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The Cessation of NSSI: Differences in Acquired Capability and Distress Tolerance

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THE CESSATION OF NSSI: DIFFERENCES IN ACQUIRED CAPABILITY AND DISTRESS
TOLERANCE

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

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

By
Rondel T. Kittleman

August 2014

THE CESSATION OF NSSI: DIFFERENCES IN ACQUIRED CAPABILITY AND DISTRESS
TOLERANCE

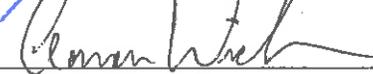
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39 pages

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The purpose of this investigation was to examine the role of cessation of NSSI in acquired capability and distress tolerance. It was hypothesized that individuals with longer time in-between assessment and NSSI would show lower levels of acquired capability and higher levels distress tolerance regardless of lifetime frequency. These hypotheses were tested by surveying 375 undergraduate university students (64% female; mean age = 20.3) Participants completed packets with self-report measures that included: Inventory of Statements about Self-Injury, Acquired Capability of Suicide Scale, Distress Tolerance Scale, and Demographics. Results suggested that individuals with longer amount of time since last NSSI showed higher levels of acquired capability and distress tolerance when compared to individuals with less recent NSSI even when controlling for life time frequency.

Keywords: non-suicidal self-injury, distress tolerance, acquired capability

The Cessation of NSSI: Differences in Acquired Capability and Distress Tolerance

Non-suicidal self-injury (NSSI) can be defined as deliberate and repetitive self-injury that results in minor or moderate harm to the body (ISSS, 2007). NSSI can be seen in individuals who burn themselves, make self-inflicted superficial cuts to their arms, stomach, thighs etc., and individuals who bang their head into objects. NSSI is not suicidal in intent, and is differentiated from suicidal acts and gestures in the individual's perception of the event, and the individual's proposed function of the behavior (Suyemoto, 1998). On the other hand, a suicide attempt is usually seen as a less frequent behavior, and with more lethal means (e.g. hanging/strangulation, wrist or neck slashing, jumping from heights or overdoses; Nock, Joiner, Gordon, Lloyd-Richardson, & Prinstein, 2006). NSSI includes behaviors such as self-cutting, head-banging, burning, self-hitting, scratching to the point of bleeding, and interfering with wound healing (Heath et al., 2008). NSSI is a growing problem in our society with the Center for Disease Control calling it an "important public health concern" (CDC, 2012). It is estimated that 15.3% of college-aged young adults/adolescents have tried NSSI in their lifetime, with 6.8% engaging in NSSI within the past year (Whitlock et al., 2011). In inpatient adolescents, rates are even higher with researchers finding as many as 52% of inpatient adolescents endorsing this behavior (Perez, Venta, Garnaat, & Sharp, 2012). These numbers have been reportedly rising in adolescent populations in recent years (Walsh, 2012). However, even though research has shown a recent rise in prevalence, there is still not much known about the far reaching impacts of NSSI. There is little in the literature about the long-term effects of NSSI and consequently, what effects may be seen in those individuals who have stopped engaging in self-injury.

Self-Injury Correlates and Features

Some of the more immediate consequences of NSSI have been studied in detail. NSSI is correlated with higher levels of depression and anxiety (Ross & Heath, 2002). NSSI is one of the criteria in the Diagnostic and Statistical Manual of Mental Disorders-5 for the Borderline Personality Disorder diagnosis (American Psychiatric Association, 2013). NSSI is defined by some researchers and clinicians as a low lethality direct form of risk taking behavior (Walsh, 2012). This type of risk taking behavior has been found to correlate with other types of risk taking behavior, like indirect risk taking that is either high or low lethality (e.g. disordered eating behaviors; Favario & Santonastaso, 1998), substance abuse (Nock et al, 2006) or risky sexual behavior (Cheung et al., 2012). As illustrated above, NSSI has long been correlated with behaviors that should be targeted in the clinical setting; however, none of these behaviors are more serious than NSSI's relationship with suicide.

NSSI is correlated with direct risk taking behaviors with high lethality, such as suicide (Nock et al, 2006; Whitlock et al., 2006). Asarnow et al. (2011) found that NSSI history predicted both future suicide attempts, and future NSSI behaviors. The link between NSSI and suicidal behaviors is maintained even when controlling for age, gender, ethnicity, and socioeconomic class (Hamza, Stewart, & Willoughby, 2012). Andover and Gibb (2010) found that NSSI was more strongly associated with a history of suicide attempts than depressive symptoms, hopelessness, and borderline personality symptoms in a sample of psychiatric inpatients. These researchers also found that an individual's prior number of NSSI episodes was positively correlated with the level of lethal intent in the individual's most severe suicide attempt (Andover & Gibb, 2010).

