Interpersonal Features and Functions of Nonsuicidal Self-injury

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Etiological models of nonsuicidal self-injury (NSSI) suggest interpersonal features may be important to understand this behavior, but social functions and correlates have not been extensively studied. This study addresses existing limitations by examining interpersonal correlates and functions of NSSI within a stratified random sample of 1,243 predominantly Caucasian college students (mean age = 21.52, SD = 4.15 years). Participants completed an anonymous online survey assessing NSSI features, perceived social support, and disclosure experiences. Approximately 15% of the students endorsed NSSI. Interpersonal reasons were endorsed proportionally more often for initiating rather than repeating the behavior. Individuals with repetitive NSSI reported significantly lower perceived social support from family members and fewer individuals to seek advice from than single-act and control participants. Fifty-nine percent had disclosed their NSSI, but rarely to mental health professionals. Conversations with others about NSSI were rated as being mostly *un*helpful. These results emphasize the importance of interpersonal features and functions of NSSI, suggesting treatments should focus on strengthening interpersonal bonds alongside emotion regulation. Improving responses to disclosures of NSSI is needed to promote communication about this behavior and perceived helpfulness of such conversations.

Nonsuicidal self-injury (NSSI) is the direct, deliberate destruction of body tissue without suicidal intent (Nock, 2008) and occurs at high rates within high school and college students (Baetens, Claes, Muehlenkamp, Grietens, & Ongena, 2011; Whitlock et al., 2011). Individuals who engage in NSSI report have higher rates of psychopathology and suicidal behavior compared with those who never engaged in NSSI (Andover & Gibb, 2010; Jacobson, Muehlenkamp, Miller, & Turner, 2008; Whitlock, Muehlenkamp, & Eckenrode, 2008). Individuals with a history of NSSI are also more likely to have sought or currently be in some type of therapy than those without NSSI (Wester & Trepal, 2010; Whitlock et al., 2011), indicating that the behavior is tied to significant distress and dysfunction. Given the scope of the problem and associated dysfunction, research has focused on developing models to explain why NSSI occurs and

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how it is maintained so that effective treatment and prevention efforts can be established.

Much of the NSSI literature has focused on the psychological motivations underlying the behavior, finding that NSSI is overdetermined and serves multiple functions simultaneously (Klonsky, 2007; Lloyd-Richardson, 2008). The dominant models explaining NSSI are based on emotion regulation and tension reduction theories (Chapman, Gratz, & Brown, 2006; Nock & Cha, 2009). Existing research supports these theories with data showing that negative, high arousal emotions and tension often precede acts of NSSI and are reduced following it (e.g., Armey, Crowther, & Miller, 2011; Muehlenkamp et al., 2009; Nock, Prinstein, & Sterba, 2009). Therapies that incorporate cognitive and emotion regulation skill acquisition demonstrate some success in reducing NSSI (e.g., Brausch & Girresch, 2012; Gratz, 2007; Klonsky, Muehlenkamp, Lewis, & Walsh, 2011), lending further credence to the emotion regulating features of NSSI. However, interpersonal motives and social correlates of NSSI have not been studied as extensively in comparison to the intrapersonal, emotion regulating functions, and warrant additional attention.

Nock (2008) outlined a social theory suggesting NSSI may be repeated because it is effective in communicating, influencing, and connecting with others in one's environment, particularly when less extreme attempts at communication fail to produce results. Behavioral models propose that interpersonal functions perpetuate NSSI through both positive reinforcement (e.g., obtaining interpersonal resources, connection) and negative reinforcement (e.g., avoiding interpersonal demands; Klonsky & Glenn, 2009; Nock & Cha, 2009). Self-report studies from community adolescent samples find that many endorse interpersonal functions for their NSSI such as "to show/communicate desperation," "trying to fit in or feel close to someone," and "to see if somebody loves me" (Andover, Pepper, &

Gibb, 2007; Baetens et al., 2011; Heath, Ross, Toste, Charlebois, & Nedecheva, 2009; Whitlock, Eckenrode, & Silverman, 2006). In an adolescent inpatient sample, Nock and Prinstein (2005) reported that 15% endorsed social functions of wanting "to control a situation" or "to get a reaction from someone." Another study of early adolescents found that those who engaged in NSSI reported significant improvements in the quality of their relationship with their fathers over an 11-month period (Hilt, Nock, Lloyd-Richardson, & Prinstein, 2008). This finding demonstrates the ability of NSSI to increase social connections. In an examination of self-injury subtypes among college students, Klonsky and Olino (2008) identified one group, comprising 11% of the sample, which was uniquely characterized by their use of multiple NSSI methods, elevated anxiety symptoms, and particularly high endorsement of social functions relative to the other groups. This limited body of research indicates that while social functions may play a smaller role than emotion regulation, they are certainly prevalent.

