

BRIEF REPORT

Non-Suicidal Self-Injury (NSSI) Disorder: A Preliminary Study

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Non-suicidal self-injury (NSSI) disorder has been suggested for inclusion into the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM-5*; American Psychiatric Association, in preparation), yet there is concern that NSSI is primarily a function of high borderline personality disorder (BPD) symptoms. The purpose of this study was to examine the characteristics of NSSI disorder and compare it to BPD and other *DSM* Axis I diagnoses commonly seen in clinical practice to aid in the determination of whether NSSI should be considered a separate, valid diagnostic entity. Chart data were analyzed from the screening, intake, and termination information of 571 treatment-seeking patients in a general practice clinic. Patients were classified into one of three groups: NSSI without BPD, BPD (with and without NSSI) or a comparison condition for those who did not meet criteria for the first 2 groups. Participants in these 3 groups were compared on functioning at intake, psychopathology, and diagnostic co-occurrence. Results indicated important group differences regarding diagnostic co-occurrence rates, patient history of associated features, and impairment at intake. The NSSI group displayed similar levels of functional impairment as the BPD group, including on indices of suicidality. The BPD group reported increased experiences with abuse and fewer men relative to the NSSI group. Most in the NSSI group did not exhibit subthreshold BPD symptoms or personality disorder not otherwise specified. In conclusion, a potential NSSI disorder may be characterized by high levels of depressive symptoms, anxiety, suicidality, and low functioning relative to other Axis I diagnoses.

Keywords: self-injury, self-harm, borderline personality disorder, *DSM-5*

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Non-suicidal self-injury (NSSI) refers to deliberately inflicting damage, pain, or both to one's bodily tissue without suicidal intent (Nock & Favazza, 2009). Although NSSI is a diagnostic criterion for borderline personality disorder (BPD), it is a behavior that can be found in the absence of a BPD diagnosis and is prevalent in approximately 4% of adults in the United States (Briere & Gil, 1998). It is an even more frequent problem in adolescent populations (Jacobson et al., 2008; Nock, Joiner, Gordon, Lloyd-Richardson, & Prinstein, 2006). Given the prevalence of NSSI, and the findings that it is often present in individuals who are not diagnosed with BPD and have a range of other Axis I disorders (Klonsky, 2007), it is possible that individuals engaging in NSSI may belong to a distinct diagnostic category.

There have been several calls to create a distinct diagnostic category for a NSSI disorder in the last 3 decades (Favazza & Rosenthal, 1990; Muehlenkamp, 2005; Pattison & Kahan, 1982), and a *DSM* workgroup has published a proposal for establishing NSSI disorder and NSSI disorder not otherwise specified (NOS) in the upcoming *DSM-5* (Shaffer & Jacobson, 2009). The proposed primary diagnostic criteria for NSSI disorder include: the presence of five or more instances of NSSI over the past year, and the presence of two of the following motivations: stress reduction, difficulty resisting NSSI impulses, frequent urges to engage in NSSI, and/or the behavior is engaged in for emotional-cognitive or social functions. If individuals fail to meet these criteria, they are diagnosed with NSSI disorder NOS.

The calls for the creation of an NSSI disorder also exist within the broader dilemma of how do we delineate any new mental disorder for inclusion into the *DSM-5*? A mental disorder, according to the current *DSM-5* working definition (www.dsm5.org; Stein et al., 2010), includes features such as behavioral patterns that reflect an underlying psychological dysfunction, which subsequently results in clinically significant consequences, including distress beyond a common response to stress or loss. It is important to note that this behavioral pattern should not be primarily a result of individual nonconformation with society. Other important considerations noted for the *DSM-5* in considering the definition of a disorder include establishment of antecedent, concurrent, and predictive diagnostic validators, clinical utility, differentiation from diagnostic "neighbors," and the potential benefits of creating the diagnosis (i.e., better patient care, stimulation of research, etc.) must outweigh the potential harms (i.e., misclassification). These modern suggestions also build upon historical perspectives on the validation of novel diagnostic categories. For example, Robbins and Guze (1970) have delineated five phases of research that should be approached for the development of diagnostic validity for a new disorder: (a) clinical description, (b) laboratory studies, (c) delimitation from other disorders, (d) follow-up studies, and (e) family studies. Research on a novel disorder should attempt to address each of these stages. Although no one study can fully satisfy all the phases for validating an NSSI disorder, nor can

one study satisfy the *DSM-5* definition of a disorder, evidence can be generated that may or may not support portions of these descriptions. However, even if limited in scope, preliminary studies of diagnostic validity can serve as guides for future studies to further explore the diagnostic potential of the new disorder.