Therefore, while NSSI is different from a suicide attempt in intent, lethality, and repetition, there is high correlation between the two behaviors that needs to be better understood.

Theoretical Construct

The Interpersonal Theory of Suicide seeks to understand why people die by suicide and what factors come together to push an individual to take their own life (Joiner, 2005; Van Orden et al., 2010). The interpersonal theory of suicide states that individuals die by suicide because they have both the desire to die by suicide, and the capability to attempt suicide (Joiner, Ribeiro, & Silva, 2012). The desire to die is hypothesized to include the constructs of thwarted belongingness and perceived burdensomeness. Thwarted belongingness is defined as loneliness and lack of reciprocally positive relationships (Joiner, 2005; Van Orden et al., 2010). Therefore, a person with thwarted belongingness feels as if they are alone in this world and that no one cares for them. Perceived burdensomeness refers to the individual's misunderstanding that the individual is a burden on close others, and is characterized by self-hatred and feelings that the individual is a liability to others. The individuals experiencing either complete perceived burdensomeness or thwarted belongingness many experience passive suicidal ideation according to this theory.

The theory states that both of these states are dynamic and are affected by both intrinsic and extrinsic stimuli and events (Joiner, 2005; Van Orden et al., 2010). However, if then these states evolve from dynamic states to the individual perceiving his burdensomeness and thwarted belongingness as stable and unchanging, hopelessness

develops. The theory then argues that once hopelessness is achieved, passive suicide thoughts are turned into active suicidal thoughts. The theory introduces the idea of acquired capability as the mechanism between active suicidal thoughts and suicide attempts.

The Interpersonal Theory of Suicide argues that the will to live is strongly embedded in the human psyche, and it is not an easy task to harm one's self in any way. Dying by suicide requires a person to overcome basic self-preservation instincts (Joiner, 2005; Van Orden et al., 2010). This theory argues that the ability to engage in suicidal behavior must be developed through repeated exposure to stimuli that are fearsome, provocative, or painful. Once a person has exposed themselves to enough painful, provocative, or fearsome events a sense of fearlessness about pain, death, and injury towards the self begins to develop. An individual may also develop an increased pain tolerance necessary for suicidal behavior.

The Interpersonal Theory of Suicide calls this process acquired capability (Joiner, 2005; Van Orden et al., 2010). An individual will only move from active suicidal thoughts to suicide attempts once acquired capability has developed. The fear of death and the ability to withstand the pain associated with killing one's self must be developed before one can attempt suicide. Acquired capability is the limiting factor that separates the individual who desires and thinks about killing themselves, and the individual who dies by suicide. However, it is important to note that acquired capability is not synonymous with overall suicide risk. The theory also states that an individual can have high levels of acquired capability, but without hopelessness, perceived burdensomeness, and thwarted belongingness, a suicide attempt would not be made. For example, a person

in active duty military may have many experiences with painful and provocative events (and thus develop high acquired capability), but never attempt suicide because of an abundance of reciprocally positive relationships in the individual's life, and no feelings of being a liability towards others in the individual's life.

Acquired capability is a relatively new idea, but initial research is in support of this phenomena. Active duty military individuals displayed higher acquired capability when compared to a clinical non-military sample (Bryan, Cukrowicz, West, & Morrow, 2010). Smith Cukrowicz, Poindexter, Hobson, & Cohen (2010) found that suicide attempters viewed themselves as much more fearless and insensitive to pain than individuals with only suicide ideation and control individuals. Future suicide attempts and deaths from suicide are associated with a greater number of past suicide attempts and NSSI (Haw, Bergen, Casey, & Hatwon, 2007). Furthermore, as discussed above, NSSI is more strongly associated with a history of suicide attempts than depressive symptoms, hopelessness, and borderline personality symptoms (Andover & Gibb, 2010). This means that an individual is more likely to have a history of suicide if the individual has a history of NSSI regardless of past depression, elevated hopelessness, or borderline personality traits.

There is still much that is unknown about the process of acquired capability. For example, acquired capability is thought of as being a stable trait once a certain threshold is reached (Van Orden, Talbot, & King, 2012). The mechanics of reaching this threshold are thought to be related to habituation processes (Stellrecht et al., 2006). Habituation can be defined as a decline in a learned response to a stimulus after repeated exposure to the stimulus in which the response was not rewarded or put on extinction (Cooper, Heron, &

Heward, 2007). This is important to note in NSSI because normally, a cut on your arm, stomach or thigh would bring about pain, thus functioning as a punisher if pain was aversive to the individual. However, research has shown that 80% of individuals report feeling relief of intense emotional pain after NSSI (Whitlock et al., 2013) and some individuals feel very little to no physical pain at all during NSSI (Bohus et al., 2000). Therefore, the individual is learning a new relationship—harming the self does not bring about pain, but relief, or no punishment at all. Therefore, acquired capability can be thought of as a person's learned response that harm to the self brings about relief, or no consequences. As therapists and researchers study the prevention of suicide and acquired capability, it is important to see if this new relationship (e.g., harm to the self brings about relief) is as irreversible as has been suggested (Joiner, 2005; Van Orden et al., 2010) or, if like other learned relationships, a new, healthier relationship can be learned through new learning trials or spontaneous recovery.