As public and professional attention on NSSI has substantially increased in the past decade (Whitlock, Purington, & Gershkovich, 2009), so has the identification of youth engaging in the behavior. The corresponding increases have led some to postulate that initiating NSSI may be socially influenced, especially among emotionally vulnerable youth (Berman & Walley, 2003). There is some evidence suggesting that exposure to self-injury in others, particularly peers, is linked to an increased likelihood of engaging in NSSI (Claes, Houben, Vandereycken, Bijttebier, & Muehlenkamp, 2010; Muehlenkamp, Hoff, Licht, Azure, & Hasenzahl, 2008; Prinstein et al., 2010). Additionally, Deliberto and Nock (2008) reported that 38.3% of their self-injuring adolescent sample indicated learning about self-injury through peers. Among a sample of 23 university students with recent NSSI, Heath et al. (2009) found that 43.6% reported their self-injury

was learned either from peers or through media exposure. It appears feasible that NSSI is socially influenced. Yet, few studies have specifically examined whether social factors are primary motivators for first initiating NSSI and whether the same or different features influence the repetition of NSSI.

It is possible that the motives underlying decisions to engage in the first act of NSSI may differ from the motives or functions served by repeated NSSI. If distinct, this would suggest different mechanisms may be at play, which could influence decisions on how to structure prevention and intervention efforts. To date, only one known study has examined motives for NSSI with this initiation-maintenance distinction in mind. Drawing from a representative sample of university students, Whitlock et al. (2011) noted that the proportion of participants indicating socially based motivations for initiating NSSI (32% of the sample) was higher than the socially based functions maintaining the behavior (21.7% of the sample). Interesting gender differences were also found with initiation of NSSI being linked to direct social motives (e.g., "hoping someone would notice") for females, but indirect social motives (e.g., "being angry at someone") for males. Additional study of this possible initiation-maintenance distinction, and further replication of such findings, is needed. To address this need, we examined the relative importance of social motivations for initiating NSSI compared with those associated with repeating NSSI.

Due to the potential importance of social motives in understanding initiation and maintenance of NSSI, examining other social factors associated with this behavior is highly relevant. Relying on others for advice, access to resources, and emotional support has been found to buffer stress, reduce risk for psychopathology, and reduce suicidal ideation and attempts among college students (Friedlander, Reid, Shupak, & Cribbie, 2007; Hirsch & Barton, 2011). Similarly, deficits in both peer and parental support are significantly associated with suicidal ideation and attempts among adolescents and college students with and without NSSI (Bertera, 2007; Brausch & Gutierrez, 2010; Hirsch & Barton, 2011; Muehlenkamp & Gutierrez, 2007). This research is consistent with theories suggesting that social disconnection from one's family or social group may increase suicide risk (see Joiner, 2005; Rowe, Walker, Britton, & Hirsch, in press). It is plausible that positive and adequate social support serves a similar protective effect for NSSI. Yet, research has not explicitly examined perceptions of peer and family-based social support within this group. One exception is the study by Heath et al. (2009), which found lower perceived social support among 23 college students with NSSI compared with no-NSSI controls. Of interest is that low perceived peer support had a significant association to NSSI, but perceived parent support did not differentiate NSSI participants from controls. The very small convenience sample severely limits the generalizability of the findings and requires replication.

Research finds that self-injuring individuals often describe themselves as being lonely (Adler & Adler, 2005), and as lacking adequate social skills relative to non-NSSI peers (Claes et al., 2010). Studies have consistently reported that many who self-injure report poor attachment to caregivers (Bureau et al., 2010; Crowell et al., 2008) and tend to come from invalidating family environments characterized by conflict, criticism, and for some, abuse or neglect (Adrian, Zeman, Erdley, Lisa, & Sim, 2011; Heath, Toste, Nedecheva, & Charlebois, 2008; Martin, Bureau, Cloutier, & Lafontaine, 2011; Wedig & Nock, 2007). A few researchers have also found that individuals with NSSI use less adaptive social problem-solving and coping skills when under emotional distress (Andover et al., 2007; Nock & Mendes, 2008).

