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Nonsuicidal Self-Injury Characteristics as Predictors of a Suicide Attempt

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NONSUICIDAL SELF-INJURY CHARACTERISTICS AS PREDICTORS OF A
SUICIDE ATTEMPT

A Thesis
Presented to
The Faculty of the Department of Psychological Sciences
Western Kentucky University
Bowling Green, Kentucky

In Partial Fulfillment
Of the Requirements for the Degree
Master of Science

By
Kandice M. Perry

August 2016

NONSUICIDAL SELF-INJURY CHARACTERISTICS AS PREDICTORS OF A
SUICIDE ATTEMPT

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I dedicate this thesis to the work of all who wish to study the complex nature of deliberate self-harm with the hopes of preventing future suicidal and nonsuicidal self-injurious behavior. Your effort does not go in vain.

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This study examines the impact features of nonsuicidal self-injury (NSSI) have on predicting a suicide attempt in a sample of young adult self-injurers. Participants completed the Inventory of Statements About Self-Injury, the Self-Harm Behavior Questionnaire and demographics questionnaires to assess lifetime self-injury frequency, number of different methods used, severity of methods, the desire to stop self-harming, functions, the experience of pain, and response latency. Results indicated that NSSI frequency, high severity methods, and endorsing more intrapersonal functions predicted the presence of a suicide attempt. Additionally, those who experienced pain while self-injuring were found to be significantly more likely to report a history of suicide attempt compared to those who did not feel pain. Given extant literature, these findings suggest that in general the relationship between NSSI and suicidality is more complex than suggested and differs depending on which feature of suicidality is being measured (e.g. ideation, threats, gestures, plans, or attempts). Aside from other important implications discussed, researchers should individually evaluate facets of suicide when establishing risk.

Chapter 1: Introduction

Nonsuicidal self-injurious (NSSI) behavior, which encompass the self-inflicted and deliberate destruction of body tissue without suicidal intent for purposes not socially sanctioned (Klonsky, Muehlenkamp, Lewis, & Walsh, 2011), was once thought to be rare and occur largely within the context of severe mental illness (Graff & Mallin, 1967). More recently, however, awareness of NSSI has increased due to the rise in prevalence among the adolescent and young adult populations over the past decade (Muehlenkamp, Williams, Gutierrez, & Claes, 2009). Prevalence of NSSI in nonclinical adolescents range from 10% to 15% (Laye-Gindhu & Schonert-Reichl, 2005; Ross & Heath, 2002) and has been found to be as high as 46.5% in one study (Lloyd-Richardson, Perrine, Dierker, & Kelley, 2007) and in clinical adolescent samples rates are consistently higher. In young adult samples, rates range from 17% to 41% (Gratz, 2001; Gratz, Conrad, & Roemer, 2002; Muehlenkamp, Hoff, Licht, Azure, & Hasenzahl, 2008; Paivio & McCulloch, 2004; Whitlock, Eckenrode, & Silverman, 2006).

The fact that some people intentionally inflict painful damage to themselves is puzzling and has enticed researchers and clinicians to study this phenomenon more in depth so as to determine precisely why people are motivated to harm themselves and what consequences may follow from engaging in this behavior. In several studies (Andover & Gibb, 2010; Asarnow et al., 2011; Guan, Fox, & Prinstein, 2012; Tang et al., 2011; Wilkinson, Kelvin, Roberts, Dubicka, & Goodyer, 2011), NSSI has been found to be uniquely related to suicidal thoughts and behaviors above and beyond other known risk factors for suicide.

The most recent statistics as of 2013 indicate suicide is one of the top 10 leading causes of death in the United States and the second leading cause of death for adolescents (Drapeau & McIntosh, 2015). Deaths across all age groups have been steadily on the rise since 2003. Over one million people die by suicide every year, translating to one person dying approximately every 13 minutes worldwide (Drapeau & McIntosh, 2015). Recognizing the toll suicide takes on individuals, families, communities, and the economy (\$44.6 billion in combined medical and work loss costs), the Center for Disease Control and Prevention (2010) has identified suicide as a significant and serious health problem in the U.S. As perplexing as NSSI is for many individuals, suicide, a more extreme form of self-injurious behavior, is a source of even greater bemusement. More recently, the field of suicidology has shifted research aims toward the explanation of why individuals die by suicide and toward determining who is likely to be at greater risk for suicidal thoughts and behaviors.

However, our understanding of the self-injurious behavior connection is limited and it is not yet clear which individuals will make the progression from self-injury to suicide attempt. It is imperative for research to further elucidate this link to ultimately curtail the incidence of the most preventable cause of death—death by suicide. The succeeding review will examine relevant research on factors and topography of NSSI including: methods, frequency, functions, experience of pain, time from urge to action, and desire to stop self-harming in addition to how these characteristics relate to suicidality.

Nonsuicidal Self-Injury

Risk factors. Research has identified several risk factors for NSSI related to psychiatric diagnoses and others to problems with emotional and coping skills. For instance, NSSI was once thought to be a behavior exhibited particularly in people who have borderline personality disorder (BPD) and until the most recent publication of *The Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM-5*; American Psychiatric Association, 2013), the only mention of NSSI was found under the diagnostic criteria for BPD in the *DSM-IV-TR* (APA, 2000). NSSI has also been related to anxiety disorders and depressive disorder (Andover, Pepper, Ryabchenko, Orrico, & Gibb, 2005; Klonsky, Oltmanns, & Turkheimer, 2003; Ross & Heath, 2002), but this relationship may be due to the experience of negative emotionality and emotion dysregulation which are staple characteristics of these disorders (Klonsky & Muehlenkamp, 2007). Ultimately, research suggests self-injurers are a heterogeneous group such that they experience a wide range of psychopathology, experience a variety of risk factors, and are of any ethnicity (Klonsky et al., 2011); therefore, it can be difficult to determine who is likely to self-injure based on risk factors alone.

Prominent characteristics that self-injurers tend to show is negative emotionality and difficulty managing such negative states. This population often experiences more intense and frequent negative emotions in their daily life compared to those who do not self-injure (Klonsky & Muehlenkamp, 2007; Klonsky et al., 2011). One measure of emotionality, emotion reactivity, is the way in which individuals react to different life events and stressors (Klonsky et al., 2011). One study found that when self-injurious thoughts and behaviors (SITB) were present in the past year, participants had significantly higher emotion reactivity. Furthermore, this mediated the relationship

between psychopathology and NSSI indicating that in the presence of psychopathology, participants were more emotionally reactive and more likely to report NSSI (Nock, Wedig, Holmberg, & Hooley, 2008). Several other studies also support the claim that self-injurers experience intense and frequent negative emotions for a prolonged period of time compared to non-self-injurers (Anderson & Crowther, 2012; Bresin, 2014; In-Albon, Bürli, Ruf, & Schmid, 2013; Victor & Klonsky, 2013; Zaki, Coifman, Rafaeli, Berenson, & Downey, 2013).

Additionally, self-injurers have greater difficulty managing negative emotions. A study by Najmi, Wegner, and Nock (2007) showed the propensity to suppress unwanted thoughts was positively correlated with emotional reactivity and frequency of SITB; implying that as self-injurers spent more time trying to suppress and minimize their experience of negative emotions, they were more likely to use frequent NSSI. As there are a number of functions for self-injury, this mediation model may be more applicable to those who self-injure as a means of affect regulation and consequently may only be relevant for a subgroup of self-injurers rather than all self-injurers. However, a number of treatments (Gratz, 2007; Lynch & Cozza, 2009; Miller, Rathus, & Linehan, 2007; Nock, Teper, & Hollander, 2007) have underscored improvements in affect regulation skills as a focus for NSSI patients and much research has found a direct relationship between affect regulation and NSSI across samples (Chapman, Gratz, & Brown, 2006; Gratz, 2003; Gratz & Roemer, 2004; Gratz et al., 2002; Heath et al., 2008; Klonsky, 2007, 2009; Muehlenkamp et al., 2009; Nock & Prinstein, 2004; Voon, Hasking, & Martin, 2014). Therefore, it could be the case that Najmi and colleagues' model is applicable to a large subgroup of self-injurers if not the majority.

Functions. Past research has identified numerous reasons why people are motivated to harm themselves. The most widely studied function, suggested to be the most strongly endorsed across age groups in clinical and nonclinical samples alike, is affect regulation (Chapman et al., 2006; Gratz et al., 2002; Klonsky, 2007, 2009, 2011; Klonsky & Muehlenkamp, 2007; Laye-Gindhu & Schonert-Reichl, 2005; Muehlenkamp & Gutierrez, 2004; Nock & Prinstein, 2004; Nock, Prinstein, & Sterba, 2009). Supporting evidence has resulted in several explanatory models of NSSI such as the Four-Function Model (see Table 1; Nock & Prinstein, 2004) and the Two-Factor Model (see Table 2; Klonsky & Glenn, 2009).

Table 1.

Components of the Four-Function Model of NSSI

Reinforcement Type	Negative	Positive
Automatic	Decrease or eliminate negative affective or cognitive state(s)	Increase or generate positive affective or cognitive state(s)
Social	Decrease or eliminate negative social event(s)	Increase or generate desired social event(s)

Table 2.

Components of the Two-Factor Model of NSSI

Factor	Function
Interpersonal	Interpersonal Boundaries Self-Care Sensation-Seeking Peer-Bonding Interpersonal Influence Toughness Revenge Autonomy
Intrapersonal	Affect Regulation Self-Punishment Anti-Dissociation Anti-Suicide Marking Distress

Recent research collapses the four-function model into a two-factor model: interpersonal and intrapersonal, the two domains most widely studied (Klonsky & Glenn, 2009; Klonsky & Olino, 2008; Zetterqvist, Lundh, Dahlström, & Svedin, 2013). Though the more commonly cited reason for NSSI includes intrapersonal functions (Klonsky et al., 2011; Klonsky & Muehlenkamp, 2007), it is suggested that interpersonal functions are perhaps more influential for the onset of NSSI and intrapersonal functions are more influential for the maintenance of NSSI (Muehlenkamp, Brausch, Quigley, & Whitlock, 2013; Whitlock, et al., 2011). The two-factor model is also said to be superior to other models of self-injury because it is comprehensive and captures all functions documented in the literature and more (Klonsky & Glenn, 2009).