At this time, research on NSSI has provided some evidence for the aforementioned features-stages of validity for establishment of a disorder. For example, NSSI often occurs in those without high BPD symptoms, and it is often associated with high levels of distress and impairment at levels similar to that of other Axis I disorders, and more frequent NSSI is associated with lower overall functioning (Klonsky & Olinio, 2008). It is important to note that those exhibiting NSSI often demonstrate increased suicidal behavior, with one study revealing that 70% of adolescents who engaged in NSSI also reported having at least one suicide attempt (Nock et al., 2006). Finally, various theories of dysfunction have been generated to explain the psychopathological function of NSSI (Klonsky, 2007). Thus, some evidence has been generated in regard to the clinical description of a potential NSSI disorder, and follow-up studies have found problematic outcomes of engaging in NSSI, particularly suicidal behavior. This means that NSSI is a major public health concern rather than simply individual nonconformation with societal norms. Furthermore, the creation of an NSSI disorder would seem to have more benefits than cause harm, including by stimulating new research and potentially improving patient care with a more specific diagnosis than current broad diagnostic categories that might be used, such as personality disorder not otherwise specified (PDNOS).

Although these previous studies help build a picture of a potential NSSI disorder, to our knowledge no studies have been done comparing groups of people engaging in NSSI but without BPD to those with BPD and other clinical groups. More research specifically targeted on these differences would contribute to the potential diagnostic validity of NSSI disorder in relation to its diagnostic neighbors. The following study focused on contributing to the understanding of a potential NSSI by providing new information about the overall clinical description of a potential NSSI disorder relative to individuals other Axis I disorders or BPD. In

this study we reviewed and compared the charts of treatment-seeking individuals who engaged in NSSI to a BPD group as well as a comparison group with various Axis I diagnoses. The three groups were compared on measures of global functioning and psychopathology (e.g., depression, anxiety), and diagnostic co-occurrence rates.

Method

Participants

Participants in this study consisted of 571 adult outpatients (53% female) from a university-based general psychology clinic who were admitted for services between January 2001 and December 2007. Patients served by the clinic come primarily from the surrounding community, although some patients are also from the university. All patients understood and agreed to the research and training environment at the clinic at the time they applied for services, and this study was approved by the university institutional review board. Criteria for inclusion into the NSSI group ($N = 65$) are described below. The BPD group met criteria for a diagnosis of BPD ($N = 24$; approximately 54% reported NSSI). The comparison group ($N = 482$) consisted of all other adult patients in the clinic database who did not endorse self-injury and were not assigned a diagnosis of BPD.

Clinical Assessment

All patients in the general psychology clinic completed screening measures prior to receiving services; after the screening they were assigned to a separate therapist who is responsible for administering a psychological history, formulating diagnoses, and treatment. Assessment and therapy at this clinic are conducted by graduate students who are working toward their doctoral degree in clinical psychology. Each student receives 2–3 hr per week of supervision from a licensed clinical psychologist who provides input on the assigned diagnoses. All assessors—therapists are required to pass a practice diagnostic exam, using structured clinical interviews to diagnose Axis I and II disorders before they can start in the clinic, as well as exams on therapy

and clinic policies and procedures (e.g., emergency procedures) and ethics.

Measures

Measures obtained during patient preintake screening.

Number of previous treatments. All patients were asked how many times they had been in therapy, seen a mental health professional, or sought medication for their psychological symptoms.

Beck Depression Inventory II (BDI-II; Beck, Steer, & Brown, 1996). The BDI is a self-report measure that consists of 21 items used to assess depressive symptoms. Participants use a Likert-type scale (0–3) to report the degree to which the different items describe their symptoms over the course of the past 2 weeks. The alpha for this scale in this sample was .89.

Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988). The BAI is a self-report measure that consists of 21 items. Each item uses a Likert-type scale (0–3) with which participants indicate to what degree particular symptoms of anxiety have applied to them over the course of the past 2 weeks. The Cronbach's alpha for the BAI in this sample was .90.

Beck Scale for Suicide Ideation (BSS; Beck, Steer, & Ranieri, 1988; Beck & Steer, 1993). This is a 21-item self-report measure of suicidal ideation and intent in the last week. Psychometric properties assessed with an outpatient sample suggest good internal consistency ($\alpha = .87$) and test-retest reliability ($r = .54$). The BSS had alpha of .94 in this sample.

Number of suicide attempts. As a part of their history of suicidal behavior, participants were asked about the number of times that they have attempted suicide. The answer to this question was rated at a count variable using the following scale: 0 = no suicide attempts, 1 = only one suicide attempt, 2 = more than one suicide attempt.

Time elapsed since most recent suicide attempt. All participants were asked about the time since their most recent suicide attempt. Individuals were rated as 1 (*within the last month*), 2 (*between a month ago and within the last year*), 3 (*between 1 year and 5 years ago*), 4

(over 5 years ago), and 5 (never attempted suicide).

Associated Features and Experiences. During their preintake screening all participants answered a list of questions about events or symptoms that they may have experienced. All questions were started with: "Have you experienced . . ." and were rated with dichotomous yes-no answers to indicate the presence of that experience or symptom. The following variables were explored: patient history of abuse, patient history of mood swings, patient history of recurrent conflict with others, patient experience of strange beliefs or thoughts, and patient aggression.

Measures obtained during patient first intake session.

NSSI disorder inclusion criteria. The following chart criteria were used for placement in the NSSI disorder group: (a) report of problems with self-inflicted pain, injury, or both during the last 12 months as determined by answering in the affirmative to the following question during the initial screening assessment, "Have you experienced problems with self-inflicted injury or pain, not counting suicide attempts?"; (b) the patient reporting self-injury did not meet diagnostic criteria for BPD (those who self-injured and had a BPD diagnosis were included in the BPD group); and (c) self-injury was not better accounted for by a diagnosis of mental retardation or autism spectrum disorder. Although frequency and motivation for NSSI were not assessed in this sample, all participants reported at least one instance of self-injury without suicidal intent over the last year. This is important because research suggests that even infrequent self-injury is associated with functional impairment (Klonsky & Olino, 2008). Furthermore, although some of these participants may not meet full criteria for NSSI disorder proposed by the new suggested criteria for *DSM-5*, it is likely that all would at least meet criteria for NSSI disorder NOS (Shaffer & Jacobson, 2009).

Assessment of Axis I diagnoses. Participants seen before 2005 were administered the Mini International Neuropsychiatric Interview (MINI; Sheehan, Lecrubier, & Sheehan, 1998), and those entering the clinic after September 2005 were administered the Structured Clinical Interview for the *DSM-IV* Axis I (SCID-I; First, Spitzer, Gibbon, & Williams, 1995). These two

clinical interviews have been found to have similar diagnostic prevalence rates (Jones et al., 2005). All diagnoses were grouped into the following categories: presence of past and/or current depressive disorder, dysthymia, bipolar disorder, anxiety disorder, substance abuse disorder, substance dependence disorder, eating disorder, attention-deficit/hyperactivity disorder (ADHD), stereotypic movement disorder, trichotillomania, and other impulse control disorders. Interrater reliability indices for Axis I and II diagnoses were established in a previous chart review of these patients' records. This review found that there was adequate diagnostic consensus for both Axis I and II diagnoses with reliability ranging from $\kappa = .50$ to $\kappa = .90$.

Assessment of Axis II diagnoses. Participants were administered the *Structured Clinical Interview for DSM-IV Axis II personality disorders* (SCID-II; First, Spitzer, Gibbon, & Williams, 1997) to assess for personality disorders and PDNOS. The rule-of-thumb guidelines for establishing a diagnosis of PDNOS involved a patient falling one diagnostic criterion short of the standard threshold for diagnosis (e.g., meeting four rather than five criteria for BPD, including self-injury in the symptom count). Co-occurring personality disorders (except BPD) were organized into presence of Cluster A, Cluster B, Cluster C, and PDNOS diagnoses for each patient.