Lastly, two studies have found that self-injuring individuals gained substantial amounts of positive social support through

anonymous internet communities (Johnson, Zastawny, & Kulpa, 2010; Whitlock, Powers, & Eckenrode, 2006). This increased perception of social support may partially explain the finding that 55.8% of the individuals who frequented self-injury message boards reported a decrease of their NSSI after joining the internet community (Johnson et al., 2010). While negative content and concerns for escalating NSSI behavior are also warranted (Lewis, Heath, St Denis, & Noble, 2011), it appears that online communities may be a source for positive social support that is lacking in off-line lives. These findings, although preliminary, offer further evidence that *perceived* social support could be important for understanding risk/protection against NSSI as well as represent important avenues for treatment and prevention.

The field would benefit from a direct assessment of how perceived social support from peers and family are related to NSSI as well as to single versus repeated acts. Examining other social aspects characterizing NSSI such as the relative importance of social motivations for initiating versus maintaining the behavior, as well as the perceived helpfulness of disclosing NSSI to others, would extend current research and the development of comprehensive etiological models. We addressed these goals in this study by examining the hypothesis that interpersonal motives would be endorsed at proportionally higher rates for initiating NSSI than for repeating NSSI, whereas emotion regulation functions would be proportionally more prevalent for repeating the behavior than for initiating it. It was also hypothesized that individuals with any history of NSSI would report significantly lower perceived social support from family and friends and a fewer number of people they sought advice from than those without a history of NSSI. Similarly, it was hypothesized that individuals reporting repeated acts of NSSI would report lower social support and a fewer number of people they sought advice from than those reporting single acts.

METHODS

Participants

A total of 1,290 (40.2% male) students completed the study. Forty-seven students had incomplete data on the NSSI item resulting in a final sample of 1,243. The mean age of the sample was 21.52 (SD = 4.15 years), and the majority (90.5%) were undergraduate students. Similar to the demographic composition of the university, the majority of the students identified their ethnicity as non-Hispanic White (91.8%), followed by those identifying as biracial (2.8%) or American Indian (1.9%). The remaining 3.5% of the sample identified with other ethnicities.

Procedure

A stratified (by university student demographics of gender and race/ethnicity) random sample of 4,000 enrolled students attending a medium-sized midwestern university were identified by the university enrollment/registration office. Potential participants were sent an e-mail inviting them to participate in a web-based "Survey of Student Well Being" that included a brief description of the study and link to the on-line survey. The survey was housed on an encrypted, secure server. Participants first viewed an informed consent page and after indicating their consent were directed to the survey questions. The survey was completed within 15 to 30 minutes and approved by the university's institutional review board. Response enhancement strategies were used to increase participation rates (e.g., follow-up reminders, $5 incentives). Links to local mental health resources were provided at the end of the survey.

Measures

Nonsuicidal Self-Injury-Assessment Tool (NSSI-AT). The NSSI-AT (Whitlock, Exner-Cortens, & Purington, 2012) was

developed for use as an on-line comprehensive assessment of NSSI within college students (e.g., Whitlock et al., 2006; Whitlock et al., 2008). The NSSI-AT is comprised of multiple sections assessing NSSI, including basic characteristics, psychological functions, initial motivations, and disclosures of NSSI. Items were originally created through reviews of the literature, existing scales, and from in-depth interviews of individuals with a history of NSSI. The validity and reliability of the scale are supported by data from over 11,500 college student participants from 10 different universities within the United States (Whitlock et al., 2012), and are described below as it pertains to current study variables.

Participants saw an initial screening question that provided a list of 19 NSSI behaviors, asking if the participant had "ever done any of the following with the purpose of intentionally hurting yourself?" Those who indicated never engaging in NSSI entered a skip-logic so they did not have to respond to questions inquiring about the frequency, most recent episode, psychological functions, and initiating motivations of NSSI. Included in the list of psychological functions were items assessing suicidal intent. Participants who reported using any of the behaviors for practicing or attempting suicide were removed from the NSSI sample. The item assessing lifetime presence of NSSI has demonstrated strong test–retest reliability over a 4 to 6 week time frame, Kappa = 0.76; as did the item assessing NSSI lifetime frequency, ICC [1,1] = 0.85 (95% CI, 0.62–0.95), $p < .001$. Nonsignificant correlations with binge drinking for both the NSSI presence item, $r = -.01$, $p > .05$, and lifetime frequency, $r = .002$, $p > .05$ (Whitlock et al., 2012) support discriminant validity.