Spontaneous recovery can be defined as the re-emergence of a previously habituated conditioned response after a delay of habituation trials (Cooper et al., 2007). Schiller et al., found the spontaneous recovery phenomenon to be quite powerful in humans and rats (2008). The spontaneous recovery in the framework of this study would involve the re-emergence of the fear of pain and death, after a halt in the repeated trials of NSSI. Intuitively, it would be expected that after the cessation of NSSI, individuals will learn two processes. Hopefully, the individual will learn new ways to bring about relief of intense psychological pain. Therefore, learning a new relationship for bringing about relief of intense psychological pain would weaken the NSSI learned relationship, theoretically lessening acquired capability. Furthermore, the individual will experience

random cuts and bruises when not in the presence of internal psychological pain that will considerably not only bring no relief, but the converse and the individual will experience pain. Thus, the individual will start to associate cuts and bruises as bringing about pain, and not relief.

Research has yet to find if individuals who stop NSSI actually weaken the conditioned response, by which decreasing acquired capability. If acquired capability can be made stronger through repeated exposure, this study seeks to better understand if there are instances where acquired capability is not as permanent as theorists have predicted, and that the current literature has not yet established. This study seeks to understand if there is a difference in level of acquired capability between individuals who have had recent trials of NSSI, and individuals who have not had recent trials of NSSI.

There has been very little research examining the difference between groups whom have continued NSSI and those who have stopped. Walsh (2012), through anecdotal stories, argues that many youths cease NSSI after 6 months to 2 years if appropriate substitute behaviors are taught. Researchers in Australia conducted a longitudinal study that compared youths whom continued NSSI with those youths who did not continue NSSI at 12 months follow-up in areas of psychological distress, emotion regulation, coping, social support, and self-esteem (Andrews, Martin, Hasking, & Page, 2013). The results showed that generally NSSI behaviors became more severe at follow-up in terms of frequency and number of methods of NSSI, supporting the acquired capability framework of habituation and pain tolerance. The results also showed that individuals who maintained NSSI at 12-month follow up showed significantly poorer emotional regulation (as measured by the Emotion Regulation Questionnaire) when

compared to youths whom had stopped NSSI behavior at the 12-month follow up. Researchers also found that individuals with 4 or more acts of NSSI and had NSSI events that required first aid at the first assessment were much more likely than other individuals to continue NSSI at follow-up. These results again show support for the argument about acquired capability threshold that has been argued (Van Orden, Talbot, & King, 2012) by showing once the individuals reached a certain point (e.g., 4 or more NSSI that needed first aid treatment), these individuals seemed much less fearful about pain to themselves as evident by the individuals still harming themselves.

Brown, Williams, and Collins (2007) used a cross-sectional design to study difference in individuals who stop NSSI, and those who do not. In their study, the researchers divided participants into three groups of recent self-harmers (up to 12 months since last NSSI), past self-harmers (more than 12 months since last NSSI), and never self-harmers using the Deliberate Self-Harm Inventory (Gratz, 2001). Individuals were then measured on emotions (the Positive and Negative Affect Schedule-Expanded Form; Watson & Clark, 1994), and Coping Strategies (the COPE; Carver, Scheier, & Weintraub, 1989). Researchers found emotional differences between recent self-harmers and never self-harmers in areas of fear, hostility, guilt, and sadness, with recent self-harmers self-reporting higher levels of these negative emotions. Differences were also seen between past and recent self-harmers with past self-harmers showing significantly lower levels of self-reported hostility, guilt, and sadness. No coping strategies differences were found between the three groups, perhaps reflecting the hypothesized dynamic nature of coping strategies (Bonanno & Burton, 2013). The study also found that both recent and past self-harmers showed elevated risk of self-reported suicidal thoughts and behaviors

when compared to the never self-harmers; however, the past self-harmers showed these self-reported behaviors less than the recent self-harmers (41%, to 56% respectively).

There are still unanswered questions, mainly if the differences in negative emotions and suicidal thoughts and behavior translate to differences in acquired capability.

Furthermore, this study fails to take into account differences in distress tolerance, which in recent years has been shown to be a mediating factor in NSSI and acquired capability (Bender, Anestis, Anestis, Gordon, & Joiner, 2012).