Global Assessment of Functioning (GAF; American Psychiatric Association, 1994). GAF ratings assess overall patient functioning and symptom severity; they have been reliably associated with clinical diagnosis, psychiatric symptoms, and other clinical outcome ratings (Friis, Melle, Opjordsmoen, & Retterstol, 1993; Moos, McCoy, & Moos, 2000).

Clinical Global Impressions (CGI; Guy, 1976). The CGI was rated by the patient's therapist following the first intake session. Severity of the patients' illness was rated on a 7-point Likert scale, ranging from 1 (*normal*) to 7 (*among the most extremely ill*). The CGI has been demonstrated to have reasonable interrater agreement in this clinic, $\kappa = .84$ (Lyons-Reardon, Cukrowicz, Reeves, & Joiner, 2002).

Measures obtained at patient's termination of therapy.

Outcome variables. Information about the number of months that the patient spent in ther-

apy, total number of sessions attended, and *pre-mature termination* were collected. Premature termination was defined as a situation in which the patient stopped attending therapy prior to completion of treatment and against the recommendations of the therapist. A patient was determined to have appropriate termination in situations where therapy was completed, the therapist initiated termination, or there was a clear external reason for termination (e.g., moving).

Data analytic strategy. Logistic regression analyses (with indicator variables created for group comparisons) were used to examine differences in the rates of Axis I and II diagnoses, differences in the presence of associated features, and premature termination. Multivariate analyses of variance (MANOVAs) were used to compare group scores on measures of

functional impairment severity at intake (CGI, GAF, and previous number of treatments), severity of general psychopathology (BDI, BAI, BSS, no. of previous suicide attempts, and time since most recent suicide attempt), and outcome measures (months in therapy and number of therapy sessions).

Results

Preliminary Analyses

See Table 1 for group information on demographic variables. There were no significant differences among groups in age, ethnicity, educational background, or marital status. There was a significant gender difference among groups with the BPD group having a higher percentage

Table 1
Demographics and Diagnostic Co-Occurrence Rates

Variable	NSSI (N = 65)	BPD (N = 24)	Comparison (N = 482)	F(2, 550)	d
Age (M/SD)	26.3 (9.2)	24.8 (8.3)	27.6 (9.6)	1.4	—
	N (%)	N (%)	N (%)	Wald	OR
Female	33 (51) _{b1}	21 (88) _a	252 (52) _{b2}	8.8 ^{**} _{b1} , 8.3 ^{**} _{b2}	6.7 _{b1} , 6.4 _{b2}
Some college	37 (57)	19 (79)	273 (57)	ns	—
Never married	53 (82)	18 (75)	347 (72)	ns	—
Caucasian	47 (72)	19 (83)	366 (76)	ns	—
Hispanic	7 (11)	1 (5)	43 (9)	ns	—
African American	5 (8)	2 (9)	33 (7)	ns	—
Asian	3 (5)	1 (5)	16 (3)	ns	—
Native American	0 (0)	0 (0)	9 (2)	ns	—
Adjustment DO	1 (2)	1 (4)	18 (4)	ns	—
ADHD	0 (0)	0 (0)	21 (4)	ns	—
Depressive DO	27 (42) _{a1}	11 (46) _{a2}	119 (25) _b	8.0 ^{**} _{a1} , 5.0 [*] _{a2}	2.2 _{a1} , 2.6 _{a2}
Dysthymia	16 (25) _a	3 (13)	49 (10) _b	10.6 ^{**}	2.9
Anxiety DO	11 (17)	4 (17)	103 (21)	ns	—
Bipolar DO	6 (11) _a	1 (4)	11 (2) _b	7.8 ^{**}	4.4
Substance abuse	0 (0)	2 (8)	22 (5)	ns	—
Substance dependence	2 (3)	2 (8)	17 (4)	ns	—
Eating DO	1 (0)	2 (8)	13 (3)	ns	—
Cluster A	4 (6) _a	0 (0)	1 (.1) _b	9.4 ^{**}	31.5
Cluster B	2 (3)	0 (0)	14 (3)	ns	—
Cluster C	4 (1)	1 (4)	17 (4)	ns	—
PDNOS	0 (0)	0 (0)	22 (5)	ns	—
Trichotillomania	0 (0)	0 (0)	5 (1)	ns	—
Other impulse DOs	0 (0)	0 (0)	3 (.6)	ns	—
Stereotypic movement DO	0 (0)	0 (0)	5 (1)	ns	—