To assess motivation for first initiating NSSI, participants were provided a list of 18 possible reasons (e.g., I accidentally discovered it; A friend suggested I try it; I was upset and decided to try it; I saw it in a movie/on TV or read about it and decided to try it; I was angry at someone; etc.) and

an "I cannot remember" item. Participants were asked to indicate whether or not each item represented a reason they first initiated NSSI. These items were derived from interviews with individuals who had a history of NSSI as well as through professional communication with experts in the NSSI field. These items were not originally created to reflect particular categories of motives so the items were categorized by consensus among the study authors into social/interpersonal, emotion regulation, and "other" motives post hoc for the purposes of the current study. Nonparametric correlations were calculated from the current data among the social-interpersonal items, $r = .14$ to $.58$, $ps < .001$, and the emotion regulation items, $r = .24$ to $.50$, $ps < .001$, providing evidence of thematic convergence.

To assess the functions of NSSI, all participants who endorsed repeating NSSI were provided with a list of 26 possible functions derived from existing research and client interviews. Items reflected emotion regulation (e.g., to cope with uncomfortable feelings; to deal with frustration), social-interpersonal (e.g., to be part of a group; to shock or hurt someone; hope others notice something is wrong), sensation seeking (e.g., to get a rush or surge of energy), self-punishment (e.g., as self-punishment or to atone for sins), and uncontrollable urges (e.g., because I get the urge and cannot stop it). Participants indicated whether or not each statement was a function served by his/her NSSI. Whitlock et al., (2012) reported that an exploratory factor analysis of these items supported a five-factor solution accounting for 51% of the variance, with items across the full functions scale demonstrating strong reliability, Kuder–Richardson = 0.77; ICC [1,1] = 0.79 (95% CI, 0.50–0.92), $p < .01$. Specific to this study's variables, the emotion regulation factor items had an interclass correlation of 0.77, $p < .01$, and an ICC = 0.85, $p < .001$, was obtained for the social-interpersonal items. Test–retest reliability of the five factors ranged from ICC [1,1] = 0.64 to 0.85,

*p*s < .05. Validity was demonstrated by a significant correlation between a summed functions score and a measure of depression, $r = 0.25$, p < .001, along with a non-significant correlation between the summed functions score and binge drinking, $r = 0.01$, p = ns (Whitlock et al., 2012).

Social Support Variables. To determine the level of social support participants used when distressed, they were asked to indicate whether or not they sought advice from a list of 22 potential persons in their life. These 22 potential sources were broadly categorized into three domains: (1) peers (e.g., friend(s) at school; roommate/apartmentmate; virtual friend), (2) family (e.g., parent(s); sibling(s); other relatives), and (3) professionals (e.g., assigned faculty advisor; therapist/counselor; spiritual advisor/religious clergy). The number of persons identified within each category was summed to create the outcome variables: number peers seek advice from; number family seeks advice from; and number professionals seek advice from. The number of people endorsed across all categories was summed to create a total scale outcome variable: total number seeks advice from.

To assess the perceived quality of social support, participants responded to four items assessing perceived support from friends (e.g., "I can rely on my friends for help if I have a serious problem") that were rated on a scale ranging from 1 *(never true)* to 4 *(often true)*. Responses were summed to create the friend perceived social support scale, with higher scores indicating greater perceived support (max score = 16). The items used in the current survey were based on the four-item Friends subscale of the Multidimensional Scale of Perceived Social Support, which has shown strong reliability and validity (Zimet, Dahlem, Zimet, & Farley, 1988). The internal consistency for these four items in the current sample was α = .69, and convergent validity in the current sample was supported by a positive correlation with the family perceived social support scale,

$r = .20$, $p < .001$, and number of peers one seeks advice from, $r = .36$, $p < .001$.

The four items comprising the Affective Involvement subscale from the McMaster Family Assessment Device (Epstein, Baldwin, & Bishop, 1983) were used to assess perceived support from family (e.g., "Even though it was hard sometimes, I discussed emotional issues with my family"). The Affective Involvement subscale has demonstrated strong reliability within psychiatric and nonclinical samples (α = .76 –.78; Kabacoff, Miller, Bishop, Epstein, & Keitner, 1990) and has correlated with measures of family cohesion in expected directions, providing evidence of validity (Epstein et al., 1983). Items were rated on a scale ranging from 1 *(never true)* to 4 *(often true)*, and summed to create the family perceived support scale (max score = 16). The internal consistency of the items within the current sample was α = .84, and validity was supported by a positive correlation with number of family one seeks advice from, $r = .45$, $p < .001$. The family and friend items were combined and responses summed to create a total perceived social support scale, with higher scores indicating greater perceived social support (max score = 32).

