

Spring 2016

Mediating Factors in the Relationship Between Non-Suicidal Self-Injury and Suicide Attempt

Amanda Gail Williams

Follow this and additional works at: <http://digitalcommons.wku.edu/theses>

 Part of the [Applied Behavior Analysis Commons](#), [Clinical Psychology Commons](#), and the [Psychiatry and Psychology Commons](#)

Recommended Citation

Williams, Amanda Gail, "Mediating Factors in the Relationship Between Non-Suicidal Self-Injury and Suicide Attempt" (2016).
Masters Theses & Specialist Projects. Paper 1589.
<http://digitalcommons.wku.edu/theses/1589>

This Thesis is brought to you for free and open access by TopSCHOLAR®. It has been accepted for inclusion in Masters Theses & Specialist Projects by an authorized administrator of TopSCHOLAR®. For more information, please contact topscholar@wku.edu.

MEDIATING FACTORS IN THE RELATIONSHIP BETWEEN
NON-SUICIDAL SELF-INJURY AND 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
Amanda Williams

May 2016

MEDIATING FACTORS IN THE RELATIONSHIP BETWEEN
NON-SUICIDAL SELF-INJURY AND SUICIDE ATTEMPT

Date Recommended April 13, 2016

Amy M. Brausch
Amy Brausch, Director of Thesis

Elizabeth D. Lemerise
Elizabeth Lemerise

Diane M. Lickenbrock
Diane Lickenbrock

Gina 4/22/16
Dean, Graduate Studies Date

ACKNOWLEDGEMENTS

First, I would like to thank Dr. Amy Brausch, my advisor and the chair of my committee, for being an amazing mentor during the past two years. I cannot possibly express the depth of my gratitude to her. I would also like to thank Dr. Elizabeth Lemerise and Dr. Diane Lickenbrock for being on my committee and for providing advice, support, and feedback during the writing process. Next, I would like to acknowledge my fellow lab members for their help, support, and entertainment during the long hours spent in the lab. Finally, I want to express my gratitude to my fiancé, Kerry, for the late nights and the long phone calls during which he encouraged me to never give up. I honestly would not have made it this far without his unending patience and love.

CONTENTS

Introduction.....	1
Method.....	13
Results.....	17
Discussion.....	21
References.....	26
Appendix A: The Body Investment Scale (BIS).....	33
Appendix B: Inventory of Statements About Self-Injury (ISAS).....	34
Appendix C: Acquired Capability for Suicide Scale (ACSS).....	35
Appendix D: Self-Harm Behavior Questionnaire (SHBQ).....	36
Appendix E: Reasons for Living - Adolescents (RFL-A).....	39

LIST OF FIGURES

Figure 1. Assumptions of the Interpersonal Theory of Suicide.....	4
Figure 2. Multiple mediation model for hypothesis one.....	12
Figure 3. Multiple mediation model for hypothesis two.....	12
Figure 4. Multiple mediation model results for hypothesis one.....	20
Figure 5. Multiple mediation model results for hypothesis two.....	21

LIST OF TABLES

Table 1. Descriptive statistics of NSSI, suicide attempt, and mediators.....	18
Table 2. Zero-order correlations between NSSI, suicide attempt, and mediators.....	19

MEDIATING FACTORS IN THE RELATIONSHIP BETWEEN
NON-SUICIDAL SELF-INJURY AND SUICIDE ATTEMPT

Amanda Williams

May 2016

39 Pages

Directed by: Amy Brausch, Elizabeth Lemerise, and Diane Lickenbrock

Department of Psychological Sciences

Western Kentucky University

Non-suicidal self-injury (NSSI) is considered a strong predictor of suicidal behavior, although the exact relationship between NSSI and suicide is not clear. Several factors have been suggested in previous research, including attitudes toward one's own body, thoughts and beliefs regarding death and suicide, and the ability to cause physical harm to oneself. In the current study, the researcher obtained data from 285 young adult participants who reported a history of NSSI. Two multiple mediation models were tested in which body protection, suicide-related concerns, and acquired capability for suicide were examined as mediators of the relationship between NSSI and suicide attempt frequency. The first model, in which the predictor was NSSI frequency, was not supported. The second model, in which the predictor was NSSI versatility of methods, was partially supported; the only significant mediator was suicide-related concerns. These results add to the literature regarding the relationship between NSSI and suicide.

Introduction

Suicide is a leading cause of death in the United States, accounting for approximately 40,000 deaths per year (Centers for Disease Control and Prevention [CDC], 2013). According to the National Center for Injury Prevention and Control (2012), suicide is the 10th leading cause of death overall, the second leading cause of death for young adults, and the third leading cause of death for adolescents. Research has shown that one of the major risk factors for suicide is non-suicidal self-injury, or NSSI (Klonsky, May, & Glenn, 2013). Nock (2009) defined NSSI as the deliberate destruction of one's own tissue without the intent to die and for reasons that are not socially acceptable. The majority of individuals who engage in NSSI do not attempt suicide; however, most individuals who attempt or complete suicide have a history of NSSI. Research suggests that many factors may mediate this relationship between NSSI and suicide.

Non-Suicidal Self-Injury

Non-suicidal self-injury (NSSI) typically begins during adolescence, at around 13 to 14 years of age (Klonsky & Muehlenkamp, 2007). NSSI has been reported by up to 4% of adults and up to 23% of adolescents in the general population. Franklin, Aaron, Arthur, Shorkey, and Prinstein (2012) found the rate of NSSI in clinical samples of adolescents to be as high as 61%. Studies have also shown a trend toward higher rates of NSSI in Caucasians and women; however, newer studies indicate that similar rates of NSSI can be found in both genders (Van Camp, Desmet, & Verhaeghe, 2011). The primary difference between men and women involves the method employed, with women commonly reporting cutting and scratching and men commonly reporting punching walls

and hitting themselves. In clinical samples, the most common form of self-injury overall is cutting, reported by more than 70% of those who engage in NSSI (Briere & Gil, 1998). In nonclinical samples, the most common form of NSSI is scratching (Nock, Joiner, Gordon, Lloyd-Richardson, & Prinstein, 2006). Many individuals who engage in NSSI only do so once or twice, except for a small percentage who become chronic self-injurers. Additionally, those who repeatedly engage in NSSI typically use more than one method.

Theories about the functions of NSSI may be divided into two categories: intrapersonal and interpersonal. Nock and Prinstein (2004) outlined four primary functions of NSSI that exist on two dichotomous dimensions: automatic versus social and positive reinforcement versus negative reinforcement. Automatic-positive reinforcement (invoking a certain physiological or psychological state) and automatic-negative reinforcement (reducing a negative affective state) are intrapersonal functions of an individual's NSSI. Social-positive reinforcement (gaining attention from others or access to resources) and social-negative reinforcement (escaping from social task demands) are interpersonal functions of an individual's NSSI. Research indicates that the most frequently reported function of NSSI is affect regulation, an intrapersonal function (Briere & Gil, 1998).

Chapman, Gratz, and Brown (2006) developed the experiential avoidance model (EAM) as a theoretical framework for understanding the function of NSSI. Experiential avoidance refers to a behavior that functions to avoid or escape from unwanted internal experiences, such as thoughts, feelings, or sensations. Self-injury serves as a way for the individual to avoid these internal experiences for a short amount of time. Although

Chapman et al. did not put it into this context, EAM can be viewed as being similar to Nock and Prinstein's (2004) idea of automatic-negative reinforcement.

