ADOLESCENT NONSUICIDAL SELF-INJURY:

VALIDATION OF A SELF-REPORT MEASURE OF FUNCTION

by

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ABSTRACT

The present study compares the results of the Functional Assessment of Self-Mutilation (FASM) to that of a direct observation functional assessment of three adolescents in a residential treatment facility. The functions of nonsuicidal self-injury (NSSI) identified by the FASM were compared to direct A-B-C assessments as taken from each participant's medical records at the facility. The adolescent FASM results were also compared to two FASM's completed by staff members for each participant in order to assess similarity in perceived ranking of function for the participant's NSSI. The results indicate no agreement between the results of the participant FASM and the A-B-C assessment ranking of function. For staff to participant comparison, a higher percent of agreement was observed between both staff to participant rankings and staff to A-B-C assessment rankings of function.

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INTRODUCTION

Over the past decade, increased attention has been paid to nonsuicidal self-injury (NSSI), a form of self-mutilative behavior that is defined as the direct and deliberate destruction of one's own bodily tissue in ways that are not socially sanctioned and done without suicidal intent (Howe-Martin, Murrel, & Guarnaccia, 2012; Nock, Joiner, Gordon, Lloyd-Richardson, & Prinstein, 2006). As a result, a push to include NSSI as a separate disorder in the most recent version of the *Diagnostic and Statistical Manual of Mental Disorders* occurred before its release (5th ed.; *DSM-5*, American Psychiatric Association, 2013; Wilkinson & Goodyer, 2011). In the *DSM*-5, NSSI was placed in the section of conditions for further study. It includes within the diagnostic features "repeatedly inflict[ing] shallow, yet painful injuries to the surface of his or her body" and a differential diagnosis from other disorders, such as borderline personality disorder, suicidal behavior disorder, and stereotypic self-injury (a common form of self-injury exhibited by those with autism spectrum disorder and intellectual disabilities; American Psychiatric Association, 2013, p. 804-806).

In order to discriminate NSSI from the self-injurious behavior (SIB) often assessed in populations with autism spectrum disorder and intellectual disabilities, these populations are often excluded from studies of NSSI (Swenson, Spirito, Kittler, & Hunt, 2008; Yates, Tracy, & Luthar, 2008). This has caused a split in the research and in the literature between the SIB of those with developmental delays and the NSSI behaviors of neurotypical populations. These behaviors are similar in many ways. They are often

physically damaging and appear to serve an underlying function for the individual (Bloom, Holly, & Miller, 2012). Extensive research has been done in an attempt to uncover the functions of SIB in developmentally delayed populations using direct and experimental assessment, as reviewed in Beavers, Iwata, and Lerman (2013), but little research has assessed underlying functions of NSSI in neurotypical populations.

Research on NSSI has consistently relied on the use of self-report or indirect assessments. Indirect assessment of NSSI has provided data on prevalence rates, demographic characteristics, gender differences, relationship to suicide and psychopathology, method frequency, location, and pain ratings, as well as inter- and intrapersonal effects on the rates and severity of NSSI. When it comes to the functions of NSSI, much of the research has focused on automatic functions such as affect regulation, experiential avoidance, and cognitive –affective regulation (Zetterqvist, Lundh, Dahlstrom, and Svedin, 2013). Behavioral research on SIB has focused on experimental analyses to identify functions of challenging behavior, as reviewed in Matson et al. (2011), including most frequently tangible, social, escape, and automatic as the choice of hypothetical functions.

Nock and Prinstein (2004) presented a theory to bridge this gap with the development of a four factor model (FFM) associated with an indirect self-report assessment of NSSI called the Functional Assessment of Self-Mutilation (FASM; Lloyd, Kelley, and Hope, 1997). The 2004 study assessed 108 adolescent inpatients (76% women, 72.2% Caucasian) who were presenting with NSSI thoughts or behaviors. This sample was utilized in two other studies (Nock & Prinstein, 2005; Nock, et al., 2006).

The participants were administered the FASM, and the results were derived through a confirmatory factor analysis consisting of four factors created by Nock and Prinstein (2004). The factors proposed by Nock and Prinstein (2004) were on two dichotomous dimensions, including automatic versus social contingencies and positive versus negative reinforcement. The resulting four factors presented were automatic-negative reinforcement (ANR), automatic-positive reinforcement (APR), social-negative reinforcement (SNR), and social-positive reinforcement (SPR).

Automatic-negative reinforcement refers to the use of NSSI as a way to reduce tension or other unwanted internal states (Nock & Prinstein, 2004). It was described by Lloyd-Richardson, Nock, and Prinstein (2009) as a way to "remove or stop some undesirable cognitive or emotional state, such as to release tension or to distract from disturbing thoughts" (p. 33). Automatic-negative reinforcement has been associated with negative-affect regulation (Lloyd-Richardson et al., 2009). The research on experiential avoidance also appears to coincide with this function, as a representation of using NSSI to escape unwanted emotional states (Howe-Martin et al. 2012).

Automatic-positive reinforcement refers to the use of NSSI as a way to "create a desirable physiological state" (Nock & Prinstein, 2004, p. 886). The desired, reinforcing outcome of this function is to produce and attain an internal state, instead of attempting to remove or reduce it as in automatic-negative reinforcement. This production of internal states is associated with escaping feelings of numbness (Lloyd-Richardson et al., 2009). Both of these automatic functions are also represented in other functions hypothesized for NSSI including cognitive-affective regulation.

Social-negative reinforcement contains the same negative element as automatic-negative reinforcement, referring to the desire for something to be removed or reduced. However, the social element refers to an external reinforcing mechanism. As a function of NSSI, the reinforcement here is the ability to "escape from interpersonal tasks or demands" (Nock & Prinstein, 2004, p. 886).

Social-positive reinforcement refers to the use of NSSI as a way to gain attention from others or to gain access to tangible items or interpersonal situations (Nock & Prinstein, 2004). Similar to automatic-positive reinforcement, this function involves the production or attainment of a reinforcer as opposed to the reduction or removal of one. The reinforcer here may be to gain something from others, such as pity, sympathy, or approval through the threat of, the visual, or even the displaying of scars of NSSI.

Nock and Prinstein's (2004) theoretical four factor model loaded significantly with the data from the FASM results of the 108 adolescent inpatients. The internal consistency of each of the four factors ranged from .62 to .85 (Nock & Prinstein, 2004). Lloyd-Richardson et al. (2009) explain that NSSI is contextually complex, and the behavior may serve multiple functions for each individual. This complexity is demonstrated through the possible attainment of four different factor scores from this model.

The purpose of this study is to validate the four factor model of Nock and Prinstein (2004) using the FASM to compare results to an A-B-C direct behavioral assessment of NSSI function. Indirect, direct, and experimental methods of determining the function of NSSI will be reviewed for limitations and benefits. Along with this, the

current study will examine the research behind indirect and behavioral approaches to the assessment of self-harm function.

NSSI Research through Indirect Assessment

Indirect assessment of NSSI has yielded a plethora of information on various topics. For the purpose of this study the research will be broken down into frequency rates, demographic characteristics, gender differences, relationship to suicide and psychopathology, physical characteristics (methods, location, and pain), and intra- and interpersonal effects on NSSI. Intra- and interpersonal correlates include abuse, bullying, parental, and peer correlates on NSSI behaviors.

Frequency rates. Within the literature of NSSI frequency in both clinical and community samples are determined in several ways. One is the occurrence of an NSSI event at any point in the participant's lifetime. However, because NSSI is an act that can be done once or repeatedly, with current frequency presenting a higher concern, rates are also determined in timelines of 6 months to 1 year. These rates often depend on whether the sample is inpatient or community, adult or adolescent, and are separated accordingly.

Looking at adult community samples within the literature, Gratz, Conrad, and Roemer (2002) found a prevalence of 38% for at least one incident of NSSI over their lifetime for a sample of 133 college students (67% women, 62% Caucasian). Of these, 18% reported a frequency of more than 10 incidents of NSSI and 10% reported more than 100 incidents (Gratz et al., 2002). Gratz (2006) found in an all-female sample of 249 college students (66% Caucasian) that 37% reported at least one incident in their lifetime and 17% reported more than 10. Whitlock, Eckenrode, and Silverman (2006) found in a

college sample of 2,875 students (56.3% women, 64% Caucasian) a 17% rate of at least one incident in their lifetime. Of these, 70% reported more than 2 occurrences of NSSI, and 7.3% reported at least one incident of NSSI in the past year (Whitlock et al., 2006). Klonsky and Olino (2008) sampled 815 college students and found a 25.1% rate of at least one incident of NSSI during their lifetime. Of those with a history of an NSSI incident, 57% were women, 42% Caucasian, and 63% reported having self-harmed in the past year (Klonsky & Olino, 2008). Andover and Gibb (2010) indirectly assessed 117 inpatient adults (61.5% women, 74.4% Caucasian) and reported a 45.3% rate of NSSI over lifetime.

The estimated rate of adult NSSI prevalence ranges from 17 to 38% with a history of at least one NSSI incident in their lifetime for community samples. There is a comparably higher rate in adult inpatient samples (45.3%; Andover & Gibb, 2010). This difference provides evidence that inpatient samples are at a higher risk for NSSI.

Adolescents have been a strong point of NSSI research over the past decade. This population appears to be at risk as evidenced by high rates of NSSI, as well as adolescents' increased emotional vulnerability as they reach puberty. Adolescent research has evaluated both community and inpatient samples using cross-sectional and longitudinal research designs. For these studies as well, the rate of NSSI frequency for lifetime reflects a history of at least one incident of NSSI unless stated otherwise.

Using a cross-sectional design in a community-based study of adolescents, Ross and Heath (2002) assessed a high school sample of 440 students (50.2% women) and found a 13.9% lifetime rate. Of those who reported self-harm, 77% were Caucasian

(Ross & Heath, 2002). Lloyd-Richardson, Perrine, Dierker, and Kelley (2007) assessed 633 high school adolescents (57% women, 50.9% African American) and found a 46% lifetime rate, of which 55% reported at least one incident in the past year. Hilt, Cha, and Nolen-Hoeksema (2008) assessed 94 younger adolescents (ages 10-14, all women, 71% Caucasian) and found a 56.4% lifetime rate, of which 36.2% reported at least one incident in the past year. Yates et al. (2008) assessed 1036 high school adolescents (51.9% women, 70.7% Caucasian) and found a 7.7% lifetime rate, of which 29.5% reported more than one incident. More recently, Sornberger, Heath, Toste, and McLouth (2012) assessed a large sample of 7,126 middle and high school adolescents (50.8% women, 67% Caucasian) and found a 26.1% lifetime rate. Howe-Martin et al. (2012) assessed 211 high school adolescents (50.7% women, 60% Caucasian) and found a 34% lifetime rate, of whom 16% reported more than 5 incidents over the past 6 months. Bakken and Gunter (2012) assessed a large sample of 2548 high school adolescents (50% women, 54% Caucasian) and found 13% reported at least one incident in the past year.

NSSI behavior in adolescents has been examined using longitudinal designs in the literature as well. Of those, Prinstein et al. (2010) assessed 377 middle school adolescents (50% women, 86% Caucasian) over an 11-month period and found a 7.4% rate of current NSSI engagement at time 1 and a 3.2% rate of current engagement at time 2. Hilt, Nock, Lloyd-Richardson, and Prinstein (2008) conducted a study of 508 middle school students (51% women, 87% Caucasian) and found that 7.5% reported at least one incident in the past year, with 36% of those reporting a frequency of at least once a month. Yates et al. (2008) assessed 245 middle school students selected from an east coast school (53.1%

women, 89% Caucasian) with an overall rate of NSSI at 10.2% for at least one incident in their lifetime, of whom 15.9% reported more than one incident. Guan, Fox, and Prinstein (2012) assessed 399 high school adolescents longitudinally (54% women, 49% Caucasian) and found a 29.5% lifetime rate.

