein, Nielsen, & Chiles, 1983) is a 48-item self-report measure that assesses the beliefs and expectations for not committing suicide. The instrument may be used to explore differences in the reasons for living for individuals who engage in suicidal behavior and those who do not. Each item is rated on a 6-point Likert scale ranging from 1 ("not at all important") to 6 ("extremely important"). The LRFL consists of six subscales and a total scale. The subscales include: Survival and Coping Beliefs (24 items), Responsibility to Family (7 items), Child-Related Concerns (3 items), Fear of Suicide (7 items), Fear of Social Disapproval (3 items), and Moral Objections (4 items). The subscales and total scale are scored by summing the items and dividing by the number of items. A 72-item LRFL version is also available. The LRFL assumes that adaptive beliefs and expectations can serve as buffers for adult suicide behavior. The 48-item LRFL takes approximately 10 minutes to administer.

Samples studied. The LRFL has been standardized using volunteers from a shopping mall and psychiatric patients in hospital settings (Linehan et al., 1983). For the nonclinical sample, 52% were female and the mean age was 36 years. For the clinical sample, 64% were female and the mean age was 34 years. Malone and colleagues (Malone et al., 2000) examined the LRFL among 84 depressed inpatients, half of whom had attempted suicide. The patients ages ranged from 18 to 80, 55% were female, 25% were non-Caucasion. The LRFL has also been used in college student samples (Osman, Gifford, Jones, Lickiss, Osman & Wenzel, 1993). In the college student sample, 68% were female and the mean age was 20 years.

Dimensionality. The selection of the six subscales was based on four separate factor analysis performed on two samples of normal adult volunteers (Linehan et al., 1983). The LRFL factors have been replicated in college student samples (Osman, Gregg, Osman & Jones, 1992; Osman, Gifford, Jones, Lickiss, Osman & Wenzel, 1993). Confirmatory factor analyses found only moderate support for the six-factor solution in psychiatric patients, however (Osman, Kopper, Linehan, Barrios, Gutierrez, & Bagge, 1999)

Reliability. The LRFL has high internal reliability with Cronbach alpha coefficients ranging from .72 to .92 for each subscale and .89 for the LRFL total scale (Linehan et al., 1983; Osman, Gifford, et al., 1993). The test-retest reliability over a three week period is moderately high with reliability coefficients ranging from .75 to .85 for the six subscales (Osman, Jones & Osman, 1991).

Concurrent validity. Linehan and her associates (1983) found that four of the subscales - Survival and Coping, Responsibility to Family, Child-Related Concerns and Moral Objections - were negatively related to measures of suicide ideation (rs = -.13 to -.53) and suicide probability (rs = -.28 to -.67). Similar findings were reported in other studies (Bonner & Rich, 1991; Cole, 1989; Osman et al., 1993; Range & Antonelli, 1990). The Survival and Coping subscale was found to be negatively correlated with the Beck Depression Inventory (r = -.68), the Beck Hopelessness Scale (r = - .71) and the Suicide Intent Scale (r = -.42) in a sample of hospitalized parasuicidal patients (Strosahl, Chiles, & Linehan, 1992). In this study, Survival and Coping was the single most important predictor of suicide intent. The LRFL was also moderately and negatively correlated with the Scale for Suicide Ideation (-.64) and the Beck Hopelessness Scale (-.63) in a sample of college students (Dean, Range, & Goggin, 1996). In samples of acute and long-term psychiatric inpatients, however, the LRFL has almost negligible (r = -.19) to low (r = -.41) correlations with the Content scales of the Minnesota Multiphasic Personality Inventory–2 (Linehan et al., 1983; Osman et al., 1999) as well as negligible to low correlations with social desirability (Linehan et al., 1983). The LRFL has distinguished psychiatric inpatients from controls (Strosahl, Chiles, & Linehan, 1992), suicide attempters from psychiatric controls (Mann et al., 1999; Osman et al., 1999; Malone et al., 2000) and suicide attempters from suicide ideators (Linehan et al., 1983). In college students, some of the LRFL subscales differentiated suicidal from nonsuicidal individuals (Connell and Meyer, 1991; Osman et al., 1993).

Sensitivity to change. The LRFL was associated with decreases in depression, hopelessness and suicide ideation for female patients treated for borderline personality disorder (Linehan, Armstrong, Suarez, Allman & Heard, 1991).

Summary and evaluation. The LRFL has high internal reliability and good test-retest reliability. There concurrent validity of this measure has also been established. This measure may be a useful tool for the measurement of changes in beliefs about the reasons for living for interventions that focus on reducing suicide behaviors.

Brief Reasons for Living Inventory

Description. The Brief Reasons for Living Inventory (BRFL; Ivanoff, Jang, Smyth, & Linehan, 1994) is a 12-item self-report measure that assesses the beliefs for not killing oneself if the thought were to occur. The 12 items have been extracted from the Linehan Reasons for Living Inventory. Two items from each subscale were retained in the BRFL. Each item is rated on a 6-point Likert scale ranging from 1 ("not at all important") to 6 ("extremely important"). The total scale is scored by summing the items and dividing by the number of items. The BRFL takes approximately 3 minutes to administer.

Sample studied. The BRFL was developed using incarcerated adult men (Ivanoff et al., 1994). The mean age of the sample was 26 years. Sample participants were 27% African-American, 38% Latino-Hispanic, and 32% White.