Suicide

Cross-national data from the World Health Organization World Mental Health Survey Initiative (Nock et al., 2008) indicates that the lifetime prevalence of suicidal ideation (thoughts about suicide) is 9.2%, making a suicide plan is 3.1%, and making a suicide attempt is 2.7%. The probability of those with suicidal ideation going on to make an attempt is 29.0%, though this figure rises to 56.0% if the individual also has a plan. As mentioned earlier, NSSI is a major risk factor for suicide. Klonsky, May, and Glenn (2013) suggested that NSSI may be unique in that it represents both the desire and the capability to do harm to oneself, important components of a lethal suicide attempt in two contemporary theories of suicide.

Joiner (2005) introduced and outlined the interpersonal-psychological theory of suicide in his influential book, *Why People Die by Suicide* (Figure 1). Joiner's theory has become the prominent theory in the field of suicidology, with much of the current research being conducted within its framework. According to Joiner's theory, social isolation consists of thwarted belongingness and perceived burdensomeness. Thwarted belongingness is defined as a frustrated or unmet psychological need for social connectedness. Perceived burdensomeness is defined as a feeling of being a burden on loved ones or on society, or a feeling that one's death would be worth more to others than one's life. It is important to note that the abovementioned conditions are not necessarily true circumstances in an individual's life; the individual merely has the perception that these conditions are true. The combination of thwarted belongingness and perceived

burdensomeness may lead to a desire for death if the individual feels hopeless about these conditions changing in the future. However, an individual is unable to enact lethal self-harm without a third component: the acquired capability for suicide.

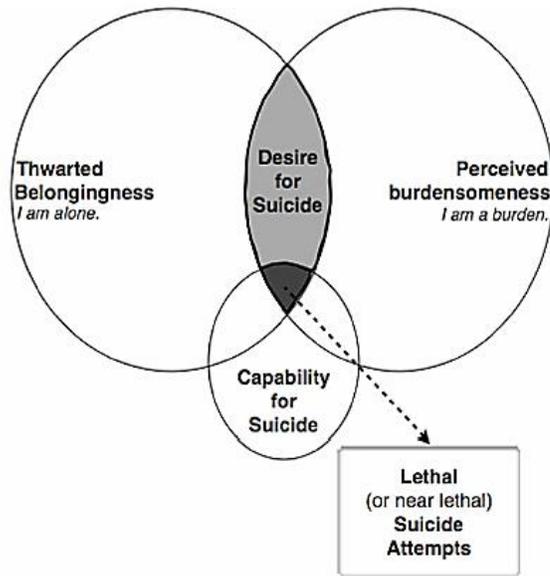


Figure 1. Assumptions of the Interpersonal Theory of Suicide. Reprinted from “The Interpersonal Theory of Suicide,” by K. A. Van Orden, et al., 2010, *Psychological Review*, 117(2), 42.

Acquired capability is defined as a reduced fear of death and an elevated tolerance of pain (Joiner, 2005). An individual can develop the acquired capability for suicide in a number of ways, one of which is NSSI (Joiner, Ribeiro, & Silva, 2012). An explanation for the relationship between acquired capability and NSSI involves opponent-process theory, a model developed by Solomon (1980) to explain behaviors such as drug addiction and skydiving. Individuals often report using NSSI to relieve negative feelings or induce positive feelings. According to opponent-process theory, as individuals repeatedly engage in NSSI, the initial response to the pain or fear involved in such a behavior decreases, and the positive emotions or relief from negative emotions that result

from self-injury increase. Once acquired capability is developed in combination with the desire for suicide, the conditions are set for a lethal suicide attempt (Joiner, 2005).

A more recent theory, proposed by Klonsky and May (2015), is the three-step theory of suicide, or 3ST. Klonsky and May developed this theory in an attempt to address a perceived gap in the literature regarding the progression from suicidal ideation to action based on that ideation. According to this theory, suicidal ideation develops into a suicide attempt in three basic steps. First, ideation develops when an individual experiences intense psychological pain and a sense of hopelessness that the pain will never end. Second, suicidal ideation escalates when that psychological pain becomes greater than the individual's connection to others. Third, ideation becomes action when the individual's capacity becomes greater than his or her fear of attempting suicide.

Klonsky and May's (2015) conceptualization of capacity is similar to Joiner's idea of acquired capability. However, Klonsky and May's explanation of capacity is divided into three types: dispositional, practical, and acquired. Dispositional capacity refers to that which is inborn, such as natural pain tolerance. Practical capacity refers to that which is developed through exposure and habituation to painful and provocative events. Acquired capacity refers to that which is learned through behaviors such as NSSI. Regardless of the name, acquired capacity or acquired capability is a component of these theories of suicide that is of particular interest when examining the relationship between suicide and NSSI. Franklin, Hessel, and Prinstein (2011) conducted a study on pain tolerance in relation to suicidal capability. They found that participants with a history of NSSI had higher levels of acquired capability and lower levels of pain perception than participants with no history of NSSI. This study implicates NSSI as one

method through which individuals can acquire the capability to lethally injure themselves.

NSSI and Suicide

Turner, Layden, Butler, and Chapman (2013) examined how the frequency and versatility of direct and indirect self-damaging behaviors are associated with suicide risk in individuals who engage in NSSI. The researchers conceptualized NSSI as a form of direct self-damaging behavior due to the direct and immediate harm caused by such behaviors. Alternatively, the researchers conceptualized substance use and disordered eating as forms of indirect self-damaging behaviors due to the long-term consequences of the behaviors. They conceptualized versatility as the number of different methods used by an individual to engage in NSSI. They recruited 142 participants from social networking sites; every participant reported engaging in NSSI at least once. Additionally, 74 participants (52.1%) reported recent substance use, and 75 (52.8%) reported recent disordered eating behavior. The researchers found that the number of different self-damaging behaviors (both direct and indirect), rather than the frequency of said behaviors, was associated with higher suicide risk.

In a similar study, Anestis, Khazem, and Law (2015) examined the number of NSSI methods (versatility) as a moderator between NSSI frequency and number of lifetime suicide attempt in a sample of young adults with at least one suicide attempt. The researchers recruited 1317 participants from undergraduate psychology courses. From this sample, 143 participants (10.9%) reported at least one prior suicide attempt, and 343 participants (26.9%) reported engaging in NSSI at least once. Of those with a history of suicide attempt, 117 participants (81.8%) reported engaging in NSSI at least

once. The researchers found that as the number of methods of NSSI increased, the relationship between NSSI frequency and suicide attempt frequency was strengthened. The authors noted that a possible explanation for this finding is that multiple NSSI methods indicate an increased comfort with bodily harm in general, thus increasing the propensity for suicide attempts. These studies indicate that versatility of methods could be a useful conceptualization of the severity of NSSI, rather than simply using frequency data.

Body Investment

Body investment is the concept of one's own body experience and one's connection to one's body. Orbach (1996) proposed that individuals who consider suicide have either become detached from their bodies or experience their bodies in negative ways. These feelings are based on early childhood experiences of parental care. Infants rely on their parents to teach them how to interpret bodily cues, such as those for hunger, thirst, and discomfort. When the parent responds in an appropriate manner, the infant begins to learn how to interpret such cues, thus leading the infant to develop an understanding of his or her own body. When the parent responds in an inappropriate manner or does not respond at all, the infant is unable to learn how to understand these bodily cues and may begin to experience his or her body in a negative way.

Muehlenkamp and Brausch (2012) conducted a study in which body image was measured as a potential mediator between negative affect and NSSI in community and inpatient adolescents. The sample included 230 high school students and 54 adolescents from a psychiatric inpatient unit. Body image was measured with the Body Investment Scale (BIS; Orbach & Mikulincer, 1998); higher scores on this measure indicate a more

positive body image. The researchers found that scores on the BIS served as a significant mediator variable in the model, particularly that lower BIS scores were associated with higher levels of negative affect and NSSI. According to these findings, body image could be an important contributor to NSSI.