Using an inpatient sample of adolescents, Nock and Prinstein (2004) reported 82.4% of inpatients with at least one lifetime incident of NSSI in the past year. Guerry and Prinstein (2010) assessed 145 adolescent inpatients longitudinally (72% women, 75% Caucasian) and found 67.9% reported NSSI in the past year at the study's baseline. The patients were reassessed after 3 months (32.7% with an incident), 6 months (29%), 9 months (34%), 15 months (22.8%), and 18 months (28.4%), and NSSI rates were all significantly lower than the initial baseline frequency reported (Guerry & Prinstein, 2010).

Rates of NSSI vary considerably across adolescent community samples for those with a history of at least one NSSI incident over the adolescent's lifetime spanning from 7.7% to 56.4% (Hilt, Cha, et al., 2008; Yates et al., 2008). This variation may be due to the age (e.g., middle school versus high school), location (e.g., east coast versus west coast), population size (e.g., 100 versus 1,000), or other demographic factors (e.g., gender and ethnicity). Nevertheless, the rates are noticeably higher in adolescent community samples (56.4% highest reported) than in adult samples (38% highest reported) (Gratz et al., 2002; Hilt, Cha, et al., 2008).

When focusing on rates of NSSI in the past year rather than throughout the lifetime, studies using adolescent community samples reported rates spanning from 7.5%

to 55% (Hilt, Nock et al., 2008; Lloyd-Richardson et al., 2007). Only one adult community sample presented rates of NSSI over the past year. This rate of 7.3% is smaller than the lowest reported adolescent community rate of 7.5% (Hilt, Nock, et al., 2008; Whitlock et al., 2006). For adolescent inpatient samples, these year-based rates of NSSI range from 67.9% to 82.4%. This range represents a marked increased from the highest rate reported in community adolescent or adult samples.

Demographic characteristics. Demographic characteristics were reported in the previous section regarding ethnic and gender percentages. Within the literature, several indirect assessment studies of NSSI also looked at average age of onset, differences in ethnicity, and differences in sexual orientation.

Ross and Heath (2002) surveyed a group of adolescents reported age of onset sorted by grade and found 59% stated they started in Grade 7 or 8, 24.6% in Grade 6 or earlier, and 11.5% in Grade 9. Klonsky and Olino (2008) had age of onset to be around 12 years of age. Of the all-female sample assessed by Hilt, Cha, et al. (2008), the average age of onset was 10.2 years and for Nock and Prinstein (2004) the average age of onset was around 12 years. These findings indicate an average age of onset for NSSI behavior between 10 to 12 years, suggesting that this behavior can be assessed in its early stages during adolescence.

Whitlock et al. (2006) discovered that those who reported Asian ethnicity showed significantly less frequency of NSSI than those who reported as Caucasian. Yates et al. (2008) reported significantly more NSSI for those who selected African American or Other as their ethnicity than for those who selected Caucasian. Guan et al. (2012) found

no significant differences between ethnic groups for frequency rates of NSSI. These findings suggest that research in indirect assessment may benefit from further exploration.

Gratz (2006) discovered higher rates of NSSI in those women who self-reported their sexual orientation as bisexual or lesbian. Respondents for Whitlock et al. (2006) with repeat episodes of NSSI were more likely to be bisexual or questioning than heterosexual. Bakken and Gunter (2012) reported that high school students who identified as homo- or bisexual were more likely to have a history of NSSI incidents and more suicidal ideation.

These studies demonstrate that indirect assessments may be advantageous for groups of individuals for identifying certain characteristics of individuals who exhibit NSSI. For individualized treatment of function, this may not be ideal. According to the studies reviewed, a range of 10 to 12 years of age is appropriate for describing age of onset, and those who report themselves as something other than heterosexual may be at a higher risk for NSSI incidents (Bakken & Gunter, 2012; Hilt, Cha, et al., 2008; Klonsky & Olino, 2008; Whitlock et al., 2006). Studies on ethnicity are unclear.

Gender differences. Gender differences have been evaluated for various aspects of NSSI. Similar to the research done on rates of NSSI, the research is not always in agreement. This may be a result of variation in groups (inpatient versus outpatient), age (e.g., middle school versus high school), location (e.g., east coast versus west coast), population size (e.g., 100 versus 1,000), or other demographic factors (e.g. gender and ethnicity).

For frequency of NSSI, no differences in gender for rate of NSSI were found in Hilt, Nock, et al. (2008), Gratz et al. (2002), Sornberger et al. (2012), Nock et al. (2006), or in Nock and Prinstein (2004). Prinstein et al. (2010) found no gender differences in rate of NSSI during Time 1, but found a significantly higher rate in women for Time 2, 11 months later. Women had significantly higher rates of NSSI (or were seen as more likely to self-harm) in Ross and Heath (2002), Whitlock et al. (2006), Yates et al. (2008), Guerry and Prinstein (2010), Bakken and Gunter (2012), and Guan et al. (2012). Howe-Martin et al. (2012) reported women having a higher rate of NSSI over lifetime and in the past 6 months. As evidenced by the research reviewed here, the findings are split between no differences and higher frequency of NSSI rates for women.

Other studies of differences in NSSI by gender include differences in suicidal ideation, the FFM categories, method, location, and criteria met for mental disorders. Bakken and Gunter (2012) reported no gender differences in levels of suicidal ideation, and Guan et al. (2012) reported no gender differences in amount of suicide-related behaviors. Prinstein et al. (2010) found there were no gender differences in depressive symptoms for the longitudinal community study. Lloyd-Richardson et al. (2007) reported no gender differences between the FFM categories. Nock et al. (2006) reported no gender differences in method, number of episodes, or degree of pain. Sornberger et al. (2012) reported no gender differences in number of locations or methods, but did report gender differences in choice of location and method for NSSI. In that study, women were more likely to report the use of arms and legs, while men were more likely to report the use of chest, genitals, and face (Sornberger et al., 2012). Women were more likely to

report the use of cutting or scratching, while men were more likely to report the use of burning, head banging, and punching (Sornberger et al., 2012). Women who engage in NSSI were more likely to report depressive symptoms or meet the criteria for depression than men according to Nock et al. (2006), Guan et al. (2012), and the longitudinal inpatient study by Prinstein et al. (2010). Nock et al. (2006) found that men who engaged in NSSI were more likely to meet the criteria for conduct disorder than women.

Overall, the tendency is for a significantly larger number of women to report a history of NSSI, but due to several studies finding no difference the results are unclear. In other areas, women and men may have no difference in number who presented with a history of NSSI, but there are clear differences in preference of method and location as well as a difference in psychopathological characteristics presented. This suggests that a more individualized approach is warranted, given that such specifics may differ between genders.

Relationship to suicide. According to its name, NSSI is differentiated from suicidal gestures by the lack of suicidal intent. Several studies have reviewed the relationship between NSSI and various suicidal behaviors (e.g., gestures, threats, ideation, and attempts). Along the same lines, the attempt to push for NSSI as a separate disorder in the *DSM-5* required the distinction of it from other psychopathology. This required the comparison of those with NSSI and those without NSSI's various symptomatology. As with most of the research reviewed so far, the results are mixed.

Concerning the relationship between suicidal ideation, which suggests only contemplation of suicide, and NSSI, Howe-Martin et al. (2012) found there was

significantly more suicidal ideation for those with a history of NSSI compared to those with no history. Klonsky and Olino (2008) reported that 18.5% of those with a history of NSSI had a history of attempted suicide, with 47.8% that reported suicidal ideation. Whitlock et al. (2006) found that 75.9% of those with a history of NSSI reported having considered or attempted suicide. This was significantly more often than those who had no history of NSSI.

The relationship between NSSI and suicidal intent was also examined. Sornberger et al. (2012) reported that 6.2% of those with a lifetime history of at least one incident had reportedly at some point self-harmed with suicidal intent. Similarly, 8% reported having self-harmed at some point with suicidal intent in Hilt, Cha, et al. (2008). Lloyd-Richardson et al. (2007) found that 7% reported having used a FASM behavior as a suicide attempt. Guan et al. (2012) found that 3.3% of those with a lifetime history of at least one incident reported a suicide attempt in the past year.

Guan et al. (2012) reported that high frequencies of NSSI incidents were associated with a significant increase in risk of suicidal ideation and attempts, but not an increase of threats or gestures. Andover and Gibb (2010) found that 63.2% of an adult inpatient sample that reported a history of NSSI was significantly more likely to report a history of suicide attempts compared to those without a history of NSSI. In Dougherty et al. (2009), those with NSSI only histories compared to those with NSSI and suicide attempt histories did not differ in method (cutting was most common). However, those with a history of NSSI and suicide attempts were reported as more severely depressed and hopeless with higher rates of impulsivity (Dougherty et al., 2009). Nock et al. (2006)

found that the number of NSSI episodes was not significantly associated with the number of suicide attempts, but the number of suicide attempts for an individual was associated with number of methods and length of NSSI history.

Overall, suicidal behaviors, such as suicidal ideation, co-occur with individuals who have a history of NSSI. While the rates of suicidal behaviors in those with a history of NSSI are often significantly higher than those without a history, the rate of suicidal intent (6.2-8%) reported suggests that the term nonsuicidal is fitting (Hilt, Cha, et al., 2008; Sornberger et al., 2012). Briefly mentioned in the study by Dougherty et al. (2009), the occurrence of NSSI is also associated with the presence of other psychopathology.

NSSI and other psychopathology. The research on NSSI's distinction from other psychopathology appears to overlap at times with the research on NSSI's relationship to suicide due to the appearance of psychopathology in those who attempt suicide (e.g. depressive symptoms). A study by Cox et al. (2012) is particularly interesting since it assessed a group of 507 adolescents who were offspring of parents with mood disorders (47.1% women, 66.9% Caucasian). The study found that 7.7% of the mood disorder offspring had a history of NSSI (Cox et al., 2012). Of those, there was no difference in number of suicide attempts between those with or without a history of at least one NSSI incident (Cox et al., 2012). Regarding specific psychopathology, the mood disorder offspring with a history of NSSI had a higher rate of DSM-IV-TR Axis I and Cluster B disorders. Guerry and Prinstein (2010) reported that out of a group of adolescent inpatients with a history of NSSI, the diagnosis was most often major

depressive disorder, followed by oppositional defiant disorder and conduct disorder. In Andover and Gibb (2010), the sample of adult inpatients with a history of NSSI, the diagnosis was most often bipolar disorder, followed by major depressive disorder and depressive disorder not-otherwise-specified.

For studies that examined the presence of various characteristics of psychopathology, Hilt, Nock, et al. (2008) found higher rates of reported body dissatisfaction and eating disorder characteristics in those with a history of at least one NSSI incident in their lifetime. Howe-Martin et al. (2012) found significantly higher levels of psychological distress, including an increased severity of eating disorder and substance abuse behaviors, were present in those with a history of at least one incident of NSSI. In the community-based longitudinal study by Prinstein et al. (2010), overall rates of NSSI were associated with baseline depression. Ross and Heath (2002) found higher rates of anxiety and depressive symptomatology in those who reported a history of at least one NSSI incident in their lifetime. Concerning substance abuse, Hilt, Nock, et al. (2008) and Howe-Martin et al. (2012) found that those who reported a history of an NSSI incident were significantly more likely to have substance abuse behaviors, use hard drugs, and use nicotine than those without a history of NSSI. Bakken and Gunter (2012) also found that substance abuse behaviors were significantly related to having a history of NSSI when compared to those without a history.