To evaluate social disclosure and knowledge of NSSI, participants with a history of NSSI were asked, "Does anybody know that you self-injure?" and if endorsed positively, participants were asked to indicate who knew from a list of 12 possible people (e.g., parent, sibling, friend, partner, teacher, coach, adult friend, therapist, physician, religious/spiritual advisor, healthcare provider, other). In addition, participants were asked to indicate whether or not they had a conversation about their NSSI with the persons identified *(Yes/No)* and to rate how helpful the conversation was on a 3-point scale from "not helpful" to "Yes, helpful." An additional item asked all participants if they knew anyone who engaged in self-injury *(Yes/No)*.

RESULTS

NSSI Descriptive Features

Descriptive features of the NSSI behavior for the current sample are presented in Table 1.[1] Approximately 15% of the participants indicated a history of NSSI (n = 183), with 36.6% (n = 67) of those having self-injured within the past 12 months. An additional 13.1% (n = 24) reported engaging in NSSI within the past 24 months. A majority (86.7%) of those reporting any NSSI had engaged in two or more acts with most reporting 4 to 10 episodes (see Table 1). Significantly more females endorsed NSSI than males, $\chi^2_{(1)}$ = 21.27, p < .001. The most common methods of NSSI included cutting/carving, self-battery, and skin abrading/severe scratching.

Among those reporting NSSI, the most common reasons endorsed for engaging in the behavior involved managing aversive internal states such as coping with uncomfortable feelings (43.3%) or being angry at oneself (39.9%). Social motivations were also reported (e.g., angry at someone, 22.4%; hope others will notice something is wrong, 13.1%) but at lower rates than the emotion regulation/tension reduction items (see Table 2). To evaluate the relative roles of interpersonal motives in the initiation and repetition of NSSI, the proportion of social reasons endorsed was calculated separately for the initiation and maintenance

items. Consistent with hypotheses, social motivations for initiating NSSI were endorsed at a significantly higher rate (28.3%) than they were for repeating NSSI (20.3%), χ^2 (1) = 13.85, p < .001. Complementing this finding, a significant difference was also observed for the proportion of individuals endorsing emotion regulation reasons for initiating versus repeating NSSI behavior, χ^2 (1) = 6.11, p < .02. Participants were significantly more likely to endorse emotion regulation functions for repeating NSSI (82.4%) than they were for first initiating the behavior (64.2%). When considered simultaneously, the proportion of emotion regulation reasons endorsed for initiating, $\chi^2_{(1)}$ = 23.89, p < .001, and

TABLE 1
Descriptive Features of NSSI

Methods	% (n)	NSSI frequency	% (n)
Cutting	47.5 (87)	Once	13.6 (24)
Carving	13.7 (25)	2–3	26.0 (46)
Scratch until bleeding	41.5 (76)	4–5	19.2 (34)
Burning	9.3 (17)	6–10	13.6 (24)
Self-Battery to point bruised or bleeding	50.2 (92)	21–50	7.9 (14)
Prevent wounds from healing	11.5 (21)	50 or more	6.8 (12)
Bite self until bleeding/ bruising	12.0 (22)		
Ripped/tore skin	8.2 (15)		
Choking game	3.8 (7)		
Salt/ice burns	2.7 (5)		
Rubbed glass/ inserted sharp object	13.1 (24)		
Other[a]	24.6 (45)		

Note. Participants reported the use of multiple methods so percentages will exceed 100%.
[a]"Other" included behaviors participants wrote in such as pulling out hair, intentionally fighting to be harmed, trying to break bones.

[1]The data analyzed in the current study represent a small subset of data pulled from a multisite study of health risk behaviors among college students (Whitlock et al., 2011) which did report summative, descriptive data on a few variables that overlap with the current study (e.g., functions of NSSI;% disclosing NSSI to mental health professional). The overlap of variables is not substantial and results previously reported reflect summative data from the full multisite data set, which differs from the current data set. The current data represent a unique analysis of research questions and hypotheses distinct from that reported on by Whitlock et al. (2011), and pulled from the smaller data set unique to the first author.