Distress Tolerance

The current study also seeks to understand the differences in distress tolerance in individuals with recent and non-recent history of self-injury. Distress tolerance, NSSI and suicidal behaviors have a complicated relationship. Distress tolerance can be defined as the ability to experience and withstand negative psychological states (Simons & Gaher, 2005). Distress tolerance is understood as an emotion with dimensional like qualities, meaning all persons have some amount of distress tolerance on a continuum. The self-report measure this study employs seeks to measure how the individual perceives their ability to deal with distress or, in other words, negative emotional states.

Since previous research (discussed above) has shown that NSSI is most commonly cited as being used to relieve intense emotion pain, it would be logical to think an individual with low distress tolerance (or a self-reported inability to deal with negative emotional states) would be more likely to use NSSI as a coping mechanism. This is exactly what the research shows. Nock and Mendes (2008) found that individuals who have a history of NSSI displayed an increased physiological reactivity (skin conductors)

to stressful tasks (the Wisconsin Card Sort Test), less distress tolerance, and less persistence at stressful tasks when compared to individuals with no history of NSSI. Bender et al. (2012) looked into distress tolerance and acquired capability in the undergraduate population. The study found that distress tolerance (as measure through the Wisconsin Card Sort Test) and acquired capability (as measured through Acquired Capability for Suicide Scale; Bender, Gordon, Bresin, & Joiner, 2012) increased in magnitude when individuals displayed higher levels of sensation seeking and pain tolerance, suggesting that distress tolerance and acquired capability are raised when an individual experiences painful and provocative events.

Researchers studying this interaction gave self-report measures and interviewed 93 adults in inpatient care (Anestis, Knorr, Tull, Lavender, & Gratz, 2013). These participants were given the Lifetime Suicide Attempt and Self-Injury Interview (Linehan & Comtois, 1996) to assess suicide and NSSI history, and then divided participants into groups: individuals with a history of a suicide attempt, individuals with at least one event of NSSI, and individuals with neither. The Deliberate Self-Harm Inventory was also used to assess NSSI history (Gratz, 2001), and the Distress Tolerance Scale (Simons & Gaher, 2005) was used to measure distress tolerance. Researchers found distress tolerance to be a moderating factor in the relationship between NSSI and suicidal behavior. Individuals with continuous NSSI history showed greatest suicide potential when they also had low levels of distress tolerance. Anestis and colleagues postulated that a history of NSSI may not be enough to build acquired capability. Individuals must have low distress tolerance along with the NSSI history for acquired capability to thoroughly develop. These researchers postulated that individuals who were at highest risk for suicide were those

who had the desire to die by suicide, chronically engaged in NSSI, and exhibited low levels of distress tolerance. However, these researchers did not look into individuals who had not participated in NSSI recently. Individuals who have ceased NSSI behavior may experience an increase in distress tolerance compared to those with continuous NSSI. The current study will also examine this possibility in addition to the acquired capability constructs aforementioned.

Rationale and Hypotheses

The current study seeks to understand the importance of the interplay between acquired capability, NSSI, and distress tolerance. This paper seeks to build on research on these three constructs aforementioned within the college-aged population, and explore these constructs with the added variables of recent history, or distant history of NSSI. Research has shown that individuals who continuously engage in NSSI will also be higher in acquired capability, presumably learning that harm to the self brings about relief or no pain consequences. The Interpersonal Theory of Suicide argues that once this relationship is learned and the individual has developed hopelessness through perceived burdensomeness and thwarted belongingness, a suicide attempt is more likely (Joiner, 2005; Van Orden et al., 2010). The theorists behind the Interpersonal Theory of Suicide argue that acquired capability is constant after reaching a certain threshold. However, research has shown that there is a difference in individuals after a time period of NSSI cessation (Bonanno & Burton, 2013). Does this difference extend to acquired capability and distress tolerance? Do individuals without recent trials of NSSI (and thus no recent fear habituation trails toward pain and self-harm) differ from individuals with recent history of NSSI? Or are differences due to frequency of NSSI in the individual's history?

The first hypothesis was that individuals with a more recent history of NSSI would have increased acquired capability than those individuals with a less recent history of NSSI, even when controlling for lifetime frequency of NSSI. The second hypothesis stated that individuals with a more recent history of NSSI would have lower levels of distress tolerance than those individuals with a less recent history of NSSI when controlling for the effects of lifetime frequency.