With such variation in the types and amounts of characteristics of mental disorders, the advocation for NSSI as a separate disorder does not appear unfounded. Characteristics of depression, eating disorders, impulsivity, personality disorder and

conduct disorder found in those with a history of NSSI also support the idea that the function of the behavior plays a role in treatment. For example, an individual with conduct disorder may use NSSI as a tool of manipulation through public display. Individuals with major depressive disorder may try and hide their NSSI, using it as a way to bring forth some type of feeling into an otherwise numb existence.

Method, location, and pain. The relationship of NSSI to pain tolerance, specific locations, and method of the action has also been studied. These characteristics of NSSI provide an observable behavior. Research exploring the relationship of NSSI to pain tolerance found mixed results. Nock et al. (2006) reported that less pain was associated with fewer episodes and methods, but almost twice the number of suicide attempts. Rates of those who experience little or no pain vary from 21.5% to 94% across the research (Hilt, Cha, et al., 2008; Klonsky & Olino, 2008).

Few studies in the literature report frequencies for location of injury, but many report frequency of method. Mentioned previously were location differences between men and women (Sornberger et al., 2012). Whitlock et al. (2006) reports the arms, hands, and wrists as the top three locations. Regarding methods, Ross and Heath (2002) report the top three as "skin cutting," "self-hitting," and "pinching." Gratz et al. (2002) reported the top three methods were "needle sticking," "skin cutting," and "scratching." Whitlock et al. (2006) reported "scratching," "banging/punching objects," and "cutting." Klonsky and Olino (2008) reported "hitting self," "hair pulling," and "pinching." Andover and Gibb (2010) reported "cutting," "self-hitting," and "skin-picking." The biggest problem in reported method frequency is the lack of consistency in terms. For

example, Gratz et al.'s (2006) "needle sticking" was not an option in the other four studies.

The inconclusiveness of data regarding pain tolerance, location, and method supports the idea that an individualized approach to the treatment of NSSI is necessary. The specific method and location would be noteworthy and significant to ongoing assessment regardless of whether or not it was typical for all individuals who have a history of NSSI. Pain tolerance may reveal an automatic-positive function in terms of trying to feel something, and specific methods and locations may serve as automatic or social reinforcers depending on the overall goal.

Inter- and intrapersonal effects on rate of NSSI. NSSI has been correlationally linked to a number of inter- and intrapersonal situations including bullying, physical/emotional/sexual abuse, and relationships between the individual and peers/parents. Bakken and Gunter (2012) reported that high levels of self-reported bullying resulted in more NSSI than low levels of self-reported bullying. Also, being a victim of sexual assault increased the likelihood of NSSI (Bakken & Gunter, 2012). Cox et al. (2012) reported that offspring of mood-disorder parents with a history of NSSI were more likely to have a history of physical/sexual abuse. This is consistent with Gratz et al. (2002) that found physical and sexual abuse to be highly correlated with the frequency of NSSI, and Whitlock et al. (2006) who found those with a history of NSSI to be significantly more likely to report a history of emotional, physical, or sexual abuse. Glassman, Weierich, Hooley, Deliberto, and Nock (2007) focused solely on the topic of maltreatment in a study of 86 adolescents in the community with a history of NSSI

(80.2% women, 73.3% Caucasian). This study separated the different kinds of maltreatment into physical abuse and neglect, emotional abuse and neglect, and sexual abuse. Glassman et al. (2007) found that while physical neglect and emotional/sexual abuse were significantly associated with a history of NSSI, physical abuse and emotional neglect were nonsignificant.

Glassman et al. (2007) also found self-criticism to be a mediator for the relationship between emotional abuse (as a child) and NSSI (as an adolescent). Gratz (2006) reported that childhood maltreatment and a low positive affect intensity/reactivity are significant predictors of self-harm in women. Guerry and Prinstein (2010) reported that a more negative attribution style with a greater number of stressful interpersonal life events resulted in higher rates of NSSI. In both the community and inpatient longitudinal study by Prinstein et al. (2010), the rate of NSSI and depressive symptomatology was associated with that of an identified best friend or the individuals' perception of their friend's NSSI. Hilt, Cha, et al. (2008) reported that peer communication was a moderator of the relationship between peer victimization and NSSI for those who engaged in NSSI as a social function.

Gratz et al. (2002) reported that insecure attachment to the father with emotional neglect and insecure attachment to the mother with emotional neglect were highly correlated with NSSI frequency. Yates et al. (2008) examined the relationship of parental criticism and alienation on adolescent NSSI and found mixed results. Hilt, Nock, et al. (2008) found that those with a history of at least one NSSI incident reported lower parent relationship quality, and that positive reinforcement from fathers sometimes occurs

following the initiation of NSSI. This last part is unclear due to the lack of specifics on what type of NSSI (e.g., cutting or head-banging) and what kind of reinforcement followed.

All of the inter- and intra-personal events described above as related to NSSI (e.g., bullying, abuse, insecure parental attachment) are important factors to note when assessing NSSI. One strength of self-reports is helping to gain an understanding of the interpersonal workings between individuals. Self-reports of an individual's perception of behavior allows for the inclusion of context to the observable functions of behavior, or the specific contingencies placed on the behavior. Throughout these past sections, the benefits of self-report have been observed through the available data in research.

Benefits and limitations of retrospective self-reports. In the studies examined so far, the main form of data collection has been self-reports. Self-reports, specifically retrospective self-reports, is one form of indirect assessment. Indirect assessments of behavior include informant-based measures, such as interviews, parent and teacher reports, as well as self-reports. These are considered indirect assessments of behavior due to the gathering of data from a secondary source.

One of the main benefits of informant-based assessments, and a possible explanation of their extensive use in the clinical research on NSSI, is the ease of administration. These assessments can be administered in short amounts of time and in a brief one-on-one session. Also, the lack of intrusiveness into the everyday activities of an inpatient program or outpatient/community individual's daily life may serve as a huge benefit. It is much easier to send out a thousand e-mails with a short survey than to

directly observe a behavior for long enough to get the same amount of data. Newcomer and Lewis (2004) compared the three methods of indirect, direct, and experimental assessment to identify functions of problem behavior for school-based functional assessments. Agreement percentages between the three types of assessment conclude that indirect methods may provide an alternative to direct assessments for high-intensity problem behavior (Newcomer & Lewis, 2004). Stage et al. (2006) emphasize the need for indirect assessment in functional-based treatments for their ability to gather preliminary information helpful to a more in-depth assessment.

Miller and Smith (2008) reported limitations including the difficulty for the adolescent to precisely recall each episode and the possibility for a change in the adolescents' perception of their own behavior over time. Beyond this initial disadvantage, other disadvantages include only inferential data on behavior function, poor psychometric properties, and lack of contextual information (Hall, 2005). Klonsky and Olino (2008) discuss the limited validity of self-report questionnaires even when compared to diagnostic interviews, which are also indirect in nature. There is also the possibility of individuals having different interpretations of the questions, the data revealing only the perceptions of a third-party, and the possibility of the assessment of only a secondary function of a behavior (Alter, Conroy, Mancil, & Haydon, 2008; Bakken & Gunter, 2012).

Floyd and Phaneuf (2005) discuss in their review of the research on Functional Behavioral Assessments (FBAs), which are now required by law in the United States for any behavior change plan within a school system, that indirect assessments have a great

potential to provide quick and valid information on the function of a behavior. However, the lack of data regarding the validity of a specific measure limits the ability of these measures to provide useful data (Floyd & Phaneuf, 2005). This limitation is exacerbated by a plethora of self-report measures that exists in the research on NSSI. Cloutier and Humphreys (2009) list and describe eight different measures that vary in characteristics assessed, validity measured, and even terminology including; Self-Injury Inventory, Functional Assessment of Self-Mutilation, Self-Harm Inventory, Self-Injury Motivation Scale II, Self-Injury Questionnaire, Self-Harm Behavior Questionnaire, Deliberate Self-Harm Inventory, Ottawa Self-Injury Inventory. The purpose of the current study is to further validate an existing measure of NSSI (the FASM). This will be done by comparing the resulting factor scores from the FASM with the functions found through a direct assessment of behavior.

Direct Behavioral Assessment

The functional analysis of SIB. Nock and Prinstein (2004) focused on four behavioral functions for the FFM (automatic positive, automatic negative, social positive, and social negative). As a basis for the FFM, Nock and Prinstein (2004) referenced research for the experimental (functional) analysis of SIB. Specifically, Nock and Prinstein (2004) referred to the standard scenarios set forth by Iwata et al. (1982/1994).

Iwata et al. (1982/1994) presented nine individuals with developmental delays to four scenarios (or stimulus conditions): social disapproval, academic demand, unstructured play (or the control scenario), and alone. The participants were exposed to each condition in an analog setting, for brief intervals of time, with all aspects of the

environment controlled by the experimenters. The purpose of these scenarios was to elicit the problem behavior (in all nine cases the behavior was SIB) and test for consistent associations to one or more stimulus conditions over time. For the nine individuals, 60% produced a consistent association (Iwata et al., 1982/1994).

As explored in meta-surveys by Matson et al. (2011) and Beavers et al. (2013), a functional analysis of behavior, with scenarios based on the research of Iwata et al. (1982/1994), has become the strongest assessment method for individuals with developmental delays. The top two reported areas of problem behavior assessed by this method were SIB (not including stereotyped behaviors) and aggressive behavior (Beavers et al., 2013; Matson et al., 2011). The scenarios, expanding over numerous studies and various behaviors, appear to remain consistent with those set forth by Iwata et al. (1982/1994). Conditions of tangible reinforcement and noncontingent reinforcement (NCR) have been added to the original four. These six conditions have been widely used to assess the function of problem behaviors from in-home settings to classroom settings and within the inpatient populations (e.g., Asmus, Vollmer, & Borrero, 2002; Beavers et al., 2013; Lang et al., 2008; Mueller, Sterling-Turner, & Scattone, 2001). Extensive research has been done on the functional analysis of problem behavior. The literature includes research on such topics as the effect of social variables on automatic problem behaviors (self-stimulatory, notable through the association with the alone condition), the multiple functions of behavior, the effect of high preference/low preference items on an attention function of behavior, the effects of low probability/high probability tasks on a demand function, and research on the assessment of establishing operations for various

behaviors (Kuhn & Triggs, 2009; Roscoe, Carreau, MacDonald, & Pence, 2008; Roscoe, Rooker, Pence, & Longworth, 2009; Smith, Iwata, Goh, & Shore, 1995).

One reason to conduct a functional analysis of problem behavior is the ethical implication of treating a behavior without first knowing its function. Knowing the function may further the ability of treatment to be specifically tailored to the individual. Matson et al. (2011) mention the importance of functional analysis in effectively planning treatment of problem behavior by determining function in order to reduce the use of psychotropic medications. Bloom and Holly (2011) report that many pharmacological treatments used for neurotypical individuals exhibiting NSSI have been justified through the use of the same medications on those in developmentally disabled populations.

The application of functional analysis is sound and empirically based in behavioral studies. However, the use of functional analysis has expanded little beyond the realm of treatment with developmentally delayed individuals. Beavers et al. (2013) reported that of the 435 studies examined, 87% focused on the application of functional analysis to developmentally disabled populations. Also, while the use of functional analyses as established by Iwata et al. (1982/1994) has expanded beyond clinical settings, there are other strategies used to establish the function of behavior.

Indirect, direct, and experimental assessment. As discussed previously, the majority of current research on NSSI has relied solely on indirect self-report measures. These measures have their benefits and their limitations. Studies on SIB in developmentally delayed populations have appeared to consistently rely on functional

(experimental) analyses of problem behavior. Within the broad spectrum of behavioral observation, there is also a strong reliance on direct assessment, or direct observation that lacks experimental control. To attempt to determine the function of behavior through direct observation, assessment tools might include checklists of antecedents, behaviors, and consequences, or a continuous reporting of events as they happen. There are several studies comparing and contrasting different aspects of each type of assessment (indirect, direct, and experimental).