In addition to developing an understanding of one's own body, body investment includes the concept of body protection, or avoiding damage to one's own body. Orbach and Mikulincer (1998) found that body protection was negatively related to attraction to death. Orbach, Feshbach, Carlson, Glaubman, and Cross (1983) defined attraction to death as distorted, positive perceptions regarding death, with such ideas serving as motivation for dying and suicidal behavior. Orbach (1996) also found that body protection was negatively correlated with suicidal tendencies. The research regarding body investment indicates that body investment could be a valuable indicator of future suicide risk.

Reasons for Living

Much of the research within suicidology focuses on maladaptive beliefs and risk factors. However, Linehan, Goodstein, Nielsen, and Chiles (1983) chose to focus on the adaptive beliefs that serve as protective factors against suicide in the form of reasons for living. The researchers presented the concept of reasons for living from a cognitive-behavioral perspective, suggesting that those who do not attempt suicide hold more adaptive beliefs regarding life than those who attempt suicide. In order to test this hypothesis, the researchers first asked students, senior citizens, middle-aged adults, and government workers to explain why they did not consider suicide and why they believed others did not consider suicide. From the list of 343 reasons for living, the researchers

eliminated repeat responses and combined similar ones to develop a list of 72 statements. Principal component and exploratory factor analyses were then used to determine the factor structure and develop a trial inventory, which Linehan et al. then administered to both clinical and nonclinical samples. The final inventory, called the Reasons for Living Inventory (RFL), consisted of six types of reasons for living: survival and coping beliefs, responsibility to family, child-related concerns, fear of suicide, fear of social disapproval, and moral objections. Linehan et al. found that the degree to which individuals endorse these reasons for living can differentiate between those who are suicidal and those who are not. Specifically, individuals who are suicidal typically endorse fewer reasons for living than individuals who are not suicidal.

Osman and colleagues (1998) argued that, although the RFL was a useful tool for evaluating reasons for living in adults, the same tool was not relevant for use with adolescents. A new inventory was needed that addressed the specific reasons for living that adolescents typically reported. Based on the same rationale and similar procedures as those reported in the development of the RFL (Linehan et al., 1983), Osman et al. (1998) developed the Reasons for Living Inventory for Adolescents (RFL-A). The final RFL-A included five factors: future optimism, suicide-related concerns, family alliance, peer acceptance and support, and self-acceptance. Although somewhat similar to the factors in the adult version of the inventory, these factors are distinct and apply directly to adolescents. In particular, the suicide-related concerns subscale addresses those ideas directly related to suicide and related fears. Breton and colleagues (2015) examined risk and protective factors against depression and suicidal behavior in adolescents in the community and a clinical setting. One of the measures used to assess protective factors

was the RFL-A. The researchers found that the suicide-related concerns subscale was the only RFL-A subscale to emerge as a protective factor against suicidal intent.

Muehlenkamp and Gutierrez (2007) studied potential differences in risk factors for suicide between adolescents who engage in NSSI and have a past suicide attempt and those who engage in NSSI and do not have a past suicide attempt. One of the measures that the researchers used in this study was the RFL-A. The participants were divided into four groups for data analysis: no self-injury (75.2%), NSSI only (16.1%), suicide attempt (SA) only (1.9%), and NSSI+SA (7.0%). As expected, the no self-injury group had the highest RFL-A mean score, and the NSSI+SA group had the lowest score. Significant differences were found between the NSSI only group and the NSSI+SA group on the RFL-A subscales of future optimism, suicide-related concerns, family alliance, and self-acceptance, with the NSSI only group obtaining higher scores on these subscales. These studies indicate that the concept of reasons for living is useful in differentiating between those who have attempted suicide and those who have not.

Rationale and Hypotheses

Studies have repeatedly indicated that non-suicidal self-injury, typically measured by frequency, is a major risk factor for suicidal behavior (Klonsky et al., 2013). However, the way in which NSSI relates to suicidal behavior is not completely understood. Joiner (2005) suggested that acquired capability could be the mechanism through which this relationship develops, with NSSI increasing one's acquired capability. The construct of body investment relates to this idea in that suicidal individuals have negative bodily experiences and, with body protection in particular, less concern about bodily damage. Alternatively, suicide-related concerns were found to serve as a

protective factor against suicide. A similar subscale on the original RFL, fear of suicide, was also found to negatively correlate to a measure of acquired capability for suicide. With respect to the research, body investment, suicide-related concerns, and acquired capability appear to be potential mediators in the relationship between NSSI and suicide attempt. Additionally, frequency is not the only way in which to measure NSSI; versatility, or number of methods, has been utilized as a measure of NSSI in a small number of studies and is used in addition to frequency in the current study.

For the purpose of this study, the researcher is interested in the relationship between NSSI behaviors and suicide attempts. In particular, how do the constructs of body protection, suicide-related concerns, and acquired capability mediate the relationship between NSSI and suicide attempt? Additionally, is the relationship different based on whether NSSI is measured by frequency of behaviors or versatility of methods? The first hypothesis is that frequency of NSSI will be positively associated with frequency of suicide attempt, and this relationship will be mediated by body protection, suicide-related concerns, and acquired capability for suicide. Frequency of NSSI will be negatively associated with body protection and suicide-related concerns, and body protection and suicide-related concerns will be negatively associated with frequency of suicide attempts. Frequency of NSSI will be positively associated with acquired capability, and acquired capability will be positively associated with frequency of suicide attempts.

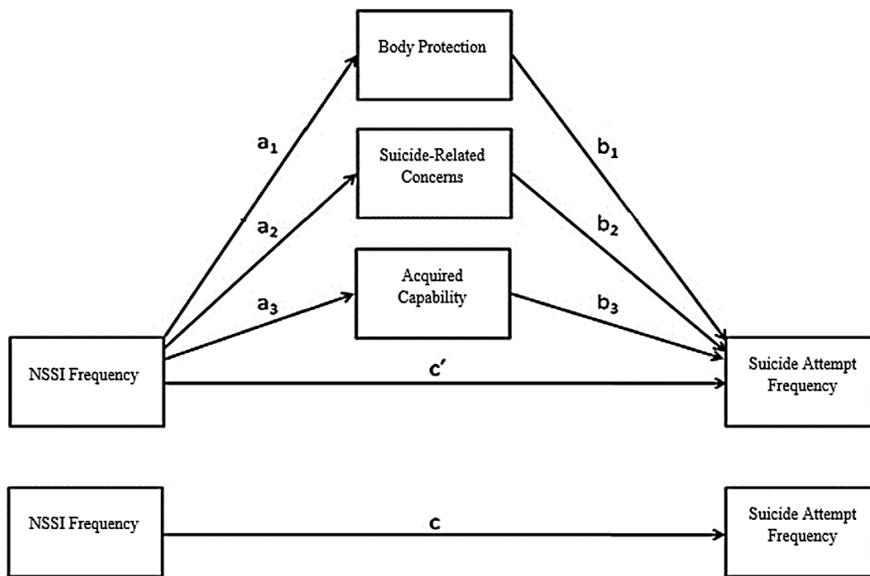


Figure 2. Multiple mediation model for hypothesis one.

The second hypothesis is similar except that versatility of NSSI will be examined rather than frequency of NSSI. Versatility is defined as the number of different methods used in NSSI. All relationships are expected to remain the same.