Dimensionality. A factor analysis of the BRFL revealed six factors with 2 items loading on each factor. The factors included Responsibility to Family, Moral Obligations, Child-Related Concerns, Fear of Social Disapproval, Survival and Coping Beliefs and Fear of Suicide (Ivanoff et al. 1994).

Reliability. The BRFL has moderately high internal consistency as indicated by a Cronbach alpha coefficient of .86 (Ivanoff et al., 1994).

Concurrent validity. The BRFL total scale was highly correlated with the 48-item Linehan Reasons for Living Inventory total scale (r = .94). Moderate to high correlations,

ranging from .58 to .73, were also found between the BRFL subscales and corresponding subscales of the LRFL. The BRFL was significantly and negatively associated with suicide ideation as measured by the Scale for Suicide Ideation (Ivanoff et al., 1994). In a clinical outpatient sample, the BRFL was was negatively correlated with the Beck Scale for Suicide Ideation (-.42) and the Beck Hopelessness Scale (-.39; Dean & Range, 1999).

Summary and evaluation. The BRFL has good internal consistency and is highly correlated with the LRFL. Further studies are needed to replicate these findings.

College Student Reasons for Living Inventory

Description. The College Student Reasons for Living Inventory (CSRLI; Westefeld, Cardin, & Deaton, 1992) is a 46-item self-report measure designed to assess the reasons college students may have for not killing themselves if the thought has occurred to them. Respondents rate each item using a Likert scale ranging from 1 ("not at all important") to 6 ("extremely important"). The CSRLI consists of a total scale and six subscales: Survival and Coping Beliefs (10-items), College and Future-Related Concerns (10 items), Moral Objections (6 items), Responsibility to Friends and Family (8 items), Fear of Suicide (7 items) and Fear of Social Disapproval (5 items).The subscales and total scale are scored by summing the items and dividing by the number of items. The CSRLI takes approximately 10 minutes to administer.

Samples studied. The CSRLI was developed with nonclincal samples of college students (Westefeld, Cardin, & Deaton, 1992), including African American college students (Westefeld, Badura, Kiel, & Scheel, 1996). More recently, the CSRLI has been used with college students seeking outpatient counseling (Westefeld, Scheel, & Maples, 1998). In the clinical sample, 66% were female and the mean age was 20 years, ranging from 18 to 43 years.

Dimensionality. Several factor analyses have identified six factors using independent samples of college students (Westefeld, Cardin, & Deaton, 1992).

Reliability. Five of the six CSRLI subscales have moderately high internal reliability with Cronbach alpha coefficients ranging from .73 to .93. The Fear of Social Approval subscale has lower internal consistency with Cronbach alpha coefficients ranging from .45 to .71 (Westefeld et al., 1992; Westefeld, Badura, Kiel, & Scheel, 1996; Westefeld, Scheel, & Mapels, 1998). The CSRLI total scale has high internal reliability with Cronbach alpha coefficients ranging from .90 to .93 (Westefeld et al., 1996; Westefeld, Scheel, & Mapels, 1998).

Concurrent validity. The total scale and four of the six CSRLI subscales - Survival and Coping Beliefs, College and Future-Related Concerns, Morals Objection and Fear of Social Disapproval - have negative correlations (r_s = -.19 to -.47) with the Beck Depression Inventory (Westefeld et al., 1992). In addition, four subscales (Survival and Coping Beliefs, College and Future-Related Concerns, Morals Objection and Responsibility to Family and Friends) discriminated college students at a higher risk for suicide from college students at a lower risk for suicide (Westefeld et al., 1992). In a sample of college students seeking outpatient counseling, the CSRLI total scale, the Survival and Coping Beliefs subscale and the College and Future Concerns subscale were significantly lower for students who reported current suicide ideation than for students who did not report suicide ideation (Westefeld, Scheel, & Maples, 1998).

Summary and evaluation. The CSRLI subscales and total scale have adequate internal reliability and modest associations with depression. The College and Future-Related Concerns subscale is a unique measure of beliefs of reasons for living for college students and may be useful as a measure of changes in such beliefs in intervention studies.

Provider Attitudes and Knowledge

Suicide Opinion Questionnaire

Description. The Suicide Opinion Questionnaire (SOQ; Domino, Gibson, Poling & Westlake, 1980; Domino, Moore, Westlake, & Gibson, 1982) consists of 100 self-report items that assess the attitudes of health care professionals about suicide. Each item is rated on a Likert scale ranging from 1 ("Strongly agree") to 5 ("Strongly disagree"). Examples include "I would feel ashamed if a member of my family committed suicide;" "Most persons who attempt suicide are lonely and depressed;" and "Suicide is an acceptable means to end an incurable illness."

Samples studied. The SOQ has been administered using a wide variety of national and international samples and different religious groups. The SOQ has been administered to mental health professionals including family practice physicians, psychiatrists, psychologists, psychiatric nurses and aides, social workers, crisis line workers and clergy (Swain & Domino, 1985). In addition, the SOQ has been used with high school students (Domino, 1990), college students and graduate students (Domino, 1988; Domino; Moore, Westlake, & Gibson, 1982; Rogers & DeShon, 1992); medical students (Domino, & Takahashi, 1991); housewives, firemen, administrative staff and visitors to shopping malls (Domino et al., 1982); and suicide attempters (Limbacher, & Domino, 1985).