Common methods by age and sex. Self-injury comes in a variety of forms and ranges in severity. For adolescents, several studies suggest that although cutting and scratching are some of the most common forms of NSSI, males are more likely to report hitting or burning-type behaviors and females are more likely to report cutting-type

behaviors (Laye-Gindhu & Schonert-Reichl, 2005; Nixon, Cloutier, & Jansson, 2008; Sornberger, Heath, Toste, & McLouth, 2012; Yates, Tracy, & Luthar, 2008). This trend in method type is also consistent across age groups. For example, in a community adult sample, cutting, scratching, burning, hitting, and biting were the methods most commonly endorsed by participants but women were more likely to report cutting than men (Klonsky, 2011). In various college samples (Andover, Primack, Gibb & Pepper, 2010; Bryan & Bryan, 2014; Heath, Toste, Nedecheva, & Charlebois, 2008; Whitlock et al., 2011), men were also more likely to report burning or hitting behaviors and women were more likely to report cutting and scratching behaviors. It is unknown why such sex differences in method of NSSI exist, but some speculate it could be due to the perception of certain methods as being more feminine or masculine (Andover et al., 2010). Cutting, for example, is often perceived as feminine behavior whereas externalized methods, such as punching a wall, are perceived as masculine behaviors (Van Camp, Desmet, & Verhaeghe, 2011). The reason for this sex difference appears to be similar to the reason for sex differences in suicide methods as reported by researchers who found that certain methods of suicide were more likely to be viewed as feminine or masculine (McAndrew & Garrison 2007).

Suicide

Like self-injury, the literature points to several risk factors for suicide including family conflict, mental disorders, social isolation, unemployment, physical illness, and past suicide attempts (Klonsky & Muehlenkamp, 2007; Van Orden et al., 2010).

However, not all individuals who possess or have experienced these risk factors go on to make a suicide attempt. The answer to why this occurs has eluded researchers. There are

several explanatory theories which proclaim why some people attempt or die by suicide such as the Hopelessness Theory of Suicidality (Abramson et al., 1998), Escape Theory (Baumeister, 1990), Durkheim's Theory of Suicide (Durkheim, 1951), Shneidman's Theory of Psychache (Shneidman, 1993, 1996), the Evolutionary Theory of Suicide (Szentes & Thomas, 2013), the Cognitive Model of Suicidal Behavior (Wenzel & Beck, 2008), and many more. However, these theories do not necessarily indicate why some individuals who experience the same risk factors make an attempt and others do not. A decade ago, a theory drawing from previous lines of research emerged in the field of suicidology claiming to be a unique theory explaining specifically how some can act on their suicidal desires (Joiner, 2005). Indeed, since its introduction, The Interpersonal-Psychological Theory of Suicidal Behavior (*IPTSB*; Joiner, 2005) remains the only theory explaining why some people do attempt suicide.

The interpersonal-psychological theory of suicidal behavior. The *IPTSB* is a relatively simple theory and includes only 3 constructs derived from the most robust and consistent risk factors associated with suicide: thwarted belongingness, perceived burdensomeness, and the acquired ability to enact lethal self-injury. Thwarted belongingness occurs when an individual feels that there is a lack of reciprocally-caring relationships and perceives (s)he is no longer part of an important social group (Van Orden et al., 2010). Perceived burdensomeness is comprised of two subordinate dimensions including beliefs that the self is so flawed so as to be a liability on others, and affectively-laden cognitions of self-hatred (Van Orden et al., 2010).

As it is not easy to overcome the innate desire to preserve the self and to increase the chance of reproduction or offspring survival, it is not sufficient for individuals to have

a desire to die (i.e., experience thwarted belongingness and perceived burdensomeness) to physically act on such feelings. In order to overcome this critical evolutionary urge, individuals must lose the fear associated with suicidal behavior through increased physical pain tolerance, reduced fear of death, and habituation to the pain and fear associated with harming oneself (Van Orden et al., 2010). These converge to allow an individual to engage in more painful and damaging forms of self-harm including lethal and near-lethal suicide (Van Orden et al., 2010). The more an individual has experience with painful and provocative events, the more likely they will develop higher acquired capability which may or may not diminish over time. Ultimately, the separate presence of thwarted belongingness, perceived burdensomeness, and acquired capability are necessary but not sufficient to induce a lethal suicide attempt. It is only when these constructs are experienced simultaneously in a person who is hopeless and wishes to die that a lethal attempt can be made.

The IPTSB theory makes a very clear prediction: an individual cannot die by suicide unless (s)he has the capacity to carry out the act. Using a large sample of young adults with a history of suicide attempt or severe ideation, Joiner and colleagues (2009) tested this prediction to determine if there was a three-way interaction between low belonging, perceived burdensomeness, and the number of lifetime suicide attempts. Results supported the three-way interaction. Specifically, it was found that higher levels of perceived burdensomeness and low belonging were most likely to result in suicide attempts when there was also high acquired capability as indicated by a more severe history of previous attempts (Joiner et al., 2009). Several other studies also provide support for tenets of the IPTSB (Bryan, Morrow, Anestis, & Joiner, 2010; Fink-Miller,

2015; Hawton, Clements, Sakarovitch, Simkin, & Deeks, 2001; Nock et al., 2006, Orbach, Mikulincer, King, Cohen, & Stein, 1997; Smith, Cukrowicz, Poindexter, Hobson, Cohen, 2010; Van Orden, Witte, Gordon, Bender, & Joiner, 2008) and indicate that burdensomeness and belongingness are related to suicidal ideation and individuals who experience these and also possess capability to attempt suicide are more likely to act on this ideation.

Connecting NSSI and Suicide

Suicidal and nonsuicidal self-injurious behaviors are often considered to lie within the same deliberate self-harm spectrum with suicidal behaviors being on the most extreme end of the spectrum (Cloutier, Martin, Kennedy, Nixon, & Muehlenkamp, 2010). When thinking of NSSI and suicidal behaviors in this way it is easy to see that they are not the same. Indeed, there is a large body of literature suggesting important distinctions can be made between suicidal and nonsuicidal self-injurious behaviors (Brausch & Gutierrez, 2010; Guertin, Lloyd-Richardson, Spirito, Donaldson, & Boergers, 2001; Jacobson, Muehlenkamp, Miller, & Turner, 2008; Klonsky, May, & Glenn, 2013; Muehlenkamp & Gutierrez, 2004, 2007; Stanley, Gemeroff, Michalsen, & Mann, 2001). Compared to suicide attempters, self-injurers differ in the intent and severity of self-harm, have lower lethality of the behavior, use different methods, and have more life-oriented cognitions (Nock & Kessler, 2006; Walsh, 2006). Suicide attempters are more likely to report intent to die, have self-harm that requires medical attention, experience more death-oriented cognitions, and have an overall lower prevalence of suicide attempts (Nock & Kessler, 2006; Walsh, 2006). Though the literature suggests NSSI and suicide attempts are distinct

behaviors, they are not mutually exclusive and the behaviors can be linked to each other in more ways than just having shared risk factors.

Laye-Gindhu and Schonert-Reichl (2005) examined NSSI in a community sample of adolescents and found that an overwhelming majority of the NSSI group experienced suicidal ideation, almost half reported making a suicide plan, and one-fourth reported at least one previous suicide attempt—all of which differed significantly from the non-injuring group. Additionally, 89% of the participants with a suicide attempt reported previous NSSI. In a large sample of young adults (Whitlock & Knox, 2007), NSSI was determined to be a strong predictor of suicidality including ideation, plans, gestures, and attempts and as severity of suicidality increased, the magnitude of the association increased. When the number of NSSI episodes exceeded 50, however, the predictive ability declined. This decline could mean that for some individuals, greater frequency of NSSI is the result of NSSI successfully ameliorating their problems. Thus, there is less urge to attempt suicide and this explains why they do not progress to more suicidal behaviors. Horwitz, Czyz, and King (2015) also found that lifetime NSSI was a significant independent predictor of future suicide attempts. These studies provide support for a relationship between NSSI and suicide in clinical and community samples of adolescents and adults, but they do not elucidate the nature of this relationship.

Notably, in a longitudinal study with a nationally representative sample of Norwegian high school students by Wichstrom (2009), multivariate analysis of risk and protective factors for both NSSI and suicide attempts indicated the presence of NSSI did not predict future suicide attempts. This suggests that NSSI alone is not an optimal predictor for suicide. Cultural differences may explain why this particular study showed

differing results from the previous studies. However, these results also make sense logically and empirically considering the majority of individuals who engage in NSSI do not make a suicide attempt and not everyone who attempts suicide has a history of NSSI. How then, do specific features of NSSI such as frequency, method, pain experience, response latency, desire to harm, and function relate to suicide? Several studies have attempted to answer this question.

NSSI frequency. A large majority of the literature supports the claim that there is a relationship between NSSI frequency and suicide attempts (Andover & Gibb, 2010; Brunner et al., 2007; Darke, Torok, Kaye, & Ross, 2010; Prinstein et al., 2008; Whitlock & Knox, 2007). In a meta-analysis, Victor and Klonsky (2014) compared the frequency of NSSI between NSSI only and NSSI + suicide attempt groups and no between-group differences in NSSI frequency were found but there was an overall moderate positive relationship between frequency and history of suicide attempt. This relationship may be explained by heightened acquired capability through the increased exposure to painful and provocative events (NSSI). Or it could be that frequency is a proxy measure for other indices of NSSI severity such as length of time self-injuring and this might also explain that relationship (Victor & Klonsky, 2014). However, the discriminant and convergent validity between these two measures would need to be assessed before making this conclusion.

Though the majority of research supports the NSSI frequency-suicide relationship, a study by Nock, Joiner, Gordon, Lloyd-Richardson, and Prinstein (2006) did not provide support for this. One critical difference which may explain why this study obtained different results is that there was a mix of populations included in each study

such as adult psychiatric inpatients, illicit drug users, adolescent psychiatric inpatients, and young adults. Furthermore, for the young adult population (Whitlock & Knox, 2007), a curvilinear relationship between lifetime NSSI frequency and suicidal behavior was found such that the maximum association occurred between 11 and 50 incidences and then declined beyond 50 incidences. An explanation for this is that higher frequency of NSSI may be indicative of self-injurers who perform self-injury for purposes not exclusive to negative affect and may use it habitually and/or compulsively (Whitlock & Knox, 2007). A second explanation is that greater frequency of self-injury indicates NSSI alleviates negative affect and thus, there is less urge to attempt suicide. It could also be that NSSI frequency differentially predicts suicide attempts by population. A fourth possible explanation for this inconsistency is that inherent differences in pain tolerance affect how NSSI interacts with pathways leading to pain desensitization. Yet, a fifth explanation could be due to the fact that researchers who found a positive relationship between NSSI frequency and suicide attempts (Andover & Gibb 2010; Brunner et al., 2007; Darke et al., 2010; Prinstein et al., 2008; Whitlock & Knox, 2007) assessed lifetime frequency and researchers who did not find this association (Nock et al., 2006) assessed 1-year frequency of NSSI. Due to the many potential explanations, the current study attempted to clarify the specific nature of the association between NSSI frequency and suicide in a sample of young adults.

