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Examining the Relationship Between Functions of Self-Directed Violence and the Suicide Implicit Association Test

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EXAMINING THE RELATIONSHIP BETWEEN FUNCTIONS OF SELF-DIRECTED VIOLENCE AND THE SUICIDE IMPLICIT ASSOCIATION TEST

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Suicide and non-suicidal self-injury are concerning and prevalent phenomena in the United States; as a result, much research has been undertaken in order to investigate these topics (Centers for Disease Control and Prevention, 2015a). Although the exploration of risk factors is a common approach, other novel approaches have been developed in order to better understand self-directed violence (Klonsky & May, 2013). One of these is a focus on functions served by these behaviors, which is theorized to contribute to grasping their etiologies and help provide effective treatment (Glenn & Klonsky, 2011). Another approach is investigating implicit cognition and self-associations' influences on the development of self-directed violence (Glashouwer et al, 2010).

The current study expanded on previous research by using these two novel approaches simultaneously, and measuring the association between the functional aspects of self-directed violence and the Suicide Implicit Association Test. Participants for this study included 32 adolescent inpatients hospitalized at River Valley Behavioral Health Hospital. The Suicide Implicit Association Test served as the independent variable in this study. The following measures served as dependent variables: the Inventory of Statements About Self-Injury, the Self-Harm Behavior Questionnaire, and the Suicide Attempt Self-Injury Interview.

Regression analyses revealed non-significant associations for both intrapersonal (β=1.44, S.E.=.91, p=.13) and interpersonal (β=.004, S.E.=.5, p=.99) functions. Poisson regression analyses revealed non-significant associations for both intrapersonal (β=.01, S.E.=.21, p=.97, CI:-.41, .42) and interpersonal (β=.60, S.E.=.51, p=.24, 95% CI:-.40, 1.60) functions. A logistic regression analysis was used to examine the association between Suicide Implicit Association Test scores and number of previous suicide attempts, and this revealed a high odds ratio [OR =4.56, 95% CI: .36, 57.76]. Poisson regression analysis was used to examine the relationship between Suicide Implicit Association Test scores and the frequency of previous non-suicidal self-injury, and this revealed a significant positive association (β=.99, S.E.=.07, p=.00, 95% CI:.86, 1.13). Poisson regression analysis was used to examine the relationship between Suicide Implicit Association Test scores and the severity of previous suicidal ideation, and this revealed a significant positive association (β=1.09, S.E.=.23, p=.00, 95% CI: .65, 1.54).

Introduction

Suicide prevention is one domain in psychological research that warrants serious attention as suicide remains a primary cause of death in our nation. In 2013, it was the 10th leading cause of death for Americans; over 41,000 lives were lost, well over 100 each day. The same year, over 836,000 self-injury survivors received care in United States (US) emergency rooms (Centers for Disease Control and Prevention, 2015a). Adolescents in particular present with high rates of self-injury and suicide attempts. In the United States, suicide is the third leading cause of death for young people ages 10 to 24, accounting for about 4600 untimely deaths each year (Centers for Disease Control and Prevention, 2015b). Inpatient populations especially exhibit high rates of self-harm behavior. For example, one study utilizing an adolescent psychiatric inpatient sample found that 82.4% of the individuals reported engaging in self-harm behavior in the previous year; on average, those that reported self-injury said they had performed the behavior 80 times, and females were found to be nearly three times more likely to engage in self-harm than males (Nock & Prinstein, 2004).

Possibly the best and most inclusive definition of these behaviors is self-directed violence, defined by the Centers for Disease Control and Prevention (CDC; 2014) as any behavior performed with the intention of harming oneself. An important concept that can be used to differentiate between the various forms of self-directed violence is intent or motivation. Subsequent classifications include suicidal self-directed violence, which may be categorized as being either a fatal or nonfatal suicide attempt made by an individual with an intent to die, and non-suicidal self-directed violence, also commonly referred to in the literature as nonsuicidal self-injury (NSSI), which can be understood as self-injury

an individual performs without having an intent to die (Crosby, Ortega, & Melanson, 2011).

Self-directed violence has a number of known risk factors, including past suicidal behavior, contact with others who exhibit the behavior, substance abuse, negative life-altering event(s), and access to means to perform the behavior (Centers for Disease Control and Prevention, 2014). Prevention approaches using these and other risk factors alone or as primary considerations are generally considered to be insufficient for effectively predicting and preventing suicide (Klonsky & May, 2013). It is critical for psychologists to gain comprehensive and phenomenological understandings of these topics so that the application of evidence and the development of resulting strategies may lead to fewer lives being lost.

Nock and Prinstein (2004) noted that, historically, there had been a deficit in the knowledge base and understanding of self-directed violence. However, the frequency of research on the topic has greatly increased in recent history, and has provided useful knowledge (Centers for Disease Control and Prevention, 2015b). Two relatively novel and promising approaches to assessing and classifying an individual's risk of self-directed violence are analyzing the functions of self-harm behaviors and examining the role of implicit cognition in the development of suicidal ideation and the undertaking of self-harm.

Functional Models of Self-Directed Violence

Understanding the functions served by self-injurious behaviors helps researchers and practitioners better comprehend their origins and development (Glenn & Klonsky, 2011). Using functional models not only aids in understanding these behaviors, but is

hoped to contribute to the creation of new evidence-based approaches to address these problems; fortunately, functional approaches are typically easily tested, which makes them promising candidates for research (Bentley, Nock, & Barlow, 2014). An introduction to the functionality of self-injury begins with noting that negative affect precedes the behavior; performing the behavior subsequently improves affect and provides a reprieve for many (Klonsky, 2007). Those that self-injure typically perform the behavior with the hope that it will achieve this goal and ultimately serve this function. Examining related functions allows for a more thorough conceptualization of a patient's clinical profile and suicidality (or lack thereof). It is hypothesized that identifying and understanding these functions in patients may provide clinicians with the ability to differentiate between various subgroups of individuals who engage in NSSI and provide the most appropriate care to them (Klonsky, 2007).

Suyemoto (1998) noted that several functional models have been developed. Considering six previously developed functional models, the author proposed four specific domains of functions, including affect-regulation and interpersonal functions (Suyemoto, 1998). Similarly, Klonsky (2007) noted that the numerous existing functional models overlapped, and cited evidence for anti-dissociation, affect-regulation, anti-suicide, interpersonal, sensation-seeking, and self-punishment functions. Klonsky (2007) also noted that affect-regulation was the function most often reported.

In what may be interpreted as an integration or encapsulation of older functional models, Nock and Prinstein (2004) posited that self-injury is performed in order to receive certain types of automatic or social reinforcement. The first type, automatic–negative reinforcement (ANR), consists of the alteration or reduction of unwanted

feelings or an undesirable state. The second, automatic–positive reinforcement (APR), involves generating a desired feeling or state. The third, social–negative reinforcement (SNR), consists of the removal or alteration of an undesired interpersonal situation or its demands. The fourth, social–positive reinforcement (SPR), involves receiving interpersonal attention or other external resources (Nock & Prinstein, 2004).