Dimensionality. Factor analyses have indicated that the number of factors for the SOQ varies from 5 factors (Domino, 1980) to 15 factors (Domino et al., 1982). Recent factor analyses have found 8 factors including: Mental Illness, Cry for Help, Right to Die, Religion, Impulsivity, Normality, Aggression and Morally Bad (Domino, MacGregor, & Hannah, 1988-1989; Domino, & Perrone, 1993; Domino, & Su, 1994-1995). Given the inconsistency in the factor structure of the 100-item SOQ, Rogers & DeShon (1992, 1995) have proposed a 5-factor model using 52 items from the SOQ.

Reliability. Estimates of test-retest reliability have indicated that the 8 subscales have moderately high to high test-retest reliability over a wide variety of intervals (from 2 weeks to 18 months). The test-retest reliabilities have ranged from .73 to .96 across a variety of American and international samples (Domino, 1996).

Concurrent validity. The SOQ was significantly correlated with the Suicide Potential Rating Scale (Holmes & Howard, 1980) in mental health professionals (Swain & Domino, 1985). In a study of undergraduate college students, Limbacher, and Domino (1985-1986) reported that the SOQ discriminated among students who had attempted suicide, contemplated suicide or had not attempted suicide. These results indicated that suicide attempters and suicide contemplators were more accepting of suicide than nonattempters. In addition, males were more accepting of suicide than females.

Suicide Potential Lethality Scale

Description. The Suicide Potential Rating Scale, also called the Suicide Lethality Scale (SPLS; Litman & Farberow, 1961; Holmes & Howard, 1980), is a self-report questionnaire that assesses general knowledge about suicide. The SPLS consists of 13 items. Each item has four possible choices. An example of one of the items is the following: "Persons who are most likely to succeed in committing suicide are (a) female and under 50 years of age, (b) female and over 50 years of age, (c) male and under 50 years of age, or (d) male and over 50 years of age." Responses are scored as either correct or incorrect.

Samples studied. The SPLS has been administered to physicians, psychiatrists, psychologists, social workers, ministers and college students (Holmes & Howard, 1980).

Concurrent validity. Studies have found that mental health professionals obtained more correct answers on the SPLS than ministers and college students. Physicians and psychiatrists had more correct answers than other mental health professionals (Domino & Swain, 1985-1986; Holmes & Howard, 1980; Swain & Domino, 1985). Professionals who were acquainted with a suicide victim (Domino & Swain, 1985-1986) or who were more likely to have contact with suicidal patients (Holmes & Howard, 1980) answered more questions correctly than other professionals. In a sample of master's-level and doctoral-level psychologists, the number of years of experience was not important in recognizing signs of potential lethality.

Suicide Intervention Response Inventory

Description. The Suicide Intervention Response Inventory (SIRI; Neimeyer & MacInnes, 1981) was developed to assess the ability of paraprofessional counselors to recognize appropriate responses to suicidal clients. The SIRI is a 25-item, self-report questionnaire. The SIRI presents a series of hypothetical client remarks followed by two possible "helper" responses. One response is considered facilitative for suicide prevention and the other response is neutral or deleterious to effective intervention. The total SIRI score is the number of correct responses. Total scores may range from 0 to 25. The SIRI takes about 10 minutes to complete.

Samples studied. The SIRI has been administered to crisis counselors, experienced volunteers, inexperienced psychology students (Neimeyer & MacInnes, 1981), medical students (Neimeyer & Diamond, 1983) and student teachers (Cotton & Range, 1992).

Dimensionality. Factor analyses of the SIRI have revealed four factors: Reflection of Negative Feelings, Elaboration of the Complaint, Exploration of Suicidality, and Involvement (Neimeyer & Harley, 1986). In an attempt to replicate the factor structure, Cotton & Range (1992) found that the first factor accounted for significantly more variance than other factors.

Reliability. The SIRI has demonstrated adequate internal reliability with Kuder-Richardson alpha reliabilities ranging from .83 (Cotton & Range, 1992) to .84 (Neimeyer & MacInnes, 1981). The SIRI has high test-retest correlations ($\underline{r}$ = .86) over a 3 month period (Neimeyer & MacInnes, 1981).

Concurrent validity. The SIRI discriminated among groups of respondents who had various levels of suicide counseling skills. For example, Neimery & MacInnes (1981) found that veteran crisis counselors obtained the highest SIRI scores, followed by less experienced volunteers, followed by untrained psychology students. Similarly, the SIRI discriminated between third-year and first-year medical students (Neimeyer & Diamond, 1983) and between more and less experienced crisis counselors (Cotton & Range, 1992). The SIRI was unrelated to opinions about the ethics of suicide (Neimeyer & Diamond, 1983), the degree of death anxiety (Neimeyer & Neimeyer, 1984) or abstract knowledge of suicide risk factors (Inman, Bascue, Kahn, & Shaw, 1984).

Sensitivity to change. SIRI scores improved among new paraprofessionals who received crisis intervention training. In contrast, SIRI scores did not improve for controls who did not receive training (Neimeyer & MacInnes, 1981).

Suicide Intervention Response Inventory-2

Description. A second edition of the Suicide Intervention Response Inventory (SIRI-2; Neimeyer & Bonnelle, 1997) was developed to eliminate a ceiling effect with more skilled

trainees and improve the instrument's sensitivity. The original SIRI consisted of two helper replies to each of the 25 items. The dichotomous scale used in the original SIRI was replaced with a 7-point Likert scale to indicate the appropriateness for each caregiver remark. Each item is scored from +3 ("highly appropriate response") through 0 ("neither appropriate nor inappropriate response") to –3 ("highly inappropriate response"). The SIRI-2 may be scored according to the number of correct responses as well as a more refined score reflecting the discrepancy between the subject's rating and the mean rating endorsed by the experts.