TABLE 2
Initial Motivations and Functions of Repeated NSSI

Initial motivations	% (*n*)	Repeated NSSI functions	% (*n*)
Angry at myself	39.9 (73)	Cope with uncomfortable feelings	43.2 (79)
Upset and decided to try it	36.6 (67)	Relieve stress or pressure	39.9 (73)
Angry at someone else	*22.4 (41)*	Change emotional to physical pain	38.3 (70)
It felt good	16.4 (30)	Deal with frustration	33.9 (62)
Accidentally discovered it	14.8 (27)	Deal with Anger	27.3 (50)
Wanted someone to notice me or my injuries	*10.9 (20)*	To feel something	23.5 (43)
I was drunk/high	7.1 (13)	Distract from problems or task	19.1 (35)
Wanted to fit in with others	*5.9 (11)*	Get control over self or life	15.8 (29)
Wanted to shock/hurt someone	*4.9 (9)*	Self-punish	14.8 (27)
Friend suggested it	*2.7 (5)*	*Hope others notice something is wrong*	*13.1 (24)*
Saw it on TV/Read in Magazine	*1.1 (2)*	Because it feels good	12.0 (22)
"Other Reason"	13.1 (24)	Can't stop the urge	11.5 (21)
I can't remember	15.8 (28)	Because of self-hatred	10.9 (20)
		To help me cry	10.4 (19)
		To shock or hurt someone	*6.6 (12)*
		Because my friends do it	*4.3 (8)*
		To be part of a group	*1.6 (3)*

Note. Social motivations and functions are italicized. Participants reported multiple motivations and functions.

repeating, $\chi^2_{(1)} = 19.81$, $p < .001$, NSSI was greater than were social motives. This is congruent with participants' reports that emotion regulation was the most common reason endorsed for NSSI overall.

Social Features of NSSI

To assess hypotheses about group differences in perceived social support and the number of people one seeks advice from, participants were coded into one of the three groups: no-NSSI, single act of NSSI, and repeat NSSI. A 3 (group) × 7 (social support variable) MANCOVA with gender as the covariate was run. The multivariate model was significant, $F (12, 2336) = 12.09$, $p < .001$, $\eta^2 = .06$, with main effects indicated for group. Follow-up pairwise comparisons with Bonferroni correction revealed the repeat NSSI group reported significantly less overall perceived social support and less perceived family social support than both the controls and single NSSI group (see Table 3). The repeat NSSI group also reported signifi-

cantly less perceived friend social support as well as having fewer people to seek advice from than controls, but there were no significant differences between the repeat and single NSSI groups on these variables. Of interest is that no significant differences were observed between controls and the single-act NSSI group (see Table 3).

A majority (59.89%, $n = 112$) of those reporting NSSI indicated that at least one person knew about their self-injury ($M = 2.67$; $SD = 1.64$; range from 1 to 10). In addition, they knew significantly more people who also engaged in NSSI, $F (1, 1238) = 34.24$, $p < .001$, compared with participants without a NSSI history. Among those who indicated someone else knew about their NSSI, the most common people to know were a friend (44.6%), partner (30.4%), parent (20.5%), therapist (11.6%), and sibling (8.9%). The mean number of people who were reported to know about the NSSI *and* to have had a conversation with the participant about NSSI was 1.60 ($SD = 1.82$; range 1–10). When broken down between family/friends and health

TABLE 3
Group Differences in Social Support between NSSI Groups and Controls

Variable	(1) No-NSSI Mean (SD)	(2) Single NSSI Mean (SD)	(3) Repeat NSSI Mean (SD)	F	η²	Group differences
Total perceived social support	29.75 (4.37)	28.88 (5.18)	25.72 (5.22)	**57.50**	.09	3 < 1; 3 < 2
Family perceived social support	15.35 (3.81)	14.50 (4.68)	12.00 (4.49)	**50.77**	.08	3 < 1; 3 < 2
Friend perceived social support	14.39 (1.50)	14.38 (1.66)	13.71 (1.85)	**15.45**	.03	3 < 1
Total number seek advice from[a]	4.46 (2.62)	3.79 (2.80)	2.92 (2.19)	**29.69**	.05	3 < 1
Number peers seek advice from[b]	2.34 (1.24)	2.04 (1.37)	1.66 (1.20)	**27.45**	.05	3 < 1
Number family seek advice from[c]	1.50 (1.05)	1.08 (1.28)	0.78 (0.96)	**37.99**	.06	3 < 1
Number professionals seek advice from[d]	0.61 (1.28)	0.63 (0.97)	0.46 (0.98)	1.00	.00	—

Significant differences at $p < .001$ are in bold.
[a]Scale ranges from 0–22.
[b]Scale ranges from 0–6.
[c]Scale ranges from 0–3.
[d]Scale ranges from 0–13.

professionals, the mean number of health professionals to know and have a conversation about the NSSI was 1.53 (SD = 0.94; range 0–5) and the mean number of family/friends was 1.06 (SD = 1.09; range 0–5). The reported helpfulness of the conversations with family/friends averaged 0.45 (SD = 0.38), and the reported helpfulness of the conversations about NSSI with health professionals averaged 0.07 (SD = 0.19), both on a 3-point scale.