It was later determined that the APR mechanism is not always easily differentiated from the ANR mechanism, whereas the types of social reinforcement are more easily categorized. When serving a social reinforcement function, NSSI is an intense attempt at interpersonal communication; as their previous communications were unsuccessful, self-injurers utilize more extreme efforts (self-directed violence) in an attempt to communicate (Bentley et al., 2014). However, automatic functions (related to affect-regulation and also known as intrapersonal functions) have been found to be more frequently served than interpersonal ones, and this has been found to be especially true for females (Klonsky & Glenn, 2009). Numerous functions may be served by a single behavior and functions may change over the lifespan (Klonsky, 2007).

Nock and Prinstein (2004) sought to empirically validate their functional model in a group of 108 adolescent psychiatric inpatients by inquiring about any NSSI done in the previous year and by using the Functional Assessment of Self-Mutilation (FASM). They found support for the model's reliability and validity; the four functions were found to be distinct from one another and to exhibit moderate-to-high internal consistency reliability. Individuals reported more frequently engaging in self-directed violence for automatic reinforcement as opposed to social reinforcement. The authors called for more research to

be done in order to accrue evidence for the model's construct validity (Nock & Prinstein, 2004).

Nock and Prinstein (2005) then examined the behavioral functions and contextual associations of NSSI in another sample featuring 89 adolescent psychiatric inpatients. They found additional support for the construct validity of their functional model. Hopelessness and recent suicide attempts were found to be linked to automatic negative reinforcement. Symptoms of depression and posttraumatic stress disorder (PTSD) were found to be associated with automatic positive reinforcement; the former was also found to be associated with both types of social reinforcement. Also, frequency of NSSI by friends was found to be associated with social positive reinforcement (Nock & Prinstein, 2005).

Bryan, Rudd, and Wertenberger (2013) utilized this functional approach, but did so to better understand the motivations fueling soldiers' suicide attempts. They gave the Suicide Attempt Self-Injury Interview (SASII; Linehan, Comtois, Brown, Heard, & Wagner, 2006) to 72 soldiers who reported suicide attempts. 95% reported associating two or more functions with their attempt. Automatic negative reinforcement (i.e., regulation of negative affect) was reported by all individuals who reported an attempt. The mean number of attempts in the sample was two, and the mean number of reasons given for an attempt was 10. The specific reason "to stop bad feelings" was endorsed by all individuals who reported an attempt. The majority of attempts (57.4%) were reported to have served all four functions in at least one way (Bryan et al., 2013).

Klonsky and Olino (2008) used latent class analysis in an attempt to differentiate between subgroups of 205 young adults with a history of NSSI. They used the Inventory

of Statements About Self-Injury (ISAS; Klonsky & Glenn, 2009) to assess affect regulation, anti-dissociation, anti-suicide, interpersonal boundaries, interpersonal influence, peer bonding, self-punishment, and sensation-seeking functions. Exploratory factor analysis allowed the researchers to classify these as being either automatically or socially reinforcing. By considering the descriptive features, function(s), and method(s) of NSSI used by participants, they identified four classes of self-injurers (Klonsky & Olino, 2008). Approximately 80% of their sample was categorized as being Class 1 or Class 2, both of which featured those who presented with fewer symptoms, self-harmed less frequently, and whose methods were less lethal. Class 3 (approximately 10% of the sample) consisted of those who reported being extremely anxious and engaging in an array of self-harm behaviors that served both automatic and social functions. Class 4 (the remaining approximate 10% of the sample) featured those with the most extreme suicidality who reported typically cutting while alone in the service of automatic functions. In addition to these findings, the researchers observed noticeable differences in the age and nature of the onset of NSSI and symptomatology between the individuals in these different classes. The authors recommended that future research attempt to validate these classes in clinical and inpatient populations (Klonsky & Olino, 2008).

Although grasping the functionality of self-directed violence is a significant endeavor, this approach may be limited by an individual's level of insight, willingness to share, by social desirability, or by other biases. By contrast, behavioral measures have the potential to offer more objectivity and circumvent threats to accuracy. What these indicators measure may be independent from functionality, but they provide additional

information that aids in a more comprehensive understanding of an individual's clinical profile.

Implicit Associations and Self-Directed Violence

Maladaptive self-schemas are thought to be an important contribution in the development of suicidal ideation. In regards to this, it has been determined that both explicit attitudes and implicit cognitions play important roles in the development of suicidality. Traditionally, research has primarily been fixated on the explicit with a reliance on interviewing and self-reporting; as a result, the implicit and the unspoken have often remained ignored by clinical psychological research (Glashouwer et al, 2010).

Individuals who engage in self-directed violence often wish to keep their behavior secret and unnoticed (Crosby et al., 2011). This has somewhat inhibited researchers' abilities to gather information on this phenomenon (Centers for Disease Control and Prevention, 2015b). Determining the likelihood of someone engaging in self-harm is similarly problematic in clinical and other settings as well (Randall, Rowe, Dong, Nock, & Colman, 2013). Ultimately, predicting self-harm and suicide is not always feasible in some cases due to individuals' desires to conceal their intent (Nock & Banaji, 2007).

Researchers have noted that the root of the problem in the risk assessment of self-directed violence is the historical near universal reliance on self-report; this often results in patients downplaying or refusing to communicate their suicidal intentions (Nock & Banaji, 2007). These traditional approaches have relied on the assumptions that 1) the individual is consciously aware of his or her emotions, cognitions, and aims, and 2) he or she wishes to share these. In reality, these are flawed assumptions. Knowing the possible

consequences of communicating one's intent to engage in self-directed violence is a deterrent for many individuals (Ellis, Rufino, & Green, 2015).

Klonsky (2007) suggested that it may be prudent to call into question the validity of many studies that rely solely on self-report or are retrospective, and recommended using physiological measures as replacements in order to avoid the influence of social desirability. Bentley et al. (2014) also expressed doubt concerning the utility of solely using self-report in this context and recommended the use of psychophysiological and performance-based measures to circumvent the possibility of biases. Additionally, Nock et al. (2010) proposed that behavioral markers and tests be considered as potential solutions.

One of these is the Implicit Association Test (IAT), which has been used for various purposes since its development in 1998, including measuring racial biases and self-esteem (Greenwald, Nosek, & Sriram, 2006). Greenwald, McGhee, and Schwartz (1998) developed the IAT in order to gauge the differential association of two concepts with an attribute; the concepts are presented as a two-choice task before the attribute is presented in the next task. The participant uses two keys in his or her selections. The measure presents both related and unrelated categories to the participant; consequently, categories that share a greater association with one another result in a faster keying performance by the participant than categories that share less of an association. Ultimately, calculated performance speeds inform the measure's scoring (Greenwald et al., 1998).

In the authors' original study, the IAT was found to be sensitive to both near-universal preferences and to ethnic/racial biases. The researchers posited that the IAT

may circumvent measurement issues related to self-presentation and social desirability encountered in many traditional forms of assessment. This has been thought to make it useful with individuals who are unaware of or unwilling to disclose certain attitudes, beliefs, biases, intentions, opinions, preferences, or thoughts (Greenwald et al., 1998). Greenwald and Nosek (2001) later recommended that researchers test whether various behaviors could be successfully predicted by the IAT. Although initially popular in social psychology research, various IATs have been developed by several researchers. Many have recently undertaken examining the usefulness of the IAT in the risk assessment of self-directed violence (Ellis et al., 2015).