Samples studied. The SIRI-2 was administered to master's-level counselor trainees and psychology students (Neimeyer & Bonnelle, 1997).

Reliability. The SIRI-2 has high internal reliability with coefficient alphas ranging from .90 to .93. The SIRI-2 has a high test-retest reliability over a 2-week period ($\underline{r}$ = .92; Neimeyer & Bonnelle, 1997).

Concurrent validity. The SIRI and the SIRI-2 were significantly and negatively associated with each other ($\underline{r}$s = -.84 to -.88. The SIRI-2 discriminated between master's level counselors and introductory college students (Neimeyer & Bonnelle, 1997).

Sensitivity to change. SIRI-2 scores significantly improved with education in suicide intervention. In contrast, whereas no training effect was detected by the SIRI in this study (Neimeyer & Bonnelle, 1997).

Quiz on Depression and Suicide in Late Life

Description. The Quiz on Depression and Suicide in Late Life (QDSLL; Pratt, Wilson, Benthin & Schmall, 1992) was designed to assess the knowledge level of the general public and community service providers about depression and suicide in older persons. The QDSLL consists of 12 true-false items.

Samples studied. The QDSLL was standardized using college students, community adults and service providers (e.g., paraprofessionals who offered outreach, nutrition, transportation, recreational or in-home services).

Reliability. The QDSLL has a high level of internal consistency using the Kuder-Richardson-20 coefficient (KR-20 = .85; Pratt et al., 1992).

Sensitivity to change. Participants who attended a workshop on late life depression significantly improved on the depression and suicide quiz when compared with a comparison group (Pratt et al., 1992).

Measures in Development

InterSePT Scale for Suicidal Thinking

The InterSePT Scale for Suicidal Thinking (ISST; Lindenmayer, Czobor, Alphs, Anand, Islam, & Pestreich, 2001) is a new instrument for the assessment of current suicidal ideation in patients with schizophrenia. This 12-item measure was derived from the Scale for Suicide Ideation (Beck, Schuyler & Herman, 1974). It was modified to quantify the current conscious and overtly expressed suicidal thinking in schizophrenic patients by canvassing various suicidal thoughts and wishes during a 20-30 minute semi-structured, clinician-administered interview. The ISST is rated on three levels of increasing intensity (0, 1, or 2), and the total score is the sum of the individual item scores. Its reliability and validity have been assessed in two patient samples (N=22, N=980) with recent hospitalizations for suicidal attempts or recent suicidal ideation. The first found high interrater reliability (ICC = 0.895) for total ISST scores among three independent raters who interviewed 22 inpatients with schizophrenia or schizoaffective

disorder. Criterion-related validity with the Clinical Global Impression Scale for Severity of Suicidality (CGI-SS) and recent suicidal attempts was excellent for a second patient sample of 980 patients with schizophrenia or schizoaffective disorder and history of suicidal ideation within the previous 36 months. Internal reliability was high for the second sample (Chronbach's alpha ranged from 0.86 to 0.90).

Lifetime Parasuicide Count

The Lifetime Parasuicide Count (Comtois & Linehan, 1999) is a clinician-administered measure that obtains a lifetime overview of parasuicidal behavior . This measure provides brief information, including suicide intent and medical severity, on the first incident, the most recent incident, and the most severe parasuicidal behavior. This measure also provides a chart of all methods and indicates the frequency of parasuicidal behaviors by intent (suicide attempt, ambivalent suicide attempt, non-suicidal self-injury) and highest medical severity (none, doctor visit, emergency room, medical unit admission, intensive care admission). This measure was designed for use with adults but has also been used with adolescents (Mori et al, 1999; Velting & Miller, 1999).

Reasons for Living Inventory-Older Adults

One recently constructed measure for older adults is the Reasons for Living Scale-Older Adult questionnaire (RFL-OA; Edelstein, McKee, & Martin, 1999). As with the Linehan Reasons for Living Scale for younger adults (Linehan et al., 1983), the RFL-OA was developed as an index of reasons why older adults would not commit suicide. The RFL-OA contains 72 items that require the respondent to rate individual reasons for living, using a 6-point Likert-type scale, with descriptors ranging from "extremely unimportant" to "extremely important." These items were developed by initially mailing surveys to 500 adults, 60 years of age and older, whose names were randomly drawn from a list of all home owners and individuals with drivers licenses in the West Virginia. One hundred ten surveys were returned. The mean age of the participants was 74.4 years (SD = 6.08), with ages ranging from 62 to 91 years. Sixty-seven percent of the sample was male, and sixty-three percent of the sample was married. The surveys asked participants to list reasons why they did not commit suicide if there was a time in their life that they considered it, why they now would not commit suicide, and why they believed other older adults might not commit suicide. Identical reasons were eliminated from these lists of reasons, resulting in the 72 statements that comprise the RFL-OA. Further development of the RFL-OA is continuing. Internal reliability for this measure is high (alpha = .96).

Discussion

As demonstrated by this review, a wide-variety of measures of suicide-related behaviors are currently available for use in treatment outcome studies in a variety of settings for adult and older adult samples. Many of these measures have demonstrated adequate internal reliability and concurrent validity. Despite the proliferation of suicide measures, however, many challenges remain for the field of suicide assessment and prevention.