NSSI method. Nock and colleagues (2006) found that among adolescents, the number of methods used for NSSI was related to a higher number of suicide attempts. These results have also been replicated in a different population of young adults (Anestis, Khazem, & Law, 2015; Turner, Layden, Butler, & Chapman, 2013; Whitlock & Knox,

2007; Whitlock et al., 2008). Because different methods result in different severity of injury to the body, such as injury related to cutting versus sticking skin with needles, it could be that the use of several methods for NSSI is indicative of more comfort with bodily harm or less fear of pain. Five studies could be identified which examined severity or type of self-injury method and its correlates (Csorba, Dinya, Plener, Nagy, & Páli, 2009; Dougherty et al., 2009; Klonsky & Olino, 2008; Plener, Libal, Keller, Fegert, & Muehlenkamp, 2009; Tresno, Ito, & Mearns, 2012). However, these studies grouped participants by whether they had a history of cutting or other self-injury methods such that anyone who cut themselves in the past, regardless of the other additional methods used, were labeled as cutters and everyone who did not cut themselves in the past were labeled as self-harmers. In a meta-analysis of these five studies (Victor & Klonsky, 2014), results indicated that among all participants, cutters were more likely to also report a previous suicide attempt. This relationship too may be explained by the increased exposure to pain heightening risk for suicide via acquired capability.

A separate study (Lloyd-Richardson et al., 2007) was conducted to determine if differences exist on suicidal ideation or attempts by method severity. Participants were grouped according to two groups, minor and moderate/severe methods. Participants reporting at least one episode of moderate/severe methods were classified as belonging into this group regardless of whether they also reported minor methods. Results showed participants with moderate/severe methods were more likely to have suicidal ideation or attempt suicide than those who used more minor methods of self-injury (Lloyd-Richardson et al., 2007). No other study could be identified which examined how method severity relates to suicide attempts in this manner. Wester, Ivers, Villalba, Trepal, and

Henson (2016) noticed no previous study examined how specific NSSI methods relate to suicidality and intended to address this in participants who endorsed NSSI within the past 12 months. However, low endorsement for many methods of self-injury prevented them from analyzing the data and no further information about methods was provided.

The studies used in Victor and Olino's (2014) meta-analysis and Lloyd-Richardson (2007) consisted of a mix of various populations including: Hungarian clinical outpatients, American clinical inpatients, German community adolescents, Indonesian university students, American university students, and American community adolescents. Because only one study has examined method severity in relation to suicidality (Lloyd-Richardson, 2007), further exploration is necessary due to the potential impact methods of self-injury have on increasing acquired capability for suicide. Additionally, this study used community adolescents and it is necessary to examine method severity and suicidality in young adults to determine if the relationship found in adolescents can be generalized to a different population. As such, the current study aimed to address this gap.

NSSI pain experience. The acquired capability, or reduced fear and habituation to physical pain, is the pinnacle on which the IPTSB depends. If an individual does not possess these characteristics, according to this theory, they cannot and will not die by suicide. This argument has stimulated much research related to the experience of pain in the nonsuicidal and suicidal population. This possible link has even been explored in laboratory studies using a pressure algometer task (Hooley, Ho, Slater, & Lockshin, 2010) and a cold pressor task (Franklin, Hessel, & Prinstein, 2011). In the former study, participants recruited from the community were placed into a self-injuring and a non-self-

injuring group. The two groups were compared on how many seconds it took them to report the onset of pain (pain threshold) and the total time that participants were willing to experience the pain (pain endurance). Results revealed that self-injurers took longer to report the onset of pain and were willing to continue the task for a longer period of time.

In the latter study, undergraduates were recruited to examine the differences in pain threshold, pain endurance, and pain intensity, a subjective measure of how painful the water felt. Results were similar to the previous study and participants with a history of NSSI also rated the water as being less intense. Aside from concluding self-injurers have greater tolerance for enduring and experiencing pain than non-self-injurers, no other concrete conclusions about the direct relationship between NSSI frequency and pain can be made due to a limitation of the variables measured in the study. In other words, it cannot be claimed that higher frequency of self-injury is why self-injurers have higher pain thresholds and tolerance for pain. Although the current study did not utilize behavioral measures of pain, the discussion of these studies is important to show that differences in pain variables between NSSI and control groups are not strictly due to the subjectivity of self-reports.

In a previous study from Nock and colleagues (2006), pain was conceptualized based on the amount felt (ranging from none to severe) and researchers hypothesized that adolescents reporting less physical pain would have a history of more frequent NSSI, report a greater number of methods, and more suicide attempts due to having less aversion for self-injurious behaviors. Results showed no relationship between frequency of NSSI and suicide attempts, less physical pain was associated with lower frequency of NSSI and the use of fewer methods, but was associated with more suicide attempts. It

was also found that those who experienced no pain reported almost two times as many suicide attempts compared to those who reported experiencing pain. This study supports the idea of acquired capability with one potential caveat—NSSI frequency may not necessarily be related to habituation to pain.

Importantly, NSSI is only one way in which an individual may increase capability for suicide, thus it is possible to simultaneously have fewer NSSI incidences, pain desensitization, capability for suicidal behavior, and more suicidal acts. Additionally, feeling generation (i.e., pain) may not be an important function of NSSI for participants in their sample. Therefore, participants may have used NSSI to serve other functions ultimately resulting in less severe methods and feeling less pain. Conversely, it is likely this psychiatric inpatient sample reported engaging in more severe methods of self-injury resulting in lower frequency of NSSI but simultaneously leading to greater desensitization to pain in fewer episodes, due to the nature of engaging in severe forms of NSSI.

NSSI response latency. There is a dearth of research on response latency of NSSI, defined as the amount of time that elapses from when an individual has the urge to harm themselves until they act on the urge (Klonsky & Olino 2008). There is, however, literature suggesting individuals with a history of NSSI are more likely to engage in impulsive risk-taking behaviors (e.g. binge eating, alcohol/drug abuse, sexual promiscuity, and gambling) than individuals without a history (Glenn & Klonsky, 2010; Guertin et al., 2001). Some evidence (Evans, Platts, & Liebenau, 1996; Simeon, Stanley, & Frances, 1992) also suggests that impulsivity is related to the extent of self-injury among self-injurers such that more impulsive self-injurers have more frequent episodes

self-injury. In the study by Evans and colleagues (1996), degree of impulsivity differentiated repetitive self-injurers, first-time self-injurers, and non-injuring controls matched on sex and age. However in the study by Simeon and colleagues (1992), degree of impulsivity was only related to severity of self-injury among self-injurers and could not differentiate self-injurers from those who did not self-injure. Other research found that impulsivity distinguishes female self-injurers from controls but not male self-injurers from controls (Hawton, Rodham, Evans, & Weatherall, 2002), and that only the future planning aspect of impulsivity distinguishes self-injurers from controls (Herpertz, Sass, & Favazza, 1997). Part of the conflicting literature is likely due to the various ways impulsivity has been defined and measured (Glenn & Klonsky, 2010).

These inconsistencies prompted the development of the Urgency, (lack of) Premeditation, (lack of) Perseverance, Sensation Seeking Impulsive Behavior Scale (*UPPS-P*; Whiteside & Lynman, 2001). Using this scale, Glenn and Klonsky (2010) assessed potential differences on these factors for participants with and without a history of NSSI. Self-injurers were found to possess greater urgency, a greater lack of premeditation and greater sensation seeking compared to controls; indicating that they have a tendency to act rashly to negative affect and have a tendency to act without forethought (Glenn & Klonsky, 2010; Klonsky et al., 2011; Taylor, Peterson, & Fischer, 2012). Although urgency and lack of premeditation indicate some form of self-injurers' impulsivity, they are not an indication of the typical amount of time it takes for self-injurers to progress from urge to action.

Few studies have reported this urge-to-action response latency as descriptive statistics (Klonsky, 2011; Nock & Prinstein, 2005; Smith, Steele, Weitzman, Trueba, &

Meuret, 2015). In the former study with community adults, the majority of self-injurers reported 15 minutes or less elapsed between the urge for NSSI and the action. In the latter study with adolescent psychiatric inpatients, the majority of self-injurers did not contemplate harming themselves before doing so and a lesser number of participants contemplated the act for only a few seconds to a few minutes. Spending less time contemplating NSSI may be related to more severe NSSI, having fewer adaptive coping strategies, and proximally related to decreased fear of bodily harm or pain (Lloyd-Richardson et al., 2007). Therefore, difficulty resisting the urge to harm oneself may also be related to propensity for suicidal behavior in the face of aversive and intolerable life events. However, future research needs to specifically examine how response latency is related to suicidality. As such, the current study sought to elucidate the nature of this relationship.

NSSI desire. It may seem like people engage in self-harm because they have been unsuccessful in finding other forms of adaptive coping strategies. Hence, people do not truly wish to harm themselves and are only doing so because they find it useful. There is evidence to suggest that for some self-injurers, NSSI has addictive properties for adolescent inpatients (Nixon, Cloutier, & Aggarwal, 2002) and young adults (Brown & Kimball, 2013; Gelinis & Wright, 2013; Harris, 2000; Wadman et al., 2016) who reported increasing frequency or severity of NSSI since first starting the behavior despite the fact that engaging in NSSI was upsetting for them. Some participants specifically reported that while there was a desire to stop, they believed that they could not completely stop self-harming because for them, the behavior was functional and habitual (Wadman et al., 2016).

Beyond the potential addictiveness of NSSI, many studies have documented that although the majority of self-injurers want to stop (Andover, 2014; Deliberto & Nock, 2008; Lewis & Michal, 2016; Shaw, 2006), for some, there is no desire to stop (Andover, 2014; Deliberto & Nock, 2008; Lewis & Michal, 2016; Smith et al., 2015) and some even have a desire to engage in NSSI (Alexander & Clarke, 2004; Duperouzel & Fish, 2007; Harker-Longton & Fish, 2002; Shaw, 2006; Wadman et al., 2016). Regardless of the reason(s) why some people do not wish to stop NSSI, this lack of desire may be a sign of being more comfortable with bodily harm, another indicator of increased acquired capability. Indeed, in a qualitative study of the experience of self-harm (Wadman et al., 2016) one participant specifically stated, "...the methods are definitely more life-threatening, and I want to cause more harm," (p. 7) and another participant stated, "Unless I've something [self-harmed] pretty bad, then it doesn't really make a difference" (p. 7) indicating the need and comfort to harm more severely. If the lack of desire to stop harming oneself is a partial indication of possessing acquired capability for suicide, this may increase risk for a suicide attempt in those who also experience active suicidal ideation. To date, however, there lacks quantitative evidence for the potential association as no study has directly tested this relationship. NSSI desire may be an additional factor capable of providing important information about the link between NSSI and suicidality; hence, quantitative research is needed to move beyond theoretical interpretations.

