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The Relationship Between Nonsuicidal Self-Injury and Attempted Suicide: Converging Evidence From Four Samples

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Theoretical and empirical literature suggests that nonsuicidal self-injury (NSSI) may represent a particularly important risk factor for suicide. The present study examined the associations of NSSI and established suicide risk factors to attempted suicide in four samples: adolescent psychiatric patients (n = 139), adolescent high school students (n = 426), university undergraduates (n = 1,364), and a random-digit dialing sample of United States adults (n = 438). All samples were administered measures of NSSI, suicide ideation, and suicide attempts; the first three samples were also administered measures of depression, anxiety, impulsivity, and borderline personality disorder (BPD). In all four samples, NSSI exhibited a robust relationship to attempted suicide (median *Phi* = .36). Only suicide ideation exhibited a stronger relationship to attempted suicide (median *Phi* = .47), whereas associations were smaller for BPD (median r_{pb} = .29), depression (median r_{pb} = .24), anxiety (median r_{pb} = .16), and impulsivity (median r_{pb} = .11). When these known suicide risk factors and NSSI were simultaneously entered into logistic regression analyses, only NSSI and suicide ideation maintained significant associations with attempted suicide. Results suggest that NSSI is an especially important risk factor for suicide. Findings are interpreted in the context of Joiner's interpersonal-psychological theory of suicide; specifically, NSSI may be a uniquely important risk factor for suicide because its presence is associated with both increased desire and capability for suicide.

Keywords: suicide, nonsuicidal self-injury, risk assessment

Nonsuicidal self-injury (NSSI; e.g., cutting, burning) refers to the intentional destruction of one's own body tissue without suicidal intent and for purposes not socially sanctioned (Klonsky & Olino, 2008; Klonsky, Oltmanns, & Turhkeimer, 2003; Nock & Favazza, 2009). Rates of NSSI are estimated at 4–6% in the adult general population and 20% in adult patient populations (Briere & Gil, 1998; Klonsky, 2011; Klonsky et al., 2003). However, NSSI appears to be disproportionately prevalent in adolescents and young adults: approximately 14–17% of adolescents and young adults report having self-injured (Whitlock, Eckenrode, & Silverman, 2006), and rates approach 40% or higher in adolescent inpatient samples (DiClemente, Ponton, & Hartley, 1991; Klonsky & Muehlenkamp, 2007). Because NSSI has been observed to occur in a variety of diagnostic contexts, and because NSSI itself is associated with distress and impairment irrespective of co-occurring diagnosis (Klonsky & Olino, 2008; Nock, Joiner, Gordon, Lloyd-Richardson, & Prinstein. 2006), NSSI has been proposed as its own behavioral syndrome for the next edition of the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-5*) (Shaffer & Jacobson, 2009).

NSSI and Suicide

The relationship between NSSI and attempted suicide is complex. On the one hand, the two behaviors often co-occur (Klonsky & Muehlenkamp, 2007; Nock et al., 2006; Whitlock et al., 2006) and share a salient surface-level similarity in that they are both forms of self-inflicted physical violence. For this reason, some researchers have regarded all forms of self-injurious behavior as falling along a suicidal spectrum regardless of intent (Hawton, Rodham, Evans, & Weatherall, 2002). On the other hand, NSSI and attempted suicide have important differences. For example, the behaviors differ in terms prevalence (NSSI is more prevalent), frequency (NSSI is often performed dozens or hundreds of times whereas suicide attempts are typically performed once or a few times), methods (cutting and burning are more characteristic of NSSI whereas self-poisoning is more characteristic of attempted suicide), severity (NSSI rarely causes medically severe or lethal injuries), and functions (NSSI is performed without intent to die, and sometimes as an attempt to avoid suicidal urges) (CDC, 2010; Favazza, 1998; Klonsky, 2007; Klonsky & Muehlenkamp, 2007; Muehlenkamp, 2005). A primary aim of the *DSM-5* proposal is to highlight these distinctions between NSSI and attempted suicide (Shaffer & Jacobson, 2009).