The primary goal of suicide research is the prevention of suicide or suicide-related behavior. It is therefore a serious problem that the predictive validity for most suicide measures has not been established. In fact, only a few instruments, such as the Scale for Suicide Ideation and the Beck Hopelessness Scale, have been found to be significant risk factors for completed suicide. Ascertaining the predictive validity of suicide assessment measures is problematic because of the low base rate for this behavior. Large sample sizes and a prospective study design are required to establish this type of validity. Clearly, further research is needed to investigate the *predictive* validity of standardized measures for suicide attempts and completed suicide. In addition, researchers are advised to be cautious in utilizing measures of suicide ideation and behavior to assess the effectiveness of clinical interventions given that the predictive validity for most of these measures has not been established.

Although the need for many different types of measures is recognized, the heterogeneity of suicide instruments makes the generalization of findings extremely difficult. Though the development of novel suicide assessment measures might increase the internal validity of any single study, comparisons of findings across studies becomes extremely difficult if different measures are employed for each study. The lack of comparability among studies inhibits the accumulation of knowledge about the etiology of suicide behavior and its treatment. It is therefore strongly recommended that researchers identify and adopt a common set of measures to be used in suicide intervention studies across settings and populations. In accord with this recommendation, it is not advisable that researchers develop new study-specific measures of suicide behavior unless there is a clear justification for its use and a commitment to further study the psychometric properties of such measures in the future.

Another problem in the field involves the limited types of settings where suicide assessment measures have been developed and utilized. As displayed in Table 1, most of the standardized suicide measures have been administered either to patients in psychiatric settings or to college students in academic settings. In contrast, there are only a few scales that have been developed or used in emergency department or criminal justice settings. These measures primarily focus on the medical lethality of suicide attempts (e.g., Lethality Scales, Risk Rescue Rating and Self-Inflicted Injury Severity Form). The lack of studies using standardized measures in the emergency room settings is remarkable given the high frequency of visits to emergency departments that are associated with suicide attempts.

Similarly, few studies have employed standardized suicide assessment measures in primary care settings. Instead, many investigators have used brief screening measures to assess for suicide risk. For example, Olfson and colleagues used “thoughts of death,” “wishing you were dead”, and “feeling suicidal” as screening items (Olfson, Weissman, Leon, Sheehan, & Farber, 1996) and Zimmerman and colleagues asked patients if they had “thoughts of killing

themselves" in urban medical outpatient clinics . In another study, Cooper-Patrick and colleagues developed a Suicidal Ideation Screening Questionnaire (SIS-Q; Cooper-Patrick, Crum, & Ford, 1994) that consisted of four questions that assessed sleep disturbance, mood disturbance, guilt and hopelessness during the past year. Another screening measure for primary care settings that includes a suicide item is the PRIME-MD (Spitzer, Williams, Kroenke et al., 1994). Although the PRIME-MD has been administered to a large number of patients in primary care practices, there is a paucity of research supporting the reliability or validity of this suicide item. Further research establishing the psychometric properties of suicide assessment instruments as screening or as outcome measures in primary care settings is needed.

Most suicide assessment measures have been developed for children, adolescent, college student or young adult populations (see Goldston, 2000). In contrast, there are very few measures that have been specifically designed for elderly populations. The measurement of suicide ideation and behavior in older adults is especially important because the suicide rates rise progressively with age, with the highest rates occurring for men age 75 and older in industrialized countries (Pearson & Conwell, 1995). There is mixed evidence regarding whether "passive" ideation or thoughts of death may be more less pathologic among some groups of older adults (Gallo et al., 1998; Szanto et al. 1996). Further measures of suicide-related behavior for the elderly are definitely needed. Future studies using elderly samples should employ previously developed measures of suicide ideation and behavior for younger adults to allow for age-related comparisons as well as measures that are specific to older adult populations.

Similarly, there have been very few suicide measures that have been developed for minority populations. Moreover, the psychometric properties for most suicide assessment measures have been established using predominantly White samples. There are very few stuides that have investigated the psychometric properties among minority populations (e.g., Blanton-Lacy, 1996) and most studies have failed to report differences in the psychometric characteristics of suicide measures among ethnic groups. Clearly, further studies using suicide assessment measures that target minority populations in adults and older adults are needed.

Only a few randomized clinical trials have utilized standardized measures of suicide behavior (e.g., Hawton, McKeown, Day, Martin, O'Conner, & Yule, 1987; Linehan et al., 1991; Rudd, Rajab, Orman, Stulman, Joiner, & Dixon, 1996; Salkovskis, Atha, & Storer, 1990). Most clinical trials evaluating the treatment of depression have used standardized measures of depression such as the Hamilton Rating Scale for Depression or the Beck Depression Inventory. These scales may provide only limited information of suicide-related behavior because they only contain single suicide items. Moreover, only a small percentage of the treatment outcome studies for depression have reported changes in suicidality using such brief suicide measures.

This lack of published information is surprising given that (1) depression is a risk factor for suicide (e.g., Brown et al., 2000), and (2) established treatments for depression may also reduce suicidality according to several epidemiological studies (Jick, Dean, & Jick, 1995; Isacsson, Homgren, Wasserman, & Bergman, 1994). Nonetheless, changes in suicidality were examined using a meta-analysis of pooled data from 17 randomized clinical trials in patients with major depressive disorder comparing fluoxetine (n = 1765) with a tricyclic antidepressant (n = 731) or placebo (n = 569), or both, was conducted (Beasley, Dornseif, Bosomworth, Sayler,

Rampey, Heiligenstein, Thompson, Murphy, & Masica, 1992). Suicidality was measured by the suicide item from the Hamilton Rating Scale for Depression.