Note. NSSI = non-suicidal self-injury; BPD = borderline personality disorder; DO = disorder; ADHD = attention-deficit/hyperactivity disorder; PDNOS = personality disorder not otherwise specified; indicates that Cluster B diagnoses do not include BPD; ns = not statistically significant. Values with different subscripts are significantly different from each other (a > b > c).

* $p < .05$. ** $p < .01$.

of female participants than either the comparison group or the NSSI group. The comparison group demonstrated an adequate level of severity to warrant comparison to the NSSI disorder group in that the average GAF of the comparison group was 64 ($SD = 11.3$), and 37% of patients were diagnosed with depressive–bipolar disorders, 21% were diagnosed with anxiety disorders, 9% with substance use disorders, and 25% had various other disorders. Only 8% of the comparison sample had potentially less severe disorders (e.g., adjustment disorder, ADHD).

Co-Occurrence of Axis I and II Diagnoses

The percentages of co-occurrence with other Axis I and II diagnostic categories for each group are displayed in Table 1, along with odds-ratio (OR) statistics. All but one patient in the NSSI group had at least one Axis I diagnosis, but there were no group differences in total number of Axis I diagnoses. Results revealed that those with NSSI had a higher rate of mood disorder (i.e., depression, dysthymia, and bipolar disorders) and of Cluster A PDs than those in the comparison group. Those with BPD were higher than those in the comparison condition on depression only. There were no differences in comorbidity between those with NSSI and BPD. Only one patient in the NSSI group was diagnosed with PDNOS, indicating that most endorsed less than four symptoms of BPD. No members of the NSSI group were diagnosed with trichotillomania or stereotypic movement disorder.

Severity of Functional Impairment at Intake and Treatment Outcome Variables

Table 2 displays the multivariate analysis of variance (MANOVA) results (omnibus $\Lambda = .71$, $p < .01$) for group comparisons on intake CGI, GAF, and number of previous treatments. The NSSI group had a higher CGI, a lower GAF, and more previous treatments than the comparison group. The BPD group also had more functional impairment than the Comparison group on all three measures. There were no significant differences between any of the groups on number of months in therapy, ending therapy prematurely, or number of therapy sessions. There were no significant differences between the BPD group and the NSSI group.

Severity of General Psychopathology at Intake

The following measures of general psychopathology were not included as a standard part of intake data collection until a few years after the start of data collection: BDI, BAI, BSS, number of previous suicide attempts, and time since most recent suicide attempt. Accordingly, group sizes were decreased for these measures (NSSI = 34, comparison = 253, BPD = 13). However, no significant differences were found between the original groups and the reduced size groups regarding age, gender, and race.

The results are displayed in Table 2. The NSSI group had significantly worse psychopathology than the comparison group on the BDI, BAI, and BSS. The NSSI group also had a higher number of suicide attempts, and less time elapsed since the most recent suicide attempt than the comparison group. The NSSI group endorsed higher levels of anxiety on the BAI than the comparison group, whereas the BPD group did not. There were no other differences between the NSSI and BPD groups.

Associated Features

Table 2 displays the *Wald* statistics and *OR* values for associated features variables for the patients in each group. The NSSI and BPD groups reported higher rates of being a victim of abuse, experience of mood swings, recurrent conflict with others, strange beliefs or thoughts, and aggression toward others than the comparison group. It is interesting to note that the BPD group reported higher rates of being a victim of abuse than the NSSI group.