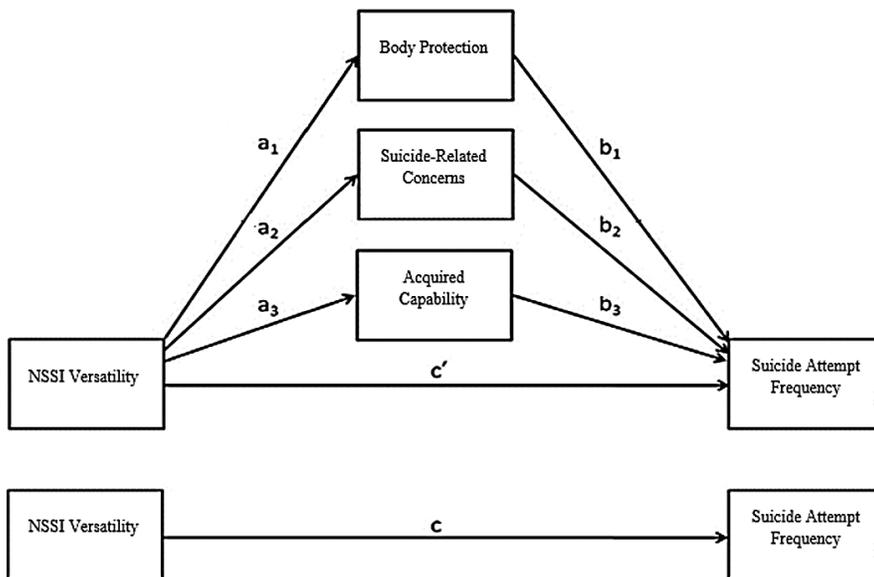


Figure 3. Multiple mediation model for hypothesis two.

Method

Participants

Participants were undergraduate students enrolled at a public university in the southeast United States; participants were recruited from introductory psychology courses and compensated with credit toward course completion. Data were collected from 285 participants with a history of NSSI. The mean age was 20.0 years ($SD = 2.8$). The sample was 66.0% female and 34.0% male. The ethnic distribution was 70.7% Caucasian, 11.3% African-American, 5.7% Hispanic, 5.7% Asian, and 6.6% multi-ethnic or other.

Procedure

Participants met in classrooms or laboratories to complete the study. After reviewing and signing an informed consent document, participants were given a packet of questionnaires that included measures to assess mental health and risk behaviors. The questionnaires were given in the same order to each participant, with the measures relevant to the current study in the order presented below (see appendices A through F). Researchers remained in the room during the sessions to monitor participants and answer questions. Participants were privately debriefed in a separate room and given a brief risk assessment interview if critical items regarding suicide risk were endorsed on the study questionnaires. Masters-level researchers debriefed participants and provided referral information to those who reported suicidal behavior within the last year. These participants were referred to the university counseling center, as well as given information about local and national crisis lines. This study was approved by the

Institutional Review Boards at the university where data collection occurred (refer to Appendix F for approval document).

Measures

Body protection. The Body Investment Scale (BIS; Orbach & Mikulincer, 1998) is a 24-item measure of body experiences and emotional investment in the body (Appendix A). The answers are based on a five-point Likert scale ranging from “do not agree” to “strongly agree.” Questions 2, 3, 5, 7, 9, 11, 13, 17, and 22 are reverse scored. Higher scores on this measure are meant to indicate higher levels of bodily care and investment. This measure consists of four factors, each of which had good internal consistency in the current sample: image and attitudes toward the body ($\alpha = .89$), comfort in touch ($\alpha = .75$), body care ($\alpha = .66$), and body protection ($\alpha = .55$). The intercorrelations among the four factors were low to moderate, with the highest between those of body care and body protection ($r = .32, p < .01$). Body protection was the factor of interest in the current study. Sample questions from this subscale include: “I am not afraid to engage in dangerous activities” (reverse-scored) and “When I am injured, I immediately take care of the wound.”

Non-suicidal self-injury. The Inventory of Statements about Self-Injury (ISAS; Klonsky & Glenn, 2009) is a measure designed to assess the frequency and functions of NSSI. In part one of this measure, participants are asked to estimate the number of times in which they have intentionally engaged in various types of NSSI in their lifetime. If participants endorse one or more of these behaviors, they are instructed to complete the second part of the questionnaire, which consists of a series of items meant to assess the interpersonal and/or intrapersonal function of the self-injury (Nock & Prinstein, 2004).

Reliability and validity of the section concerning history of NSSI were examined in a sample of 761 college students (Klonsky & Olino, 2008). The researchers found good test-retest reliability of the total NSSI score and for individual NSSI behaviors when the measure was given with a four week interval. The researchers also correlated the total NSSI score with other measures of self-injury and found adequate construct validity as well. For the current study, the frequency data from the first part of the ISAS was used (Appendix B). However, to be aligned with the definition of NSSI as being direct and causing harm to bodily tissue, the minor or indirect methods that were included on the ISAS were not included in the frequency total; these include pulling hair, interfering with wound healing, and the “other” option. The eight remaining methods included: cutting, biting, burning, carving, scratching, banging or hitting, rubbing skin, and sticking self with needles.

Acquired capability. The Acquired Capability for Suicide Scale (ACSS; Van Orden, Witte, Gordon, Bender, & Joiner, Jr., 2008) is a 20-item self-report questionnaire used to assess an individual’s fearlessness regarding death, injury, and violence (Appendix C). Answers are based on a 5-point Likert scale ranging from “not at all true for me” to “very true for me.” Questions 3, 6, 8, 10, 12, 13, and 18 are reverse scored. Higher scores on this measure are meant to indicate higher levels of pain tolerance and fearlessness about potential lethal self-injury. Reliability was tested with the current sample and found to be adequate ($\alpha = .82$). However, Ribeiro and colleagues (2014) presented an argument for reevaluating the ACSS based on mixed results from studies that have utilized the scale. Some of the issues outlined by the authors include the scale’s generalizability, how well it reflects the construct due to developments in

conceptualization of acquired capability, and the underlying factor structure of the scale. Despite the many problems with the ACSS, it was included in this study as a contrast to the other measures of fear of death, suicide and pain.

Suicide attempts. The Self-Harm Behavior Questionnaire (Gutierrez, Osman, Barrios, & Kopper, 2001) is a self-report instrument comprised of four sections that address four factors of self-injurious or suicide-related behavior: intentional self-harm, suicide attempts, suicide threats, and suicidal ideation (Appendix D). Each section consists of closed-ended questions requiring only a yes/no response, followed by open-ended questions that allow the participant to explain his or her thoughts or behaviors and the amount of time that has elapsed since the last occurrence of the behavior. Analyses indicate that the questionnaire is valid and reliable when used with a population of young adults, both in clinical and nonclinical settings. Only responses from the second section, those regarding past suicide attempts, were used in analyses. Participants who reported a history of at least one suicide attempt were of particular interest.

Suicide-related concerns. The Reasons for Living Inventory was originally developed by Linehan and colleagues (1983) as an assessment of the reasons a person might have for not dying by suicide. The answers are based on a six-point Likert scale ranging from “strongly disagree” to “strongly agree.” Osman et al. (1998) later revised the RFL for use specifically with an adolescent population, thus creating the Reasons for Living Inventory for Adolescents (RFL-A). The RFL-A is a 32-item self-report questionnaire similar to its predecessor that was initially validated for use with adolescents ages 14 to 18 years (Appendix E). However, data have indicated that the questionnaire is valid with an extended age range through college (Gutierrez & Osman,

2008). Higher scores on this measure indicate more reasons that a person has for living, in other words the reasons they have for not dying by suicide. The RFL-A consists of five factors that all show high internal consistency with the current sample: future optimism ($\alpha = .94$), suicide-related concerns ($\alpha = .94$), family alliance ($\alpha = .94$), peer acceptance and support ($\alpha = .94$), and self-acceptance ($\alpha = .93$). Suicide-related concerns was the factor of interest in the current study. Sample questions from this subscale include: “I am afraid to die, so I would not consider killing myself,” and “The thought of killing myself scares me.”