Nock and Banaji (2007) examined the capability of the Self-Injury Implicit Association Test (SI-IAT) in determining suicidal ideation and the likelihood of future self-harm. Their sample consisted of 89 adolescents; 38 were not suicidal, 37 had suicidal ideation, and 14 had recently made attempts to end their lives. The authors' analyses showed significant differences in the groups' SI-IAT scores. Those who were not suicidal featured significant negative associations between NSSI and themselves; specifically, this was indicated by their SI-IAT D scores typically being negative. Those with ideation featured small associations. Those with recent suicide attempts featured significant positive associations. By following up six months after the baseline assessment with an interview over the phone, the researchers determined that the measure was predictive of future ideation and attempts as well, and with a capability that greatly surpassed the usefulness of commonly considered risk factors (Nock & Banaji, 2007).

Their results suggested that they could differentiate between suicidal individuals and those who are not suicidal with 74% to 77% accuracy; however, as their study

featured only two suicide attempts, they suggested a cautious interpretation of this finding. The researchers admitted that one major limitation of their study was that intent to die and other relevant factors were not examined. The authors called on other researchers to test and improve implicit measures for clinical use. They recommended that future research focus on the relationship between self-directed violence-related IATs, number of suicide attempts, intent to die, and similar factors in the hopes that findings may contribute to the prediction and prevention of suicide (Nock & Banaji, 2007).

This recommendation has received responses from researchers in the United States and abroad. Glashouwer et al. (2010) examined automatic self-associations in 2,981 individuals taking part in the Netherlands Study of Depression and Anxiety (NESDA), using two versions of the IAT related to the two disorders. They found that scores were strongly related to a history of attempting and ideating and recommended additional research on automatic self-associations and suicidality (Glashouwer et al., 2010). In 2010, Matthew Nock developed the Suicide Implicit Association Test (SIAT), also sometimes referred to as the Life/Death Implicit Association Test or the Death/Suicide Implicit Association Test. Tang, Wu, and Miao (2013) utilized failure- and success-related priming in a sample of 138 Chinese undergraduates before having the participants take the SIAT. They found significant differences between the groups. Specifically, those who were primed for failure exhibited significantly higher D scores on the SIAT, which is interpreted as exhibiting more of a death/suicide-orientation, than those who were primed for success (Tang et al., 2013).

Nock et al. (2010) tested the SIAT in 157 individuals in an emergency psychiatric setting. They found that individuals with a history of attempting suicide had a more

significant implicit association between death/suicide and self than those who had not made an attempt; specifically, their SIAT D scores were positive and significantly greater. The researchers followed up with a telephone interview and an examination of medical records to determine if patients had made subsequent suicide attempts. They also found that individuals with positive D scores were six times more likely to make a suicide attempt in the six months following the assessment than individuals with negative D scores. This association outperforms the predictive validity of well understood risk factors like depression and attempt history, as well as patient and clinician judgment. Those who had attempted suicide exhibited significantly stronger implicit associations with death/suicide than individuals who performed self-harm behaviors without intending to die; also, those with positive D scores were at much greater risk for a suicide attempt (31.8%) than those with negative D scores (10.1%; Nock et al., 2010).

Randall et al. (2013) examined the relationships between six types of implicit cognition related to self-harm, death, and suicide and later incidence of self-harm in a prospective cohort sample of 107 adults. Six versions of the IAT were utilized in this study, including the SIAT. The study featured a three month follow-up with participants to determine if they had self-injured or made a suicide attempt. The SIAT was found to be the only significantly predictor of future self-injury in the study. The model they developed indicated that individuals scoring positively on the SIAT were five times more likely to self-injure within the following three month time span than those who did not (Randall et al., 2013).

Their multivariable model categorized the majority (58.9%) of participants as being either high risk or low risk based on their SIAT scores. Seventeen of the 20

individuals considered high risk (85%) later self-injured, and only one of the 43 individuals considered low risk (2.3%) later self-injured; however, their results led them to conclude that the SIAT did not evidence significant effectiveness as a measurement of risk when used alone, and that it would be used best in conjunction with other measures. They posited that the SIAT measures something different than what is assessed by explicit approaches, which ultimately may allow it to contribute to more effective risk assessment when used to supplement other measures (Randall et al., 2013).

Similarly, Ellis et al. (2015) administered the SIAT to a sample of adult psychiatric inpatients when they were admitted and discharged. The researchers found significant correlations between SIAT scores and hopelessness, symptoms of depression, and suicidal ideation. They also found significant changes in SIAT score over time, indicating that patients' associations between life and self were strengthened during the time of their stay and treatment at the facility. This can also be understood as the patients having developed more of a life-orientation as opposed to a death/suicide-orientation. The authors stated that this evidence supports the IAT being used with traditional assessment to assess suicidality more comprehensively (Ellis et al., 2015).

Current Study Rationale

Many have investigated the well-known risk factors and associated features of self-harm. Some have examined either the functions of self-directed violence or the implicit associations related to the behavior. To our knowledge, no prior study has measured the association between the functional aspects of self-directed violence and the SIAT. The current study was conducted in order to investigate this topic in a sample of adolescents residing in an inpatient psychiatric hospital. Doing so not only attempted to

address limitations inherent in each of these approaches, but also attempted to offer a new perspective on the relationship between these measures of suicidality. Findings are hoped to help improve the identification of and differentiation between patients with varying levels of risk for attempting suicide, which remains particularly difficult to determine. The study also attempted to serve to validate certain measures for assessing suicide risk. Ultimately, the intention of the study was to provide novel information regarding how the cognitive profile relayed by the SIAT is related to functions of self-directed violence, which may ultimately inform intervention strategies that are specific to different cues and consequences underlying self-directed violence.

Hypotheses

Hypothesis I:

It was predicted that higher SIAT scores would be associated with a higher degree of automatic reinforcement functions of NSSI and suicide attempt.

Hypothesis II:

It was predicted that lower SIAT scores would be associated with a higher degree of social reinforcement functions of NSSI and suicide attempt.

Hypothesis III:

It was predicted that higher SIAT scores would be associated with a greater likelihood of having made a previous suicide attempt.

Hypothesis IV:

It was predicted that higher SIAT scores would be associated with a greater frequency of previous NSSI.

Hypothesis V:

It was predicted that higher SIAT scores would be associated with a greater level of severity of previous suicidal ideation.

Method

Participants

Participants for this study were patients 12 to 17 years of age admitted to River Valley Behavioral Health Hospital, a private 80-bed inpatient psychiatric hospital located in Owensboro, Kentucky. Additional inclusion criteria included the consent of a legal guardian and participant assent to take part in a research study, and participants speaking sufficient English to participate in a clinical interview as determined by the hospital's clinical staff. Exclusion criteria included a lack of sufficient English to participate and being an inmate upon admission to the hospital. The sample consisted of 20 females and 12 males (N = 32 adolescent inpatients) with a mean age of 15.16 (standard deviation [SD] = 1.53).