Follow-Up Analyses

Given the group differences in demographic make-up, gender in particular, it was important to ascertain whether the group differences on the outcome variables were primarily a function of these demographic differences. We explored the relationships of age and gender with the outcome variables and included these relevant covariates in the associated previous analyses. There were significant gender differences such that women had a higher number of prior treatments, $F(1, 570) = 4.5$, $p = .03$, BDI, $F(1, 299) = 10.1$, $p < .01$; and BAI, $F(1,$

Table 2
Intake Functional Impairment, Psychopathology, Associated Features, and Outcomes

Measure	NSSI (N = 65)	BPD (N = 24)	Comparison (N = 482)	F(2, 569)	d
	M (SD)	M (SD)	M (SD)		
No. Axis I diag	3.8 (1.3)	3.7 (1.6)	3.5 (1.5)	.95	—
Intake CGI	4.4 (1.2) _a	4.5 (1.0) _a	3.4 (1.4) _b	21.6**	.77
Intake GAF	53.7 (13.3) _b	56.8 (13.5) _b	64.0 (11.3) _a	24.0**	.83
Previous Tx	2.9 (1.6) _a	3.6 (1.4) _a	2.3 (1.6) _b	10.4**	.40
Months	6.1 (4.9)	5.4 (4.1)	4.9 (6.7)	1.8	—
Sessions	12.6 (13.5)	10.9 (16.9)	9.9 (9.9)	1.4	—
	N (%)	N (%)	N (%)	Wald(2)	OR
Premature termination	38 (58.5)	14 (58.3)	215 (44.6)	ns	—
	NSSI (N = 34)	BPD (N = 13)	Comparison (N = 253)	F(2, 298)	d
BDI-II	24.8 (12.9) _a	22.2 (10.2) _a	14.3 (10.6) _b	16.3**	.89
BAI	22.8 (15.2) _a	19.9 (16.8)	14.2 (11.9) _b	7.9**	.63
BSS	9.2 (11.7) _a	6.4 (8.0) _a	1.9 (4.1) _b	27.9**	.83
No. of suicide attempts	.74 (.86) _a	.92 (.86) _a	.17 (.44) _b	27.5**	.83
Time since last attempt	3.6 (1.4) _a	3.9 (1.2) _a	4.8*(.60) _b	42.4**	1.11
	NSSI (N = 65)	BPD (N = 24)	Comparison (N = 482)	Wald	OR
Abuse	18 (28) _b	15 (54) _a	75 (16) _c	5.2** _a , 5.8** _b	3.1 _a , 2.1 _b
Mood swings	53 (80) _{a1}	23 (96) _{a2}	191 (40) _b	31.2** _{a1} , 12.0** _{a2}	6.1 _{a1} , 35.0 _{a2}
Recurrent conflict with others	23 (49) _{a1}	13 (54) _{a2}	75 (16) _b	14.3** _{a1} , 18.8** _{a2}	3.0 _{a1} , 6.4 _{a2}
Strange beliefs or thoughts	32 (49) _{a1}	15 (63) _{a2}	109 (23) _b	19.6** _{a1} , 16.0** _{a2}	3.3 _{a1} , 5.7 _{a2}
Aggression	20 (31) _a	12 (50) _a	63 (13) _b	13.0** _{a1} , 19.4** _{a2}	3.0 _{a1} , 6.7 _{a2}

Note. NSSI = non-suicidal self-injury; BPD = borderline personality disorder; No. Axis I diag = number of Axis I Diagnoses; Previous Tx = previous treatments; Months = months in therapy; Sessions = no. of therapy sessions; BDI-II = Beck Depression Inventory; BAI = Beck Anxiety Inventory; BSS = Beck Scale for Suicide Ideation; ns = not statistically significant; OR = Odds ratio. Values with different subscripts are significantly different from each other (a > b > c). *p < .05. **p < .01.

299) = 5.5, p = .02. There were also significant age correlations with CGI (r = .16, p < .01), GAF (r = -.19, p < .01), number of previous treatments (r = .11, p = .01), BDI (r = .13, p < .01), BSS (r = .09, p = .04), and number of previous suicide attempts (r = .09, p = .04). Accordingly, we ran follow-up analyses comparing the NSSI disorder, BPD, and comparison groups on these outcome variables while controlling for age and gender, and the initial group differences on these measures remained significant.