Accurately characterizing the relationship between NSSI and attempted suicide—both their distinctiveness and overlap—is es-

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sential for research and intervention. There is concern that the historical tendency to classify or misidentify NSSI as attempted suicide has led to inaccurate epidemiological estimates of suicidal behaviors (Shaffer & Jacobson, 2009). In clinical settings, mistaking NSSI for attempted suicide can lead to unnecessary and potentially iatrogenic hospitalizations, inaccurate case conceptualization and treatment planning, and misallocation of valuable emergency resources. At the same time, a perspective that overemphasizes the behaviors' independence and ignores potential comorbidity between NSSI and attempted suicide could mean ignoring a valuable indicator of suicide risk. The proposed research was designed to address this need.

There are both theoretical and empirical reasons why NSSI may represent a particularly robust risk factor for attempted suicide. Joiner's interpersonal theory of suicide (2005; Van Orden et al., 2010) states that a suicide attempt requires both the desire and capability for suicide. Unlike risk factors such as depression, which confers increased desire but not capability for a suicide attempt, or risk factors such as access to firearms, which confers increased capability but not desire, NSSI may be relatively unique among suicide risk factors in that it serves as a marker for both increased desire and capability. Specifically, NSSI is associated with elevated emotional and interpersonal distress (Klonsky & Olino, 2008; Klonsky et al., 2003; Klonsky & Muehlenkamp, 2007), which increases the likelihood of suicide ideation (i.e., desire), and NSSI facilitates habituation to self-inflicted violence and pain, which increases the ability to attempt suicide (i.e., capability) (Nock et al., 2006). Indeed, two recent studies found that NSSI prospectively predicted attempted suicide more strongly than other suicide risk factors (Asarnow et al., 2011; Wilkinson, Kelvin, Roberts, Dubicka, & Goodyer., 2011). Elucidating the relation of NSSI to attempted suicide is essential for both research and treatment.

Study Aims

Our primary aim was to determine the strength of the association between NSSI and attempted suicide. The use of four diverse samples—adolescent psychiatric patients, adolescent high school students, university undergraduates, and a random-digit dialing sample of U.S. adults—enhances the generalizability of results and helps ensure that findings are broadly relevant for theoretical and clinical models of suicide risk.

In addition, we compared the association between attempted suicide and NSSI to the associations between attempted suicide and established suicide risk factors, specifically suicide ideation, depression, anxiety, impulsivity, and borderline personality disorder (BPD) symptoms. These analyses help clarify the importance of NSSI for conferring suicide risk relative to known suicide risk factors. We chose suicide ideation, depression, anxiety, impulsivity, and BPD as comparison variables for two reasons. First, they are highlighted in published guidelines for conducting suicide risk assessments (American Psychiatric Association, 2006; Rudd et al., 2006). Second, they are indicators of emotional distress and personality pathology, which are correlates of both NSSI and attempted suicide, and could potentially account for the relationship between the two behaviors.

Method

The present study utilized data from four separate samples. IRB approval was received from all relevant institutions before data collection commenced. In all four samples attempted suicide, suicide ideation, and NSSI were assessed; in addition, depression, anxiety, impulsivity, and BPD were assessed in samples 1–3. The sample sizes and specific measures for each sample are described below.

Sample 1. Adolescent Psychiatric Inpatients

Participants

Participants were 171 adolescent psychiatric patients (consecutive admissions to adolescent inpatient and partial hospitalization units at South Oaks Hospital in Amityville, NY). Adolescents were only excluded if they were unable to complete the protocol due to severe psychosis, aggressive behavior, cognitive deficits, or suicide-related behavior that the staff deemed too extreme to participate in the study. Permission from parents/guardians of participants was obtained at the time of admission to the facility, and assent was obtained before measures were administered. Participants were 70% female, 61% Caucasian, 21% Hispanic, 12% African American, with a mean age of 15.1 (SD = 1.4). Fifty-nine percent reported NSSI; the most common forms were cutting and banging/hitting, endorsed by 86% and 53%, respectively, of those reporting NSSI. Sixty percent of participants reported a history of suicide ideation, and 40% reported a suicide attempt.

Measures

Suicide ideation and attempts. The Youth Risk Behavior Survey (YRBS; Brener et al., 2002) was developed by the U.S. Centers for Disease Control to assess health-risk behaviors, including suicidality. A history of suicide ideation is measured by the item: "Have you ever seriously thought about killing yourself?" A history of attempted suicide is measured by the item: "Have you ever tried to kill yourself?" The YRBS also includes items assessing 12-month ideation and attempts, as well as medical severity of attempts. YRBS suicide questions have good reliability and validity (Brener et al., 2002; May & Klonsky, 2011).