Instruments

Inventory of Statements About Self-Injury

The ISAS was developed in order to evaluate methods and functions of NSSI (Glenn & Klonsky, 2011). It features two sections. The first presents seven items that gauge the frequency of 12 methods of self-harm an individual has engaged in throughout his or her lifetime. These items also assess the age at which the individual first engaged in self-harm, if the individual feels pain when he or she self-harms, if the individual self-harms in isolation or in the presence of others, the duration of time that elapses between the presentation of the urge to self-harm and the behavior, and if the individual wishes to quit performing the behavior. The second section features 39 items comprising 13 intrapersonal or interpersonal functions. The degree to which a person endorses a particular function is assessed by three items that are rated as not relevant (0), somewhat relevant (1), or very relevant (2), allowing scores to range from 0 to 6 (Klonsky & Glenn,

2009). It was found to have good test-retest reliability and validity in a sample of 51 college students (Glenn & Klonsky, 2011). In another sample of 235 young adults, its function scales were found to have excellent internal consistency and to be correlated with clinical constructs, mental disorders, and situational factors, indicating satisfactory reliability and validity (Klonsky & Glenn, 2009). For the purposes of this study, the ISAS was used to gather data regarding NSSI frequency and functions endorsed by participants. The ISAS demonstrated an acceptable level of internal consistency ($\alpha = 0.99$) in the present study.

Self-Harm Behavior Questionnaire

The Self-Harm Behavior Questionnaire (SHBQ; Gutierrez, Osman, Barrios, & Kopper, 2001) was used in order to determine the number of suicide attempts and incidents of self-injury for each participant. The SHBQ is a self-report measure featuring simple administration and scoring that has been recommended for use in clinical and research settings (Gutierrez et al., 2001). It consists of four sections. The first investigates NSSI. The second concerns suicide attempts specifically. The third relates to threats of suicide the individual has made, and the fourth inquires about thoughts of suicide the individual may have had. Open and closed ended questions in each section promote specificity in regard to each of these factors. Information pertaining to the time these occurred, the individual's motivation for each, the lethality of methods used, and the results of each is also gathered. The SHBQ was found to demonstrate satisfactory reliability and validity in a sample of 342 undergraduates, exhibiting high internal consistency (range = .89 to .96), and being moderately and significantly correlated with other measures of self-directed violence, demonstrating evidence for its convergent

validity (Gutierrez et al., 2001). In a diverse sample of 1,386 adolescents, the measure was found to demonstrate good internal consistency and convergent validity (Muehlenkamp, Cowles, & Gutierrez, 2010). For the purposes of this study, the SHQB was used to gather data related to suicide attempts. Additionally, the SHBQ suicidal ideation algorithm was used in order to generate a severity of suicidal ideation variable. The SHBQ severity of suicidal ideation scoring algorithm demonstrated an acceptable level of internal consistency ($\alpha = 0.83$) in the present study.

Suicide Attempt Self-Injury Interview

The SASII was designed to be used in order to clarify the nature, context, and motivation behind specific instances of self-directed violence (Linehan et al., 2006). It includes a description of the method utilized, the intended purpose of the behavior, the lethality of the method used, the individual's health following the incident, the intensity and type of medical assistance given following the incident, any preceding preparations the individual made, behavioral and situational associations, antecedents, and 28 possible functions of the behavior. It ultimately serves as a behavioral analysis of individual incidences of self-injury. It was found to have excellent interrater reliability and satisfactory validity (Linehan et al., 2006). For the purposes of this study, the SASII was only used to gather data related to the functions of a suicide attempt that individuals endorsed, which were indicated by the participant answering yes or no to functions listed by the measure.

Suicide Implicit Association Test

The SIAT (Nock et al., 2010), sometimes referred to as the Life/Death Implicit Association Test or the Death/Suicide Implicit Association Test, was developed as an

implicit measure of life/death orientation and suicidality. Positive scores on the measure indicate a stronger association between death and self, whereas negative scores indicate a stronger association between life and self. Stimuli specific to the SIAT are related to the categories Me, Not Me, Life, and Death/Suicide. The words "I," "mine," "my," "myself," and "self" are presented and related to Me. The words "other," "their," "theirs," "them," and "they" are presented and related to Not Me. The words "thrive," "survive," "live," "breathing," and "alive" are presented and related to Life. The words "deceased," "die", "funeral," "lifeless," and "suicide" are presented and related to Death/Suicide. An individual SIAT administration consists of 180 trials occurring over seven blocks. These are comprised of three practice blocks totaling 60 trials and four test blocks totaling 120 trials.

IATs involve sorting stimuli related to four concepts using two keys; this allows the measure to determine the strengths of pairs of associations (Greenwald & Nosek, 2001). Specifically, IATs measure the association between a target-concept discrimination and an attribute dimension. The first step involves target-concept discrimination; one category is designated by a key one must press with the left hand, and another category is designated by a key one must press with the right hand. Next, an attribute dimension is presented in the same fashion. Afterward, stimuli for both are presented at different times. In the next step, the individual is oriented to the reversing of the responses for the target discrimination. The final step features the reversed keying of the target discrimination as well as the original keying of the attribute discrimination. Reminder labels remain onscreen throughout the assessment to aid in the identification and placement of stimuli into categories (Greenwald, McGhee, & Schwartz, 1998).

Cunningham, Preacher, and Banaji (2001) reported substantiating the integrity of the psychometric properties of implicit measures; however, upon analyzing their data, the authors found that tests of implicit attitudes in some cases could have less interitem consistency than some self-reports. However, evidence suggests that the IAT has noteworthy convergent and discriminant validity (Greenwald & Nosek, 2001). Nosek, Greenwald, and Banaji (2007) stated that there is also sufficient evidence for the IAT's construct and predictive validity. After an examination of the research, Greenwald and Nosek (2001) concluded that the IAT frequently detects individual differences that explicit measures fail to notice. However, Nosek, Greenwald, and Banaji (2007) cautioned against overreliance on the measure and stated that it should not be thought of as being more accurate than self-report. Ultimately, IAT results typically correlate weakly with explicit measures of the same constructs, suggesting that the measure gauges constructs that are separate from parallel constructs gauged by explicit measures (Greenwald & Nosek, 2001). For the purposes of this study, SIAT score served as the independent variable in all hypotheses.

Procedure

Approval was obtained from the Western Kentucky University Institutional Review Board and River Valley Behavioral Health Hospital's Human Rights Commission. All participants provided assent to participate and had a guardian provide informed consent as well. Assent was obtained with adolescents either during their admission intake or with one or more members of the research team at a later time. Participants received a $20 gift card for their participation. A member of the research team administered an assessment battery interview lasting approximately one and a half

to two hours that included the Functioning of Suicide Attempts items from the SASII, the ISAS, the SHBQ, and the SIAT; the latter was completed using Inquisit software on a portable laptop computer.