Discussion

The purpose of this exploratory study was to generate information for a clinical description of a potential NSSI disorder and delimit it from

other competing psychological disorders by comparing the charts of treatment-seeking patients. Overall, the NSSI group had similar levels of impairment and psychopathology as the BPD group and had more impairment and more severe psychopathology than the comparison group. The NSSI group was characterized by higher depressive symptoms, anxiety, and suicidality than the clinical comparison group. Furthermore, the NSSI group reported more suicide attempts and less time elapsed since the most recent attempt, which indicates the severity of risk for harm present in this group.

It is important to note that the NSSI group had a low rate of PDNOS relative to the comparison group, and there were no individuals in the NSSI group who were also diagnosed with trichotillomania or stereotypic movement disorder.

der. This indicates that NSSI is not better accounted for by these other disorders. The NSSI group had common co-occurring diagnoses with mood and bipolar disorders, as well as dysthymia and Cluster A personality disorders. The NSSI group also had higher rates of abuse, mood swings, conflict with others, strange thoughts or beliefs, and aggression than the comparison group. There were some important differences between the NSSI and BPD groups as well. The BPD group had more women and reported higher rates of being a victim of abuse than the NSSI group.

This study provides evidence for some of the features of a mental disorder and the phases of diagnostic validity proposed by Robbins and Guze (1970) that were previously discussed. This study adds evidence that NSSI in the absence of BPD is related to impaired functioning and distress, perhaps more so than other Axis I disorders. This study also helps distinguish a potential NSSI disorder from BPD, perhaps its nearest diagnostic neighbor, by finding some differences between the two groups. Finally, this study also suggests that creation of a NSSI disorder may be clinically useful as those in the NSSI group demonstrated more problems with functioning than those with other Axis I disorders, but their symptoms were not adequately described by BPD symptoms or PDNOS diagnoses. A NSSI diagnosis may thus unique variance in psychopathology that may call for specific therapeutic approaches.

The findings of this study should be viewed in light of its limitations. First, these data were obtained from the charts of treatment-seeking patients at a clinic, and as such the study was post hoc in nature. Consequently, a standardized clinical interview was not used to assess NSSI, and therefore no information was collected on the form, frequency, or recency of NSSI. Furthermore, the assessment of NSSI used required those who self-injured to view this behavior as problematic, when some may self-injure and believe that it is not a problem. To address these limitations, future studies should use a standardized clinical interview for NSSI, such as the *Self-Injurious Thoughts and Behaviors Interview* (SITBI; Nock, Holmberg, Photos, & Michel, 2007). Second, the number of patients in the BPD group was relatively small, potentially decreasing the power needed to find significant differences between the NSSI

and BPD groups. Future studies should continue to compare those with NSSI disorder to those with BPD to determine in what ways (quality–quantity) self-injury may be different between the two. Future research should also compare NSSI in adults versus adolescents, as this behavior may be fundamentally different between the two age groups. Finally, the BPD group included those with or without NSSI, and combination of BPD and NSSI could potentially account for the findings where the BPD group was more impaired than the NSSI group.

Because the limited scope of this study cannot conclusively validate a potential NSSI disorder, additional studies comparing NSSI disorder to BPD are necessary. Future studies should examine the long-term naturalistic course of NSSI disorder relative to BPD, as well as examine differential responses to treatment to determine whether there is a different prognostic outlook. More research should also be done on family studies to determine whether there are heritability differences between NSSI disorder and BPD or if there are other important environmental differences between the two, given the finding of this study that BPD was more associated with childhood abuse than NSSI disorder. Additional examinations of behavioral or psychological tasks that can potentially help differentiate NSSI disorder from BPD would also help establish validity of Phase 4 proposed by Robbins and Guze (1970). Finally, future studies should also explore the impact of a NSSI disorder diagnosis in the realm of clinical practice and determine whether clinicians would be willing to diagnosis it, ways they might treat it, and explore concerns about potential stigma associated with a NSSI disorder diagnosis.

Conclusion

The results of this study provide information on potential existence of an NSSI disorder. Alone, the results of this study are not enough to warrant the creation of an NSSI disorder. However, they provide an important first step in marking the investigation of NSSI as a potentially separate diagnostic entity. We hope that this study will spur more research into the possible existence of NSSI disorder and that the findings will be useful in the decision of whether to include NSSI disorder in *DSM-5*.

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