NSSI function. Research suggests that different functions of NSSI are associated with suicide risk at differing levels. In one study using the four-factor model of NSSI (Nock & Prinstein, 2005), it was hypothesized that automatic negative reinforcement

would be associated with suicide attempts because the suicide attempt is the behavioral representation of trying to escape negative affect or feelings of hopelessness. It was also hypothesized that the other functions, automatic positive reinforcement, social positive reinforcement, and social negative reinforcement would not be associated with a suicide attempt or feelings of hopelessness. These hypotheses were fully supported and replicated in a sample of young adults who were identified as automatic reinforcement cutters with a high degree of suicidality (Klonsky & Olino, 2008).

These two studies support the claim that endorsement of automatic/intrapersonal functions for NSSI is another risk factor for suicidal behavior. To fully understand how NSSI functions are related to suicidal behavior is critical for suicide prevention efforts. If the two-function domains differentially predict the likelihood of a suicide attempt, then researchers and clinicians may be better able to identify at-risk individuals and ultimately curtail death by suicide from assessing NSSI functions. Therefore, the current study examined if there was differential risk for suicide for each domain.

Rationale and Hypotheses

Overall, the literature suggests NSSI is a risk factor that increases the odds of lethal suicidal behavior (Andover & Gibb, 2010; Prinstein et al., 2008; Whitlock et al., 2012; Wilkinson et al., 2011). Research has looked at various aspects of NSSI and how they relate to suicide (Anestis et al., 2015; Darke et al., 2010; Lloyd-Richardson et al., 2007; Nock & Prinstein, 2008; Nock et al., 2006; Victor & Klonsky, 2014) but there are many gaps in the literature that should be addressed. The current study had one primary goal: to examine specific characteristics of NSSI in a college student sample in order to determine how they relate to the presence of a suicide attempt.

The population in which frequency of NSSI is studied leads to different conclusions about its relationship with suicide attempts. Only one study has assessed lifetime NSSI frequency in a young adult population and, surprisingly, found a curvilinear relationship with suicide attempt (Whitlock & Knox, 2007). The current study sought to replicate this finding using lifetime NSSI frequency as a predictor of suicide attempt status. The first hypothesis was that when lifetime frequency is broken down by range (1-10 incidences, 11-50 incidences, and 51+ incidences), mid-range frequency would predict suicide attempt history the strongest compared to low-range and high-range frequencies. More specifically, suicide attempts would be predicted by those reporting any history of NSSI but those reporting 11 to 50 incidences would show the strongest predictability.

Research points to two important discoveries related to NSSI method and suicide: a larger number of methods predict suicide attempts and that those who cut themselves are more likely to report suicide attempts (Anestis et al., 2015; Victor & Klonsky, 2014). The distinction between cutters and non-cutters does not tell us if it is the severity of methods or this particular type of method that is more related to suicide attempts. While specificity of this has been addressed in a study which found that moderate/severe self-injurers were more likely to have suicide attempts than minor self-injurers (Lloyd-Richardson et al., 2007), an adolescent sample was used and this relationship may not generalize to young adults. Additionally, grouping participants by only two types of severity may have masked the effects of other differences that may have been found between moderate and severe self-injurers. As a result, the current study examined how suicide attempts related to the use of minor, moderate, and high severity self-injury

methods in young adults. It was hypothesized that individuals who primarily used high severity methods would be more likely to report a suicide attempt compared to those who reported primarily using minor or moderate methods.

Self-injurers experience higher pain tolerance, pain endurance, and rate pain as being less intense compared to those who do not self-injure (Hooley et al., 2010; Franklin et al., 2011). The lack of pain while engaged in NSSI has also been associated with self-injurers having two-times as many suicide attempts compared to those who feel varying amounts of pain (Nock et al., 2006). It is important to note that the previous study was conducted with adolescent inpatients who had consecutive stays in psychiatric units and thus they may have been characterized by a particularly high level of suicidality. Further exploration of pain experience is necessary in other potentially less severe populations. Additional breakdown of pain experience by how often pain is felt while self-injuring, as opposed to how much pain is felt, can provide useful and novel information such as how best to classify pain when the goal is to determine how it relates to suicidality. The third hypothesis was that those who did not experience pain while self-injuring would be more likely to report a suicide attempt compared to those who always or sometimes experienced pain.

Under the experience of negative affect, self-injurers act more rashly and without forethought compared to those who do not self-injure (Klonsky et al., 2011). With regard to self-injury specifically, it could be that the urge to self-injure is more impulsive and engaging in the act is more deliberate. Meaning when negative affect is experienced, the urge to harm oneself is almost immediate but a period of contemplation, called response latency, occurs before one acts on this urge. Though this period is not very long, most

self-injurers do report contemplating the act for 15 minutes or less (Smith et al., 2015) and clinical populations typically report not contemplating the act (Nock & Prinstein, 2005). The relatively short response latency could be related to increased comfort with harm and gives credence to the possibility that this is also related to propensity for suicidal behavior when experiencing overwhelming distress, especially given the higher level of impulsivity that is displayed by this population. To date, no previous study has quantitatively assessed this relationship. The current study sought to provide preliminary results into the nature of this relationship and it was hypothesized that decreased response latency would be associated with an increased likelihood of suicide attempts.

The vast majority of self-injurers are aware of the destructive and unhealthy nature of NSSI and wish to stop. There is, however, a smaller portion who do not wish to stop and appear to want to hurt themselves (Wadman et al., 2016). The latter group is quite concerning as most people are not comfortable with bodily harm whether it occurs by their own hand or another. This group's apparent comfort with harm may be an indicator of decreased fear of bodily harm and heightened acquired capability. Previous research has not examined this relationship but doing so may provide additional insight into the connection NSSI has with suicide. The fifth hypothesis was that individuals with no desire to stop self-harming would be more likely to report a suicide attempt compared to individuals with a desire to stop.

Functions of NSSI differentially relate to suicide attempts. Under the four-function model, automatic negative reinforcement is associated with suicide attempts while automatic positive reinforcement, social positive reinforcement, and social negative reinforcement are not (Nock & Prinstein, 2005). Based on the literature it is likely that

intrapersonal functions of NSSI are related to suicidality and interpersonal functions are not; however, this relationship has not been previously explored using the two-factor approach. As these two functions of NSSI are the most widely studied (Zetterqvist et al., 2013), it would be useful to provide empirical data to back up the previous claim. Additionally given this model's superiority and comprehensiveness, it is beneficial to examine how functions under this framework relate to suicidality as it can provide insight into which functions clinicians should focus on during treatment when trying to reduce suicidality for at-risk self-injurers. The sixth hypothesis was that among self-injurers, having higher intrapersonal function scores would be associated with an increased likelihood of suicide attempts compared to having higher interpersonal function scores.

Chapter 2: Method

Participants

Participants 18 years and older were recruited online from Study Board, an automated online system for scheduling research participation in the Department of Psychological Sciences and the Department of Psychology at Western Kentucky University. This sample was gathered from archival data and was collected from the larger study on College Student Mental Health and Risk Behaviors conducted in Dr. Amy Brausch's Risk Behaviors lab. Data analyses for the sample included all individuals who had a history of nonsuicidal self-injury regardless of their reported history of suicide attempt.

Descriptive statistics. Due to missing data on several relevant characteristics of self-injury, 28 cases were excluded from analyses, resulting in a total sample of $n = 1133$. Demographic information for the sample with no NSSI history and the NSSI sample are

presented in Table 3. In the non-NSSI sample, participants (N = 762) were an average of 19.60 (SD = 3.59) years old ranging in age from 18 to 59. In the NSSI sample (N = 372), participants were approximately 19.95 (SD = 3.21) years old ranging in age from 18 to 48. The number of incidences of self-injury for this sample ranged from 1 to 51 or more times (Median = 11-50) but most participants (33.6%) self-injured 51 or more times. Approximately 14% of self-injurers reported having a history of suicide attempt (N = 55) and approximately 1% of non-self-injurers reported having a history of suicide attempt (N = 11). Collectively participants endorsed using all methods of self-injury but used an average of 3.2 methods (SD = 2.24, Median = 3, Mode = 1), and the majority (40.2%) primarily used minor severity methods; descriptive information for each method is presented in Table 4. Participants also endorsed all functions for self-injury; descriptive information for this is presented in Table 5. The majority of participants (56.8%) reported engaging in NSSI less than one hour after first getting the urge; additional descriptives are presented in Table 6. Last, 89% of the sample reported a desire to stop self-harming while the remaining 11% reported no desire to stop.

Table 3.

Demographics of Self-Injurers and Non-Self-Injurers (N = 1133)

Characteristic	NSSI Percentage (N)	Non-NSSI Percentage (N)
Gender^a		
Male	31.5 (117)	29 (221)
Female	68 (253)	71 (540)
Ethnicity^b		
Caucasian	74.1 (272)	76.6 (582)
African-American	9.8 (36)	12.2 (93)
Hispanic	4.9 (18)	2.2 (17)
Native American	.5 (2)	.3 (2)
Multi-Ethnic	3.3 (12)	3.7 (28)
Asian	5.4 (20)	2.9 (22)
Other	1.9 (7)	2.1 (16)
Year in School^c		
Freshman	58.7 (212)	61.7 (460)
Sophomore	17.6 (65)	23.4 (174)
Junior	13.3 (49)	9.1 (68)
Senior	9.5 (35)	5.8 (43)

Note. Chi-square analyses were conducted to determine if there were differences between groups in reported history of self-injury.

^a No difference between males and females on history of NSSI.

^b No difference among ethnic groups on history of NSSI.

^c Sophomores were more likely to report no NSSI history than Juniors and Seniors, $p < .005$.

Table 4.