The advantages of a functional analysis include discovering direct functions through the elicitation of problem behavior. The identification of hypothetical, directly observed functions that occur in a controlled, experimental setting allows development of more specific treatments for the problem behavior. According to Beavers et al. (2013, p. 16), "thirty years of research on [functional analysis] has firmly established the relevance of assessment outcome to the selection and design of treatments for problem behavior." The limitations of functional analysis include its overall complexity (time and effort), difficulty implementing the procedure (requirement for specific and detailed training), chance for the establishment of new functions for the problem behavior by presenting them to the individual, danger due to an experimental setting created to elicit potentially harmful behaviors, lack of monitoring idiosyncratic events, and the compromise of ecological validity due to the analog setting (Asmus et al., 2002; Hall, 2005; Hastings & Noone, 2005).

In contrast, a descriptive functional assessment uses direct observation to attempt a contextual understanding of the behavior and to observe the potential functions of the

behavior in a naturalistic setting. The advantages of a descriptive assessment include the requirement of less specific and direct training, less complexity in both time and effort, and the gain of more ecological validity by being conducted in natural settings (Hall, 2005). Descriptive assessment techniques (described in detail by Bijou, Peterson, & Ault, 1968) include the recording of antecedent and consequent behaviors surrounding the problem behavior, and these are then used to hypothesize potential functions of the behavior. This type of assessment, called Antecedent-Behavior-Consequence (A-B-C) assessment, is used in both checklist and continuous recording measures of behavior. The A-B-C assessment allows for the documentation of events as they occur without the disruption that may be associated with the settings and schedules set up for an experimental assessment. Along with being more specific regarding the natural setting the behavior occurs in, descriptive measures have been reported as less restrictive while still being constructive (Hastings & Noone, 2005). The limitations of descriptive functional assessments include reactivity effect, overrepresentation of the attention function, the correlational rather than causational nature of the results, and the difficulty of interpretation (Asmus et al., 2002; Hall, 2005; Thompson & Iwata, 2007). A criticism of both descriptive and experimental assessment is that the overall amount of direct observation that may be intrusive in a clinical setting (less so with descriptive, but more so than indirect), the lack of sensitivity to low frequency problem behaviors that are more difficult to observe, ethical issues with allowing the problem behavior to occur, and the fact that some functional outcomes are unclear (Asmus et al., 2002; Hastings & Noone,

2005). The benefits and limitations of indirect assessments have been mentioned previously.

Thompson and Iwata (2007) compared experimental and descriptive functional analyses of problem behavior. Descriptive and experimental analyses did not agree on the majority of functions as indicated by only two of eight cases deemed to be a result of an attention function through the descriptive assessment were identified as such in the experimental assessment (Thompson & Iwata, 2007). Variance in the results are attributed to the possibility of false positives from the descriptive assessments for attention and a lack of alone and tangible scenarios in the natural setting of the observations (Thompson & Iwata, 2007). Hall (2005) compared experimental, descriptive, and informant-based assessments. Overall, informant-based assessment agreed with experimental analysis more than descriptive assessment (Hall, 2005). Lerman and Iwata (1993) produced similar findings regarding the inconsistency between experimental and descriptive results. Lerman and Iwata (1993) hypothesize that the excessive attention functions observed in descriptive assessments might be a result of observation in a natural environment and complex data collection. There have also been studies that have combined experimental and descriptive approaches (Bijou et al., 1968; Mace & Lalli, 1991). The current study proposes to compare assessment techniques of function. Due to time and resource constraints, this study will focus on indirect assessment and descriptive A-B-C assessment techniques only.

Summary

The purpose of this study is to validate the FASM, an indirect measure of NSSI function, against direct observations of NSSI function. Due to adolescents being at great risk for NSSI and limited staff resources available in most inpatient settings, residential treatment is a setting that would benefit from the availability of a screening measure for NSSI function. It is hypothesized that the findings yielded by the FASM will be in agreement for top function with a behavioral assessment for identification of a hypothesized NSSI function, and have high agreement amongst other rankings. There is a lack of research in the literature discussing staff perception of adolescent NSSI in a residential setting. To address this gap, this study also compares the adolescent self-report of function to that of staff-report. It is hypothesized that the findings yielded by the separate FASMs will be in agreement for top function, and have high agreement amongst other rankings for staff and participants.

Chapter II

METHODS

Participants

Adolescents. Three adolescent residents of a long-term residential treatment facility were included in this study. Participants were ages 16, 16, and 18 years of age, two male and one female, and had a history of engaging in non-suicidal self-injurious behavior or NSSI both prior to and at the facility (e.g., cutting, head-banging, scab-picking). An "episode" of NSSI was defined as any event of NSSI that resulted in restraint (physical or medical in line with facility procedures) and/or a high risk precaution statement as documented in the participant's medical record (see Appendix A and B, respectively). Each episode was also required to have a coinciding milieu note to examine. These milieu notes (also called Q15s) were documented in 15 minute blocks, as well as shift summary notes for the three shifts that occurred throughout the day. The milieu notes are filled out by staff members for every resident, and include identifying health information on each participant. No blank copy was available for the appendices in the process of collecting data for this study. The criterion of required documentation allowed for an archival examination of staff members' direct behavioral observations of the antecedents and consequences of NSSI episodes. This archival examination controlled for the potential reactivity of an observer on the daily milieu during in vivo data collection.

Permission was granted by the facility to recruit (see Appendix C). Informed consent documentation was presented to their parents/guardians (see Appendix D), and,

following completion of parental informed consent for two participants, the two adolescent was approached for their assent (see Appendix E). The third participant was 18 and provided his own informed consent (see Appendix F).

Staff members. Due to a lack of information in the research literature regarding staff assessments of NSSI function, staff member opinions of adolescent NSSI function were also assessed in the present study. The inclusionary criterion for a staff member was involvement in an episode of NSSI for any of the three participants. Involvement in an episode of NSSI was determined by the staff name appearing on the restraint paperwork, high risk precaution, or in the milieu notes wherein an episode was described. See Appendix G for the staff member consent form. All staff members who were approached about inclusion in the study agreed to participate.

Target Behavior

For the purpose of this study, NSSI was defined as a self-directed behavior that inflicts bodily harm, or potential bodily harm, on the adolescent wherein the staff are prompted to respond in some manner (e.g., verbal redirection, physical prompting, suggesting alternative behavior, changing activities, physical/mechanical restraint). NSSI is also required to lack suicidal intent as evidenced by adolescent self-report per incident or by minimal lethality reported in documentation. Minimal lethality in this setting may include scab picking that is not on an exposed vein, head banging with low force, biting, or nail gouging in an area without an exposed vein. Examples of such behaviors also may include self-biting, scratching at self with objects, hitting walls, and self-hitting.

Measures

A-B-C checklist. Restraint orders, high risk precautions, and milieu notes in each participant's medical records were examined for antecedents, type of NSSI behavior, and consequences associated with each NSSI episode for each participant (see Appendix H). Functions of NSSI behavior were classified by the researcher and a professor of the university independently using the four factor model (FFM) of Nock and Prinstein (2004). The four factors are Automatic-Positive (AP), Automatic-Negative (AN), Social-Positive (SP), and Social-Negative (SN) Reinforcement, derived from factor analysis (Nock & Prinstein, 2004).

Interrater agreement. Interrater agreement on function in the A-B-C assessment was established using an independent rater for 100% of NSSI episodes documented by A-B-C assessment from the participant medical records. Agreement on the first 40% of episodes assessed was low (61%). Therefore the two raters then simultaneously reviewed each episode until agreement was reached. Thus, interrater agreement was 100% upon completion of the review. The initial rater was a master's level student in clinical psychology; the independent rater was a certified BCBA-D professor from the university. The initial low interrater agreement was hypothesized to be a result of limited and/or insufficient recorded data in the participant medical records.

Functional Assessment of Self-Mutilation. The Functional Assessment of Self-Mutilation (FASM; Lloyd-Richardson et al., 1997) consists of a checklist of 12 types of NSSI, additional information questions, and a checklist of potential functions of NSSI (see Appendix I). The information requested includes NSSI frequency, suicidal ideation,

rumination or time spent contemplating an episode of NSSI, use of drugs or alcohol preceding the incident, pain rating, and age of onset. This assessment has been used in several studies of NSSI (Glassman et al., 2007; Hilt, Cha et al., 2008; Lloyd-Richardson et al., 2007; Nock & Prinstein, 2004; Nock et al., 2006; Yates et al., 2008). For the purposes of this study, the checklist of potential functions was modified in accordance with Nock and Prinstein (2004).

Modifications to the checklist of functions include the removal of one item that was reported as not loading onto a factor and the option of reporting "other". For the adolescent participants, the FASM was given in full, with the modified checklist. Scores for each of the four theoretical functions for NSSI were determined using the pre-existing factor analysis of the 21 questions on the checklist as presented in Nock and Prinstein (2004).

Functional Assessment of Self-Mutilation – Staff Version (FASM-SV). A modified checklist was completed by targeted staff members. This modified checklist, or the FASM-SV (see Appendix J), consisted of the 21 items from the reasons checklist that loaded onto Nock and Prinstein's (2004) FFM. The FASM-SV was administered to staff members for each participant for whom they met the qualifying criteria with the heading, "Do you feel they have harmed themselves for any of the reasons listed below?" The checklist is otherwise unmodified. Scores for each of the theoretical four functions of adolescent NSSI based on staff report then were also determined using the pre-existing factor analysis of the 21 questions on the checklist as presented in Nock and Prinstein (2004). Two staff-report scores were chosen randomly for each participant.

Procedures

Approval was obtained from the Middle Tennessee State University Institutional Review Board (see Appendix K). The facility then provided permission to begin participant and staff member recruitment. The appropriate documentation then was completed for informed consent and for permission to access the medical records for each participant to complete an archival review of NSSI for the purposes of this study.

Consent process. The parents of adolescents meeting criteria for inclusion were contacted by their family therapist and informed of the study via a letter (Appendix L). Those who were interested contacted with the principle investigator to discuss informed consent. Following the completion of informed consent, the adolescents then met with the principle investigator to obtain their assent. One adolescent met criteria, and had just recently turned 18 years old. He was informed about the study by his family therapist and, following his agreement to volunteer, met with the principle investigator to discuss and complete the participant informed consent. This process resulted in 3 participants. The parents were contacted separately from the adolescent to attempt to avoid coercion to agree or disagree to participate, utilizing the family therapist as a go-between to minimize the amount of personal information disclosed. All parents/guardians were provided with contact information pending any further questions. The adolescents were met in the presence of their family therapist to complete assent documentation and the FASM. The records of the two participants who assented and the one participant who consented then were reviewed for A-B-C data collection for NSSI episodes.

Staff members were asked about their willingness to volunteer in a one-on-one setting at various times due to the fluctuating nature of staff at the facility. They were then briefed on the purpose and procedures of the study, including the reason for their inclusion based on their name being present within the documentation for one or more of the participants. Following their agreement to participate, each staff member was given a copy of the FASM-SV to complete per participant for whom they met criteria.

A-B-C data collection. For archival data collection, each episode was examined and classified as serving one of the four functions (Automatic Negative, Automatic Positive, Social Negative, and Social Positive) of Nock and Prinstein's (2004) theoretical four factor model. If the episode did not fit into one of those factors based on available data, it was to be categorized as "Other." These "Other" episodes were not counted in the overall participant scores. For this study, none of the episodes fell into this category. This archival data was denoted a function by the principle investigator. Following the completion of the principle investigator's findings, a BCBA-D faculty supervisor independently denoted a function for 100% of episodes. The interrater agreement was 100% as met by an episode-by-episode permanent product review. At the start of the study, each participant was predicted to have a minimum of 5 episodes of NSSI within their medical records, per family therapist report. However, due to difficulties obtaining required documentation for all episodes found, only 3 episodes were completely documented for participant 2 of the more than 5 originally noted in the medical record.