Results

Data Management

Data were analyzed using the Statistical Package for the Social Sciences (SPSS, version 22) software. Descriptive statistics were computed for those who had a history of NSSI. One participant reported one million instances of self-injury, whereas the second highest frequency reported 1502; the data for the person reporting one million instances was removed as an outlier. The mean frequency of NSSI was 80.27 ($SD = 204.60$). A square root transformation was applied to each NSSI method frequency variable in order to normalize the distribution (raw NSSI total frequency skew = 4.49; kurtosis = 22.87). The square root transformation has been used similarly in prior research (e.g., Robertson, Miskey, Mitchell, & Nelson-Gray, 2013; Selby, Anestis, Bender, & Joiner, Jr., 2009; Selby, Connell, & Joiner, Jr., 2010). The new transformed frequencies were then added together for each participant to obtain his/her total NSSI frequency. The transformed NSSI frequency had a mean of 6.09 ($SD = 6.58$) and improved skew and kurtosis values (skew = 2.60; kurtosis = 7.50).

To calculate the NSSI versatility variable, each participant who reported a number greater than zero for any method was coded as using that particular method. All endorsed methods were then added together to obtain the total number of methods he/she reported using. Approximately 40% of participants reported using a single method of NSSI. Nearly 30% reported using two methods, 10% reported using three methods, and the remaining 20% reported using four or more methods of NSSI. The average number of methods used was 2.41 ($SD = 1.78$). Additionally, 14.40% of the current sample reported at least one past suicide attempt.

Table 1.

Descriptive statistics of NSSI, suicide attempt, and mediators

Scale	<i>n</i>	Range	<i>M</i>	<i>SD</i>	Skew-ness	Kurt-osis
NSSI Frequency (raw)	285	1-1502	80.27	204.60	4.49	22.87
NSSI Frequency (transformed)	285	1-39	6.09	6.58	2.60	7.50
NSSI Versatility	285	1-8	2.41	1.78	1.56	1.84
SA Frequency	284	0-4	.28	.82	3.40	11.41
Body Protection	284	9-30	22.23	3.85	-.33	.28
Suicide-Related Concerns	280	1-6	4.23	1.55	-.58	-.83
Acquired Capability	281	5-80	42.58	12.86	.11	.18

NSSI and Self-Harm Descriptives

Of those who reported a history of both NSSI and a suicide attempt, the average number of NSSI methods was 2.88 ($SD = 2.16$). Correlations were computed using data from the entire sample (Table 1). The mediators were moderately correlated with one another. Body protection was correlated with NSSI frequency, NSSI versatility, and SA frequency. NSSI frequency was correlated with versatility, but not with suicide attempt frequency; NSSI versatility was correlated with all variables except acquired capability. Table 2.

Zero-order correlations between NSSI, suicide attempt, and mediators

Scale	1	2	3	4	5	6
1 NSSI Frequency	1.00	-	-	-	-	-
2 NSSI Versatility	.50**	1.00	-	-	-	-
3 SA Frequency	.09	.13*	1.00	-	-	-
4 Body Protection	-.25**	-.26**	-.21**	1.00	-	-
5 Suicide-Related Concerns	-.06	-.16**	-.32**	.39**	1.00	-
6 Acquired Capability	.07	.04	.18**	-.36**	-.46**	1.00

Note: * $p < .05$; ** $p < .01$

Mediation Model Results

Multiple mediation models were tested using the PROCESS macro (Hayes, 2013) for SPSS, which uses bootstrap mediation. As a note, all coefficients produced by PROCESS are unstandardized. For the first hypothesis, the transformed total NSSI frequency variable was entered as the predictor, and the suicide frequency variable was entered as the outcome. The mediating variables were scores on the body protection

subscale of the BIS, the suicide-related concerns subscale of the RFL-A, and the total score on the ACSS. The overall model was significant ($R^2 = .11$, $F(4, 269) = 8.53$, $p < .01$). However, none of the mediators were significant. NSSI frequency was a significant predictor of body protection ($B = -.15$, $p < .01$, $CI [-.22, -.08]$). Suicide-related concerns emerged as a significant predictor of suicide attempt frequency ($B = -.14$, $p < .01$, $CI [-.21, -.07]$; Figure 1).

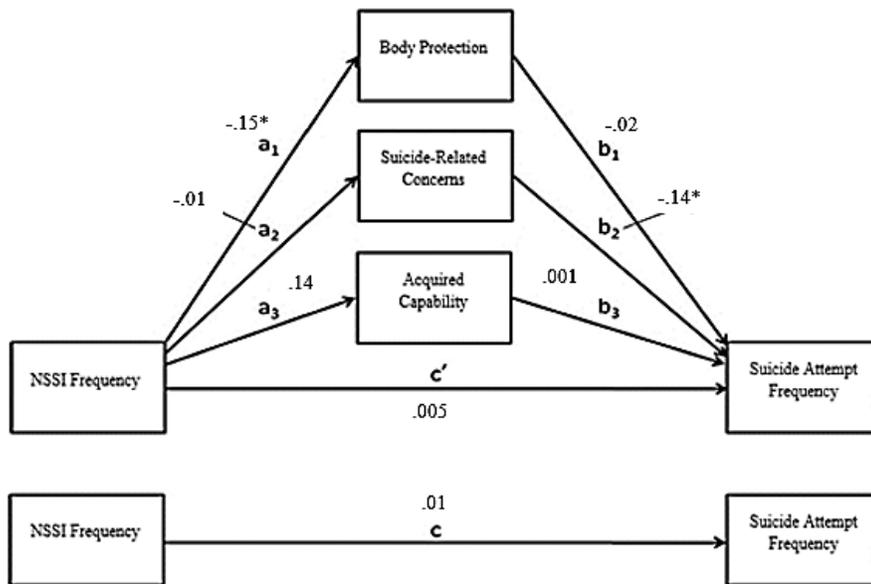


Figure 4. Multiple mediation model results for hypothesis one.

For the second hypothesis, the NSSI versatility variable was entered as the predictor, and the suicide frequency variable was entered as the outcome. The mediating variables remained the same as before: body protection, suicide-related concerns, and ACSS. The overall model was significant as well ($R^2 = .11$, $F(4, 269) = 8.43$, $p < .01$). Suicide-related concerns emerged as the only significant mediator in this model. Additionally, NSSI versatility was a significant predictor of body protection ($B = -.62$, $p < .01$, $CI [-.87, -.37]$; Figure 2).

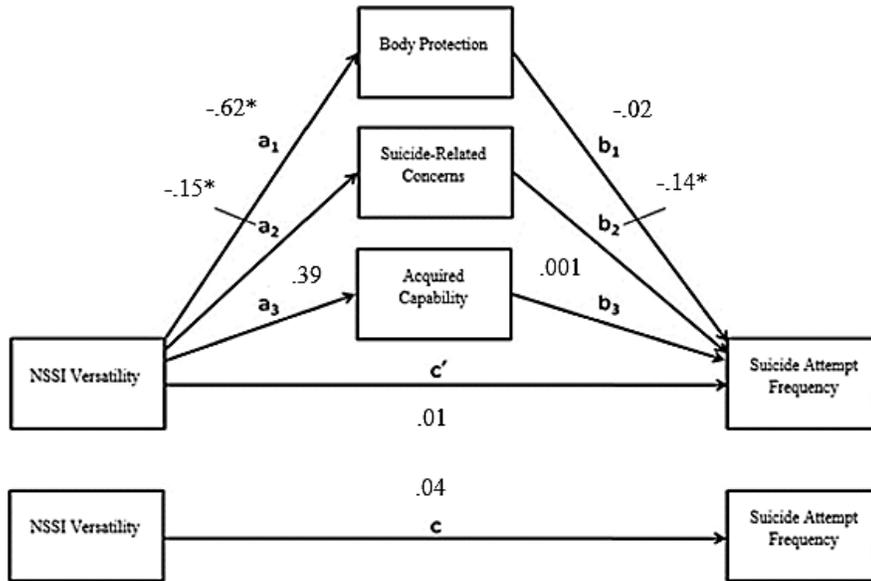


Figure 5. Multiple mediation model results for hypothesis two.