Methods of NSSI Sample (N = 372)

Method	Percent of Sample (N)	M	SD	Mdn	Mode	Skew	Kurtosis
Minor Severity ^a	40.2						
Pinching ^b	35.7 (131)	31.44	70.50	10	10	5.11	30.22
Pulling Hair ^b	48.5 (179)	48.87	119.68	10	10	3.54	12.03
Scratching ^b	34 (125)	49.50	134.52	10	10	4.50	23.51
Rubbing Skin ^b	23.1 (85)	63.12	158.43	10	10	3.81	16.30
Moderate Severity ^a	27.5						
Biting ^b	29.3 (104)	50.46	158.38	10	10	4.93	25.51
Banging ^b	46.7 (172)	29.62	63.95	10	10	5.363	34.81
Sticking Skin ^b	13.9 (51)	16.55	28.77	6	10	3.142	10.62
High Severity ^a	32.3						
Cutting ^b	47 (173)	32.81	83.34	6	10	4.09	17.75
Burning ^b	19.6 (72)	16.74	60.33	5	1	7.52	60.10
Carving ^b	9.2 (34)	14.26	25.97	2	2	2.50	5.77
Swallowing Substances ^b	14.9 (55)	24.64	53.23	5	1	3.54	14.46

Note. ^a Based on the severity most prominently used.

^b Based on the total percentage of people who endorsed using that method regardless of the severity category in which they were placed.

Table 5.

Two-Factor and Individual Functions of Self-Injury for NSSI Sample

Function	Percent of Sample ^a	M ^b	SD	Skew	Kurtosis
Intrapersonal	87.8	9.85	7.46	.47	-.70
Affect Regulation	84.9	3.18	1.99	-.19	-1.11
Self-Punishment	66.9	2.29	.2.16	.46	-1.18
Anti-Dissociation	55.1	1.65	1.95	.95	-.35
Anti-Suicide	38.8	1.18	1.81	1.35	.48
Marking Distress	56.5	1.54	1.73	.85	-.38
Interpersonal	77.5	5.92	6.63	1.56	2.35
Interpersonal Boundaries	35.3	.86	1.40	1.62	1.70
Self-Care	50	1.05	1.34	1.29	1.11
Sensation-Seeking	38	.72	1.15	1.82	3.20
Peer Bonding	15.6	.36	.96	3.03	9.23
Interpersonal Influences	36.3	.82	1.32	1.66	2.02
Toughness	52.3	1.23	1.59	1.32	.99
Revenge	17.8	.37	.97	3.09	9.87
Autonomy	29.6	.60	1.14	2.23	5.14

Note: Total scores for individual functions ranged from 0 to 6. Total scores for Intrapersonal and Interpersonal functions ranged from 0 to 30 and 0 to 32, respectively.

^a Based on the percent of sample endorsing any item on the subscale function.

^b Based on the mean subscale score.

Table 6.

Response Latency of NSSI Sample

Time Elapsed	Percent of Sample	Frequency
< 1 hour	56.8	191
1-3 hours	16.7	56
3-6 hours	1.5	5
6-12 hours	1.8	6
12-24 hours	2.4	8
> 1 day	20.8	70

Procedure

At the start of the session, participants entered the Risk Behaviors Lab located on the third floor of Gary Ransdell Hall and were spaced far enough apart to provide privacy to fill out the questionnaires. If they were unable to sit far apart, a partition was placed between them. A graduate researcher then explained the purpose of the study and gave participants an informed consent document (Appendix A). Participants were instructed to carefully read the form and sign it if they agreed to participate in the study. The researcher then asked participants if they had any questions about the study and provided answers if necessary. After the form was signed, the researcher explained the procedure for the study and participants were handed a packet of questionnaires and answered the self-report measures. As the graduate researcher exited, an undergraduate research assistant remained in the room for the duration of the study while participants completed the packet of questionnaires.

Once a participant was finished, they entered the room with the graduate researcher and the debriefing process began. During this debrief, the researcher examined participants' self-reported response to the nonsuicidal self-injury and suicide attempt items marked as critical. At risk individuals were classified based on the severity of their risk (see risk assessment section below) and the appropriate action took place. A white noise machine was also utilized during this study to ensure participant's privacy and confidentiality during the debriefing process. All procedures were approved by Western Kentucky University's Institutional Review Board.

Risk Assessment

Risk assessment was based on participants' disclosure of a suicide attempt on the SHBQ. Low risk participants were those who indicated a suicide attempt more than 12 months ago and/or thoughts about suicide within the past year. These participants were encouraged to make an appointment at the counseling center or another agency provided on the debriefing form (Appendix B). Moderate risk participants were those who reported a suicide attempt within the past 12 months and thoughts of suicide within the past 6 months but did not describe a plan or intent to carry out a plan. In this case the researcher offered to call the counseling center from the lab to make an appointment for the participant and if this offer was denied, the participant was highly encouraged to make an appointment him or herself. A high risk participant is someone who reported a suicide attempt within the past 12 months and current thoughts of or a plan for suicide. These individuals were to be immediately referred to the WKU Counseling Center and the researcher would walk with the participant to Potter Hall, the location of the center. No participants were found to have high risk for suicide and the majority of participants were

low risk with a small minority being moderate risk. All participants were given the debriefing sheet to keep and were granted Study Board credits for their participation in the study.

Participation in this study was unlikely to cause additional risk for participants other than what is typically experienced in everyday life. Participants were told that if they became upset with any of the questions they could choose to skip those questions or end their participation without penalty. Participants who were at risk for suicide benefited from participating in this study because they received important referral information they might not have received otherwise and were able to get professional help necessary.

Measures

Demographics. Participants completed a demographic questionnaire to assess information such as age, year in school, gender, sexual orientation, and ethnicity (Appendix C).

Nonsuicidal self-injury history. The Inventory of Statements About Self-Injury (ISAS; Klonsky & Olinio 2008), a 46 item self-report measure, was used to assess all of the NSSI sections below (Appendix D).

NSSI frequency. Stated on the ISAS, NSSI are lifetime behaviors done intentionally to oneself without suicidal intent, including: cutting, biting, burning, carving, pinching, hair pulling, scratching, hitting self or banging, rubbing skin against rough surfaces, sticking self with needles, swallowing dangerous substances and other methods participants had the option to write. Participants were asked to write whether they had done any of these behaviors and were also asked to indicate the frequency of each method endorsed. These items were summed to indicate a total lifetime NSSI

frequency. This frequency was used to place self-injurers into groups based on a range of self-injury frequency such that 0 = no self-injury, 1 = 1-4 incidences, 2 = 5-10 incidences, 3 = 11-50 incidences, and 4 = 51 more incidences. Frequency categories were taken from proposed guidelines of NSSI disorder in the *DSM-5* (APA, 2013) and previous research (Whitlock & Knox, 2007).

NSSI method severity. Regardless of how commonly methods were endorsed, all methods listed in the previous section were included in this study to better divide participants by severity. Severity groups were derived from previous research (Favaro et al., 2008; Lloyd-Richardson et al., 2007; Tang et al., 2011; Whitlock, Muehlenkamp, & Eckenrode, 2008) which categorized people based on the typical amount of damage caused to the body. Minor severity included pinching, pulling hair, scratching, and rubbing skin against rough surfaces; moderate severity included biting, hitting/banging, and sticking self with needles; and high severity included cutting, burning, carving, and swallowing dangerous substances. Participants were given a total score based on frequency for each severity level. They were then categorized based on the severity they endorsed the most. Due to theoretical assumptions of the impact of engaging in more severe forms of NSSI (i.e., decreased fear of bodily harm, desensitization to pain, and greater likelihood of suicide), if there was a tie in method severity, they were placed in the category that was more severe. For example, if a participant listed 15 minor methods, 10 moderate methods, and 15 high severity methods, they were considered to use high severity methods. Methods were coded as 1 for minor, 2 for moderate, and 3 for high.

NSSI experience of pain. On item 4, participants were asked whether they experienced physical pain while self-harming. They had the option to circle yes (1), sometimes (2), or no (3).

NSSI response latency. Item 6 asked participants how much time typically elapsed from the time they had the urge to self-harm until they acted on the urge. Participants circled either less than 1 hour (1), 1 – 3 hours (2), 3 – 6 hours (3), 6 – 12 hours (4), 12 – 24 hours (5), or more than 1 day (6).

NSSI desire. On item 7, participants were asked if they wanted to stop self-harming. They could have chosen yes (1) or no (0). If a participant circled both answers, this was counted as missing data.

NSSI functions. The second section of the ISAS assesses 13 functions of NSSI using 39 items. Participants were asked to indicate how relevant each item was for their reason to self-injure using a scale of 0 – 2 (0 = not relevant, 1 = somewhat relevant, 2 = very relevant). The 13 functions converge on two factors; interpersonal (e.g. autonomy, interpersonal boundaries, interpersonal influence, peer bonding, revenge, self-care, sensation seeking, and toughness) and intrapersonal (e.g. affect regulation, anti-dissociation, anti-suicide, marking distress, and self-punishment) (Klonsky, Glenn, Styer, Olino, & Washburn, 2015). Participants were given a score up to 6 for each of the individual functions and these were added to compute an overall interpersonal and intrapersonal score which could range from 0 – 48 and 0 – 30, respectively. The ISAS has been shown to be a reliable and valid way to measure the various functions of NSSI (Klonsky & Glenn, 2009). Validity of the 13 functions ranged from .53 to .88 with reliability coefficients of $\alpha = .80$ and $\alpha = .88$, respectively, for intrapersonal and

interpersonal functions. For the current sample, the reliability coefficient for all of the items used on the ISAS was $\alpha = .87$ and reliability for the intrapersonal subscale was $\alpha = .83$ whereas reliability for the interpersonal subscale was $\alpha = .82$.

Suicide attempt history. The Self-Harm Behavior Questionnaire (SHBQ; Gutierrez, 1998), another self-report measure (Appendix E), was used to determine if participants had previously attempted suicide as indicated by the question, “Have you ever attempted suicide?” Participants could circle yes (1) or no (1) and then elaborate on their suicide attempt and give information such as method, lifetime number of attempts, age of most recent attempt, disclosure of the attempt, and if medical attention was required after the attempt. As the current study is concerned with prediction of a suicide attempt, only participants’ response for this item was used as the outcome variable. The SHBQ has been shown to be valid and reliable in assessing self-harm thoughts and behaviors in a sample of university students (Gutierrez, Osman, Barrios, & Kopper, 2001). Reliability for the current sample for items assessing suicidal behaviors was $\alpha = .81$.

Chapter 3: Results

Preliminary Analyses

Data from the NSSI sample were assessed to ensure all of the assumptions of binomial and multivariate logistic regression were met. Though a moderate correlation was found between intrapersonal and interpersonal functions of NSSI ($r = .47$), analyses revealed no violation of multicollinearity. Raw lifetime NSSI frequency was non-normally distributed as indicated by a large degree of skewness (skew = 3.86) and kurtosis (kurtosis = 17.84) ranging from 1 to 2102 incidences ($M = 121.27$, $SD = 266.95$,

Median = 24). When lifetime frequency was categorized by range (i.e., 1-4 incidences, 5-10 incidences, 11-50 incidences, and 51+ incidences), the skewness and kurtosis were found to be within the acceptable standards (skew = -.49, kurtosis = -.98). This lifetime range of NSSI incidences was used as the predictor variable in the first analysis.