DISCUSSION

Results from the current study largely support the hypotheses that NSSI is associated with a variety of interpersonal motives/functions and is characterized by perceived deficits in social support from others in one's environment. These findings mirror those reported by others (Heath et al., 2009; Klonsky & Glenn, 2009) and have important implications for etiological mod-

els of NSSI. Specifically, the current results provide evidence for the importance of considering interpersonal factors in addition to emotion regulation when explaining why the behavior is first initiated and how it is maintained (Nock, 2008). For example, the third most commonly endorsed reason for why someone initiated NSSI was tied to an interpersonal experience of being "angry at someone else." While this particular item may also reflect the function of reducing one's emotional and physical experiences of anger, it retains a clear interpersonal component and highlights the multifaceted motives underlying NSSI acts. Additionally, between 10% and 13% of the sample reported wanting someone to notice their distress as both an initial reason for, and as a function of repeated, NSSI. Although the data show that emotion regulation functions were cited as the most common reasons for initiating NSSI overall, examination of the social motives showed they were more common to initiating than to repeating the

behavior. These findings are consistent with the signaling hypothesis described within social-interpersonal models of NSSI (e.g., Nock, 2008), and offer some empirical support. It appears important to attend to interpersonal precipitants early in an individual's initiation of NSSI, along with emotion regulation.

Approximately 5% of those reporting NSSI endorsed initial motivations or continued functions related to social acceptance (e.g., wanting to fit in with others because friends do it) or wanting to shock/hurt others. While tied to social signaling, these reasons may also indicate that people who engage in NSSI are likely to have interpersonal skill deficits, which could increase their vulnerability for turning to NSSI within an interpersonal context. There is emerging evidence supporting this notion. Claes et al. (2010) found that individuals who self-injure reported social skill deficits relative to noninjuring peers and another study observed poorer social problem solving among those with NSSI (Nock & Mendes, 2008). These interpersonal skill deficits may also contribute to difficulties maintaining meaningful social relationships, which subsequently could reduce the level of social support the individual experiences. As seen in the current study, participants with NSSI reported having lower perceived social support and a fewer number of people from whom they sought advice. Another explanation could be that individuals who engage in NSSI for social acceptance may, over time, come to identify with the behavior. Consequently, they may be more likely to choose NSSI when facing distress because they implicitly identify with NSSI as their coping strategy (Nock, 2008; Nock & Banaji, 2007). The connection between social and personal identities around NSSI is an avenue for future research.

Another meaningful finding is the distribution of interpersonal reasons for repeating NSSI. The most often cited social motive for repetitive NSSI involved hoping others would notice one's distress (e.g., interpersonal communication or cry for help). This suggests a potential connection between interpersonal and emotion regulation motives for NSSI. Using NSSI as a cry for help is likely to be closely associated with emotion regulation difficulties because the person is attempting to elicit interpersonal support and communicate their emotional distress via the NSSI (e.g., Nock, 2008). It is likely that interpersonal and intrapersonal factors may operate simultaneously to influence the occurrence and repetition of NSSI. Interpersonal events may cause significant emotional distress and if dysregulated, this could increase one's propensity to use NSSI as a means to communicate emotional and interpersonal desperation. If the act of NSSI is effective in achieving this goal and/or the person experiences emotional relief, the NSSI is reinforced and likely to be repeated. While our data cannot directly support such a model because of its correlational nature, the interpretation is consistent with recent research showing that difficulties regulating emotions may mediate the connection between interpersonal difficulties and NSSI behavior (Adrian et al., 2011; Hilt, Cha, & Nolen-Hoeksema, 2008). Future research should continue to examine the interactive or bi-directional influences of interpersonal and intrapersonal functions of NSSI. From the perspective of preventing NSSI, the current findings would suggest targeting interpersonal skills as a global prevention strategy alongside emotion regulation skills, possibly emphasizing emotion regulation skills within the context of interpersonal difficulties.