Method

Participants and Procedure

Participants were recruited from introductory psychology classes through Western Kentucky University's Study Board website and received credit towards the completion of the class requirements. Inclusion was based on the participants endorsing a history of NSSI. Participants were excluded based on missing data. Participants met in groups of no larger than 20 participants within an on-campus classroom to complete the study. Participants proceeded in signing an informed consent document, and were given a packet of questionnaires that included measures to assess self-harm-related factors, distress tolerance, and acquired capability. Researchers remained in the room during assessment sessions to answer questions. Participants completed the questionnaires within one hour. Researchers then debriefed participants individually. Critical items for suicide risk were assessed at debriefing. Individuals with passive suicidal ideation were given the number to the Western Kentucky University Counseling and Testing Center and advised to schedule an appointment. Seriously-at-risk individuals were taken immediately by the examiner to the Western Kentucky University Counseling and

Testing Center. Different levels of at risk were assessed through physical cues with the more at risk seen as shaking, crying, and cognitive cues with high risk individuals seen as expressing an inability to contract for safety. Participants' information were identified by code numbers only, and kept in a locked cabinet in a locked room. Forms that connected the participants name and number were kept under a different locked cabinet in a locked room. At study conclusion, there were 10 individuals who were referred to contact the Western Kentucky University Counseling and Testing Center. There were no individuals who needed immediate referral.

Measures

Acquired capability. The Acquired Capability for Suicide Scale (ACSS; Bender, Gordon, & Joiner, 2007; Appendix A) is a 20-item measure of respondents' fear about suicide and their perceived capability of engaging in lethal self-harm. Sample items include, "I am not at all afraid to die," "The sight of my own blood does not bother me," and "I can tolerate a lot more pain than most people." Individuals are asked to rate each item on a 5-point scale with 0 ("*Not at all like me*") and 4 ("*Very much like me*"). The total score is derived by summing each of the items. Seven of the 20 items are reverse scored (e.g., "The pain involved in dying frightens me" and "The sight of a dead body is horrifying to me"). Total scores range from 0 to 80, with higher scores indicating greater levels of acquired capability. The scale shows convergent validity with the Fear of Suicide subscale of the Reasons for Living Inventory (Linehan, Goodstein, Nielsen, & Chiles, 1983; $r = -.48, p < .0001$; Bender et al., 2011). Joiner (2005) proposed that acquired capability is different from current distress and depression and is more related to fearlessness about death, suicide, and self-injury. As such, the scale shows discriminant

validity by not correlating with the Beck Scale for Suicide Ideation total score ($r = .09$, $p = .35$; Bender et al., 2011) or the Beck Depression Inventory ($r = -.11$, $p = .24$; Bender et al., 2011). In the current sample, the reliability coefficient for the ACSS was .365.

Distress Tolerance. The Distress Tolerance Scale (DTS; Simons & Gaher, 2005; Appendix B) is a 15-item self-report questionnaire that assesses the participant's own perceived ability and expectation of experiencing negative emotional states in respect to tolerability and adverseness, appraisal and acceptability, tendency to absorb attention and disrupt functioning, and regulation of emotions through avoidance or immediately attenuates the experience. Items are rated on a 5-point Likert-scale ranging from 1, "*Strongly Agree*," to 5, "*Strongly Disagree*." Total scores can range from 0 to 75, with higher scores indicating greater levels of distress tolerance. Sample items include "Feeling distressed or upset is unbearable to me," "There's nothing worse than feeling distressed or upset," and "I'll do anything to avoid feeling upset." The scale is negatively correlated with measures of affect distress (the General Temperament Survey; Clark & Watson, 1990) ($r = -.59$; Simons & Gaher, 2005), and affect lability (Affective Lability Scale; Harvey, Greenberg, & Serper, 1989) ($r = -.51$; Simons & Gaher, 2005). The measure correlates positively with scales related to positive affectivity (the General Temperament Survey; Clark & Watson, 1990) ($r = .26$; Simons & Gaher, 2005). In the current sample, the reliability coefficient for the DTS was .873

Self-harm Related Factors. The Inventory of Statements About Self-Injury (ISAS; Klonsky & Glenn, 2008; Appendix C) is a 46-item questionnaire that assesses the participant's self-harm history, and perceived function of the self-harm. The ISAS is divided into two sections: section one defining the behavior's topography, and section

two defining the perceived function of the self-harm behavior. In section one, two items are open ended, “Please estimate the number of times in your life you have intentionally performed each type of non-suicidal self-harm,” and “At what age did you first harm yourself/most recently harm yourself?” The next four items are forced choice between “Yes,” “No,” and “Sometimes.” In section two, 39 items are forced choice with responses ranging from 0 (“not relevant”) to 2 (“very relevant”). Items in this section assess perceived functions of self-injury with items such as: “When I self-harm, I am calming myself down,” and “When I self-harm, I am avoiding the impulse to attempt suicide. Section two assesses the following functions: affect regulation, antisuicide, interpersonal boundaries, self-punishment, self-care, anti-dissociation, sensation-seeking, peer-bonding, interpersonal influence, toughness, marking distress, revenge, and autonomy. An exploratory factor analysis found that the ISAS has good internal consistency ($\alpha=.82$; Klonsky & Glenn, 2008). Construct validity for these two scales were established by analyzing correlations with measures of depression, anxiety, borderline personality disorder, suicidal ideation, and attempted suicide (Klonsky & Glenn, 2008).