Hypothesis One

A binomial logistic regression analysis was conducted to determine the effect of ranked lifetime NSSI frequency on the likelihood that participants had a history of suicide attempt. The regression model was statistically significant, $\chi^2(4, N = 1133) = 83.537, p < .001$ and explained 19.8% (Nagelkerke R^2) of the variance in suicide attempt status in addition to correctly classifying 94.2% of cases. As shown in Table 7, all categories of NSSI frequency increased the odds of suicide attempt status compared to having no history of self-injury and these odds became stronger as the frequency of self-injury increased.

Table 7.

Logistic Regression of Suicide Attempt Status on NSSI Frequency

<u>Lifetime Frequency</u>	<u>Odds Ratio (95% Confidence Interval)</u>
0 incidences	1
1-4 incidences	4.9 (1.5-16.2)
5-10 incidences	6.7 (2.4-18.9)
11-50 incidences	10.9 (5.0-23.8)
51+ incidences	18.2 (8.8-37.9)

Note: Results in bold are statistically significant at $p < .01$ with 0 incidences being the reference group.

Hypothesis Two

The second hypothesis was tested using chi-square crosstabulation analysis. Results indicated that the relationship between NSSI method severity and suicide attempt status was significant $\chi^2(2, N = 371) = 14.72, p < .005$. More specifically, those who primarily used high severity methods of self-injury were proportionately more likely to have a history of suicide attempt (25%) compared to those who used moderate (8.8%) or minor methods of self-injury (10.7%). Additionally, those who used moderate methods of self-injury were likely to have a proportionately similar history of suicide attempt with those who primarily used minor severity methods of self-injury.

Hypothesis Three

Chi-square crosstabulation was also used to test the third hypothesis. Results showed that the relationship between pain status and suicide attempt status was statistically significant $\chi^2(2, N = 361) = 6.30, p < .05$. Further inspection of the proportions indicated participants who experienced pain while self-injuring were more likely to report a history of suicide attempt (21.2%) than those who did not experience pain (8.3%). Participants who reported sometimes experiencing pain while self-injuring (14.6%) did not differ statistically from either group in terms of suicide attempt status.

Hypothesis Four

Binomial logistic regression was used to assess the relationship between response latency and suicide attempt status. Results showed the regression model was not statistically significant, $p = .22$, indicating response latency was not associated with suicide attempt status (see Table 8.)

Table 8.

Logistic Regression of Suicide Attempt Status on Response Latency

Response Latency	Odds Ratio (95% Confidence Interval)
< 1 hour	.9 (.4-1.9)
1-3 hours	1.5 (.6-3.6)
3-6 hours	0
6-12 hours	2.68 (.4-16.5)
12-24 hours	0
> 1 day	1

Note. > 1 day is the reference group for response latency.

Hypothesis Five

Chi-square crosstabulation was used to test the fifth hypothesis to determine the relationship between desire to stop self-harming and suicide attempt status. Results demonstrated no relationship, and although more people who had no desire to stop NSSI reported a history of suicide attempt (21.1%) compared to those who desired to stop (14.1%), these proportions were not found to be different statistically $\chi^2(1, N = 343) = 1.29, p = .26$.

Hypothesis Six

The final hypothesis was tested using multinomial logistic regression analysis to determine the effect of functions of self-injury on predicting suicide attempt status. Results showed the final model was significant $\chi^2(2, N = 372) = 53.67, p < .001$ and explained 23.7% (Nagelkerke R^2) of the variance in the prediction of a suicide attempt history. Self-injuring for more intrapersonal reasons was significantly likely to increase

the odds of a suicide attempt, $\chi^2(1) = 49.76, p < .001$, but interpersonal functions did not have any effect $\chi^2(1) = 1.59, p = .21$ (see Table 9.)

Table 9.

Logistic Regression of Suicide Attempt Status on NSSI Functions

Function	Odds Ratio (95% Confidence Interval)
Intrapersonal	1.2 (1.1-1.2)
Interpersonal	.9 (.9-1.0)

Note: Results in bold are statistically significant at $p < .001$

Chapter 4: Discussion

The current study sought to determine how various features of self-injury increase the likelihood of a suicide attempt. Overall, there was mixed support for the various hypotheses of this study. The first hypothesis, stating that suicide attempt status would be predicted by ranked frequency of NSSI and that the relationship would be curvilinear, was partially supported. It was found that in comparison to no history of NSSI, all frequency categories predicted significantly higher risk for a suicide attempt, but the pattern shown was linear rather than curvilinear. Specifically, the risk for a suicide attempt increased in magnitude as the frequency of self-injury increased. Though research on how NSSI frequency relates to suicidality has generally been mixed, the results of the current study are not surprising considering previous research has found a positive linear relationship between NSSI frequency and the number of suicide attempts (Andover & Gibb, 2010; Darke et al., 2010) and that engagement in repetitive NSSI predicts the number of suicide attempts (Brunner et al., 2007).

Like the current study, Whitlock and Knox (2007) used univariate logistic regression for their analysis. Therefore, a likely explanation as to why replication of their

results failed is due to differences in measurement of suicidality rather than the type of analysis conducted. In the original study, participants were classified as exhibiting suicidality if they had any history of suicidal ideation, plans, gestures or attempts. In the current study, participants were classified as exhibiting suicidality only if they reported a history of suicide attempts. Therefore, Whitlock and Knox captured a broader range of suicidality compared to the current study and this is likely the reason why they found that maximum risk peaked at 11 to 50 episodes and declined at 51 or more episodes. The current study captured arguably the most important aspect of suicidality (i.e., suicide attempts) and explains why risk of suicide attempts increased with increased frequency of NSSI. The current study underscores an important finding regarding the NSSI-suicide relationship and points to the robustness of NSSI frequency in the prediction of risk for suicidality in general but more importantly, risk for a suicide attempt alone.

Additionally, this finding attests to the significance of early intervention for stopping self-injurious behaviors in order to decrease frequency and curtail risk of a future suicide attempt.

The second hypothesis that those who endorsed primarily high severity methods would be most likely to report a history of suicide attempt compared to people who reported primarily moderate or minor methods was fully supported. It was also found that moderate and minor method self-injurers had similar proportions of reported suicide attempt history. The one study found in the literature which grouped self-injurers by method severity (Lloyd-Richardson et al., 2007) combined moderate and high severity self-injurers into one group and compared them with minor method self-injurers. The current study provides support that the difference in suicide attempts found in the

previous study was likely due to high severity self-injurers. Therefore in the future, researchers should assess all three groups separately to determine other ways in which these groups may differ. If method severity groups differ in other ways, it could lead to a clearer understanding of the relationship between NSSI and suicide, help create more accurate theories of this relationship, and provide a better explanation for the idiosyncrasies that are commonly found in the literature.

In the context of the IPTSB, the present study also provides support for the potential effect more lethal methods of self-harm have on reducing fear of bodily harm, an important subcomponent of acquired capability for suicide. A meta-analysis found that those who endorsed cutting were more likely to report a suicide attempt history compared to those who endorsed any other method of self-injury including other minor, moderate, and severe methods combined (Victor & Klonsky, 2014). This meta-analysis in addition to the current study's results suggest that the next step for future research may be to compare suicidality among each high severity method to determine what method specifically is driving the association between suicidality and method severity. The discovery of which severe methods are most likely to be associated with suicide attempts may act to guide and encourage means-restriction at the self-injury level, may help to reduce increases with aspects of acquired capability (e.g., comfort with bodily harm and habituation to pain), and may ultimately reduce risk of self-injury escalating to suicide.

Hypothesis three was not supported by the results of the current study. In opposition to past research (Nock et al., 2006), individuals who reported no feeling of pain during self-injury were significantly less likely to report a history of suicide attempt compared to those who reported feeling pain. As this study has shown, risk for a suicide

attempt diminishes with lower frequencies of self-injury. It would be logical to attain the current result if those who did not feel pain also reported significantly lower frequency of self-injury compared to the other pain status groups. However, this is not the case as a supplementary exploratory analysis revealed no significant differences in NSSI frequency across groups.

All participants in Nock and colleagues' (2006) study were inpatients at a psychiatric unit who had consecutive admittances, had self-injured within 12 months, and a very large majority had current DSM-IV diagnoses in addition to reporting at least one suicide attempt. Given the high clinical severity of that sample and the measurement of pain based on intensity, it is not surprising that the finding from the current study appears contradictory at the surface. To help offer some additional explanation for this result, an exploratory analysis was conducted to examine if pain status groups differed by severity of NSSI methods. Results showed that those who felt pain were proportionately more likely to use high severity methods compared to moderate, but not minor, methods. Although initial results seem to be in opposition to the notion of acquired capability as demonstrated by diminished pain experience, inclusion of the additional analysis gives credence to the possibility that those who felt pain engaged in escalating severity of methods over time due to habituation to pain. Further, the escalation of NSSI severity may act to ensure that pain is felt as it is a potentially relevant consequence of self-injury (Selby & Joiner, 2009). If feeling pain is relevant for any self-injurer, (s)he could be more likely to use severe methods and this may be an indication of decreased fear of bodily harm, increased tolerance for pain, and ultimately heightened capability and risk for suicide.

In further agreement with the IPTSB, the present study's results suggest that those who felt pain were more willing to tolerate the pain from self-injury and more importantly were willing to tolerate the pain associated with a suicide attempt. Other findings suggest that those with a history of NSSI are willing to tolerate pain more compared to those without a history (Franklin et al., 2011; Germain & Hooley, 2013; Hooley et al., 2010). To empirically support the explanation of current results, future research should explore pain tolerance among self-injuring pain groups to determine if those who experience pain are behaviorally and subjectively more willing to endure pain than those who do not or infrequently experience pain. Above all measures related to pain (i.e., threshold, tolerance, and intensity), tolerance is believed to be an important factor in acquired capability due to the pain associated with suicide attempts (Franklin et al., 2011; Van Orden et al., 2010) and the results of the current study support this claim. Additionally, these results demonstrate that various measures of pain experience differentially relate to suicide attempts and researchers should be sure to be mindful of this when interpreting their results.