Data Analyses

Data analysis involved several stages. First, the functional responses for the SASII were categorized using the four category conceptualization described by Nock and Prinstein (2004), as being automatic–negative reinforcement, automatic–positive reinforcement, social–negative reinforcement, or social–positive reinforcement. For the purposes of the current study, responses were collapsed into either automatic or social reinforcement functions. Functions from the ISAS were organized into their domains (e.g. affect regulation), which were then collapsed into either intrapersonal (automatic reinforcement) or interpersonal (social reinforcement) categories, the scores for which were then averaged (Klonsky & Glenn, 2009). Functions from the SASII were categorized as being either intrapersonal (automatic reinforcement) or interpersonal (social reinforcement) and were totaled to create count variables reflecting the total number of functions endorsed for intrapersonal and interpersonal categories. The SIAT was scored using syntax from the Statistical Package for the Social Sciences (SPSS) following the alternative scoring algorithm provided by Greenwald, Nosek and Banaji (2003). Next, regression analyses were conducted to test the association between NSSI functions and the SIAT for Hypotheses I and II. Then, Poisson regression analyses were utilized to test the association between suicide attempt functions and the SIAT for Hypotheses I and II. Logistic regression analysis was conducted to test Hypothesis III.

Hypothesis IV was analyzed using a Poisson regression. Hypothesis V, which involves suicidal ideation, was analyzed using a Poisson regression.

Results

Four participants were not included in analyses as they were not administered the SIAT due to a decision to discontinue the interview by either the interviewer or interviewee. Five participants were not included in the analyses due to error rate(s) in one or more blocks of their SIAT administration exceeding 40%. Also, one participant was not included in the analyses because more than 25% of the individual's SIAT trials were below 300 ms in one or more blocks. These latter two exclusion criteria were derived from the alternative scoring algorithm suggested by Greenwald et al. (2003).

The mean, range, and standard deviation for the endorsement of the various ISAS NSSI function subscales are reported in Table 1.

Table 1.

Descriptive Statistics for the Endorsement of ISAS NSSI Function Subscales

Function Subscales	N	Minimum	Maximum	Mean	Std. Deviation
IntBound	27	0.00	6.00	1.63	1.84
AffReg	27	0.00	6.00	3.89	1.99
SelfPun	27	0.00	6.00	3.00	2.02
SelfCare	26	0.00	4.00	1.85	1.38
AntiDissoc	26	0.00	6.00	2.46	2.00
AntiSuic	26	0.00	6.00	2.62	2.00
SensSat	27	0.00	5.00	1.04	1.32
PeerBond	27	0.00	5.00	0.89	1.42

IntInflu	27	0.00	6.00	1.89	1.89
Tough	27	0.00	6.00	1.85	1.54
MarkDist	27	0.00	6.00	2.41	1.80
Revenge	27	0.00	4.00	0.70	1.32
Autonomy	27	0.00	5.00	0.96	1.38
No NSSI Reported	1				

The frequency of the endorsement of intrapersonal and interpersonal functions of suicide attempts on the SASII is reported in Table 2.

Table 2.

Number of Functions of Suicide Attempts Endorsed on the SASII

Number of Intrapersonal Functions for Suicide Attempts Endorsed on the SASII				
	Number of Functions	Frequency	Percent	Cumulative Percent
Valid	1.00	2	14.30	15.40
	3.00	1	7.10	23.10
	6.00	2	14.30	38.50
	7.00	1	7.10	46.20
	8.00	1	7.10	53.80
	9.00	1	7.10	61.50
	11.00	1	7.10	69.20

12.00	1	7.10	76.90
14.00	1	7.10	84.60
15.00	1	7.10	92.30
17.00	1	7.10	100.00
Missing	1	7.10	
Number of Interpersonal Functions for Suicide Attempts Endorsed on the SASII			
0.00	1	7.10	7.10
1.00	5	35.70	42.90
2.00	2	14.30	57.10
3.00	4	28.60	85.70
4.00	2	14.30	100.00
Total	14	100.00	

The regression coefficient, odds ratio, standard error, 95% confidence intervals, and p values following data analyses are reported in Table 3.

Table 3.

Results of Data Analyses for Hypotheses I, II, III, IV, and V

	Coefficient/ Odds Ratio	Std. Error	95% CI Lower, Upper		*p*
H I a.	1.44	0.91	N/A	N/A	0.13
H I b.	0.01	0.21	-0.41	0.42	0.97
H II a.	0.00	0.50	N/A	N/A	0.99
H II b.	0.60	0.51	-0.40	1.60	0.24

H III	4.56	N/A	0.36	57.76	N/A
H IV	0.99	0.07	0.86	1.13	0.00
H V	1.09	0.23	0.65	1.54	0.00

Note. Analysis for H3 is Logistic Regression and the statistic is odds ratio. Statistics for all other analyses are coefficients.

To test the first aspect of Hypothesis I concerning the association between SIAT scores and the endorsement of automatic reinforcement functions of NSSI on the ISAS, a regression analysis was conducted. A non-significant association was observed between SIAT D score and intrapersonal functions of NSSI (β=1.44, S.E.=.91, *p*=.13). To test the second aspect of Hypothesis I concerning the association between SIAT scores and the endorsement of automatic reinforcement functions of suicide attempts on the SASII, a Poisson regression analysis was conducted. It should be noted that only 14 individuals reported suicide attempts in this sample. A non-significant association was observed between SIAT D score and intrapersonal functions of suicide attempts (β=.01, S.E.=.21, *p*=.97, CI:-.41, .42).

To test the first aspect of Hypothesis II concerning the association between SIAT scores and the endorsement of social reinforcement functions of NSSI on the ISAS, a regression analysis was conducted. A non-significant association was observed between SIAT D score and interpersonal functions of NSSI (β=.004, S.E.=.5, *p*=.99). To test the second aspect of Hypothesis II concerning the association between SIAT scores and the endorsement of social reinforcement functions of suicide attempts on the SASII, a Poisson regression analysis was conducted. A non-significant association was observed between SIAT D score and interpersonal functions of suicide attempts (β=.60, S.E.=.51, *p*=.24, 95% CI:-.40, 1.60).

Logistic regression analysis was utilized to test the third hypothesis concerning the association between SIAT scores and previous suicide attempts. A non-significant odds ratio was observed, with widely ranging confidence intervals [OR =4.56, 95% CI: .36, 57.76], suggesting that for each point increment on the SIAT an individual scores, there is over four and a half greater likelihood that the individual had previously made a suicide attempt. The large range between confidence intervals reflects a lack of precision often seen in small sample sizes.

To test the fourth hypothesis concerning the association between SIAT scores and previous NSSI frequency, Poisson regression analysis was conducted. A significant positive association was observed (β=.99, S.E.=.07, *p*=.00, 95% CI:.86, 1.13), indicating that for each point increment on the SIAT an individual scores, participants are likely to report an additional instance of previous NSSI.

To test the fifth and final hypothesis concerning the association between SIAT scores and suicidal ideation, Poisson regression analysis was conducted. A significant positive association was observed (β=1.09, S.E.=.23, *p*=.00, 95% CI: .65, 1.54), indicating that for each point increment on the SIAT an individual scores, participants are likely to report a greater level of severity of previous suicidal ideation.