Chapter III

RESULTS

Descriptive Results

In addition to the list of possible functions of NSSI presented in the FASM, several questions were asked regarding specific topographies of self-harm in the past year, how often they utilized each of the topographies in the past year, and if medical treatment was received in the past year. Participant 1 reported engaging in 6 out of 11 topographies listed, with three or "at least or more than 3" being his response for how often. He reported cutting/carving skin, wound picking, inserting objects under nails, self-biting, skin picking, and skin scraping. For all topographies except skin picking, participant 1 stated he had received medical treatment. Participant 2 reported engaging in 7 out of 11 topographies fewer than 10 times. She reported cutting/carving skin, self-hitting, pulling her own hair, wound picking, burning her skin, skin scraping, and skin-"erasing." For cutting/carving and skin scraping, she emphasized how often by using "+" besides the numbers 10 and 7, respectively. For cutting/carving, wound picking, burning her skin, skin scraping, and skin-"erasing" she stated she has received medical treatment. Participant 3 utilized 7 out of 11 topographies, with "once" "a few" and "hundreds" used as descriptors for how often. He reported cutting/carving skin, self-tattooing, wound picking, self-biting, skin picking, skin scraping, and skin-"erasing." Cutting/carving skin and skin scraping were described as being done "hundreds" of times. He stated he had received medical treatment for all topographies utilized. It should be noted that it is hard to determine if the participants included their current residency as medical treatment.

Other questions on the FASM include asking if self-harm has occurred outside the past year, if at any point during an act of self-harm they were attempting to kill themselves, the latency between thought and act of self-harm, the inclusion of drugs or alcohol during self-harm, the pain experienced during self-harm, and age at first self-harm. Participant 1 stated he has not done any of the reported topographies outside of the past year, but has tried to kill himself during an unspecified number of them. He reported a latency time of "a few minutes," denied use of drugs or alcohol, and reported experiencing moderate pain during self-harm. His reported age of onset was 8 years-old, which is inconsistent with his report that none of his self-injury occurred outside the past year. Participant 2 stated she has done some of these topographies outside of the past year, specifically referencing a time when she burned herself with a "flat iron." She also stated she has tried to kill herself during an unspecified number of self-harm incidents. She reported a latency time of "none," denied the use of drugs or alcohol, and reported experiencing little pain during self-harm. Her reported age of onset was 7 years old. Participant 3 stated he has done all of the topographies of behavior listed in the past year, and has tried to kill himself during an unspecified number of them. He reported a latency time of "a few minutes," denied the use of drugs or alcohol, and reported experiencing no pain during self-harm. His reported age of onset was 13 years old.

See Table 1 for results.

Table 1

Descriptive information of self-injury by participant.

Question	Participant 1	Participant 2	Participant 3
Topographies (11 listed)	6	7	7
Has self-harmed for more than the past year	No	Yes	Yes
Has ever self-harmed with suicidal intent	Yes	Yes	Yes
Latency between thought and action of self-harm	A few minutes	None	A few minutes
Use of drugs or alcohol while self-harming	No	No	No
Pain experienced during self-harm	Moderate	Little	No
Age at first self-harm	8	7	13

Calculation of Scores

For the A-B-C assessment, a percentage was calculated for each function by dividing the number of episodes per function by total number of episodes per participant. The identified functions were then ranked from most to least emphasized to enable a comparison to the FASM and FASM-SV. FASMs and FASM-SVs were scored based on the four factor model (Nock & Prinstein, 2004). The scores, 0-3 for each answer, then were divided by the number of questions present for that function. For a comparison between the FASM and the A-B-C assessment, the four resulting average scores for each rater were ranked from most to least emphasized for each participant. See Table 2.

Table 2

Resulting factor scores by factor per rater.

	FASM			*A-B-C*
Participant 1 (8 episodes, male)	*Self*	*Staff 1*	*Staff 2*	
Automatic Negative	**3**	**2.5**	1.5	13%
Automatic Positive	2.67	1.67	**2.33**	0%
Social Negative	1.5	1	1.5	38%
Social Positive	2.17	1.83	1.5	**50%**
Participant 2 (3 episodes, female)				
Automatic Negative	2.5	1.5	1	33%
Automatic Positive	**2.67**	**1.67**	**2**	0%
Social Negative	0	0.5	1.75	0%
Social Positive	0.33	0.92	1.75	**67%**
Participant 3 (7 episodes, male)				
Automatic Negative	**3**	**3**	2	0%
Automatic Positive	2.67	2.67	2.33	0%
Social Negative	0	2.25	**2.5**	14%
Social Positive	1.08	2.25	2.42	**86%**

Note. The score bolded represents the top ranked function for each rater.

Agreement on Top Ranked Function

For participant 1, the participant and staff 1 were in agreement of the top ranked function of self-injury. For participant 2, the participant and both staff raters were in agreement of the top ranked function of self-injury. For participant 3, the participant and staff 1 were in agreement of the top ranked function of self-injury. For none of the participants were the self-report FASM and A-B-C assessment in agreement for the top ranked function.

Comparison Results

Ranked comparison of adolescent FASM to A-B-C assessment data. To determine overall agreement between adolescent FASM and A-B-C ratings for each participant, scores were compared between the ranked scores for each adolescent FASM and the corresponding ranked scores for the A-B-C assessment. See Table 3 for all rankings.

Participant 1's results indicated no agreement between any of the four ranked functions. For participant 1's adolescent FASM, the resulting ranks from most to least emphasized were Automatic Negative, Automatic Positive, Social Positive, and Social Negative. For participant 1's A-B-C assessment, the resulting function ranks of episodes from most to least emphasized was Social Positive, Social Negative, and Automatic Negative. No episodes presented with an Automatic Positive function.

Table 3

Rank order of functions by rater.

	FASM			*A-B-C*
Participant 1 (8 episodes, male)	*Self*	*Staff 1*	*Staff 2*	
Automatic Negative	**1st**	**1st**	2nd*	3rd
Automatic Positive	2nd	3rd	**1st**	-
Social Negative	3rd	4th	2nd*	2nd
Social Positive	4th	2nd	2nd*	**1st**
Participant 2 (3 episodes, female)				
Automatic Negative	2nd	2nd	3rd	2nd
Automatic Positive	**1st**	**1st**	**1st**	-
Social Negative	-	4th	2nd*	-
Social Positive	3rd	3rd	2nd*	**1st**
Participant 3 (7 episodes, male)				
Automatic Negative	**1st**	**1st**	4th	-
Automatic Positive	2nd	2nd	3rd	-
Social Negative	-	3rd*	**1st**	**1st**
Social Positive	3rd	3rd*	2nd	2nd

* Indicates a tie in the rankings.

Note: The functions ranked exclude those that were not identified by the rater or tool.

Participant 2's results indicate agreement on the 2nd highest reported function of NSSI, Automatic Negative. There was no resulting agreement on the 1st, 3rd, or 4th most reported function. For participant 2's adolescent FASM, the resulting function ranks from most to least emphasized were Automatic Positive, Automatic Negative, and Social Positive. For participant 2's A-B-C assessment, the resulting function ranks of episodes

from most to least emphasized was Social Positive and Automatic Negative. No episodes were emphasized with a Social Negative or Automatic Positive function.

Participant 3's results indicate no agreement among any of the four ranked functions. For participant 3's adolescent FASM, the resulting function ranks from most to least emphasized were Automatic Negative, Automatic Positive, and Social Positive. For participant 3's A-B-C assessment, the resulting function ranks of episodes from most to least emphasized were Social Positive and Social Negative. No episodes presented with Automatic Negative or Automatic Positive functions.

Ranked comparison of adolescent FASM to FASM-SV. To determine agreement between participant and staff perceived functions of NSSI, the scores were ranked by function. For participant 1, there was agreement of an Automatic function as the top ranked function across participant, staff 1, and staff 2. Staff 1 and the participant were in agreement of the top ranked function being Automatic Negative, and staff 2 reported Automatic Positive as the top ranked function (the participant's 2nd ranked function). For participant 2, there was agreement across all three raters that Automatic Positive was the top ranked function for the participant's NSSI. Staff 1 and the participant were also in agreement for the 2nd ranked function being Automatic Negative. For participant 3, staff 1 and the participant were in agreement for the top 3 ranked functions of NSSI being Automatic Negative, Automatic Positive, and Social Positive. Participant 3 and staff 2 had no agreement on ranking of perceived function of NSSI.

Ranked comparison of adolescent FASM, FASM-SV, and A-B-C assessment data. To determine agreement across all measures, the A-B-C assessment, FASM, and

FASM-SV scores were ranked by function. For participant 1, there was agreement between the participant and staff 1 for two rankings, 1st and 4th (Automatic Negative and Social Negative, respectively). There was an agreement between participant and staff 2 for one ranking, 3rd (Social Positive). There were no other agreements between the participant and staff ratings. There were no agreements between participant and A-B-C assessment. One agreement existed between A-B-C assessment and staff. The A-B-C assessment and staff 2 were in agreement for the 3rd ranked function (Automatic Negative). There were no agreements between the A-B-C assessment and staff 1.

For participant 2, there was agreement between the participant and staff 1 for all four functions. Participant 2 and both staff raters were in agreement for the top rank of Automatic Positive, as mentioned previously. There were no other agreements between the participant and staff 2. There was an agreement between the participant, staff 1, and the A-B-C assessment for the 2nd ranked function (Automatic Negative). There were no other agreements between the participant and the A-B-C assessment.

For participant 3, there was agreement between the participant and staff 1 for 1st and 2nd ranked functions (Automatic Negative and Automatic Positive). There were no agreements between the participant and staff 1 or the A-B-C assessment. There also existed no similar rankings between the staff rankings and the A-B-C assessment.

Comparison between FASM descriptive results and ranked functions of NSSI. Participant 1 presents with an overall automatic function from self and staff raters, and a social positive function from the A-B-C data. Participant 1's self-reported top ranked function of automatic negative appears at various ranks between raters. This

could be related to his statement of few incidents of self-injury, with varying topographies, if each topography served a different function. Participant 2 had the most consistency within self and staff raters, including a top three rank agreement with staff 1. All of participant 2's top ranked functions were positive, suggesting a desire to increase either internal states or increase something within her environment. This appears to be in agreement with a more consistent and specific endorsement of two of her seven topographies, as well as the impulsiveness suggested by the latency of "none" chosen on the FASM. Participant 3 presents with an even split with staff 1 and the participant suggesting both automatic functions as the top two and staff and A-B-C data suggesting both social functions as the top two. His high reported use of cutting/carving and scraping (i.e. "hundreds" of times) indicates a possibly more consistent function overall, and possibly an attempt to seek attention for his attempts at regulating his internal states.

Chapter IV

DISCUSSION

Participants and staff identified all automatic functions and A-B-C assessments identified all social functions as the top ranked function of NSSI. This suggests possible over assessment of social functions by descriptive functional assessments. The identification by participant and staff of automatic functions appears to suggest that NSSI may present with an internal function, such as for cognitive/affective regulation. When considering the over assessment of social function, several studies have discussed the possibility that using a descriptive assessment of NSSI collects data from an environment that produces an attention response for all behavior, therefore possibly misidentifying attention as a main function of behavior (e.g., Asmus et al., 2002; Hall, 2005; Lerman & Iwata, 1993; Thompson & Iwata, 2007). There is also the possibility that the constant presence of staff members during NSSI incidents may have established a social function that would not have presented in an experimental analysis setting wherein the participant was alone (Lerman and Iwata, 1993). This over assessment is supported in this study by the top function for all A-B-C assessments of function being a social function. It has been shown in several studies that a self-report of NSSI function often results in a high report of automatic functions (Nock & Prinstein, 2004; Zetterqvist et al., 2013). The results of this study are consistent as evidenced by the top two rated functions for all participants in their self-report being the two automatic functions. It may be that NSSI began as automatic in function, but in the residential setting more social and external functions were added. In this setting, the staff members appear to have a unique

perspective, as evidenced by the mix of automatic and social functions identified in the top two ranks across staff raters. This suggests that they have insight into the automatic functions identified by the participants as well as the external effects and possible social functions of the NSSI. This also suggests that they are in possession of more information than contained within the documentation of NSSI episodes in the medical record since that documentation is largely focused on external variables. It could also be suggested that cognitive functions in play during the course of treatment, the focus of treatment on more cognitive explanations, and understandings of NSSI that may have been explored during the duration of each participant's time at the facility may have set the stage for an automatic perception of NSSI for each participant.