The fourth hypothesis that decreased response latency would be associated with an increased likelihood of suicide attempts was not supported. This suggests that the extent to which one can resist the urge to harm themselves is not related to suicide attempts and that impulsivity specific to NSSI is different from impulsivity associated with suicide. Lloyd-Richardson and colleagues (2007) posited that less contemplation of NSSI may be proximally related to decreased fear of bodily harm and while this may be true for nonsuicidal self-injurious behaviors, it was not associated with suicide history. Consequently, NSSI response latency may not be related to a decreased fear of higher

lethality behaviors. It could also be that response latency as an index of comfort with bodily harm is a specious interpretation and that it may be more indicative of a perceived need to harm oneself or having a lack of other effective coping techniques.

The proposition for the fifth hypothesis that those who do not wish to stop self-harming would be more likely to report a suicide attempt compared to those who desire to stop was not statistically supported by the data. However, there was a proportional trend in the expected direction in the sense that more participants with no desire to stop harming themselves had a suicide attempt than those who desired to stop. The null findings may be due to a comparatively smaller sample of the no desire group and future research should seek to include more participants who lack a desire to stop self-harming.

The final hypothesis that intrapersonal functions would predict an increased likelihood of a suicide attempt compared to interpersonal functions was fully supported. Authors have noted the importance of internal drivers for ongoing NSSI (Muehlenkamp, et al., 2013; Whitlock et al., 2011) and for suicidal behaviors (Klonsky & Olin, 2008; Nock & Prinstein, 2005); however, previous research has not examined this effect with the inclusion of external drivers for suicide. The present study further highlights the impact of endorsing greater intrapersonal motivations for increasing the likelihood of a suicide attempt compared to interpersonal motivations. Clinically, this points to an apparent need to focus more on the reduction of intrapersonal problems. In order to further aid in this effort, future research may seek to uncover which specific intrapersonal factors are most associated with suicide.

Limitations

There are few limitations to note in the current study. First is the use of self-report measures especially given the specificity of some of the questionnaire items. For example, those with a more extensive history of self-injury may overestimate or underestimate the number of times they have engaged in self-harm and the number of times they have engaged in each particular method. Further, participants may have different interpretations of what constitutes an incidence of self-injury. One participant might report the total number of incidences per session for frequency whereas another participant may count one self-injury session, with several incidences, as one incident. Therefore, it could be the case that participants are very inaccurate in remembering how many times they have engaged in self-harm. In regard to response latency, participants may have never previously kept track of the length of time it takes them to act on their self-injurious urges. Consequently, participants may have used the availability heuristic to determine their average response time and this too could have led to inaccurate answers for this question. It is important to note, however, previous research has found similar frequency estimates of self-injury (Andover & Gibb, 2010; Glenn & Klonsky, 2010; Whitlock & Knox, 2007) and similar response latency times (Klonsky, 2011; Nock & Prinstein, 2005; Smith et al., 2015). As such, the use of self-report measures may not be a major limitation of the present study.

The second limitation is the use of one item to assess several characteristics of self-injury. Using single-items to assess a construct may lead to reduced reliability and validity of the measure. Yet researchers have said that single-item measures are useful when the construct is unambiguous (Wanous, Reichers, & Hudy, 1997). Given the

specificity of the questions, the use of one item to measure several attributes of self-injury is not likely to be a great limiting factor for the current study.

Third, the sample size of the no desire to stop self-harming group was small ($n = 38$) and is a possible explanation for the null findings. Future research should seek to include more participants who lack a desire to end their harming behavior while also including a more ethnically diverse sample overall. Without replication of this study using a diverse sample one cannot be wholly sure that risk for a future suicide attempt will be similar to the majority demographic sample. However, few studies have specifically assessed if certain ethnic groups are more likely to self-injure than other groups. One study found Asians/Asian Americans were the only group who were slightly less likely to report NSSI compared to Caucasians, indicating the prevalence of NSSI was similar across all other ethnic groups (Whitlock et al., 2011). Another study (Muehlenkamp & Gutierrez, 2007) found Caucasians reported significantly more self-harm than other minority groups but differences among minority groups (African American, Hispanic, Multi-Ethnic, and Other) were not found. In a recent study specifically addressing ethnic differences (Wester & Trepal, 2015), researchers found African American and Asian American students reported significantly lower proportions of NSSI than did Caucasian, Hispanic, and Multiracial/other groups. Moreover, Caucasian, Hispanic, and Multiracial/other groups had proportionately similar engagement in NSSI. Although self-injury is evidenced across most ethnic groups, based on the results of these three studies it is likely that Caucasian, Hispanic, and Multiracial individuals are more likely to engage in NSSI compared to other minority groups.

Consequently, the limited ethnic diversity of the current sample should not cause considerable concern for the implications of the results.

Fourth, using collegiate participants who are from psychology courses limits the generalization of the results to the general population. Future research is advised to replicate this study for the clinical and nonclinical general population to be sure that the results can be generalized across samples and are not greatly influenced by sampling biases. It is important to mention again that the lifetime prevalence rate of self-injury has been found to be among the highest for the college population (Kerr, Muehlenkamp, & Turner, 2010). If the present study cannot be replicated among other populations, the results do not take away from important implications for college students and the fact that continued engagement in self-injury places individuals at progressively greater risk for suicide compared to non-engagement of self-injury.

Conclusion

The results of this study may benefit suicide risk assessment by increasing the opportunity for researchers and clinicians to pinpoint self-injurers who are at higher risk for suicide based on NSSI indicators and guide these individuals toward early intervention. The present study also lends an important contribution to extant suicide literature as most research focuses on quantifiable risk factors such as unemployment and psychiatric diagnoses, amongst others, rather than the impact of NSSI characteristics alone. Although most who engage in self-injurious behavior do not go on to make a suicide attempt, it does not negate the possibility that continued NSSI allows for potential increases in an individual's desensitization to pain and thus increases their ability to engage in suicidal behavior.

Within the IPTSB, one cannot die by suicide or make an attempt unless he/she has the ability to carry out the act. It is true that one can have the capability for suicide without making a suicide attempt, but the only way to unequivocally know someone has this capability is if they make an attempt. Greater frequency, the use of severe methods, greater intrapersonal functions, and experiencing pain during NSSI has been shown to significantly increase the odds of a suicide attempt. Inferentially, it would be expected that these characteristics increase an individual's acquired capability as well. Although measures of acquired capability are not specific to NSSI and tap into the various ways this can be increased, future research is advised to examine how NSSI characteristics are related to specific measures of acquired capability in order to better understand how facets of self-harm uniquely contribute to capability for suicide.

Results from the current study contribute to the overall understanding of the NSSI-suicide relationship (e.g., Nock et al., 2006; Victor & Klonsky, 2014; Whitlock & Knox, 2007), and provides evidence that not all NSSI features relate to the various measures of suicidality, such as ideation, threats, gestures, plans, or attempts, in the same manner. This points to the importance of distinguishing risk factors for suicide contingent on the specific form of suicidality that is being measured. From this, it is clear that suicidologists must continue to work to refine knowledge of the NSSI-suicide relationship as this relationship may be more convoluted than what is currently understood.

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Appendix A

INFORMED CONSENT DOCUMENT FOR COLLEGE STUDENT PARTICIPANTS



Project Title: College Student Mental Health and Risk Behaviors

Investigator: Amy M. Brausch, Ph.D., Department of Psychological Sciences, 270-745-4407

You are being asked to participate in a project conducted through Western Kentucky University. The University requires that you give your signed agreement to participate in this project.

The investigator will explain to you in detail the purpose of the project, the procedures to be used, and the potential benefits and possible risks of participation. You may ask him/her any questions you have to help you understand the project. A basic explanation of the project is written below. Please read this explanation and discuss with the researcher any questions you may have.

If you then decide to participate in the project, please sign on the last page of this form in the presence of the person who explained the project to you. You should be given a copy of this form to keep.

1. Nature and Purpose of the Project: This project examines factors that put college students at risk for suicidal behavior, self-injury, and other risk-taking behaviors. Additionally, the project seeks to identify factors that protect college students from self-harm.

2. Explanation of Procedures: If you choose to participate in this study, you will complete a series of surveys about your thoughts, feelings, and behaviors. These surveys will take approximately 45-60 minutes to complete. After completing the surveys, you will be given a list of local mental health resources if you feel you need to meet with someone to discuss your feelings. Based on your responses, you may be contacted in the future with the opportunity to participate in additional studies. You will have the option to agree or decline further participation.

3. Discomfort and Risks: The project involves no greater risks than those ordinarily encountered in everyday life. If you become upset while participating in the research, you may skip any question that upsets you or withdraw from participation entirely without penalty.

4. Benefits: For your participation, you will receive credits toward the psychology course in which you are enrolled. For students in Introductory Psychology, you will earn 2 credits toward your research participation requirement. Your participation will also help others by providing important information that the primary investigator will utilize to develop and implement prevention programs for self-injury and self-harm. Additionally, you may be contacted in the future to participate in additional studies which may include monetary compensation.

5. Confidentiality: The principle investigator will keep all information that you provide confidential to the fullest extent of the law. After you complete the survey, a researcher will conduct a brief risk assessment based on your responses to certain survey questions and provide any necessary referral information to you during an individual and completely confidential debriefing session. Your survey will receive a number that corresponds with the number placed on this informed consent form. The principle investigator will keep both of these forms separate in two locked filing cabinets in their research lab. Results of the study may appear in a published scientific journal. Such a publication will not reveal your identity in name or description. Five years after the completion of the study, the principle investigator will remove all information related to the study from the file cabinet and shred it.

6. Refusal/Withdrawal: Refusal to participate in this study will have no effect on any future services you may be entitled to from the University. Anyone who agrees to participate in this study is free to withdraw from the study at any time with no penalty.

You understand also that it is not possible to identify all potential risks in an experimental procedure, and you believe that reasonable safeguards have been taken to minimize both the known and potential but unknown risks.

Printed Name

email address

Signature of Participant

Date

Witness

Date

THE DATED APPROVAL ON THIS CONSENT FORM INDICATES THAT
THIS PROJECT HAS BEEN REVIEWED AND APPROVED BY
THE WESTERN KENTUCKY UNIVERSITY INSTITUTIONAL REVIEW BOARD

Paul Mooney, Human Protections Administrator

TELEPHONE: (270) 745-2129



WKU IRB# 15-040
Approval - 2/2/2015
End Date - 1/30/2016
Expedited
Original - 9/8/2014

Appendix B

DEBRIEFING SHEET

Thank you for participating in this study. The information you provided, when combined with information from other participants, will provide me with valuable information about the what factors put college students at risk for self-harm behavior, as well as factors that protect students from self-harm. This information will then be helpful in identifying important areas to focus in when developing prevention and intervention materials for college students to decrease risk for self-injury and suicidal behavior.