Discussion

Past research indicates a link between NSSI and suicide (Hazma, Stewart, and Willoughby, 2012; Joiner et al., 2012; Klonsky et al., 2013); however, the way in which NSSI is related to suicide is not fully understood. Additionally, some researchers have argued that, in order to understand this relationship better, NSSI should be measured in a different way (Anestis et al., 2015; Turner et al., 2013). Examination of the two multiple mediation models lends support to the idea that versatility may be a more sensitive measure of NSSI than frequency when considering the relationship between NSSI and suicide attempts. The first hypothesis, in which NSSI frequency was the predictor variable, was not supported; the second hypothesis, in which NSSI versatility was the predictor variable, was partially supported. Previous research has shown conflicting evidence regarding the relationship between NSSI frequency and suicide attempt. In a study of adolescents, Nock et al. (2006) found that NSSI frequency was not associated with suicide attempt frequency, but versatility of methods and the length of time that the

adolescent had been engaging in NSSI were associated with suicide attempt frequency. Additionally, Whitlock and Knox (2007) found a curvilinear relationship between frequency of NSSI and suicide attempts; the positive correlation continued only up to 50 incidents of NSSI, after which it declined. This finding was replicated in a later study (Paul, Tsypes, Eidlitz, Ernhout, & Whitlock, 2015); the researchers suggested that, for individuals with higher frequencies of NSSI, the behavior has become an effective, though maladaptive, coping strategy.

Hazma and colleagues (2012) suggested that NSSI frequency only predicts suicide attempt frequency until the acquired capability for suicide has developed, at which point acquired capability should become a stronger predictor of suicidal behavior than NSSI. However, in the current study, acquired capability was not a significant mediator or predictor in either model. Acquired capability was, however, moderately correlated with body protection and suicide-related concerns. This represents the problem of collinearity among the mediators. Preacher and Hayes (2008) discussed the potential problem of collinearity, stating that such an issue may lead to the conclusion that a variable does not serve as a mediator when it should. Due to the level of collinearity between the three mediating variables, perhaps the unique contribution of each variable was overshadowed.

Based on the second model, suicide-related concerns appear to be an important factor in the relationship between NSSI and suicide attempt. However, body protection, or caring for one's body may be important primarily in terms of NSSI rather than suicide attempt. One possible explanation for the findings in the second model is that body protection is already lowered with NSSI, and the component that must change in order to

have a suicide attempt is one's feelings regarding death and suicide (suicide-related concerns).

The finding that body protection was not a significant mediator in either model is interesting, given that at least one previous study (Anestis et al., 2015) proposed that increased comfort with bodily harm could contribute to the relationship between NSSI and suicide attempt. Orbach and Mikulincer (1998) described body protection as avoiding harm to one's own body. This is conceptually different than personally harming (or not harming) one's own body. The body protection subscale includes such questions as "I take care of myself whenever I feel a sign of illness," "I look in both directions before crossing the street," and "I am not afraid to engage in dangerous activities" (reverse coded). The only question that directly asks about personally harming oneself is "Sometimes I purposely injure myself" (reverse coded). Therefore, those participants who obtain high scores on the BIS, particularly the body protection subscale, may still engage in NSSI. Inversely, those who obtain low scores may not engage in NSSI. Additionally, analyses indicated low internal consistency of the body protection subscale. According to Nunnally (1978), an acceptable Cronbach's alpha is .70 or higher; lower alphas indicate poor reliability. This lack of reliability in the measure could have contributed to the lack of mediational findings in the models.

Limitations

When interpreting the results of this study, there are certain limitations to consider. First, compared to the overall sample size, the sample of participants with a history of suicide attempt is much smaller. Additionally, most researchers in the field of suicidology conduct studies with participants who have attempted suicide and generalize

the findings to include those who have died by suicide. However, some researchers question if there are inherent differences between those who attempt suicide and those who die by suicide (Lester, 2009).

Another limitation is one of generalizability of the results. The sample was mostly young, Caucasian, and female; all of the participants were college students. Although this is a common demographic for those who engage in NSSI and who attempt suicide, the results do not necessarily generalize to other age groups, ethnicities, genders, or those who are not in college. This should be kept in mind when considering the results of the current study. Similar studies may yield different results when conducted with different demographic groups.

Data were collected via self-report measures, a method that relies on participant honesty and memory. Some participants may have chosen not to disclose their history of NSSI or suicide attempts, or they may have chosen to downplay the severity of such history. Additionally, participants with a longer period of time since they last engaged in NSSI may have had difficulty recalling specific details about the behavior. NSSI frequency is also a difficult variable to quantify due to the large range of numbers reported. Outliers must be taken into account, and the data often must be transformed.

Implications and conclusions

Future directions for research may involve using structural equation modeling (SEM) to analyze different ways in which these variables are related. Body protection, suicide-related concerns, and acquired capability may have a relationship that multiple mediation did not capture. A different model could reflect the unique relationship among

these three variables. Additionally, SEM could allow for the direct comparison of NSSI frequency and NSSI versatility as predictors.

In conclusion, NSSI and suicide are known to be related in some way. However, researchers have yet to figure out exactly how these two behaviors are connected. In the current study, we hypothesized that body protection, suicide-related concerns, and acquired capability would mediate the relationship between NSSI and suicide attempt. We found that suicide-related concerns mediated the relationship between NSSI versatility and suicide attempt frequency. However, body protection and acquired capability were not significant mediators in either model. This leads to the question of what, aside from feelings about death and suicide, makes NSSI such a strong predictor of suicide attempt. Knowing how to determine which individuals who engage in NSSI are most at risk for suicide is of great clinical importance.

References

- Anestis, M. D., Khazem, L. R., & Law, K. C. (2015). How many times and how many ways: The impact of number of nonsuicidal self-injury methods on the relationship between nonsuicidal self-injury frequency and suicidal behavior. *Suicide and Life-Threatening Behavior, 45*, 164-177. DOI:10.1111/stlb.12120
- Breton, J., Labelle, R., Berthiaume, C., Royer, C., St-Georges, M., Ricard, D.,...Guile, J. (2015). Protective factors against depression and suicidal behavior in adolescence. *The Canadian Journal of Psychiatry, 60*(2), 5-15. DOI:10.1097/00004583-200101000-00021
- Briere, J. & Gil, E. (1998). Self-mutilation in clinical and general population samples: Prevalence, correlates, and functions. *American Journal of Orthopsychiatry, 68*(4), 609-620. DOI:10.1037/h0080369
- Centers for Disease Control and Prevention. (2013). Web-based injury statistics query and reporting system (WISQARS): Injury prevention and control. Retrieved from <http://www.cdc.gov/violenceprevention/suicide/statistics/>
- Chapman, A. L., Gratz, K. L., & Brown, M. Z. (2006). Solving the puzzle of deliberate self harm: The experiential avoidance model. *Behaviour Research and Therapy, 44*, 371-394. DOI:10.1016/j.brat.2005.03.005
- Franklin, C. F., Hessel, E. T., & Prinstein, M. J. (2011). Clarifying the role of pain tolerance in suicidal capability. *Psychiatry Research, 189*, 362-367. DOI:10.1016/j.psychres.2011.08.001
- Franklin, J. C., Aaron, R. V., Arthur, M. S., Shorkey, S. P., & Prinstein, M. J. (2012).