Discussion

It was hypothesized that lower SIAT scores would be associated with a higher degree of social reinforcement functions of self-directed violence. It was also hypothesized that higher SIAT scores would be associated with a higher degree of automatic reinforcement functions of self-directed violence, a greater likelihood of a previous suicide attempt, a greater frequency of previous NSSI, and a greater level of severity of previous suicidal ideation.

However, our results did not support Hypothesis I, regarding the positive association between SIAT scores and automatic reinforcement functions. Although the findings were non-significant, it was observed that the association between SIAT scores and intrapersonal functions of NSSI were several times greater than the association between SIAT scores and intrapersonal functions of suicide attempts. Hypothesis II, regarding the proposed negative association between SIAT scores and social reinforcement functions, was also not supported by our results. Conversely, in regards to Hypothesis I, the association between SIAT scores and social reinforcement functions of suicide attempts was found to be several times greater than the association between SIAT scores and social reinforcement functions of NSSI. However, these are only observations of our results and should not be interpreted as reliable or valid findings.

Hypotheses I and II were exploratory, and were ultimately unsupported; however, some findings of interest were observed in the study's investigation of functions of self-directed violence. As in many previous studies, automatic reinforcement (intrapersonal) functions were found to be more frequently endorsed than social reinforcement (interpersonal) functions (Bryan et al., 2013; Klonsky & Glenn, 2009; Nock & Prinstein,

2004). It was also observed that, in numerous cases, individual instances of self-directed violence served several unique functions simultaneously, which other researchers have noted (Bryan et al., 2013; Klonsky, 2007).

The results of a logistic regression analysis partially supported Hypothesis III, regarding the positive association between SIAT scores and number of previous suicide attempts. However, the confidence interval included 1.0 and thus the results were not statistically significant, perhaps due to the relatively small sample size utilized in the current study. However, these findings were similar to those observed by Nock et al. (2010), in that SIAT scores were positively associated with a history of attempting suicide. Nock et al. (2010) also found that individuals with positive SIAT scores were six times more likely to make a future suicide attempt than those with negative scores, whereas Randall et al. (2013) found that individuals were five times more likely. These additional findings closely reflect the current study's, that for each increment higher an individual scores on the SIAT, he or she is 4.5 times more likely to have previously made a suicide attempt. An obvious limitation of the current study is that, unlike those previously mentioned, it was not prospective, and did not utilize follow ups. As a result of doing so, those studies have observed the SIAT's predictive validity. Similarly, Ellis et al. (2015) tracked inpatients' SIAT score changes over time, and Nock and Banaji (2007) observed that the SI-IAT was likewise predictive of future suicide attempts and suicidal ideation.

The results of a Poisson regression analysis supported Hypothesis IV, regarding the positive association between SIAT scores and previous NSSI frequency. The cognitive profile relayed by the SIAT corresponded well to NSSI history in the current

study. It is of interest that Nock and Banaji (2007) found an association between suicidality and scores from the SI-IAT, an implicit measure of an individual's association between NSSI and self. Conversely, our finding was an association between NSSI and scores from the SIAT, an implicit measure of an individual's association between death and self. In these studies, scores from implicit measures were associated with variables related to, but ultimately different from those originally intended to be measured. In these cases specifically, this may suggest a more complex relationship between these variables, which may be a potential topic for future study. Ultimately, our finding implies that engaging in NSSI may strengthen one's implicit association between death and self.

The results of a Poisson regression analysis supported Hypothesis V, regarding the association between SIAT scores and level of severity of previous suicidal ideation. This is consistent with results from Nock and Banaji (2007), who found a small association between SI-IAT scores and suicidal ideation. It should also be noted that Ellis et al. (2015) likewise observed an association between SIAT scores and suicidal ideation, which is consistent with the findings of the current study.

The current study was underpowered due to a relatively low sample size and overall lack of variance in suicide attempt status. This is likely the reason for the large ranges in confidence intervals concerning some hypotheses, and for some results' non-significance. In a larger sample, these may have been different. However, it should be noted that, despite the small sample size in the current study, the SIAT was still found to be significantly associated with more traditional means of measuring components self-directed violence, particularly in regards to NSSI and suicidal ideation. Findings were not as pronounced or significant in regards to functions of self-directed violence. Suicide

attempts, due to being a low base rate behavior, would require a larger sample to more effectively study these and other hypotheses of interest.

Nock and Prinstein (2005) found that automatic negative reinforcement was associated with hopelessness and recent suicide attempts, that automatic positive reinforcement was associated with symptoms of depression, and that PTSD was associated with automatic positive reinforcement and both types of social reinforcement. Ellis et al. (2015) observed associations between SIAT scores and symptoms of depression. The inclusion of clinical symptoms and disorders would have expanded the current study so that additional associations and relationships could have been tested.

The results of the current study and from previous literature lend themselves to the recommendation that clinicians and researchers could benefit from considering and addressing the functionality of self-directed violence, implicit cognition, and self-associations in the conceptualization and treatment of individuals. It is hoped that the current research will continue to motivate the use of a thoughtful combination of approaches and measures to aid in more sophisticated conceptualizations of individuals in clinical and research settings. The SHBQ may be best used upon intake in inpatient, outpatient, and emergency department settings with those who admit or are suspected who have engaged in previous self-directed violence. This measure can be used to obtain a relatively comprehensive self-directed violence history. The ISAS can also be utilized in this way, but its Functions section, along with the SASII's Functioning of Suicide Attempts items, may be additionally useful in understanding the motivations behind instances of self-directed violence. In clinical settings, these may be especially helpful with informing conceptualization and treatment.

The findings of Randall et al. (2013) led the authors to conclude that the SIAT should be used to supplement other measures, and that it is not ideal to use alone. Ellis et al. (2015) posited this recommendation as well. The SIAT could be used in conjunction with other measures upon intake in the aforementioned settings; however, its unique contribution would be the potential to reveal a death/suicide orientation the individual may choose to conceal. Ellis et al. (2015) administered the SIAT to adult inpatients with suicidal ideation at two-week intervals and before discharge. This illustrates how the SIAT can be used in inpatient and outpatient settings as a repeated measure to observe changes over time, and potentially response to treatment. When used in tandem with measures like the ISAS, SASII, and SHBQ, it would be sensible to utilize the SIAT before individuals' discharge to inform judgments related to risk assessment and level of aftercare.

Conclusion

Approaches using risk factors alone or as primary considerations are at times viewed as inadequate for effectively predicting and preventing self-directed violence (Klonsky & May, 2013). Traditional approaches and analyzing functionality have much merit, but are sometimes limited by insight, a wish for privacy, and other obstacles. Behavioral and implicit measures may serve as solutions and have the potential to supplement other approaches. The Implicit Association Test has remained one of the most popular of these utilized in psychological research (Greenwald et al., 2006). The SIAT is one of the most frequently utilized IATs in self-directed violence research.

This study illustrated the usefulness of measures related to self-directed violence including the ISAS, SASII, SIAT, and SHBQ. The evidence did not support a

relationship between SIAT scores and functions of self-directed violence individuals endorsed. SIAT scores were, however, found to be associated with previous NSSI and suicidal ideation, evidence that supports the use of this measure. Additional research with larger samples and varied populations would prove useful for further substantiating the use of these measures. Prospective follow ups, and the inclusion of clinical symptoms and disorders are additional possibilities for future research. Investigating the functionality of behaviors and the role of implicit cognition and self-associations in the development of these phenomena appears to be a promising approach that will continue to be of value in self-directed violence research in ways that could effectively contribute to prevention and treatment.