Nonsuicidal self-injury. The Inventory of Statements About Self-injury (ISAS; Klonsky & Glenn, 2009; Klonsky & Olino, 2008) assesses the lifetime frequency of 12 different NSSI behaviors performed "intentionally (i.e., on purpose) and without suicidal intent (i.e., not for suicidal reasons)." These behaviors include banging/hitting self, biting, burning, carving, cutting, wound picking, needle-sticking, pinching, hair pulling, rubbing skin against rough surfaces, severe scratching, and swallowing chemicals. The ISAS behavioral scales have demonstrated good reliability and validity (Klonsky & Olino, 2008).

Depression and anxiety. The MINI International Neuropsychiatric Interview is a reliable and valid structured interview (Sheehan et al., 1998) of Axis I psychopathology. Interviews were conducted by a clinical psychology doctoral student trained to reliability (i.e., rs $>$ .90 with other trained interviewers). The MINI major depression diagnosis was utilized to index depression, and the MINI generalized anxiety disorder diagnosis was utilized

to index anxiety. We chose GAD as opposed to other anxiety disorder diagnoses because we felt it was the best indicator of the general construct of anxiety.

Impulsivity. The UPPS impulsive behavior scale (Whiteside & Lynam, 2001) is a 45-item self-report measure of four distinct personality pathways to impulsive behavior: Urgency (tendency to give in to strong impulses when experiencing intense negative emotions), Perseverance (ability to persist in completing jobs or obligations despite boredom or fatigue), Premeditation (ability to think through potential consequences of behavior before acting), and Sensation Seeking (preference for excitement and stimulation). The UPPS scale has strong psychometric properties (Whiteside & Lynam, 2001). The total UPPS score was utilized to index an overall disposition for impulsive behaviors.

Borderline personality disorder. The Structured Interview for *DSM–IV* Personality (SIDP-IV) is a validated structured interview assessing personality disorders (Pfohl, Blum, & Zimmerman, 1997). Interviews were conducted by a clinical psychology doctoral student trained to reliability (i.e., rs $> .90$ with other trained interviewers). Scores for the BPD items were summed to provide a dimensional measure of BPD; the suicide/self-injury criterion was omitted to avoid confounding results.

Sample 2. Community Sample of Adolescents

Participants

Participants were 428 students from a large high school east of New York City. Parental/guardian consent and adolescent assent were obtained for all participants. Participants were 61% female, 53% Caucasian, 19% Hispanic, 15% Asian, 11% African American, and 3% mixed racial heritage, and participants' age ranged from 13–17 (reflects age range of target population; age data were not obtained from participants). Twenty-one percent reported NSSI; the most common forms of NSSI were cutting and banging/hitting, endorsed by 52% and 56%, respectively, of those reporting NSSI. Sixteen percent of participants reported a history of suicide ideation, and 5% reported a suicide attempt.

Measures

Suicide ideation and attempts. Same measure as for Sample 1.

Nonsuicidal self-injury. Same measure as for Sample 1, except that only seven rather than 12 NSSI behaviors were assessed: banging/hitting self, biting, burning, carving, cutting, rubbing skin against rough surfaces, and severe scratching (the following were not assessed: hair pulling, needle-sticking, pinching, swallowing chemicals, wound picking).

Depression and anxiety. The Patient Health Questionnaire–Adolescent Version (PHQ-A; Johnson, Harris, Spitzer, & Williams, 2002) is a self-report questionnaire developed by the authors of the Structured Clinical Interview for *DSM–IV* (SCID-I) to assess four classes of Axis I disorders: mood, anxiety, eating, and substance/alcohol. The PHQ-A major depressive disorder items were summed to form a dimensional index of depression symptoms, and the PHQ-A generalized anxiety disorder items were summed to form a dimensional index of anxiety symptoms. As for Sample 1, we chose GAD as opposed to other anxiety disorder diagnoses because we felt it was the best indicator of the general construct of anxiety. The PHQ-A has demonstrated excellent correspondence with structured interview measures of Axis I disorders (Johnson et al., 2002).

Impulsivity. Same measure as for Sample 1 (UPPS), but a 16-item short-version developed by using the four items from each scale with the highest loadings in Whiteside and Lynam (2001). This short version has demonstrated excellent psychometric properties in two previous studies of NSSI and suicide (Glenn & Klonsky, 2010; Klonsky & May, 2010).