This review found that data from these trials do not demonstrate that fluoxetine is associated with an increased risk of suicidal acts or an emergence of substantial suicidal thoughts among depressed patients (Beasley, 1992). These studies, however, have been criticized because they have not been designed to test for changes in suicidality (Healy, Langmaak, & Savage, 1999). Patients recruited into studies conducted by pharmaceutical companies constitute samples of convenience and do not necessarily represent the general population. It is also important to note that study entry criteria for National Institutes of Health and pharamaceutical trials often stipulate that patients who are suicidal at screening or who attempt suicide in the past 6 months are typically excluded. The utilization of suicide measures with better reliability and validity, even if employed to exclude patients for scientific or ethical reasons, would be informative. Consequently, it is recommended that future clinical trials use standardized measures when assessing decreases (or increases) of suicide ideation or behavior. Further analyses of changes in suicidality using existing data sets from clinical trials are also warranted.

Given the complexity of suicide ideation and behavior across clinical populations and treatment settings, it is difficult to make specific recommendations regarding the selection of which measures to use for suicide prevention and intervention research. The choice of suicide measure is largely determined by the specific aims of the study. For example, as indicated in Table 1, there is a broad range in the number of items among measures. Choosing a measure with fewer items may be useful for screening purposes or when it is necessary to frequently monitor suicidal behavior. Measures with a greater number of items may be preferable when the aim of the study is to obtain a broad range of data on suicidal behavior. Researchers will need to evaluate the content and psychometric properties of each potential measure with respect to the specific aims of the study, the resources available to administer such measures, and the theoretical approach.

As summarized in Table 1, the present review described a variety of self-report and interviewer-administered measures of suicidality. Selecting a self-report format and/or a structured interview format to measure suicidal symptoms is a critical decision. For example, although interviewer-administered measures may allow for greater flexibility for conducting appropriate assessments of suicidal behavior, these measures usually require more time and expense (for administration and training) than self-report measures. In contrast, self-report questionnaires may be inadequate for measuring suicidality in cognitively impaired or highly emotional individuals with concentration difficulties.

There may be other important differences when assessing suicidality using self-report or interviewer-administered formats. Recently, Joiner, Rudd and Rajab (1999) compared the assessment of suicide ideation using a self-report measure, the Suicide Probability Scale, and a clinician-rated measure, the Modified Scale for Suicide Ideation, in patients who were referred for suicide ideation or behavior. Using standard cut-off scores, this study found a high rate of discrepancy between self-report and clinician ratings of suicidality. Clinicians were more likely to see patients as high in suicidality, whereas patients were less likely to see themselves in this manner. Other research, however, has failed to find significant differences between most self-

report and clinician-administered measures of suicide ideation (e.g., Eddins & Jobes, 1994; Kaplan, Asnis, Sanderson, & Keswani, 1994; Beck & Steer, 1991). Although self-report measures are often used as screening tools, an adequate evaluation of suicidality should include both interviewer-administered and self-report measures.

It is also important to note that, in addition to utilizing standardized self-report and interviewer-administered measures, collateral data may be obtained from other sources for examining the validity of these measures. With the patient's written consent, records may be obtained from other agencies such as psychiatric and medical inpatient admissions, crisis clinic calls, arrests by local police that lead to convictions, county jail records, and state prison incarcerations. Family members may also be an important source for obtaining additional information regarding a patient's suicidal behavior. For example, several measures in this review, such as the Suicide Intent Scale, have been adapted for use with family members of suicide decedents (Conwell, Duberstein, Cox, Herrmann, Forbes, & Caine, 1998).

There are other problems associated with the administration of suicide assessment measures. Physicians and other health service providers are sometimes reluctant to use screening questionnaires or to directly ask about suicide, given the fear that patients may find such questions offensive or embarrassing or that such questions may lead to suicidal thinking (Hirschfeld, & Russell, 1997). In fact, patients often are willing to discuss their suicide thinking when given the opportunity. However, patients are often reluctant to raise these issues on their own (Kaplan, Anix, Sanderson, Keswani, de Lecuona, & Joseph, 1994). Many health professionals avoid asking about suicidal thoughts or behaviors because of perceived liability risks. The fear is that the health professional would be held accountable if they knew that a patient was suicidal and subsequently committed suicide. It is important to note, however, that professionals may be held liable if suicidal intentions were suspected and the professional failed to ask about suicidal thoughts or behavior or failed to document patient responses to such questions (see Bongar, 1991 for review).

Although several suicide measures have been established as risk factors for completed suicide, it should be emphasized that the evaluation of a patient's risk for suicide should never be based upon a score of a single scale. Rather, a comprehensive assessment should be conducted in order to evaluate an individual's risk for suicide. Such an evaluation should include an assessment of many risk factors for suicide. These risk factors may include demographic and social factors (males, older adults, white or Native Americans, living alone, unemployed, cultural acceptability of suicide, recent adverse event such as a job loss or death of a loved one), psychiatric factors (psychiatric diagnosis of depression, or schizophrenia, previous treatment history, substance use, history of suicide ideation or behavior, family history of suicide, etc.; see Beck, Resnik, & Lettieri, 1974; Bongar, 1992; Maris, Berman, Maltsberger, & Yufit, 1992; Jacobs, 1999, for comprehensive reviews on suicide risk assessment).