Group Differences in Social Support

The current study expands the literature on social features of NSSI by adding the exploration of social support variables. Within the current sample, individuals with NSSI reported significantly lower perceived social support and having fewer people they sought advice from compared with no-NSSI peers. These general findings further support ideas that individuals who engage in

NSSI may struggle with forming relationships and developing adaptive interpersonal skills; both of which are amenable to treatment. Of particular interest are the findings between the single and repeat NSSI groups across peers, parent, and health professionals. First, there were no observed differences between single and repeat NSSI groups in the number of peers/friends they seek advice from or in their perceived support from friends, although both variables were lower compared with the no-NSSI controls. The lack of difference between single and repeat NSSI may help explain why peers were the most frequently reported individuals to whom NSSI was disclosed, and further supports research indicating that peers may not have as big of an impact on repetitive NSSI behaviors compared with other social groups such as family (e.g., Adrian et al., 2011; Cloutier, Martin, Kennedy, Nixon, & Muehlenkamp, 2010). However, peers may exert a strong influence on initiating NSSI as participants in the current study who engaged in NSSI were significantly more likely to know others who also self-injure compared with their noninjuring peers (see also Heath et al., 2009; Muehlenkamp et al., 2008). Furthermore, "fitting in with others"/"friend suggested it" were endorsed by 9% of the sample as reasons for the first NSSI act. Prevention initiatives may find success if they focus on fostering a culture among peers that decreases the social-bonding allure of NSSI by emphasizing other adaptive ways to build intimacy within friendships.

Consistent with previous findings that parental support may be particularly influential to NSSI and suicidal ideation/behavior (Bertera, 2007; Brausch & Gutierrez, 2010; Muehlenkamp & Gutierrez, 2007), participants in the current study with repeated NSSI perceived the least amount of social support from their families compared with the other two groups. The single-act NSSI group reported less family support than controls. This pattern indicates that a lack of family-based social sup-

port may be an important risk factor for NSSI behavior, and are consistent with theoretical hypotheses that invalidating family environments increase vulnerability toward self-destructive behavior (Martin et al., 2011). Additionally, in a recent study of adolescent female inpatients, Adrian et al. (2011) found that family relational problems had a direct association to NSSI whereas peer relational problems were indirectly related through emotion dysregulation. The cross-sectional results from the current study follow a similar pattern and suggest that incorporating family therapy into NSSI treatments, particularly interventions that work toward strengthening communication and emotional support, may be important.

While there were no differences across the study groups with regard to the number of health professionals one seeks advice from, individuals with NSSI were less likely to disclose their NSSI to health professionals than peers/family, which is similar to the results reported by Baetens et al. (2011). A new contribution of the current results was that participants rated the conversations they had with health professionals, reporting such conversations as being largely unhelpful. Perceiving conversations about one's NSSI as being not helpful may reduce disclosure in the future and could hamper clinical treatment because the client may be less willing to admit to repeated acts of NSSI or to collaborate on reducing the behavior. Participants indicated conversations about their NSSI with friends and family were slightly more helpful relative to health professionals, but these conversations were still perceived as not being very beneficial. This holds special importance for both prevention and intervention programs focused on NSSI. If self-injuring individuals are willing to disclose their behavior, but then find the interactions aversive, they may continue the behavior in secrecy. Future research could qualitatively examine the type of responses individuals with NSSI would find to be most helpful, which could then be integrated into training programs on NSSI.

The findings from this study point to the significance of quality training about NSSI among clinicians but also for parents to respond to disclosures of NSSI in appropriate ways so that future discussions are more likely to occur and the appropriate treatment can ensue.

The current study expands the existing literature by providing empirical data to support emerging models emphasizing the importance of social-interpersonal features of NSSI, but some limitations are important to acknowledge. While the sample size was large permitting adequate power for group comparisons, it is characterized by predominantly Caucasian college students attending courses and likely representative of higher-functioning individuals who may be less likely to engage in NSSI than lower-functioning persons. The current results need to be replicated in noncollege student populations as well as within samples of various age groups drawn from outpatient and inpatient treatment settings. In addition, the data are cross-sectional based on retrospective self-report measures and are correlational, which prevents any causal conclusions to be drawn regarding the connections between the social features studied and NSSI. Future studies evaluating interpersonal models of NSSI will need to address this limitation.

This study offers evidence that NSSI is socially influenced for a sizable minority of individuals and that interpersonal motives co-occur with emotion regulation/ tension reduction functions for initiating and reinforcing the behavior. Additionally, individuals who engage in repetitive NSSI experience significantly lower perceived social support, particularly from family members, and have fewer individuals to whom they can turn for advice or support. These results highlight the need to assess interpersonal features of NSSI alongside emotion regulation as part of comprehensive treatment planning. The current findings also solidify the need to determine what constitutes effective responses to NSSI and then promote those elements of responding so the likelihood of receiving treatment following disclosures of NSSI can be enhanced. It also appears that interpersonally oriented therapy or treatments emphasizing family connection and communication skills training, along with emotion regulation strategies, may be particularly successful for reducing NSSI behaviors.

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