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Appendix A

Inventory of Statements About Self-Injury (ISAS)

Please estimate the number of times in your life you have intentionally (i.e., on purpose) performed each of these types of non-suicidal self-harm (e.g., 0, 10, 100, 500).

SELF-HARM BEHAVIORS			
Cutting		**Severe scratching**	
Biting		**Banging or hitting self**	
Burning		**Interfering with wound healing (e.g., picking scabs)**	
Carving		**Rubbing skin against rough surface**	
Pinching		**Sticking self with needles**	
Pulling hair		**Swallowing dangerous substances**	
Other: _____			

Do you feel that you have a main form of self-harm? (If yes) Which of these behaviors would you consider to be your main form(s) of self-harm? (Circle the behavior(s) above.)

*(*Note: If the participant has performed one or more of the behaviors listed above, please complete questions 82-128. If the participant has not performed any of the behaviors listed above, you are done with this particular assessment and should continue to the next on page 15.)*

82. At what age did you first harm yourself?

_____

Approximate date? (month/day/year)

_____

83. At what age did you most recently harm yourself?

_____

Approximate date? (month/day/year)

_____

84. Do you experience physical pain during self-harm? Yes Sometimes No
85. When you self-harm, are you alone? Yes Sometimes No
86. Typically, how much time elapses from the time you have the urge to self-harm until you act on the urge? <1 hour 1-3 hours 3-6 hours 6-12 hours 12-24 hours >1 day
87. Do/Did you want to stop self-harming? Yes No

*The following inventory was written to help us better understand the experience of non-suicidal self-harm. I am going to read a list of statements that may or may not be relevant to your experience of self-harm. Please identify the statements that are most relevant to you using the responses listed on **CARD 5**: not relevant, somewhat relevant, or very relevant.* **(CARD 5)**

"WHEN I SELF-HARM I AM…"			
88. …calming myself down.	Not relevant 0	Somewhat relevant 1	Very relevant 2
89. …creating a boundary between myself and others.	Not relevant 0	Somewhat relevant 1	Very relevant 2
90. …punishing myself.	Not relevant 0	Somewhat relevant 1	Very relevant 2
91. …giving myself a way to care for myself (by attending to the wound).	Not relevant 0	Somewhat relevant 1	Very relevant 2
92. …causing pain so I will stop feeling numb.	Not relevant 0	Somewhat relevant 1	Very relevant 2
93. …avoiding the impulse to attempt suicide.	Not relevant 0	Somewhat relevant 1	Very relevant 2
94. …doing something to generate excitement or exhilaration.	Not relevant 0	Somewhat relevant 1	Very relevant 2
95. …bonding with peers.	Not relevant 0	Somewhat relevant 1	Very relevant 2

96. …letting others know the extent of my emotional pain.	Not relevant 0	Somewhat relevant 1	Very relevant 2
97. …seeing if I can stand the pain.	Not relevant 0	Somewhat relevant 1	Very relevant 2
98. …creating a physical sign that I feel awful.	Not relevant 0	Somewhat relevant 1	Very relevant 2
99. …getting back at someone.	Not relevant 0	Somewhat relevant 1	Very relevant 2
100. …ensuring that I am self-sufficient.	Not relevant 0	Somewhat relevant 1	Very relevant 2
101. …releasing emotional pressure that has built up inside of me.	Not relevant 0	Somewhat relevant 1	Very relevant 2
102. …demonstrating that I am separate from other people.	Not relevant 0	Somewhat relevant 1	Very relevant 2
103. …expressing anger towards myself for being worthless or stupid.	Not relevant 0	Somewhat relevant 1	Very relevant 2
104. …creating a physical injury that is easier to care for than my emotional distress.	Not relevant 0	Somewhat relevant 1	Very relevant 2
105. …trying to feel something (as opposed to nothing) even if it is physical pain.	Not relevant 0	Somewhat relevant 1	Very relevant 2
106. …responding to suicidal thoughts without actually attempting suicide.	Not relevant 0	Somewhat relevant 1	Very relevant 2
107. …entertaining myself or others by doing something extreme.	Not relevant 0	Somewhat relevant 1	Very relevant 2
108. …fitting in with others.	Not relevant 0	Somewhat relevant 1	Very relevant 2
109. …seeking care or help from others.	Not relevant 0	Somewhat relevant 1	Very relevant 2
110. …demonstrating I am tough or strong.	Not relevant 0	Somewhat relevant 1	Very relevant 2
111. …proving to myself that my	Not	Somewhat	Very

emotional pain is real.	relevant 0	relevant 1	relevant 2
112. …getting revenge against others.	Not relevant 0	Somewhat relevant 1	Very relevant 2
113. …demonstrating that I do not need to rely on others for help.	Not relevant 0	Somewhat relevant 1	Very relevant 2
114. …reducing anxiety, frustration, anger, or other overwhelming emotions.	Not relevant 0	Somewhat relevant 1	Very relevant 2
115. …establishing a barrier between myself and others.	Not relevant 0	Somewhat relevant 1	Very relevant 2
116. …reacting to feeling unhappy or disgusted with myself.	Not relevant 0	Somewhat relevant 1	Very relevant 2
117. …allowing myself to focus on treating the injury, which can be gratifying or satisfying.	Not relevant 0	Somewhat relevant 1	Very relevant 2
118. …making sure I am still alive when I don't feel real.	Not relevant 0	Somewhat relevant 1	Very relevant 2
119. …putting a stop to suicidal thoughts.	Not relevant 0	Somewhat relevant 1	Very relevant 2
120. …pushing my limits in a manner akin to skydiving or other extreme activities.	Not relevant 0	Somewhat relevant 1	Very relevant 2
121. …creating a sign of friendship or kinship with friends or loved ones.	Not relevant 0	Somewhat relevant 1	Very relevant 2
122. …keeping a loved one from leaving or abandoning me.	Not relevant 0	Somewhat relevant 1	Very relevant 2
123. …proving I can take the physical pain.	Not relevant 0	Somewhat relevant 1	Very relevant 2
124. …signifying the emotional distress I'm experiencing.	Not relevant 0	Somewhat relevant 1	Very relevant 2
125. …trying to hurt someone close to me.	Not relevant 0	Somewhat relevant 1	Very relevant 2
126. …establishing that I am autonomous/independent.	Not relevant	Somewhat relevant	Very relevant

	0	1	2

127. (*Optional*) Please list any statements that you feel would be more accurate for you than the ones listed above. "When I self-harm I am…"
128. (*Optional*) Please list any statements you feel should be added to the above list, even if they do not necessarily apply to you. "When I self-harm I am…"

Appendix B

Self-Harm Behavior Questionnaire (SHBQ)

A lot of people do things which are dangerous and might get them hurt. There are many reasons why people take these risks. Often people take risks without thinking about the possibility that they might get hurt. However, sometimes people hurt themselves on purpose.