In clinical trials involving suicidal patients, procedures for managing high risk individuals should be established (Pearson, Stanley, King & Fisher, 2001). Clinical researchers have described risk management approaches generally (Hirschfeld & Russell, 1997), and for specific patient groups such as those with borderline personality (Linehan, 1993), schizophrenia (Scott Stroup, personal communication, February 2002), and older primary care adults with

depression (Brown, Bruce, & Pearson, 2001). Typically, once a patient is determined to be an imminent risk for suicide, then immediate action is required and usually involves more intensive treatment such as psychiatric hospitalization. The ongoing assessment of suicide ideation and behavior may provide important safeguards for managing high risk patients. Several measures have been specifically designed to be used repeatedly during an intervention trial, such as the Self-Monitoring Suicide Ideation Scale (Clum & Curtin, 1993) or Linehan's diary card for monitoring suicide ideation and self-harm behaviors (Linehan, 1993). In addition, the suicide item and the hopelessness item from the Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996) may also be used to monitor changes in suicidality on a regular basis during the course of treatment. Patients attending outpatient cognitive behavior therapy, for example, typically complete the BDI-II prior to each visit. If either the suicide or hopelessness items are endorsed, then the clinician may conduct a detailed assessment of suicide risk and provide appropriate therapeutic interventions to reduce a patient's suicidality (see Ellis & Newman, 1998).

In summary, there are a wide-variety of suicide assessment measures that are currently available to assess the effectiveness of neurobiological and psychosocial interventions for individuals at risk for suicide. Most of the measures in this review have been found to be reliable and possess adequate concurrent validity. More studies examining predictive validity of these measures, however, are necessary to identify patients at risk for suicide so that appropriate interventions can be provided. The lack of intervention studies employing standardized suicide measures is a major problem in the field and in order to improve the comparability of findings across studies, a move toward a narrower set of measures to be used in research is suggested. The use of empirically-supported suicide measures in clinical trials is strongly recommended and is believed to be vital for the successful implementation of the National Strategy for Suicide Prevention (U.S. Department of Health and Human Services, 2001).

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Table 1

Description of Suicide Assessment Measures in Adults

	Mode of Administration				Predictive	Study Settings				
Measure	Self-Report	Interview	Factors	Items	Validity	Psychiatric	Medical	College	Community	Other
Scale for Suicide Ideation		X	2	21	X	X	X	X	X	
Beck Scale for Suicide Ideation	X		3	21		X				
Modified Scale for Suicide Ideation		X	2-3	18		X		X		
Self-Monitoring Suicide Ideation Scale	X			3				X		
Suicide Intent Scale		X	2	15	X	X	X			
Parasuicide History Inventory		X	4	48+		X				
Suicide Behavior Questionnaire	X			4		X		X		
Suicide Behavior Questionnaire-Revised	X		1	34		X			X	
Suicide Behavior Interview		X		4						X
Suicide Probability Scale	X		6	36		X	X	X	X	
Positive and Negative Suicide Ideation Inv.	X		2	20				X		
Adult Suicide Ideation Questionnaire	X		4	25		X		X	X	
Suicide Ideation Scale	X			10				X		
Suicide Status Form	X	X	6	6				X		
Firestone Assessment of Self-Destructive Thoughts	X		3	84		X		X		

Table 1 (continued)

	Mode of Administration				Predictive	Study Settings				
Measure	Self-Report	Interview	Factors	Items	Validity	Psychiatric	Medical	College	Community	Other
Risk-Rescue		X		10		X	X			
Self-Inflicted Injury Severity Form		X		7			X			
Lethality Scales		X		8		X	X			
Paykel Suicide Items		X		5					X	
Symptom Driven Diagnostic System for Primary Care (Suicide Items)	X			3			X			
Suicide Ideation Screening Questionnaire		X		4			X		X	
Hamilton Rating Scale for Depression (Suicide Item)		X		1	X	X				
Beck Hopelessness Scale	X		3	20	X	X	X	X		
Beck Depression Inventory (Suicide Item)	X			1	X	X	X	X		
Linehan Reasons for Living Inventory	X		6	48+		X	X	X	X	
Brief Reasons for Living Inventory	X		6	12						X
College Student Reasons for Living Inv.	X		6	46		X		X		
Suicide Opinion Questionnaire	X		5-15	100				X	X	X
Suicide Potential Lethality Scale	X			13					X	X
Quiz on Depression & Suicide in Late Life	X		12					X	X	X
Suicide Intervention Response Inventory	X		4	25					X	X

Appendix

Suicide Measure	Author	Address
Adult Suicidal Ideation Questionnaire	Reynolds, William M.	William M. Reynolds University of British Columbia Department of Education Psychology 2125 Main Mallnue Vancouver, BC V6T I24 WILLIAM.REYNOLDS@ubc.ca
Beck Hopelessness Scale	Beck, Aaron T.	Psychological Corporation 555 Academic Court San Antonio, TX 78204 Attn: Clinical Sales 1-800-211-8378
Beck Scale for Suicide Ideation	Beck, Aaron T.	Aaron T. Beck University of Pennsylvania The Science Center, Room 754 3600 Market Street Philadelphia, PA 19104-2648 becka@landru.cpr.upenn.edu
Brief Reasons for Living Inventory	Ivanoff, Andre	Andre Ivanoff Columbia University School of Social Work 704 McVickar Hall 622 West 113th. Street New York, NY 10025 ami2@columbia.edu
College Students Reasons for Living Inventory	Westefeld, John S.	John S. Westefeld Department of Psychological and Quantitative Foundations University of Iowa Iowa City, Iowa 52242 jwestef@blue.weeg.uiowa.edu
Firestone Assessment of Self-Destructive Thoughts	Firestone, Robert W.	Robert W. Firestone The Glendon Association 5383 Hollister Ave., Suite 230 Santa Barbara, CA 93111 glendon@glendon.org
Lethality Scale	Beck, Aaron T.	Aaron T. Beck University of Pennsylvania The Science Center, Room 754 3600 Market Street Philadelphia, PA 19104-2648 becka@landru.cpr.upenn.edu