Nonsuicidal self-injury and diminished pain perception: The role of emotion dysregulation. *Comprehensive Psychiatry*, 53, 691-700.

DOI:10.1016/j.comppsy.2011.11.008

Gutierrez, P. M. & Osman, A. (2008). *Adolescent suicide: An integrated approach to the assessment of risk and protective factors*. DeKalb, IL: Northern Illinois University Press.

Gutierrez, P. M., Osman, A., Barrios, F. X., & Kopper, B. A. (2001). Development and initial validation of the self-harm behavior questionnaire. *Journal of Personality Assessment*, 77(3), 475-490. DOI:10.1207/S15327752JPA7703_08

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY: Guilford Press.

Hazma, C. A., Stewart, S. L., & Willoughby, T. (2012). Examining the link between nonsuicidal self-injury and suicidal behavior: A review of the literature and an integrated model. *Clinical Psychology Review*, 32, 482-495.

DOI:10.1016/j.cpr.2012.05.003

Joiner, T. E. (2005). *Why people die by suicide*. Cambridge, MA: Harvard University Press.

Joiner, T. E., Ribeiro, J. D., & Silva, C. (2012). Nonsuicidal self-injury, suicidal behavior, and their co-occurrence as viewed through the lens of the interpersonal theory of suicide. *Current Directions in Psychological Science*, 21, 342-347.

DOI:10.1177/0963721412454873

Klonsky, E. D. & Glenn, C. R. (2009). Assessing the functions of non-suicidal self-injury: Psychometric properties of the inventory of statements about self-injury

(ISAS). *Journal of Psychopathology and Behavioral Assessment*, 31, 215-219.

DOI:10.1007/s10862-9107-z

Klonsky, E. D. & May, A. M. (2015). The Three-Step Theory (3ST): A new theory of suicide rooted in the “ideation-to-action” framework. *International Journal of Cognitive Therapy*, 8, 114-129. DOI:10.1521/ijct.2015.8.2.114

Klonsky, E. D., May, A. M., & Glenn, C. R. (2013). The relationship between nonsuicidal self injury and attempted suicide: Converging evidence from four samples. *Journal of Abnormal Psychology*, 122, 231-237. DOI:10.1037/a0030278

Klonsky, E. D. & Muehlenkamp, J. J. (2007). Self-injury: A research review for the practitioner. *Journal of Clinical Psychology*, 63(11), 1045-1056.

DOI:10.1002/jclp.20412

Klonsky, E. D. & Olino, T. M. (2008). Identifying clinically distinct subgroups of self-injurers among young adults: A latent class analysis. *Journal of Consulting and Clinical Psychology*, 76(1), 22-27. DOI:10.1037/0022-006X.76.1.22

Lester, D. (2009). Theories of attempted suicide: Should they differ from theories of completed suicide? *Clinical Neuropsychiatry*, 6(4), 188-191.

Linehan, M. M., Goodstein, J. L., Nielsen, S. L., & Chiles, J. A. (1983) Reasons for staying alive when you are thinking of killing yourself: The reasons for living inventory. *Journal of Consulting and Clinical Psychology*, 51(2), 276-286.

DOI:0022.006X/83/5102-0276.

Muehlenkamp, J. J. & Brausch, A. M. (2012). Body image as a mediator of non-suicidal self injury in adolescents. *Journal of Adolescence*, 35, 1-9.

DOI:10.1016/j.adolescence.2011.06.010

- Muehlenkamp, J. J. & Gutierrez, P. M. (2007). Risk for suicide attempts among adolescents who engage in non-suicidal self-injury. *Archives of Suicide Research, 11*, 69-82. DOI:10.1080/13811110600992902
- National Center for Injury Prevention and Control (2012). *WISQARS Leading Causes of Death, National and Regional, 1999-2009* [Data file]. Retrieved from http://www.cdc.gov/injury/wisqars/leading_causes_death.html
- Nock, M. K. (2009). Why do people hurt themselves? New insights into the nature and functions of self-injury. *Current Directions in Psychological Science, 18*, 78-83. DOI:10.1111/j.1467-8721.2009.01613.x
- Nock, M. K., Borger, G., Bromet, E. J., Alonso, J., Angermeyer, M., Beautrais, A., . . . Williams, D. (2008). Cross-national prevalence and risk factors for suicidal ideation, plans and attempts. *The British Journal of Psychiatry, 192*, 98-105. DOI:10.1192/bjp.bp.107.040113
- Nock, M. K., Joiner, T. E., Gordon, K. H., Lloyd-Richardson, E., & Prinstein, M. J. (2006). Nonsuicidal self-injury among adolescents: Diagnostic correlates and relation to suicide attempts. *Psychiatry Research, 144*, 65–72. DOI:10.1016/j.psychres.2006.05.010
- Nock, M. K. & Prinstein, M. J. (2004). A functional approach to the assessment of self mutilative behavior. *Journal of Consulting and Clinical Psychology, 72*, 885-890. DOI:10.1037/0022-006X.72.5.885
- Nunnally, J. C. (1978). *Psychometric theory*. (2nd ed.). New York, NY: McGraw-Hill.
- Orbach, I. (1996). The role of the body experience in self-destruction. *Clinical Child Psychology and Psychiatry, 1*(4), 607-619. DOI:10.1177/1359104596014012

- Orbach, I., Feshbach, S., Carlson, G., Glaubman, H., & Gross, H. (1983). Attraction and repulsion by life and death in suicidal and normal children. *Journal of Consulting and Clinical Psychology, 51*(5), 661-670. DOI:10.1037/0022-006X.52.6.1020
- Orbach, I. & Mikulincer, M. (1998). The body investment scale: Construction and validation of a body experience scale. *Psychological Assessment, 10*(4), 415-425. DOI:1040-359Q/98/J3.00
- Osman, A., Downs, W. R., Kopper, B. A., Barrios, F. X., Baker, M. T., Osman, J. R.,...Linehan, M. M. (1998). The reasons for living inventory for adolescents (RFL-A): Development and psychometric properties. *Journal of Clinical Psychology, 54*(8), 1063-1078. DOI:10.1002/(SICI)1097-4679(199812)54:8<1063::AID-JCLP6>3.0.CO;2-Z
- Paul, E., Tsypes, A., Eidlitz, L., Ernhout, C., & Whitlock, J. (2015). Frequency and functions of non-suicidal self-injury: Associations with suicidal thoughts and behaviors. *Psychiatry Research, 225*, 276-282. DOI:10.1016/j.psychres.2014.12.026
- Preacher, K. J. & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods, 40*(3), 879-891. DOI:10.3758/BRM.40.3.879
- Ribeiro, J. D., Witte, T. K., Van Orden, K. A., Selby, E. A., Gordon, K. H., Bender, T. W., & Joiner, T. E. (2014). Fearlessness about death: The psychometric properties and construct validity of the revision to the acquired capability for suicide scale. *Psychological Assessment, 26*(1), 115-126. DOI: a0034858
- Robertson, C. D., Miskey, H., Mitchell, J., & Nelson-Gray, R. (2013). Variety of self-