Information from the ISAS will be used to calculate self-reported number of times an individual has engaged in NSSI in their lifetime. Each instance, regardless of method, will be summed as an overall total for each individual. The question “At what age did you: Most recently harm yourself?” will be used to identify the date of last NSSI occurrence. This will be coded as a continuous variable.

Demographics. Demographics were assessed in a questionnaire (Appendix D) with open-ended questions asking the participant’s age, gender, ethnicity, parental marital status, religious affiliation, year in school, height, and weight.

Results

Data was collected from 375 college undergraduate students. The sample included 139 males, and 241 females. The mean age was 20.33 years ($SD = 6.37$). Of the 375 from the overall sample, 144 (38%) reported lifetime history of NSSI. These individuals were included in the data analysis. Within this sample of 144, 52 participants were excluded for missing data. These individuals were excluded from data analysis for failure to answer the question in the ISAS that asked “At what age did you: Most recently harm yourself?” or for responding with answers such as, or synonymous with, “I do not remember.” Finally, individuals with more than 1000 reported instances of NSSI were excluded from analysis as outliers. The analysis was left with 88 participants. Of the 88, 30 were males and 58 were female. The mean age was 19.66 years ($SD = 2.66$). A majority of these individuals were white (79%), followed by Black/African-American (10%), Hispanic/Latino (4%), Multi-ethnic (2%), and Asian and Other (1%).

Of these 88 participants, length of time since last incident of self-harm was calculated in months. Generally, individuals gave a date of last NSSI episode (e.g., 12/13/2012); however, if a year was given (e.g., 2011), researchers coded the instance as December 31st of the participant’s stated year. If a month was given, the researchers coded the instance as the last day of the stated month. For example, if the participant stated June 2010, this was coded as June 30th, 2010. For the 88 participants who provided data on their most recent NSSI event, the mean length of time since most recent NSSI was 20.86 months ($SD = 31.76$). The median was 5 months. The range of length was 0.25 months (one week) to 148 months since last NSSI. The calculation for ACSS and DTS total scores were described previously. The average ACSS total score for this

sample was 43.65 ($SD = 12.63$) with a range of 17 to 72. The mean of DTS total score for the sample was 46.72 ($SD = 12.57$) with a range of 17 to 71.

Frequency was calculated as a total score of all instances recorded on the ISAS. The mean frequency was 105.72 ($SD = 170.13$), the median was 30, and the range was 1 to 712 incidents of NSSI. Four participants were excluded as outliers due to reporting more than 1000 instances of NSSI.

Data were analyzed using two linear regression models. The first hypothesis was that length of time since last NSSI would be related to acquired capability, after controlling for lifetime NSSI frequency. NSSI lifetime frequency was entered in the first block, and a length of time since last NSSI was entered as a predictor in the second block; the total score on the ACSS was the outcome variable. The overall model was significant, $F(1, 83) = 4.64$; $p = .034$, implying a significant relationship between the length of time since most recent NSSI and total scores on the acquired capability scale even after controlling for lifetime frequency. The length of time since most recent NSSI accounted for 5.9% of the variance of the ACSS total score (see Table 1).

Table 1.

Length of time since most recent NSSI as a predictor of ACSS total scores after controlling for NSSI lifetime frequency.

Model	β	t	p	r^2
1. NSSI Frequency	0.08	0.738	.463	.006
2. Length of time since NSSI	.230	2.155	.034	.059

Note: ACSS total score was a composite score of all questions from the Acquired Capability for Suicide Scale.

The second hypothesis was that length of time since most recent NSSI would be related to distress tolerance. This was tested with a second regression that also first entered lifetime NSSI frequency, and then length of time since last NSSI as predictors and the total score on the DTS as the outcome variable. The overall model was significant, $F(1, 84) = 6.66, p = .012$, implying a significant relationship between the length of time since most recent NSSI and total scores from the distress tolerance scale even after controlling for lifetime frequency. The length of time since most recent NSSI accounted for 7.8% of the variance of the DTS total score (see Table 2).

Table 2

Length of time since most recent NSSI as a predictor of DTS total scores after controlling for NSSI lifetime frequency.

Model	β	t	p	r^2
1. NSSI Frequency	-.074	-.68	.499	.005
2. Length of time since NSSI	.271	2.58	.012	.078

Note: DTS total score was a composite score of all questions from the Distress Tolerance Scale.

Exploratory Analyses

Finally, researchers were interested in seeing if there was a relationship between DTS and ACCS. An exploratory analysis was used to see if there was a correlation between the two measures. A Pearson correlation revealed a significant relationship between the two measures, $r = .215, p = .047$.