Suicide Measure	Author	Address
Lifetime Parasuicide Count	Linehan, Marsha M.	Marsha M. Linehan Behavioral Research & Therapy Clinics Department of Psychology, Box 351525 University of Washington Seattle, Washington 98195 linehan@u.washington.edu
Linehan Reasons for Living Inventory	Linehan, Marsha M.	Marsha M. Linehan Behavioral Research & Therapy Clinics Department of Psychology, Box 351525 University of Washington Seattle, Washington 98195 linehan@u.washington.edu
Modified Scale for Suicide Ideation	Miller, Ivan W.	Ivan W. Miller Box G-RI Brown University Providence, RI 02912-G-RI
Paykel Suicide Scale	Paykel, E.S.	E.S. Paykel University of Cambridge Department of Psychiatry Addenbrooke's Hospital Cambridge, CB2 2AA ENGLAND
Parasuicide History Inventory	Linehan, Marsha M.	Marsha M. Linehan Behavioral Research & Therapy Clinics Department of Psychology, Box 351525 University of Washington Seattle, Washington 98195 linehan@u.washington.edu
Quiz on Depression and Suicide in Later Life	Pratt, C.C.	C.C. Pratt Department of Human Development and Family Studies Oregon State University Corvallis, OR 97331-5102
SAD Persons Scale	Patterson, W.M.	W.M. Patterson Smolian Clinic Room 210 Department of Psychiatry University Station Birmingham, AL 15294

Suicide Measure	Author	Address
Scale for Suicide Ideation	Beck, Aaron T.	Aaron T. Beck University of Pennsylvania The Science Center, Room 754 3600 Market Street Philadelphia, PA 19104-2648 becka@landru.cpr.upenn.edu
Scale for Suicide Ideation-Worst	Beck, Aaron T.	Aaron T. Beck University of Pennsylvania The Science Center, Room 754 3600 Market Street Philadelphia, PA 19104-2648 becka@landru.cpr.upenn.edu
Self-Inflicted Injury Severity Form	Potter, Lloyd	Lloyd Potter Centers for Disease Control and Prevention National Center for Injury Prevention and Control 4770 Buford Highway, N.E. Mailstop K-60 Atlanta, GA 30341
Self-Monitoring Suicide Ideation Scale	Clum, George A.	George A. Clum Psychology 5093G Derring Hall Blacksburg, VA 24061 gclum@vt.edu
Suicidal Behaviors Interview	Ivanoff, Andre	Andre Ivanoff Columbia University School of Social Work 704 McVickar Hall 622 West 113th. Street New York, NY 10025 ami2@columbia.edu
Suicide Behaviors Questionnaire	Linehan, Marsha M.	Marsha M. Linehan Behavioral Research & Therapy Clinics Department of Psychology, Box 351525 University of Washington Seattle, Washington 98195 linehan@u.washington.edu

Suicide Measure	Author	Address
Suicide Behaviors Questionnaire Revised	Linehan, Marsha M.	Marsha M. Linehan Behavioral Research & Therapy Clinics Department of Psychology, Box 351525 University of Washington Seattle, Washington 98195 linehan@u.washington.edu
Suicide Ideation Scale	Rudd, M. David	David Rudd Professor of Psychology Department of Psychology Baylor University P.O. Box 97334 Waco. TX 76798-7334 M_Rudd@Baylor.edu
Suicidal Ideation Screening Questionnaire	Cooper-Patrick, Lisa	Lisa Cooper-Patrick Welch Center for Prevention, Epidemiology and Clinical Research 2024 E. Monument St., Suite 2-600 Baltimore, MD 21205-2223
Suicide Intent Scale	Beck, Aaron T.	Aaron T. Beck University of Pennsylvania The Science Center, Room 754 3600 Market Street Philadelphia, PA 19104-2648 becka@landru.cpr.upenn.edu
Suicide Intervention Response Inventory	Neimeyer, Robert A.	Robert A. Neimeyer Department of Psychiatry Clinical Sciences Center 600 Highland Ave. Madison, WI 53792
Suicide Intervention Response Inventory –2	Neimeyer, Robert A.	Robert A. Neimeyer Department of Psychiatry Clinical Sciences Center 600 Highland Ave. Madison, WI 53792
Suicide Opinion Questionnaire	Domino, George	George Domino Department of Psychology University of Arizona Tucson, AZ 85721

Suicide Measure	Author	Address
Suicide Potential Lethality Scale	Holmes, Cooper B.	Cooper B. Holmes Department of Psychology Emporial SU 1200 Commercial Emporia, KS 66801 Journal of Consulting & Clinical Psychology, 48, 383-387
Suicide Probability Scale	Cull, J.G. & Gill, W.S.	Western Psychological Services Publishers and Distributors 12031 Wilshire Boulevard Los Angeles, CA 90025-1251
Suicide Status Form	Jobes, David A.	David A. Jobes Catholic University Department of Psychology Washington, DC 20064 JOBES@CUA.EDU