Borderline personality. The McLean Screening Instrument for Borderline Personality Disorder (MSI-BPD) is a 10-item self-report measure of BPD features that has shown excellent correspondence with diagnoses made by validated structured interview (Zanarini et al., 2003). For the present study, the suicide/self-injury criterion was omitted to avoid confounding results.

Sample 3. University Undergraduates

Participants

Participants were 1,656 university undergraduates participating in an Internet-based survey on substance use via a secure website. Upon accessing the survey, students provided informed consent. Participants were 56% female, 43% Caucasian, 35% Asian, 7% African American, 9% Hispanic, and 7% from other ethnic categories, with a mean age of 20.7 ($SD = 2.0$). Twenty percent of participants reported NSSI, 17% a history of suicide ideation, and 7% a suicide attempt.

Measures

Suicide ideation and attempts. Same measure as for Samples 1 and 2.

Nonsuicidal self-injury. An item from the Trauma Symptom Inventory that was utilized in two previous epidemiologic studies of NSSI (Briere & Gil, 1998; Klonsky, 2011) was used in the present sample: "In your lifetime, how often have you *intentionally* hurt yourself—for example, by scratching, cutting, or burning—even though you were *not trying to commit suicide*?" This question is similar to the item used in a recent epidemiologic study of NSSI in United States adults (Klonsky, 2011), except that the item in the present study used the following slightly modified response options: [a] never, [b] once, [c] twice, [d] 3–5 times, [e] 6–9 times, [f] 10 or more times. Data on specific NSSI methods were not obtained.

Depression and anxiety. Same measures as for Sample 2.

Impulsivity. Same measure as for Sample 2.

Borderline personality. Same measure as for Sample 2.

Sample 4. Random-Digit Dialing Sample of United States Adults

Participants

Participants were 439 U.S. adults recruited via an equal-probability random-digit dialing procedure as part of an epidemiologic study of NSSI (Klonsky, 2011). Participants were 61% female, 86% Caucasian, 6% African American, 3% Hispanic/Latino, 1% Asian American, and 1% Native American, and mean

age was 55.5 (SD = 16.6). Six percent reported NSSI; the most common forms were cutting and scratching, each endorsed by 35% of those who reported NSSI. Seventeen percent of participants reported a history of suicide ideation, and 3% reported a suicide attempt.

Measures

Suicide ideation and attempts. Suicide ideation and attempts were assessed with the following items utilized in the National Comorbidity Survey (Kessler, Borges, & Walters, 1999): "Have you ever seriously thought about committing suicide?" and "Have you ever attempted suicide?"

Nonsuicidal self-injury. Same measure as in Sample 3, except with the following slightly modified response options: [a] 0 times, [b] between 1 and 4 times, [c] between 5 and 9 times, [d] between 10 and 50 times, [e] more than 50 times.

The additional clinical variables assessed in Samples 1, 2, and 3—depression, anxiety, impulsivity, and BPD—were not assessed in Sample 4.

Data Analysis

The same analytic procedures were utilized for all samples so that results are comparable across samples. NSSI, attempted suicide, and suicide ideation were each treated as dichotomous variables (present if any lifetime instance was reported). Phi coefficients were utilized to examine associations between dichotomous variables, and point-biserial correlations were used to examine associations between dimensional and dichotomous variables. Coefficient alpha for all dimensional measures exceeded .74 (details on internal consistencies, descriptive statistics, and intercorrelations for all study variables are available from the corresponding author). Only participants with complete suicide data were included in analyses; thus, inclusion rates were 81.3% for Sample 1 (n = 139), 98.4% for Sample 2 (n = 426), 81.6% for Sample 3 (n = 1,351), and 99.8% for Sample 4 (n = 438).

Results

We first examined the association of attempted suicide to NSSI, suicide ideation, depression, anxiety, impulsivity, and BPD. Complete results are presented in Table 1. For the relation of NSSI to attempted suicide, *Phi* ranged from .28 (undergraduates) to .50 (adolescent psychiatric patients), with a median of .36. This was slightly smaller in magnitude than the effect size for suicide ideation (median *Phi* = .47), but larger than the effect sizes for BPD (median r_{pb} = .29), depression (median r_{pb} = .24), anxiety (median r_{pb} = .16), and impulsivity (median r_{pb} = .11).