Completing these questionnaires may have brought up some unpleasant thoughts, feelings, or memories for you. Talking with others or with a counselor can be helpful in dealing with these thoughts and feelings,

There are many counselors in the area who are able to help you deal with negative thoughts or thoughts and memories about self-injury. Below is the contact information for the counseling center at Western Kentucky University that offers individual counseling for students free of charge:

WKU Counseling & Testing Center (270) 745-3159
409 Potter Hall
8 a.m. 4:30 p.m. M-F
Can also call after-hours for crises or emergencies

Below is a list of agencies in the community that offer counseling to both students and community members, on a sliding fee scale:

Life Skills, Inc.	(270) 901-5000
Crisis Referral Hotline	(270) 843-HELP (4357)
National Suicide Crisis Line	1-800-273-TALK

If you have any questions about the experiment or would like to speak with the experimenter about any topics addressed in the questionnaires, please contact Amy Brausch, Ph.D. at (270) 745-4407, Dept. of Psychological Sciences, Western Kentucky University.

Thank you for your participation!

Appendix C

About Me

ID# _____

Age: _____ Year in School: 1) Freshman 2) Sophomore 3) Junior 4) Senior 5) Grad

What is your gender? (check all that apply)

- Male
- Female
- Transgender, Male-to-Female (MTF)
- Transgender, Female-to-Male (FTM)
- Transgender, do not identify as male or female
- Not sure
- Decline to state

Do you consider yourself to be:

- Heterosexual/straight
- Gay/lesbian/homosexual
- Bisexual
- Not sure
- Decline to state

Ethnicity: 1) White/Caucasian 2) Black/African-American 3) Hispanic/Latino(a)

4) Native American 5) Multi-ethnic 6) Asian 7) Other: _____

Height: _____ ft _____ in Weight: _____

Religious Affiliation: _____

Parent's Marital Status: 1) married 2) separated 3) divorced 4) never married
5) other: _____

Has someone ever spread a rumor about you online, in a chat room, through a social networking website, in emails, or through a text message? YES NO

If yes, when was the most recent? _____

Has there even been an inappropriate photo posted of you online (e.g., illegal activity or sexually compromising)? YES NO

If yes, when was the most recent? _____

Has anyone sent you a threatening or aggressive, e-mail, instant message, or text message?

YES NO If yes, when was the most recent? _____

How many times total? _____

Appendix D

INVENTORY OF STATEMENTS ABOUT SELF-INJURY (ISAS) – SECTION I.
BEHAVIORS

This questionnaire asks about a variety of self-harm behaviors. Please only endorse a behavior if you have done it intentionally (i.e., on purpose) and without suicidal intent (i.e., not for suicidal reasons).

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

Cutting	_____	Severe Scratching	_____
Biting	_____	Banging or Hitting Self	_____
Burning	_____	Interfering w/ Wound Healing (e.g., picking scabs)	_____
Carving	_____	Rubbing Skin Against Rough Surface	_____
Pinching	_____	Sticking Self w/ Needles	_____
Pulling Hair	_____	Swallowing Dangerous Substances	_____
Other	_____		_____

Important: If you have performed one or more of the behaviors listed above, please complete the final part of this questionnaire. If you have not performed any of the behaviors listed above, you are done with this particular questionnaire and should continue to the next.

2. If you feel that you have a *main* form of self-harm, please circle the behavior(s) on the first page above that you consider to be your main form of self-harm.

3. At what age did you:

First harm yourself? _____ Most recently harm yourself? _____
(approximate date – month/date/year)

4. Do you experience physical pain during self-harm?

Please circle a choice: YES SOMETIMES NO

5. When you self-harm, are you alone?

Please circle a choice: YES SOMETIMES NO

6. Typically, how much time elapses from the time you have the urge to self-harm until you act on the urge?

Please circle a choice:

< 1 hour	1 - 3 hours	3 - 6 hours
6 - 12 hours	12 - 24 hours	> 1 day

7. Do/did you want to stop self-harming?

Please circle a choice: YES NO

**INVENTORY OF STATEMENTS ABOUT SELF-INJURY (ISAS) – SECTION II.
FUNCTIONS**

Name: _____

Date: _____

Instructions

This inventory was written to help us better understand the experience of non-suicidal self-harm. Below is a list of statements that may or may not be relevant to your experience of self-harm. Please identify the statements that are most relevant for you:

- Circle **0** if the statement **not relevant** for you at all
- Circle **1** if the statement is **somewhat relevant** for you
- Circle **2** if the statement is **very relevant** for you

“When I self-harm, I am ...

Response

1. ... calming myself down	0	1	2
2. ... creating a boundary between myself and others	0	1	2
3. ... punishing myself	0	1	2
4. ... giving myself a way to care for myself (by attending to the wound)	0	1	2
5. ... causing pain so I will stop feeling numb	0	1	2
6. ... avoiding the impulse to attempt suicide	0	1	2
7. ... doing something to generate excitement or exhilaration	0	1	2
8. ... bonding with peers	0	1	2
9. ... letting others know the extent of my emotional pain	0	1	2
10. ... seeing if I can stand the pain	0	1	2
11. ... creating a physical sign that I feel awful	0	1	2
12. ... getting back at someone	0	1	2
13. ... ensuring that I am self-sufficient	0	1	2
14. ... releasing emotional pressure that has built up inside of me	0	1	2

15. ... demonstrating that I am separate from other people	0	1	2
16. ... expressing anger towards myself for being worthless or stupid	0	1	2
17. ... creating a physical injury that is easier to care for than my emotional distress	0	1	2
18. ... trying to feel something (as opposed to nothing) even if it is physical pain	0	1	2
19. ... responding to suicidal thoughts without actually attempting suicide	0	1	2
20. ... entertaining myself or others by doing something extreme	0	1	2
21. ... fitting in with others	0	1	2
22. ... seeking care or help from others	0	1	2
23. ... demonstrating I am tough or strong	0	1	2
24. ... proving to myself that my emotional pain is real	0	1	2
25. ... getting revenge against others	0	1	2
26. ... demonstrating that I do not need to rely on others for help	0	1	2
27. ... reducing anxiety, frustration, anger, or other overwhelming emotions	0	1	2
28. ... establishing a barrier between myself and others	0	1	2
29. ... reacting to feeling unhappy with myself or disgusted with myself	0	1	2
30. ... allowing myself to focus on treating the injury, which can be gratifying or satisfying	0	1	2
31. ... making sure I am still alive when I don't feel real	0	1	2
32. ... putting a stop to suicidal thoughts	0	1	2
33. ... pushing my limits in a manner akin to skydiving or other extreme activities	0	1	2
34. ... creating a sign of friendship or kinship with friends or loved ones	0	1	2
35. ... keeping a loved one from leaving or abandoning me	0	1	2
36. ... proving I can take the physical pain	0	1	2
37. ... signifying the emotional distress I'm experiencing	0	1	2
38. ... trying to hurt someone close to me	0	1	2
39. ... establishing that I am autonomous/independent	0	1	2

Response Key: **0** – not relevant, **1** – somewhat relevant, **2** – very relevant

Appendix E

Current age: _____

SHBQ

A lot of people do things which are dangerous and might get them hurt. There are many reasons why people take these risks. Often people take risks without thinking about the fact that they might get hurt. Sometimes, however, people hurt themselves on purpose. We are interested in learning more about the ways in which you may have intentionally or unintentionally hurt yourself. We are also interested in trying to understand why people your age may do some of these dangerous things. It is important for you to understand that if you tell us about things you've done which may have been unsafe or make it possible that you may not be able to keep yourself safe, we will encourage you to discuss this with a counselor or other confidant in order to keep you safe in the future. Please circle **YES** or **NO** in response to each question and answer the follow-up questions. For questions where you are asked who you told something to do not give specific names. We only want to know if it was someone like a parent, teacher, doctor, etc.

Things you may have actually done to yourself on purpose.

1. Have you ever hurt yourself on purpose? (e.g., scratched yourself with finger nails or sharp object) **YES** **NO**

If no, go on to question #2.

If yes, what did you do? _____

a. Approximately how many times did you do this? _____

b. Approximately when did you first do this to yourself? (*write your age*) _____

c. When was the last time you did this to yourself? (*write your age*) _____

d. Have you ever told any one that you had done these things? **YES** **NO**

If yes, who did you tell? _____

e. Have you ever needed to see a doctor after doing these things? **YES** **NO**

Times you hurt yourself badly on purpose or tried to kill yourself.

2. Have you ever attempted suicide? **YES** **NO**

If no, go on to question #4.

If yes, how? _____

(**Note:** If you took pills, what kind? _____ how many? _____
over how long a period of time did you take them? _____)

a. How many times have you attempted suicide? _____

b. When was the most recent attempt? (*write your age*) _____

c. Did you tell anyone about the attempt? **YES** **NO**

Who? _____

d. Did you require medical attention after the attempt? **YES** **NO**

If yes, were you hospitalized over night or longer? **YES** **NO**

How long were you hospitalized? _____

e. Did you talk to a counselor or some other person like that after your attempt?
YES **NO** Who? _____

3. If you attempted suicide, please answer the following:

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

b. Did you actually want to die? **YES** **NO**

c. Were you hoping for a specific reaction to your attempt? **YES** **NO**
If yes, what was the reaction you were looking for? _____

d. Did you get the reaction you wanted? **YES** **NO**

e. Who knew about your attempt? _____

Times you threatened to hurt yourself badly or try to kill yourself.

4. Have you ever threatened to commit suicide? **YES** **NO**

If no, go on to question # 5.

If yes, what did you threaten to do? _____

a. Approximately how many times did you do this? _____

b. Approximately when did you first do this? (*write your age*) _____

c. When was the last time you did this? (*write your age*) _____

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

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

f. Did you actually want to die? **YES** **NO**

g. Were you hoping for a specific reaction to your threat? **YES** **NO**
If yes, what was the reaction you were looking for? _____

h. Did you get the reaction you wanted? **YES** **NO**

If you didn't, what type of reaction was there to your threat? _____

5. Have you ever talked or thought about:

Wanting to die? **YES** **NO**

Committing suicide? **YES** **NO**

a. What did you talk about doing? _____

b. With whom did you discuss this? _____

c. What made you feel like doing that? _____

d. Did you have a specific plan for how you would try to kill yourself? **YES** **NO**
If yes, what plan did you have? _____

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

f. Did you think about how people would react if you did succeed in killing yourself?
YES **NO** If yes, how did you think they would react? _____

g. Did you ever take steps to prepare for this plan? **YES** **NO**
If yes, what did you do to prepare? _____