- injury: Is the number of different methods of non-suicidal self-injury related to personality, psychopathology, or functions of self-injury? *Archives of Suicide Research*, 17, 33-40. DOI:10.1080/13811118.2013.748410
- Selby, E. A., Anestis, M. D., Bender, T. W., & Joiner, Jr., T. E. (2009). An exploration of the emotional cascade model of personality disorder. *Journal of Abnormal Psychology*, 118(2), 375-387. DOI:10.1037/a0015711
- Selby, E.A., Connell, L. D., & Joiner, Jr., T. E. (2010). The pernicious blend of rumination and fearlessness in non-suicidal self-injury. *Cognitive Therapy and Research*, 34, 421-428. DOI:10.1007/s10608-009-9260-z
- Solomon, R. L. (1980). The opponent-process theory of acquired motivation: The costs of pleasure and the benefits of pain. *American Psychologist*, 35, 691-712. DOI:0003-066/80/3508-0691
- Turner, B. J., Layden, B. K., Butler, S. M., & Chapman, A. L. (2013). How often, or how many ways: Clarifying the relationship between non-suicidal self-injury and suicidality. *Archives of Suicide Research*, 17, 397-415. DOI:10.1080/13811118.2013.802660
- Van Camp, I., Desmet, M., & Verhaeghe, P. (2011). Gender differences in non-suicidal self injury: Are they on the verge of leveling off? *International Conference on Behavioral, Cognitive, and Psychological Sciences*, 23, 28-34.
- Van Orden, K. A., Witte, T. K., Gordon, K. H., Bender, T. W., & Joiner, T. E., Jr. (2008). Suicidal desire and the capability for suicide: Tests of the interpersonal-psychological theory of suicidal behavior among adults. *Journal of Consulting and Clinical Psychology*, 76, 72-83. DOI:10.1037/0022-006X.76.1.7

Whitlock, J. & Knox, K. L. (2007). The relationship between self-injurious behavior and suicide in a young adult population. *Archives of Pediatric Adolescent Medicine*, *161*(7), 634-340. DOI:10.1001/archpedi.161.7.634

Appendix A

BODY INVESTMENT SCALE

Appendix

The Body Investment Scale (BIS)

Instructions for Participants

The following is a list of statements about one's experience, feelings, and attitudes of his/her body. There are no right or wrong answers. We would like to know what your experience, feelings, and attitudes of your body are. Please read each statement carefully and evaluate how it relates to you by checking the degree to which you agree or disagree with it. If you do not agree at all: circle (1). If you do not agree: circle (2). If you are undecided: circle (3). If you agree: circle (4). If you strongly agree: circle (5). Try to be as honest as you can. Thank you for your time and cooperation.

1. I believe that caring for my body will improve my well-being	1	2	3	4	5
2. I don't like it when people touch me. (R)	1	2	3	4	5
3. It makes me feel good to do something dangerous. (R)	1	2	3	4	5
4. I pay attention to my appearance.	1	2	3	4	5
5. I am frustrated with my physical appearance. (R)	1	2	3	4	5
6. I enjoy physical contact with other people.	1	2	3	4	5
7. I am not afraid to engage in dangerous activities. (R)	1	2	3	4	5
8. I like to pamper my body.	1	2	3	4	5
9. I tend to keep a distance from the person with whom I am talking. (R)	1	2	3	4	5
10. I am satisfied with my appearance.	1	2	3	4	5
11. I feel uncomfortable when people get too close to me physically. (R)	1	2	3	4	5
12. I enjoy taking a bath.	1	2	3	4	5
13. I hate my body. (R)	1	2	3	4	5
14. In my opinion it is very important to take care of the body.	1	2	3	4	5
15. When I am injured, I immediately take care of the wound.	1	2	3	4	5
16. I feel comfortable with my body.	1	2	3	4	5
17. I feel anger toward my body. (R)	1	2	3	4	5
18. I look in both directions before crossing the street.	1	2	3	4	5
19. I use body care products regularly.	1	2	3	4	5
20. I like to touch people who are close to me.	1	2	3	4	5
21. I like my appearance in spite of its imperfections.	1	2	3	4	5
22. Sometimes I purposely injure myself. (R)	1	2	3	4	5
23. Being hugged by a person close to me can comfort me.	1	2	3	4	5
24. I take care of myself whenever I feel a sign of illness.	1	2	3	4	5

Note. R = scored in the reverse direction. Copyright 1998 by Israel Orbach and Mario Mikulinccor.

Appendix B

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.**

Appendix C

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 D

Self-Harm Behavior Questionnaire (SHBQ)

A lot of people do things which are dangerous and might get them hurt. There are many reasons why people take these risks. Often people take risks without thinking about the 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, 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? YES NO
(e.g., scratched yourself with finger nails or sharp object)

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 anyone that you have 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 overnight 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
If you *didn't*, what type of reaction was there to your attempt? _____
- 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 attempt? _____

Times you talked or thought seriously about attempting suicide

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 did 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? _____

Appendix E

Reasons for Living – Adolescents (RFL-A)

Ψ Name/Code Number: _____ Sex: MF Age: _____ RFL-A

This questionnaire lists specific reasons that people sometimes have for not committing suicide, if the thought were to occur to them or if someone were to suggest it to them. Please read each statement carefully, and then choose a number that best describes how important each reason is to you for not committing suicide.

Use the scale below and circle the appropriate number in the space to the right of each statement. Please use the whole range of choices so as not to rate only at the middle (2, 3, 4, 5) or only at the extremes (1, 6).

How important to you is this reason for not committing suicide?

1 = Not at all important
 2 = Quite unimportant
 3 = Somewhat unimportant
 4 = Somewhat important
 5 = Quite important
 6 = Extremely important

	1	2	3	4	5	6
1. Whenever I have a problem, I can turn to my family for support or advice.	1	2	3	4	5	6
2. It would be painful and frightening to take my own life.	1	2	3	4	5	6
3. I accept myself for what I am.	1	2	3	4	5	6
4. I have a lot to look forward to as I grow older.	1	2	3	4	5	6
5. My friends stand by me whenever I have a problem.	1	2	3	4	5	6
6. I feel loved and accepted by my close friends.	1	2	3	4	5	6
7. I feel emotionally close to my family.	1	2	3	4	5	6
8. I am afraid to die, so I would not consider killing myself.	1	2	3	4	5	6
9. I like myself just the way I am.	1	2	3	4	5	6
10. My friends care a lot about me.	1	2	3	4	5	6
11. I would like to accomplish my plans or goals in the future.	1	2	3	4	5	6
12. My family takes the time to listen to my experiences at school, work, or home.	1	2	3	4	5	6
13. I expect many good things to happen to me in the future.	1	2	3	4	5	6
14. I am satisfied with myself.	1	2	3	4	5	6
15. I am hopeful about my plans or goals for the future.	1	2	3	4	5	6
16. I believe my friends appreciate me when I am with them.	1	2	3	4	5	6
17. I enjoy being with my family.	1	2	3	4	5	6
18. I feel that I am an OK person.	1	2	3	4	5	6
19. I expect to be successful in the future.	1	2	3	4	5	6
20. The thought of killing myself scares me.	1	2	3	4	5	6
21. I am afraid of using any method to kill myself.	1	2	3	4	5	6
22. I can count on my friends to help if I have a problem.	1	2	3	4	5	6
23. Most of the time, my family encourages and supports my plans or goals.	1	2	3	4	5	6
24. My family cares about the way I feel.	1	2	3	4	5	6
25. My future looks quite hopeful and promising.	1	2	3	4	5	6
26. I am afraid of killing myself.	1	2	3	4	5	6
27. My friends accept me for what I really am.	1	2	3	4	5	6
28. I have many plans I am looking forward to carrying out in the future.	1	2	3	4	5	6
29. I feel good about myself.	1	2	3	4	5	6
30. My family cares a lot about what happens to me.	1	2	3	4	5	6
31. I am happy with myself.	1	2	3	4	5	6
32. I would be frightened or afraid to make plans for killing myself.	1	2	3	4	5	6

copyright © 1996 Osman, Downs, Koppell, Besser, Barrios and Linehan