Next, following the procedures of Steiger (1980), we examined whether the association between NSSI and attempted suicide varied by gender (see Table 2). For the high school sample, the association between NSSI and attempted suicide was higher for girls (.46) than for boys (.22), p = .007. The association did not vary significantly by gender in each of the other three samples.

Finally, we utilized simultaneous logistic regressions to examine the unique contributions of NSSI, suicide ideation, BPD, depression, anxiety, and impulsivity in the prediction of attempted suicide. (Sample 4 was excluded because it lacked measures of BPD, depression, anxiety, and impulsivity.) Complete results are presented in Table 3. Notably, in all three samples, only NSSI and suicide ideation retained statistically significant unique associations with attempted suicide (all ps < .05).

Discussion

This study examined the relationship between NSSI and attempted suicide in four samples: adolescent psychiatric patients, adolescent high school students, university undergraduates, and U.S. adults. In all four samples, NSSI exhibited a reliable and moderate relationship with attempted suicide. This relationship was slightly smaller than that of suicide ideation to attempted suicide, and larger than the relationships of depression, anxiety, impulsivity, and BPD to attempted suicide. When all risk factors were simultaneously entered into a logistic regression, only NSSI and suicide ideation maintained a unique relationship with attempted suicide. Taken together, findings suggest that the relationship of NSSI to attempted suicide is particularly strong, second in magnitude only to suicide ideation.

Joiner's interpersonal theory of suicide (Joiner, 2005; Van Orden et al., 2010) provides one useful context for interpreting these results. According to this theory, attempting suicide requires both the desire and capability to attempt suicide. NSSI may stand out

Table 1
Relation of Nonsuicidal Self-Injury (NSSI) and Other Suicide Risk Factors to Lifetime Attempted Suicide in Four Samples

	Adolescent psychiatric patients (n = 139)	Adolescent community sample (n = 426)	University undergraduates (n = 1,351)	Random-digit dialing United States adults (n = 438)
Predictor				
Suicide ideation	.55	.51	.44	.36
NSSI	.50	.38	.28	.34
Depression	.20	.24	.24	n/a
Anxiety	.16	.18	.16	n/a
Impulsivity	.11	.11	.10	n/a
Borderline personality	.37	.29	.22	n/a

Note. Point-biserial correlations are presented for dimensional predictors of attempted suicide, and phi coefficients are presented for dichotomous predictors. All effect sizes reported are statistically significant at p < .05 except for the .11 (Impulsivity) in the adolescent psychiatric sample.

Table 2
Relation of Nonsuicidal Self-Injury (NSSI) to Attempted Suicide for Females vs. Males

	Adolescent psychiatric patients (n = 139)	Adolescent high school students (n = 426)	University undergraduates (n = 1,351)	Random-digit dialing United States adults (n = 438)	*Median Phi*
Gender					
Female	.52	.46	.26	.38	*.42*
Male	.35	.22	.29	.28	*.29*
p*	.25	.007	.55	.23	

* p-value indicates statistical significance for the difference between phi coefficients for females vs. males

among risk factors for suicide because it correlates with both suicidal desire and capability: NSSI indicates heightened risk for suicidal desire through its association with emotional and interpersonal distress (Klonsky et al., 2003; Klonsky & Muehlenkamp, 2007; Klonsky & Olino, 2008), and NSSI raises capability by allowing individuals to habituate to self-inflicted pain and violence (Nock et al., 2006). In short, when it comes to suicide risk, NSSI may represent "double trouble" (term suggested by B. Walsh, personal communication, April 22, 2010) in that it confers risk for both suicidal desire and capability.

Other interpretations also warrant consideration. For example, general tendencies toward harmful behaviors and emotion dysregulation may represent third variables contributing to the NSSI–suicide relationship. However, it is notable that NSSI maintained a relationship to attempted suicide above and beyond the other constructs examined, given that the measures of these constructs include items related to harmful behaviors and emotion dysregulation. Another potential third variable is shame. Shame is often present in both NSSI and attempted suicide (Brown, Linehan, Comtois, Murray, & Chapman, 2009), and is reflected in the self-punishment motivations commonly endorsed for both behaviors (Brown, Comtois, & Linehan, 2002). It will be important for future research to address these and other potential third variables, especially those associated with both emotion dysregulation and bodily harm, such as eating and substance disorders.