Comparison of participant FASM and A-B-C assessments failed to demonstrate high agreement on ranked function. For top ranked function, no participant's FASM result was in agreement with the corresponding A-B-C assessment. Of all three participants, only one ranking was in agreement between participant and A-B-C assessment. A wide variety of factors could account for this discrepancy, including poor documentation, the limitations of self-report, a possible false positive of social functions due to the constant observation of staff members, and a low sample size for this study.

In comparing staff members and the participant's FASM, there was a 41.6% agreement of rank comparisons. For the top ranked function, 4 of 6 staff reports matched participant reports. For all participants in this study, more than 6 months had been spent at the facility and each was discharged prior to the completion of the study. The amount of time the staff already had spent with the participant may have affected the rate of

agreement, as well as the possible steps towards recovery covering in depth the participant's self-injury by both the participants' therapists and possibly staff members during the daily interactions. Both of these factors may indicate effects of a preconceived notion of an automatic NSSI function that may have existed prior to the assessment. In a direct observation setting, controlling for these effects may prove difficult. Despite possible limitations, the FASM-SV in comparison to the FASMs completed by the participants was a better match for hypothesized function than the A-B-C assessment in this study.

Limitations and Future Directions

As this study progressed, modifications were made in response to difficulty finding data for episodes of NSSI within each participant's medical record. Although the paperwork provided for the restraint documentation requested the necessary information for an A-B-C assessment, completed forms typically were repetitive and short, providing limited observational data for each episode. Therefore, the high risk precautions were evaluated, providing substantially more information for each episode. The high risk precautions and restraint documentation often were short or vague, such as stating the individual had self-injured without identifying specific behavior topography. At times high risk precaution and restraint documentation were missing corresponding milieu notes, or had milieu notes with documentation that reported "calm/appropriate" as the behavior for time slots in which the restraint or high risk precaution documentation reported self-injury occurring. These limitations in data may have resulted in the initial low interrater agreement (61.11%) that required an episode by episode examination of the

A-B-C data. This lack of data and incomplete paperwork were reasons that participant 2 was rated based on 3 complete episodes of NSSI. Streamlining documentation for NSSI episodes and increasing staff training on the identification of NSSI function could improve staff understanding and be beneficial to ongoing treatment. However, a simpler approach may be to have the FASM and modified FASM-SV administered to residents and staff members who interact with them regularly at a 3 or 6 month slot in treatment to provide the information necessary to identify function.

Another limitation was the form of data collection itself. Although it would be unethical to observe the occurrence of self-injury in the daily milieu without providing intervention, the ability to do so or have a staff member appointed to specifically carry out this duty could be expected to greatly increase the accuracy of the data for the A-B-C assessments. However, this would not have guaranteed an agreement between participant and A-B-C assessment data given the limitations of self-reports including the participant not realizing or wanting to admit the more social aspects of their self-injury. The opposite argument could be given as well, that the antecedents and consequences of automatic NSSI are more covert than overt and may be difficult to discern in a residential setting through observation. In addition, there is the tendency for false positives in residential settings that may result from the constant observation and the job requirement to react to such actions as NSSI and even threats of NSSI.

A third limitation may be in the training of staff to collect data on these incidents, or a tendency for paperwork to be filled out incorrectly despite training. Although the restraint, high risk precaution, and milieu forms required A-B-C recording, the resulting

reports often lacked such specificity. It is noted that none of the staff were behavior analysts, and the training provided may not have been adequate for such observations.

Fourth and fifth limitations include the small sample size of this study and the possibility that the questions on the medical record paperwork overstated social function. This study was limited to 3 participants. Although this may be beneficial for identifying functions and understanding the broader context of an individual, it is difficult to surmise validity of a measure from three participants. Also, the questions on the medical record documentation may be set up for recording the social aspects of a situation, specifically staff reactions, more than collecting all relevant antecedents and consequences.

For future research involving participants and A-B-C assessment, a direct observation not coming from written medical records or a pre-assessment training for staff to encourage a more efficient documentation of A-B-C data for behavioral assessment is recommended. For future research comparing participant and staff FASM data, a larger sample size should be used in order to facilitate a result that may yield statistically significant results when compared.

The results of this study showed zero agreement between the FASM self-report and A-B-C collection of data. However, the interesting mix of agreement between the FASM-SV and the other two measures suggest that this may be an area worth exploring. This study opens the door for an exploration of the utilization of behavior analytic techniques in assessing NSSI in typically developing individuals. Despite the difficulty identifying the functions of NSSI for this population, the existence of NSSI in a residential setting presents a significant opportunity to observe and document the

function of the behavior in a setting that is continually monitored. The constant observation and requirement to respond to such behaviors may in fact create an environment for a social function that may or may not have existed outside of the facility. This study will hopefully encourage continued exploration of this unique setting, and more in depth research in this area.

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APPENDICES

Appendix A

Restraint and Seclusion Form

HERMITAGE HALL
"Turning over a new leaf"

Restraint Order/Record | **Resident Name**

1. Emergency Intervention Order/Initiation: Date: _____ Time Initiated: _____

Telephone order received from: _____Date:_____ Time:_____
Physician/LIP

RN initiating if physician/LIP not present: _____

Type of Intervention: ___ Physical Restraint ___Standing __Settled ___ Supine

Maximum Time: ___ (not to exceed) Thirty Minutes for children 10 and older
Maximum Time: ___ (not to exceed) Fifteen Minutes for children 9 and younger

Medication Restraint Use: Medication given: ___ Yes ___No If yes, time: _____

Medication name/dose/route:_____
Vital Sign Orders: _____

RN_____Date_____ Time_____ __TORB
Psychiatrist/LIP_____ Date_____ Time_____

2. RN Restraint/Seclusion/Medication Assessment:

___Physical Restraint: Time In___ Time Out ___

Clinical Justification for Intervention: ___ Danger to Self ___ Danger to Others
Specific Behavior Exhibited:

_____
_____
_____

Less Restrictive Interventions Attempted:

_____ Verbal de-escalation/redirection
_____ Physical activity
_____ Quiet time
_____ Reality orientation
_____ Time out/time away
_____ 1:1 processing
_____ Stimulus reduction
_____ Pain Control

_____ Psychoactive medication (non-restraints):

_____

Medication Dose Route Indication Medication Dose Route Indication

Rationale if no less restrictive interventions attempted:

_____
_____

Criteria for release:

_____

Patient informed of criteria for release: ____ Yes ____ No ____ NA (medication restraint)

Any medical conditions/physical disabilities/abuse issues that would impact use of restraint/seclusion use?

___ Yes ___ No

Describe actions taken to lessen physical and/or psychological risk if indicated:

_____
_____

RN Signature: _____ Date: _____ Time: _____

---

3. Post Intervention Evaluation (to be completed within 1 hour of initiation of intervention):
Date:_____ Time:_____

A. Patient's immediate situation: (location, still in restraint/seclusion or released, etc.)

_____
_____
_____

B. Patient's reaction to intervention: (positive/negative behaviors, any adverse psychological/physical response, etc)

_____
_____
_____

C. Current physical/medical status:

____ No pain ____ Airway intact/breathing WNL ____ Circulation equal to all extremities
____ Skin intact, warm & dry ____ Musculoskeletal system intact
____ Sensory & motor function equal to all extremities
____ Vitals within normal limits: BP ___ Pulse ___ Resp. Rate___
Explain any areas not checked:

_____

____ Complaint of injury sustained from intervention: __yes __no
If present, describe injury and interventions:

_____
_____

____ Systems review completed _____ Recent laboratory results reviewed _____ Pt's Hx Reviewed
____ Medication regime and drug history reviewed

D. Current psychological status:

Mood: __Euthymic __Depressed __Euphoric __Anxious __Angry __Irritable__ Other:_____
Affect: __ Normal __ Labile __Restricted __ Blunted __ Flat __Expansive __Other: _____
Orientation to: __ Person __ Place __Time __ Situation __If not, explain: _____
Insight: __ Good __ Fair __ Poor

E. Current behavior:
___ Demonstrates control over behavior: ___ Follows directions ___ Cooperative
___ Verbalizes coping skills ___ Other: _____
___ Unable to control behavior: ___ Combative/Assaultive ___ Resistant ___ Agitated
___ Demanding __ Yelling___ Self-harm behavior
___Crying ___ Guarded Other: _____

F. Based upon systems review, behavioral assessment, and review of recent laboratory results, history, medication regime and drug history, are there any factors contributing to patient's violent or self-destructive behavior?
____ No ____ Yes - If yes describe:
_____
_____

G. Continued need for restraint: ___ NA (medication) ___ Yes ___ No Give Rationale:
_____
_____

H. Guidance provided to staff in identifying ways to help patient gain control: __ NA ___ Yes – describe:

_____
_____

I: Treatment plan modification indicated: ___ No ___ Yes If no, why:
_____

Signature of practitioner completing evaluation:
_____

If evaluation completed by RN/PA: Attending physician name or designated LIP with whom evaluation was reviewed/when contacted: _____ _____ _____
Physician/LIP
Date Time

---

4. Notifications:

Parent/Family Member notified of intervention: ___ Yes Individual notified: _____

Date/Time of notification: _____

___ No Explain: _____
___ Other:_____
Attending physician notified of intervention: ___ Yes Date/time: _____

By whom: ___ NA (if attending physician provided order and/or received report of post-intervention evaluation)

RN Signature: _____ Date/Time: _____

---

5. Termination/Post-Intervention Time of termination: _____ Total Time of Intervention: _____

Behavior/psychological status at termination:
_____
_____
_____

Physical status at termination: __ ABC's fully intact ___ Circulation good ___ Musculoskeletal system intact

Any complaints of injuries or pain associated with intervention: ___ No ___ Yes, describe injury and intervention:
_____
_____
_____

RN Signature: _____ Date/Time: _____

Patient Debriefing

To be completed after intervention when patient calmed but no later than 24 hours

Date: _____ Time: _____

Staff involved in debriefing:
_____
_____

Family involved in debriefing: ___No ___ Yes Name: _____

1) Patient's perception of events/triggers leading to intervention:
_____
_____

2) Patient's description of what happened to cause behaviors:
_____
_____

3) Patient's perception of anything that could have been done differently:
_____
_____

4) Did patient feel his/her well-being, psychological comfort and right to privacy were maintained?
__ Yes __ No, explain: _____

5) Was any trauma experienced by patient ___ Yes ___ No If yes, describe counseling provided:
_____

6) Strategies to prevent repeat use of intervention and/or to address factors contributing to incident:
_____
_____
_____
_____
_____
_____

Strategies added to treatment plan? ___ Yes If not, explain: _____

RN Signature: _____
Date/Time:_____

Appendix B

High Risk Precaution Form

HERMITAGE HALL

"Turning over a new leaf"

HIGH RISK PRECAUTION

Resident:_____

Date:_____ Time:_____

Precaution:

□ Self Injurious □ Assault □ Elopement □ Close Ops
□ Sexual Aggression/Victimization □ Other_____

Behaviors that resulted in precaution:

_____

_____

_____

Behaviors earlier in the day/what were their behaviors like early in the day/shift (verbally inappropriate, requiring redirect, on task, etc.):

_____

_____

_____

Resident's response to precaution:

_____

_____

_____

Therapist:_____ Notified: □ Discussed □ Voice Mail □ Email

Date:_____Time:_____

Staff Initiating:_____Signature:_____

Supervisor:_____Signature:_____

PHYSICIAN NOTIFICATION

Dr. Notified: _____Date: _____Time:_____

Nurse Signature: _____ Date: _____Time:_____

MD Signature: _____ Date: _____Time:_____

Rev 11.14.12

Appendix C

Approval Letter of Facility

HERMITAGE HALL

"Turning over a new leaf"

Belinda Traughber
Middle Tennessee State University
Psychology Department

Via fax #: 615-898-5027

Dear Ms. Traughber,

We have met and discussed with Patricia Peacock the desire to use Hermitage Hall in the course of her thesis research. Having discussed her proposal, we are willing to participate. We have clarified the areas of confidentiality, informed consent, and liability as well as the specific risks and benefits in relation to the voluntary participants. We have given our permission for Patricia Peacock to use our facility for the course of her research, pending approval of her application from Middle Tennessee State University's Institutional Review Board." We look forward to working with Ms. Peacock and appreciate her commitment to research and her education. If you have any questions, please do not hesitate to contact me.