We are here today because we are interested in learning more about the ways in which you may have hurt yourself, whether intentionally or unintentionally. We are also interested in trying to understand why people your age might want to participate in risky or dangerous behavior.

It is important for you to understand that if you tell us about things you've done which may have been unsafe or make it possible that you may not be able to keep yourself safe, we will encourage you to discuss this with a counselor or other confidant in order to keep you safe in the future.

First I am going to ask you some "yes" or "no" questions as well as some open-ended follow-up questions. For questions where you are asked who you told something to, do not give specific names. We only want to know if it was someone like a parent, teacher, doctor, or someone else.

9. Current age: ____

THINGS YOU MAY HAVE ACTUALLY DONE TO YOURSELF ON PURPOSE

10a. Have you ever hurt yourself on purpose (e.g., scratched yourself with fingernails or sharp object)?

Yes No

10b. (If yes) What did you do?

_____

_____

10c. Approximately how many times did you do this?

_____

_____

10d. Approximately when did you first do this to yourself (age)?

_____

_____

10e. When was the last time you did this to yourself (age)?

_____
_____

10f. Have you ever told anyone that you had done these things?
Yes No

(If yes) Who did you tell?
_____

10g. Have you ever needed to see a doctor after doing these things?
Yes No

TIMES YOU HURT YOURSELF BADLY ON PURPOSE OR TRIED TO KILL YOURSELF

11a. Have you ever attempted suicide?
Yes No

11b. (If yes) How?
_____
_____

(If you took pills) What kind?
_____
How many?
_____
Over how long a period of time did you take them?
_____

11c. How many times have you attempted suicide?
_____
_____

11d. When was the most recent attempt (age)?
_____
_____

11e. Did you tell anyone about the attempt?
Yes No

(If yes) Who? _____

11f. Did you require medical attention after the attempt?
Yes No

(If yes) Were you hospitalized overnight or longer? Yes No

How long were you hospitalized?

_____

11g. Did you talk to a counselor or some other person like that after your attempt?
Yes No

(If yes) Who? _____

IF YOU ATTEMPTED SUICIDE

12a. What other things were going on in your life around the time that you tried to kill yourself?

_____
_____

_____
_____

12b. Did you actually want to die?
Yes No

(Continued…)
12c. Were you hoping for a specific reaction to your attempt?
Yes No

(If yes) What was the reaction you were looking for?

_____

_____

12d. Did you get the reaction you wanted?
Yes No

12e. Who knew about your attempt?

_____

TIMES YOU THREATENED TO HURT YOURSELF BADLY OR TRY TO KILL YOURSELF

13a. Have you ever threatened to commit suicide?
Yes No

13b. (If yes) What did you threaten to do?
_____

13c. Approximately how many times did you do this?
_____

13d. Approximately when did you first do this (age)?
_____

13e. When was the last time you did this (age)?
_____

13f. Who did you make threats to (e.g., mom, dad)?
_____

13g. What other things were going on in your life during the time that you were threatening to kill yourself?
_____
_____

_____
_____

13h. Did you actually want to die?
Yes No

13i. Were you hoping for a specific reaction to your threat?
Yes No

(If yes) What was the reaction you were looking for?

_____

_____

(Continued…)
13j. Did you get the reaction you wanted?
Yes No

(If no) What type of reaction was there to your threat?

_____

14a. Have you ever talked or thought about wanting to die?
Yes No

14b. Have you ever talked or thought about committing suicide?
Yes No

14c. (If yes) What did you talk about doing?
_____

With whom did you discuss this?
_____

What made you feel like doing that?

_____
____

_____
____

14d. Did you have a specific plan for how you would try to kill yourself?
Yes No

(If yes) What plan did you have?

_____
____

_____
____

14e. In looking back, how did you imagine people would react to your attempt?

_____
____

14f. Did you think about how people would react if you did succeed in killing yourself?

Yes No

(If yes) How did you think they would react?

_____

_____

_____

_____

14g. Did you ever take steps to prepare for this plan?
Yes No

(If yes) What did you do to prepare?
_____

Appendix C

Suicide Attempt Self-Injury Interview (SASII)

*(*Note: Complete the following assessment only if the participant reports to have attempted suicide, i.e., answered "yes" to 11a on page 3.)*

<u>Part 1:</u> Please listen carefully to the following statements and tell me whether any of them is a reason that you previously attempted suicide using "yes" or "no" answers.

<u>Part 2:</u> For each statement you answered "yes" to, please rate how effective your attempted suicide was or how well it worked for solving that particular problem using the scale from 1 to 5 on ***CARD 6****: 1 for "not effective at all" (did not help) to 5 for "very effective" (helped a lot).* **(CARD 6)**

EFFECTIVENESS OF ATTEMPTS							
	Would you say that you attempted suicide for this reason?		***(If yes) Rate how effective your suicide attempt was or how well it worked for solving that particular problem.***				
129. To stop bad feelings.	No	Yes→	1	2	3	4	5
130. To communicate to or let others know how desperate you were.	No	Yes→	1	2	3	4	5
131. To get help.	No	Yes→	1	2	3	4	5
132. To gain admission into a hospital or treatment program.	No	Yes→	1	2	3	4	5
133. To die.	No	Yes→	1	2	3	4	5
134. To feel something, even if it was pain.	No	Yes→	1	2	3	4	5
135. To punish yourself.	No	Yes→	1	2	3	4	5
136. To get a vacation from having to try so hard.	No	Yes→	1	2	3	4	5
137. To get out of doing something.	No	Yes→	1	2	3	4	5
138. To shock or impress others.	No	Yes→	1	2	3	4	5
139. To prove to yourself that things really were bad and it was okay to feel as bad as you did.	No	Yes→	1	2	3	4	5
140. To give you something,	No	Yes→	1	2	3	4	5

anything to do.							
141. To get other people to act differently or change.	No	Yes→	1	2	3	4	5
142. To get back at or hurt someone.	No	Yes→	1	2	3	4	5
143. To make others better off.	No	Yes→	1	2	3	4	5
144. To get away or escape.	No	Yes→	1	2	3	4	5
145. To stop feeling numb or dead.	No	Yes→	1	2	3	4	5
146. To be with people you love.	No	Yes→	1	2	3	4	5
147. To prevent being hurt in a worse way.	No	Yes→	1	2	3	4	5
148. To stop feeling angry or frustrated or enraged.	No	Yes→	1	2	3	4	5
149. To demonstrate to others how wrong they are/were.	No	Yes→	1	2	3	4	5
150. To feel sexually aroused.	No	Yes→	1	2	3	4	5
151. To relieve anxiety or terror.	No	Yes→	1	2	3	4	5
152. To distract yourself from other problems.	No	Yes→	1	2	3	4	5
153. To relieve feelings of aloneness, emptiness, or isolation.	No	Yes→	1	2	3	4	5
154. To stop feeling self-hatred, shame.	No	Yes→	1	2	3	4	5
155. To express anger or frustration.	No	Yes→	1	2	3	4	5
156. To obtain relief from a terrible state of mind.	No	Yes→	1	2	3	4	5