Findings also suggest that NSSI confers risk for attempted suicide across different sociodemographic and clinical groups. The present study found strong relationships between NSSI and attempted suicide in both adolescents and adults, men and women, and treatment and community populations, suggesting results are likely to be generalizable across diverse populations. Interestingly, in the adolescent community sample, the association was stronger for girls than boys. We speculate that NSSI more strongly increases capability to attempt suicide for adolescent girls than boys. Adolescent boys engage in a larger quantity and variety of risky and harmful behaviors as compared to girls (e.g., fighting, substance use; Brener & Collins, 1998; Wu, Rose, & Bancroft, 2006). Thus, for boys, NSSI is just one of many ways to acquire capability. In contrast, because adolescent girls engage in fewer health-risk behaviors, engagement in NSSI during this developmental period may have a particularly profound effect on capability. Future research should continue to explore whether the relation of NSSI to attempted suicide varies by gender, as well as other psychosocial variables such as ethnicity, age, socioeconomic status, and psychiatric diagnosis. Future studies should also examine characteristics of NSSI that most strongly indicate suicide risk; for example, one study found that different NSSI methods, contexts, and functions were differentially related to suicidality (Klonsky & Olino, 2008), and another found that number of NSSI methods used predicted elevated suicidality (Nock et al., 2006).

A key limitation of the present study is the retrospective, cross-sectional design. Establishing the temporal relationship between NSSI and attempted suicide requires prospective research. However, because the onset of NSSI typically occurs around ages 13 or 14 (Klonsky & Muehlenkamp, 2007), which is approximately 10 years earlier than the average onset of attempted suicide (Kessler

Table 3
Logistic Regression Analyses Examining Unique Contributions of Nonsuicidal Self-Injury (NSSI) and Known Suicide Risk Factors to the Prediction of Attempted Suicide

	Adolescent psychiatric patients (n = 139)		Adolescent community sample (n = 426)		University undergraduates (n = 1,351)	
Predictor	Wald's χ^2	p	Wald's χ^2	p	Wald's χ^2	p
Suicide ideation	15.4	<.001	10.7	.001	59.7	<.001
NSSI	3.99	.046	7.11	.008	9.70	.002
Depression	0.01	.92	0.33	.57	0.57	.45
Anxiety	0.35	.55	0.64	.43	0.46	.50
Impulsivity	0.18	.67	0.12	.73	0.57	.45
Borderline personality	2.05	.16	1.78	.18	0.04	.84

Note. For each sample, predictor variables were entered simultaneously into a logistic regression predicting attempted suicide. The table presents the unique effects for each predictor (df = 1).

et al., 1999), we suggest that NSSI typically precedes suicide attempts and may be an especially important predictor of future suicide attempts. Notably, two recent prospective studies of depressed adolescents support our conceptualization: both found that NSSI predicted future suicide attempts more strongly than other suicide risk factors (Asarnow et al., 2011; Wilkinson et al., 2011; for comment see Brent, 2011). Interestingly, both studies also found that suicide attempts were a poor predictor of subsequent NSSI, suggesting that NSSI increases risk for attempted suicide, but attempted suicide does not increase risk for NSSI.

Findings from the present study have important clinical implications. Guidelines for suicide risk assessment often highlight variables such as depression, anxiety, impulsivity, and BPD (American Psychiatric Association, 2006; Rudd et al., 2006). However, NSSI appears to predict attempted suicide more strongly than these risk factors (also see Andover & Gibb, 2010). In addition, NSSI is common in treatment-seeking populations (Briere & Gil, 1998; Nock et al., 2006). Therefore, we recommend that suicide risk assessment guidelines be revised to emphasize NSSI at least as much as other psychological risk factors for suicide.

It is also important that research examine in more detail the relation of NSSI to suicidality. The present study examined suicide attempts as a dichotomous outcome. However, not all suicide attempts are the same. If NSSI increases capability for self-inflicted pain and violence, it is likely that histories of NSSI would facilitate suicide attempts that are more violent, dangerous, and potentially fatal (see Andover & Gibb, 2010). Future research should investigate whether NSSI increases medical severity and lethality of suicide attempts.

A final limitation of the current study is the use of self-report measures of NSSI and suicide attempts. These measures rely on participants' judgments about suicidal intent. Future research utilizing interviews administered by experts can help determine if our findings generalize across different assessment methods.

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