Sincerely,

Kathy Reynolds, LCSW

2-18-14

Kathy Reynolds, LCSW
Director of Clinical Services
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Appendix D

Parent/Guardian Consent

Middle Tennessee State University Institutional Review Board

Informed Consent Document for Research

Principal Investigator: Patricia Peacock

Study Title: Adolescent Nonsuicidal Self-Injury: Validation of a Self-Report Measure of Function.

Institution: Middle Tennessee State University

Name of participant: _____ Age: _____

The following information is provided to inform you about the research project and your child's participation in it. Please read this form carefully and feel free to ask any questions you may have about this study and the information given below. You will be given an opportunity to ask questions, and your questions will be answered. Also, you will be given a copy of this consent form.

Your child's participation in this research study is voluntary. He or she is also free to withdraw from this study at any time. In the event new information becomes available that may affect the risks or benefits associated with this research study or your child's willingness to participate in it, you will be notified so that you can make an informed decision whether or not to continue your child's participation in this study.

For additional information about giving consent or your rights as a participant in this study, please feel free to contact the MTSU Office of Compliance at (615) 494-8918.

1. [WL1][PP2]**Purpose of the study:** Your child is being asked to participate in a research because he or she has exhibited multiple episodes of self-injury (e.g. cutting, head-banging, scab-picking) that have resulted in a restraint or specific documentation.

2. **Description of procedures to be followed and approximate duration of the study:** Your child will be asked to fill out a questionnaire and their medical records will be reviewed. This questionnaire includes questions about the history of their self-injury (e.g., how they harm themselves, when they started, how much pain they feel when they harm themselves) and a checklist on their perception of the function of their self-harm. The medical records will be reviewed for all previous restraint documentation and information relating to self-injury. The study should last from 2-4 months, and your child's participation will be limited to filling out the questionnaire[WL3][PP4]. questionnaire will be available for your viewing.

3. **Expected costs:** N/A.

4. **Description of the discomforts, inconveniences, and/or possible risks that can be reasonably expected as a result of participation in this study:** It may be emotionally stressful to your child to think directly about their self-injury during the questionnaire.

5. **Compensation in case of study-related injury:** N/A.

6. **Anticipated benefits from this study:** The potential benefits to your child from this study are that the information gathered over the course of this research will be

available to your child's therapist. This does not guarantee an improvement in current treatment, but will provide additional information about your child's self-injury.

7. **Alternative treatments available:** N/A

8. **Compensation for participation:** N/A.

9. **Circumstances under which the Principal Investigator may withdraw your child from study participation:** If the records have too little information for an adequate behavioral assessment of their self-injury.

10. **What happens if your child chooses to withdraw from study participation:** Your child's participation is voluntary. They may withdraw from the study at any point in time. If they choose to withdraw, their responses will no longer be included in the study. All questionnaire data they have given and all forms you and they have signed will be disposed of appropriately

11. **Presentation and Publication.** All names will be coded into numbers and no identifying personal information will be present in the final write-up of this study. By signing this document, you agree to allow your child's assessment results to be used in a professional presentation or publication of this study.

12. **Contact Information.** If you should have any questions about this research study or possible injury, please feel free to contact Patricia Peacock at plp2t@mtmail.mtsu.edu

or the Faculty Advisor, Belinda Traughber, Ph.D., at Belinda.Traughber@mtsu.edu, phone number: (615) 898-2122.

13. **Confidentiality.** All efforts, within reason, will be made to keep the personal information in your research record private but total privacy cannot be promised. Your information may be shared with MTSU or the government, such as the Middle Tennessee State University Institutional Review Board, Federal Government Office for Human Research Protections, if you or someone else is in danger or if we are required to do so by law.

14. **STATEMENT BY PERSON AGREEING TO PARTICIPATE IN THIS STUDY**

I have read this informed consent document and the material contained in it has been explained to me verbally. I understand each part of the document, all my questions have been answered, and I freely and voluntarily choose to allow my child to participate in this study.

_____ _____

Date Signature of parent/guardian

Consent obtained by:

_____ _____

Date Signature

_____

Printed Name and Title

Appendix E

Adolescent Assent

Middle Tennessee State University Institutional Review Board

Proposal for Research Using Human Participants

Assent Document for Research Study

Principal Investigator: Patricia Peacock

Title of Study: Adolescent Nonsuicidal Self-Injury: Validating a Self-Report Assessment of Function

Institution/Hospital: Hermitage Hall

This assent document applies to: Resident volunteers, ages 13-17, from Hermitage Hall

Name of participant _____

Age_____

Below are the answers to some of the questions you may have. If you have any questions about what is written below or have any other questions about this research, please ask them. You will be given a copy of this consent form.

1. **Why are you doing this research?** Currently, there is no good way to find out why people injure themselves. This study is designed to compare two methods for establishing reasons for self-injury. One method is a questionnaire, the other is a review of medical records.

2. **What will I do and how long will it take?** You will fill out a questionnaire about your experience with self-injury.

3. **Do I have to be in this research study and can I stop if I want to?** Your participation is voluntary. You may withdraw yourself from the study at any time.

4. **Will anyone know that I am in this research study?** All efforts, within reason, will be made to keep the data in your research record private but we cannot promise total

privacy. The data we collect on you may be shared with others (for example, your therapist) if you or someone else is in danger or if we have to do so by law.

5. **How will this research help me or other people?** The results of this study will help us understand self-injury. For you, this research will be available to your therapist. This does not guarantee an improvement in current treatment, but will provide additional information about your self-injury.. For others, the results will help continue research that will affect what assessment options are chosen for future treatment.

6. **What about presentation and publication?** All names will be coded into numbers, and no identifying personal information will be present in the final write-up of this study. By signing this document, you agree to allow your assessment results to be used in a professional presentation or publication of this study.

7. **Can I do something else instead of this research?** You may continue treatment as usual without any repercussions.

8. **Who do I talk to if I have questions?** If you have any questions about this study you may contact me, Patricia Peacock, directly, or discuss your questions with my MTSU faculty advisor, Belinda Traughber. Talk to your therapist for assistance in e-mailing me directly at plp2t@mtmail.mtsu.edu, or finding out when I will be available to talk at the facility. If you would like to speak with my advisor, request assistance to contact her directly via e-mail (Belinda.Traughber@mtsu.edu), or phone: (615) 898-2122.

_____ _____

Date Signature of patient/volunteer

Assent obtained by:

_____ _____

Signature Printed Name and Title

Appendix F

Participant Consent

Middle Tennessee State University Institutional Review Board

Informed Consent Document for Research

Principal Investigator: Patricia Peacock

Study Title: Adolescent Nonsuicidal Self-Injury: Validation of a Self-Report Measure of Function.

Institution: Middle Tennessee State University

Name of participant: _____ Age: _____

The following information is provided to inform you about the research project and your participation in it. Please read this form carefully and feel free to ask any questions you may have about this study and the information given below. You will be given an opportunity to ask questions, and your questions will be answered. Also, you will be given a copy of this consent form.

Your participation in this research study is voluntary. You are also free to withdraw from this study at any time. In the event new information becomes available that may affect the risks or benefits associated with this research study or your willingness to participate in it, you will be notified so that you can make an informed decision whether or not to continue your participation in this study.

For additional information about giving consent or your rights as a participant in this study, please feel free to contact the MTSU Office of Compliance at (615) 494-8918.

15. **Purpose of the study:** You are being asked to participate in a research study because you have exhibited multiple episodes of self-injury that has resulted in restraint or specific documentation.

16. **Description of procedures to be followed and approximate duration of the study:** You will be asked to fill out a questionnaire on your experience with self-injury. The study with go on for 2-4 months, but your direct participation will be limited to filling out the questionnaire.

17. **Expected costs:** N/A.

18. **Description of the discomforts, inconveniences, and/or possible risks that can be reasonably expected as a result of participation in this study:** It may be emotionally stressful to think about your self-injury while answering the questionnaire.

19. **Compensation in case of study-related injury:** N/A.

20. **Anticipated benefits from this study:** The results of this study will help us to better understand self-injury. For you, this research will be available to your therapist. This does not guarantee an improvement in current treatment, but will provide additional information about your self-injury. For others, the results will help continue research that will affect the assessment options available for future treatment of self-injury.

21. **Alternative treatments available:** N/A

22. **Compensation for participation:** N/A.

23. **Circumstances under which the Principal Investigator may withdraw you from study participation:** If your records have too little information for an adequate behavioral assessment of your self-injury.

24. **What happens if you choose to withdraw from study participation:** Your responses will no longer be included in the study. All questionnaire data you have given and all forms you have signed will be disposed of appropriately.

25. **Presentation and Publication.** All names will be coded into numbers and no identifying personal information will be present in the final write-up of this study. By signing this document, you agree to allow your assessment results to be used in a professional presentation or publication of this study.

26. **Contact Information.** If you should have any questions about this research study or possible injury, please feel free to contact Patricia Peacock at plp2t@mtmail.mtsu.edu or the Faculty Advisor, Belinda Traughber, Ph.D., at Belinda.Traughber@mtsu.edu, phone number: (615) 898-2122.

27. **Confidentiality.** All efforts, within reason, will be made to keep the personal information in your research record private but total privacy cannot be promised. Your information may be shared with MTSU or the government, such as the Middle Tennessee State University Institutional Review Board, Federal Government Office

for Human Research Protections, if you or someone else is in danger or if we are required to do so by law.

28. <u>STATEMENT BY PERSON AGREEING TO PARTICIPATE IN THIS STUDY</u>

I have read this informed consent document and the material contained in it has been explained to me verbally. I understand each part of the document, all my questions have been answered, and I freely and voluntarily choose to participate in this study.

Date	Signature of patient/volunteer

Consent obtained by:

Date	Signature
	Printed Name and Title

Appendix G

Staff Consent

Middle Tennessee State University Institutional Review Board

Informed Consent Document for Research

Principal Investigator: Patricia Peacock

Study Title: Adolescent Nonsuicidal Self-Injury: Validation of a Self-Report Measure of Function.

Institution: Middle Tennessee State University

Name of participant: _____ Age: _____

The following information is provided to inform you about the research project and your participation in it. Please read this form carefully and feel free to ask any questions you may have about this study and the information given below. You will be given an opportunity to ask questions, and your questions will be answered. Also, you will be given a copy of this consent form.

Your participation in this research study is voluntary. You are also free to withdraw from this study at any time. In the event new information becomes available that may affect the risks or benefits associated with this research study or your willingness to participate in it, you will be notified so that you can make an informed decision whether or not to continue your participation in this study.