Discussion

The goal of the current study was to examine if length of time since the most recent episode of NSSI was related to acquired capability and/or distress tolerance. Researchers examined if those who had NSSI in the more distant past had lower levels of acquired capability, and higher levels of distress tolerance than individuals who reported more recent self-injury. This hypothesis was tested using two different regression analyses with data collected from the ISAS, DTS, and the ACSS. The results supported

one of the two hypotheses. It was expected there was a relationship between distress tolerance and length of time since most recent NSSI such that the length of time since last NSSI was significantly associated with increased self-reported levels of distress tolerance, implying that there is a difference in believed levels of ability to tolerate distress and time since the individual last performed NSSI. The results showed that the individuals who had a longer time since last NSSI (the NSSI was further in the past) had higher levels of distress tolerance than those individual with shorter levels of time since last NSSI even after life time frequency was accounted. If future longitudinal studies are able to replicate this finding, the results could imply that as a person stops self-injuring, their self-efficacy towards their ability to deal with stress in healthy ways improves. Alternatively, these results could imply that as self-efficacy in an individual's ability to deal with stress in healthy ways improves, the individual may no longer choose to engage in NSSI as a means of managing distress. For now, it is sufficient to say that there does seem to be a difference between the individual who has not performed any self-injurious behavior in some time, and the individual who has performed NSSI more recently in terms of self-reported ability to deal with stressful situations in the participant's own life. Whitlock et al. (2011) found that individuals initially are motivated most often by being "upset and decided to try [NSSI]," and "angry at self" over any other proposed function of NSSI measure (p. 696). Therefore, the relationship found between NSSI recentness and distress tolerance may be due to the fact that individuals who are upset for various reasons, but believe they are able to handle stress, do not self-injure. The individuals who have low distress tolerance (do not have the belief that they can handle stress) become upset in stressful situation and may seek to self-injure.

The second hypothesis was not supported. It was expected that there would be a relationship between NSSI recentness and acquired capability for suicide such that individuals with more time since last NSSI would have lower levels of acquired capability relative to individuals with shorter time since last NSSI. The results did find a significant relationship between NSSI recentness and acquired capability, but found the opposite relationship of what was hypothesized. However, while the current study found that as length of time since most recent NSSI increased, acquired capability also increased, it is the relationship predicted by Van Orden and colleagues (2010). Researchers sought to argue that acquired capability learned through engaging in NSSI would not persist over time in the absence of constant learning trials. The results do not indicate this. Results indicated, as proposed by Joiner (2005) that once acquired capability is in place, the increased capability for suicide persists over time. Longitudinal studies will be needed to confirm these claims.

Frequency data for lifetime NSSI was calculated so that it could be seen if the differences found in ACCS and DTS were not due to of the frequency of the behavior. It could be argued that individuals who have not engaged in NSSI in recent months would have lower acquired capability because these individuals simply have a lower lifetime frequency than individuals who have engaged in NSSI in more recent months. The regression analysis showed that lifetime frequency of NSSI was not a significantly associated with ACSS scores or DTS scores. Therefore, the data shows that frequency of NSSI was not significantly related to acquired capability scores or distress tolerance in this sample. This could be due to the high amount of variance that the sample produced. This point is discussed in greater detail in the section on study limitations. This lack of

relationship can also be explained by the idea that NSSI is not the only behavior that can contribute to acquired capability. Therefore, it's plausible that some individuals with low NSSI frequency are still experiencing painful and provocative events through other facets in life, and that future studies should seek to assess and examine these.

Study Limitations

There are limitations of this study that bear mentioning. The nature of a cross sectional design is that there is no baseline data on which to judge the participants' acquired capability and distress tolerance with which to compare their future behaviors. The cross sectional design lends itself to see that there are differences, but not the nature of these differences. Future research should look into longitudinal studies that follow the same variables. Future studies might be interested in having a tighter definition for NSSI. The current study used measures that defined NSSI in various methods such as cutting, biting, burning, carving, pinching, pulling hair, severe scratching, banging or hitting self, interfering with wound healing, rubbing skin against rough surfaces, sticking self with needles, and swallowing dangerous substances. The different methods showed vastly different levels of frequency. For example, interfering with wound healing had a range of frequency of 5 to 1000 in individuals with a history of NSSI, and carving had a range of frequency from 1 to 50. Future studies may seek to only look at behaviors such as cutting, biting, burning, carving, severe scratching, and banging or hitting self, if only to bring the variance of frequency down. It also should be noted that there are many different pathways to acquired capability that this study was unable to control for. Acquired capability is influenced through combat action, suicide attempts, and other painful and provocative events (Bryan, Morrow, Anestis, & Joiner, 2010). While this study was able

to examine the frequency of NSSI, it was not possible to examine severity. It could be argued that a cut to the thigh that only reaches the epidermis is not as severe as a cut to the thigh that reaches the derma and required stitches. Future studies may seek to explore other pathways of acquired capability and severity of NSSI. Finally, this study was not diverse racially or by educational level. Over 75% of the sample was White/Caucasian, and all participants were recruited from college-level classes. Future studies should seek to find samples with more variance in race and education levels.