For additional information about giving consent or your rights as a participant in this study, please feel free to contact the MTSU Office of Compliance at (615) 494-8918.

29. **Purpose of the study:** You are being asked to participate in a research study because you have been present for/have written up documentation for one or more adolescents participating in this study.

30. **Description of procedures to be followed and approximate duration of the study:** You will be asked to fill out a questionnaire regarding your outlook on the overall function of a participant's self-injury. This will then be compared to the adolescent's own report of function and the results of a behavioral assessment.

    You will only fill out the questionnaire once per adolescent. The overall duration of the study with be 2-4 months. The questionnaire you will be asked to fill out will be given at a time that is convenient for you in that 2-4 month period.

31. **Expected costs:** N/A.

32. **Description of the discomforts, inconveniences, and/or possible risks that can be reasonably expected as a result of participation in this study:** N/A.

33. **Compensation in case of study-related injury:** N/A.

34. **Anticipated benefits from this study:** The potential benefits are that the information gathered over the course of research may directly benefit treatment of self-injury with a more extensive knowledge of appropriate screening assessments for function.

35. **Alternative treatments available:** N/A.

36. **Compensation for participation:** N/A.

37. **Circumstances under which the Principal Investigator may withdraw you from study participation:** If you do not meet the requirement of direct involvement in an episode of an adolescent participant's NSSI.

38. **What happens if you choose to withdraw from study participation:** Continue work as usual. All questionnaire data you have given and all forms you have signed will be disposed of appropriately.

39. **Presentation and Publication.** All names will be coded into numbers and no identifying personal information will be present in the final write-up of this study. By signing this document, you agree to allow your assessment results to be used in a professional presentation or publication of this study.

40. **Contact Information.** If you should have any questions about this research study or possible injury, please feel free to contact Patricia Peacock at plp2t@mtmail.mtsu.edu or the Faculty Advisor, Belinda Traughber, Ph.D., at Belinda.Traughber@mtsu.edu, phone number: (615) 898-2122.

41. **Confidentiality.** All efforts, within reason, will be made to keep the personal information in your research record private but total privacy cannot be promised. Your information may be shared with MTSU or the government, such as the Middle Tennessee State University Institutional Review Board, Federal Government Office

for Human Research Protections, if you or someone else is in danger or if we are required to do so by law.

42. STATEMENT BY PERSON AGREEING TO PARTICIPATE IN THIS STUDY

I have read this informed consent document and the material contained in it has been explained to me verbally. I understand each part of the document, all my questions have been answered, and I freely and voluntarily choose to participate in this study.

Date	Signature of volunteer

Consent obtained by:

Date	Signature
	Printed Name and Title

Appendix H

A-B-C Checklist
(From restraint paperwork, high risk precaution paperwork, and milieu notes)

Participant #: ____ Incident #: ____ Date of Incident: _____

From the Restraint Paperwork: Is there a restraint for this incident? Y N

Antecedents:

- **3F – or – Based on history, etc., are there any contributing factors**

  _____

- **PD* - 1 – "Patient's perception of events/triggers leading to intervention"**

  _____

- **PD – 2 – "Patient's description of what happened to cause behaviors"**

  _____

- **SD** – Description of the emergency safety situation**

  _____

- **SD - Precipitating factors leading to use of restraint**

  _____

- **Least Restrictive Interventions**

  _____

Behaviors:

- **#2 – "Specific Behavior Exhibited"**

  _____

- **Column 2 – Physical Restraint Observation Record**

  _____

- **Other**

  _____

  (specify where other was found _____)

Consequences:

- **#1 – Type of Intervention**

  _____

- **#1 – Medication Restraint Used / #2 – Psychoactive Medication**

  _____

- **#2 – Criteria for Release**

  _____

- **#3A – "Patient's immediate situation" (post restraint)**

  _____

- **#3B – "Patient's reaction to intervention" (post restraint)**

  _____

- **#3C - "Current physical/medical status" (post intervention)**

  _____

- **#3D – "Current psychological status" (post intervention)**

  _____

- **#3E – "Current behavior" (post intervention)**

  _____

- **#4 – Parent/Family Member Notified / Attending Physician Notified**

  _____

- **#5 – Any complaints of injuries or pain**

  _____

- **PD – Staff involved _____**

- **Outcome of Intervention**

  _____

- **Information from the Physical Restraint Observation Record**

  _____

- **Other**

  _____

  (specify where other was found _____)

* PD refers to Patient Debriefing questions; **SD refers to Staff Debriefing questions

From High Risk Precaution:

Precaution: Self-Injurious OR Close Ops **Time:** _____
ANTECEDENT **"Behaviors earlier in the day/what were their behaviors like earlier in the day/shift"** _____ _____ _____ _____ _____
Behavior **"Behaviors that resulted in the precaution"** _____ _____ _____ _____ _____
Consequence **"Resident's response to precaution"** _____ _____ _____ _____ _____
Staff Initiating: _____ **Supervisor:** _____

From the Milieu Notes (Q15s):

Antecedent (two 15 minute blocks prior to incident)		
Time: _____	Location: _____	Behavior: _____
Time: _____	Location: _____	Behavior: _____
Behavior (two 15 minute blocks when incident occurred)		
Time: _____	Location: _____	Behavior: _____
Time: _____	Location: _____	Behavior: _____
Consequence (two 15 minute blocks post-incident)		
Time: _____	Location: _____	Behavior: _____
Time: _____	Location: _____	Behavior: _____
Shift Notes:		
Antecedent (shift prior to incident)		
Behavior (shift in which incident occurred)		
Consequence (shift post-incident)		

OVERALL INCIDENT HYPOTHESIZED FUNCTION:

□ **Social Positive** □ **Social Negative**

□ **Automatic Positive** □ **Automatic Negative** □ **Other _____**

Appendix I

Functional Assessment of Self-Mutilation

(Lloyd-Richardson, Kelley, & Hope, 1997)

A. In the past year, have you engaged in the following behaviors to deliberately harm yourself (check all that apply)

	NO	**YES**	**How many times?**	**Did you receive medical treatment?**
1. Cut or carved on your skin				
2. Hit yourself on purpose				
3. Pulled your hair out				
4. Gave yourself a tattoo				
5. Picked at a wound				
6. Burned your skin (i.e., with a cigarette, match, or other hot object)				
7. Inserted objects under your nails or skin				
8. Bit yourself (e.g., your mouth or lip)				
9. Picked areas of your body to the point of drawing blood				
10. Scraped your skin				
11. “Erased” your skin				
12. Other: _____				

B. If not in the past year, have you EVER done any of the above acts?

___ Yes ___ No

List: _____

IF YES TO ANY OF THE ABOVE BEHAVIORS, please complete questions C-H.

C. While doing any of the above acts, were you trying to kill yourself?

___ Yes ___ No

D. How long did you think about doing the above act(s) before actually doing it?

___ None

___ "A few minutes"

___ Less than 60 minutes

___ Greater than 1 hour, but less than 24 hours

___ More than 1 day, but less than a week

___ Greater than one week

E. Did you perform any of the above behaviors while taking drugs or alcohol?

___ Yes ___ No

F. Did you experience pain during this self-harm?

___ Severe pain

___ Moderate pain

___ Little pain

___ No pain

G. How old were you when you first harmed yourself in this way? _____

H. Did you harm yourself for any of the reasons listed below?

0 Never 1 Rarely 2 Sometimes 3 Often	**Rating**
1. To avoid school, work, or other activities	
2. To relieve feeling "numb" or empty	
3. To get attention	
4. To feel something, even if it was pain	
5. To avoid having to do something unpleasant you don't want to do	
6. To get control of a situation	
7. To try and get a reaction from someone, even if it's a negative reaction	
8. To receive more attention from your parents or friends	
9. To avoid being with people	
10. To punish yourself	
11. To get other people to act differently or change	
12. To be like someone you respect	
13. To avoid punishment or paying the consequences	
14. To stop bad feelings	
15. To let others know how desperate you were	
16. To feel more a part of a group	
17. To get your parents to understand or notice you	
18. To give yourself something to do when alone	
19. To get help	
20. To make others angry	
21. To feel relaxed	

Appendix J

Functional Assessment of Self-Mutilation - Staff Version

Do you feel they have harmed themselves for any of the reasons listed below?

0 Never 1 Rarely 2 Sometimes 3 Often	**Rating**
1. To avoid school, work, or other activities	
2. To relieve feeling "numb" or empty	
3. To get attention	
4. To feel something, even if it was pain	
5. To avoid having to do something unpleasant you don't want to do	
6. To get control of a situation	
7. To try and get a reaction from someone, even if it's a negative reaction	
8. To receive more attention from your parents or friends	
9. To avoid being with people	
10. To punish yourself	
11. To get other people to act differently or change	
12. To be like someone you respect	
13. To avoid punishment or paying the consequences	
14. To stop bad feelings	
15. To let others know how desperate you were	
16. To feel more a part of a group	
17. To get your parents to understand or notice you	
18. To give yourself something to do when alone	
19. To get help	
20. To make others angry	
21. To feel relaxed	

Appendix K

IRB Approval Letter

Psychology Department
MTSU P.O. Box 87
Murfreesboro, Tennessee 37132
Office: (615) 898-2706 • Fax: (615) 898-5027

MIDDLE TENNESSEE STATE UNIVERSITY

April 8, 2014

Patricia Peacock, plp2t@mtmail.mtsu.edu
Protocol Title: **Adolescent Nonsuicidal Self-Injury: Validation of a Self-Report Measure of Function**
Protocol Number: 14-247

The MTSU Institutional Review Board has reviewed the research proposal identified above. The MTSU IRB has determined that the study meets the criteria for approval under 45 CFR 46.110 and 21 CFR 56.110 and that you have satisfactorily completed all requested modifications. Please use the recruitment letter that was attached to your approval email.

Approval is granted for one (1) year from the date of this letter for **3** participants.

Please note that any unanticipated harms to participants or adverse events must be reported to the Office of Compliance at (615) 494-8918. Any change to the protocol must be submitted to the IRB before implementing this change.

You will need to submit an end-of-project report to the Office of Compliance upon completion of your research. Complete research means that you have finished collecting and analyzing data. Should you not finish your research within the one (1) year period, you must submit a Progress Report and request a continuation prior to the expiration date. Please allow time for review and requested revisions. Failure to submit a Progress Report and request for continuation will automatically result in cancellation of your research study. Therefore, you will NOT be able to use any data and/or collect any data.

According to MTSU Policy, a researcher is defined as anyone who works with data or has contact with participants. Anyone meeting this definition needs to be listed on the protocol and needs to provide a certificate of training to the Office of Compliance. If you add researchers to an approved project, please forward an updated list of researchers to the Office of Compliance before they begin to work on the project.

All research materials must be retained by the PI or faculty advisor (if the PI is a student) for at least three (3) years after study completion and then destroyed in a manner that maintains confidentiality and anonymity.

Sincerely,

William Langston
Chair, MTSU Institutional Review Board

Appendix L

Letter to Parents

Department of Psychology
Middle Tennessee State University
1301 East Main Street
Murfreesboro, TN 37132-0001

Campus Mail: MTSU Box 87

To whom it may concern;

My name is Patricia Peacock and I am a graduate student in Middle Tennessee State University's Clinical Psychology program. I am conducting a research study for my Master's Thesis. I am currently working with Hermitage Hall in seeking participants, and your child may meet the requirements for inclusion.

I would appreciate the opportunity to meet with you to describe the purpose of my study and determine if you would be willing to allow your child to participate. If interested, please let your family therapist know or contact me via e-mail at plp2t@mtmail.mtsu.edu.

Thank you for your consideration!

Sincerely,

Patricia Peacock, B.A.