Concluding Remarks

Researchers were able to find differences between individuals in regards to acquired capability and distress tolerance and recentness of NSSI. The results show that acquired capability seems to be set once it is acquired, which highlights the importance of NSSI prevention before middle school since the average age of onset is around 15 years of age (Whitlock, 2011). The results also showed the importance of assessing perceived burdensomeness, and thwarted sense of belonging for those individuals with high acquired capability. This study demonstrated the importance of addressing NSSI because the effects may be life-long. It is also important to highlight why researchers and clinicians should address the two other predictors of suicide according to the interpersonal theory of suicide. Since acquired capability's effects are possibly long lasting, when working with individuals who have a history of NSSI behaviors, challenging perceived burdensomeness, and thwarted belongingness may be paramount to the client's success in therapy. Finally, while future research should be done on the direction of the relationship, it may be important for the cessation of NSSI to address distress tolerance, or to address NSSI cessation to find improvements in distress

tolerance. This research shows there is a difference between individuals' NSSI recentness and distress tolerance. Therefore, when working with a client, a therapist would be wise to teach positive coping skills to replace self-injury. This may bring about a rise in distress tolerance that ultimately may cause the cessation of NSSI, or this may bring about the cessation causing the client to feel better able to deal with stressful situations.

Appendix A: Acquired Capability for Suicide Scale

ACSS

Please read each item below and indicate to what extent you feel the statement describes you. Rate each statement using the scale below and indicate your responses on your answer sheet.

0 1 2 3 4

Not at all like me

Very much like me

_____ 1. Things that scare most people do not scare me.

_____ 2. The sight of my own blood does not bother me.

_____ 3. I avoid certain situations (e.g., certain sports) because of the possibility of
injury.

_____ 4. I can tolerate a lot more pain than most people.

_____ 5. People describe me as fearless.

_____ 6. The sight of blood bothers me a great deal.

_____ 7. The fact that I am going to die does not affect me.

_____ 8. The pain involved in dying frightens me.

_____ 9. Killing animals in a science course would not bother me.

_____ 10. I am very much afraid to die.

- _____ 11. It does not make me nervous when people talk about death.
- _____ 12. The sight of a dead body is horrifying to me.
- _____ 13. The prospect of my own death arouses anxiety in me.
- _____ 14. I am not disturbed by death being the end of life as I know it.
- _____ 15. I like watching the aggressive contact in sports games.
- _____ 16. The best parts of hockey games are the fights.
- _____ 17. When I see a fight, I stop to watch.
- _____ 18. I prefer to shut my eyes during the violent parts of movies.
- _____ 19. I am not at all afraid to die.
- _____ 20. I could kill myself if I wanted to. (Even if you have never wanted to kill yourself, please answer this question.)

Appendix B: Distress Tolerance Scale

DTS

Directions: Think of times that you feel distressed or upset. Select the item from the menu that best describes your beliefs about feeling distressed or upset.

1. Strongly agree

2. Mildly agree

3. Agree and disagree equally

4. Mildly disagree

5. Strongly disagree

___ 1. Feeling distressed or upset is unbearable to me.

___ 2. When I feel distressed or upset, all I can think about is how bad I feel.

___ 3. I can't handle feeling distressed or upset.

___ 4. My feelings of distress are so intense that they completely take over.

___ 5. There's nothing worse than feeling distressed or upset.

___ 6. I can tolerate being distressed or upset as well as most people.

___ 7. My feelings of distress or being upset are not acceptable.

___ 8. I'll do anything to avoid feeling distressed or upset.

___ 9. Other people seem to be able to tolerate feeling distressed or upset better than I can.

___ 10. Being distressed or upset is always a major ordeal for me.

____11. I am ashamed of myself when I feel distressed or upset.

____12. My feelings of distress or being upset scare me.

____13. I'll do anything to stop feeling distressed or upset.

____14. When I feel distressed or upset, I must do something about it immediately.

____15. When I feel distressed or upset, I cannot help but concentrate on how bad the
distress actually feels.

Scoring: Item 6 is reverse scored. Subscale scores are the mean of the items. The higher-order DTS is formed from the mean of the four subscales.

Appendix C: Inventory of Statements About Self-Injury

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 6 - 12 hours
12 - 24 hours 3 - 6 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 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 | | | |
| 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 |

Appendix D: Information

Information

Age: _____

Gender: _____

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

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: _____

If parents are divorced, how old were you when they got divorced? _____

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