



Brief report

A preliminary examination of the specificity of the functions of nonsuicidal self-injury among a sample of university students

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ABSTRACT

To examine whether individuals who engage in NSSI report different coping behaviors and regulatory needs compared to a non-injuring comparison group, we surveyed 1107 undergraduates using a Functions Index. Individuals who engaged in NSSI indicated greater use of coping behaviors for anti-dissociation, interpersonal influence, and self-punishment than the non-NSSI group.

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1. Introduction

Nonsuicidal self-injury (NSSI), which refers to the direct and deliberate destruction or alteration of bodily tissue without lethal intent (e.g., cutting, burning), is a serious health concern (Nock and Favazza, 2009). Among clinical inpatient samples, as many as 21% of adults (Briere and Gil, 1998) and 30–40% of adolescents engage in NSSI (Darche, 1990; Jacobson et al., 2008). NSSI is also prevalent among community-based samples, and recent estimates indicate that 13–38% of adolescents and young adults in the community report lifetime histories of NSSI (Gratz et al., 2002; Heath et al., 2008; Ross and Heath, 2002; Klonsky and Glenn, 2009). In addition to reporting higher levels of depression and anxiety (Gratz et al., 2002; Ross and Heath, 2002), individuals who engage in NSSI also report greater engagement in other health-risk behaviors (e.g., smoking, drinking alcohol) as compared to individuals who do not engage in NSSI (Hilt et al., 2008; Serras et al., 2010). In his integrated model of the development of self-injury, Nock suggests that NSSI may be associated with other problem behaviors, such as cigarette smoking, because these behaviors serve similar functions (Nock, 2009). More specifically, researchers have consistently found that individuals engage in NSSI to regulate intrapersonal (e.g., to reduce stress or anxiety) and interpersonal functions (i.e.,

to elicit help from others) (Nock and Prinstein, 2004; Klonsky and Glenn, 2009), but many other problem behaviors could similarly serve to regulate these needs (Nock, 2009). Researchers have yet to examine, however, whether individuals who engage in NSSI also engage in other coping behaviors to regulate similar affective and social experiences. Moreover, it is unclear whether individuals who engage in NSSI experience different regulatory needs and engage in different coping behaviors as compared to individuals who do not engage in NSSI. To address these gaps in the literature, we surveyed young adults about which coping behaviors they used when they wanted to regulate commonly endorsed NSSI functions (e.g., affect regulation, self-punishment) (Klonsky and Glenn, 2009).

2. Method

2.1. Participants

The current sample consisted of 1107 (70.3% female) first-year undergraduate students between the ages of 17 and 24 years (mean age = 19.11, S.D. = 1.05) from a mid-sized Canadian university who were part of a larger scale project on stress and coping in university. In total, 87.5% of the participants were born in Canada, and the most common ethnic backgrounds reported other than Canadian were British (19%), Italian (16.8%), French (9.5%) and German (9%), which is consistent with the broader demographics for the region.

2.2. Procedure

Students in first-year university were invited to complete a survey examining transitions to university by way of posters, classroom announcements, website postings, and residence visits. Students could participate regardless of academic

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major and were given monetary compensation (\$10) or course credit for their participation. The study was approved by the University Ethics board, and all participants provided active consent before participation. The survey was administered by trained personnel.

2.3. Measures

2.3.1. Demographics

Age, sex and parental education were assessed.

Table 1
Percentage of participants in each group who endorsed behaviors for each function.

| | Non-NSSI | | NSSI | | p |
|---------------------------------|-----------------|-------------------|-----------------|-------------------|-------|
| Affect regulation | Alcohol | 36.2 _a | Alcohol | 47.8 _b | *** |
| | Smoke | 11.6 _a | Smoke | 19.7 _b | *** |
| | Bite nails | 22.9 _a | Bite nails | 30.7 _a | 0.004 |
| | Punch someone | 02.7 _a | Punch someone | 11.4 _b | *** |
| | Marijuana | 19.8 _a | Marijuana | 33.0 _b | *** |
| | Binge/under eat | 13.1 _a | Binge/under eat | 24.0 _b | *** |
| | Exercise | 37.8 _a | Exercise | 41.2 _a | 0.266 |
| | Self-injure | 00.0 _a | Self-injure | 06.6 _b | *** |
| | Shop | 32.5 _a | Shop | 27.7 _a | 0.089 |
| | None | 17.5 _a | None | 10.1 _a | 0.001 |
| Anti-dissociation | Alcohol | 10.5 _a | Alcohol | 27.9 _b | *** |
| | Smoke | 03.3 _a | Smoke | 07.6 _a | 0.002 |
| | Bite nails | 03.0 _a | Bite nails | 09.4 _b | *** |
| | Punch someone | 01.0 _a | Punch someone | 03.2 _a | 0.006 |
| | Marijuana | 05.3 _a | Marijuana | 17.2 _b | *** |
| | Binge/under eat | 04.9 _a | Binge/under eat | 13.7 _b | *** |
| | Exercise | 12.5 _a | Exercise | 22.2 _b | *** |
| | Self-injure | 00.0 _a | Self-injure | 08.2 _b | *** |
| | Shop | 10.7 _a | Shop | 11.0 _a | 0.406 |
| | None | 73.9 _a | None | 51.5 _b | *** |
| Interpersonal boundaries | Alcohol | 07.3 _a | Alcohol | 12.0 _a | 0.007 |
| | Smoke | 03.2 _a | Smoke | 06.9 _a | 0.004 |
| | Bite nails | 03.0 _a | Bite nails | 05.3 _a | 0.045 |
| | Punch someone | 01.5 _a | Punch someone | 05.7 _b | *** |
| | Marijuana | 04.3 _a | Marijuana | 10.3 _b | *** |
| | Binge/under eat | 03.2 _a | Binge/under eat | 06.4 _a | 0.011 |
| | Exercise | 24.5 _a | Exercise | 20.7 _a | 0.142 |
| | Self-injure | 00.0 _a | Self-injure | 01.0 _a | 0.178 |
| | Shop | 16.0 _a | Shop | 12.6 _a | 0.127 |
| | None | 56.4 _a | None | 49.4 _a | 0.027 |
| Interpersonal influence | Alcohol | 11.9 _a | Alcohol | 18.9 _a | 0.001 |
| | Smoke | 02.9 _a | Smoke | 07.1 _a | 0.001 |
| | Bite nails | 03.0 _a | Bite nails | 04.4 _a | 0.249 |
| | Punch someone | 01.1 _a | Punch someone | 03.2 _a | 0.011 |
| | Marijuana | 04.7 _a | Marijuana | 10.3 _a | 0.001 |
| | Binge/under eat | 03.2 _a | Binge/under eat | 09.4 _b | *** |
| | Exercise | 11.4 _a | Exercise | 14.5 _a | 0.135 |
| | Self-injure | 00.0 _a | Self-injure | 03.2 _b | *** |
| | Shop | 10.4 _a | Shop | 08.7 _a | 0.378 |
| | None | 65.3 _a | None | 54.5 _b | *** |
| Peer bonding | Alcohol | 62.5 _a | Alcohol | 68.6 _a | 0.038 |
| | Smoke | 16.9 _a | Smoke | 29.8 _b | *** |
| | Bite nails | 01.4 _a | Bite nails | 05.5 _b | *** |
| | Punch someone | 02.0 _a | Punch someone | 05.7 _a | 0.001 |
| | Marijuana | 37.2 _a | Marijuana | 53.0 _b | *** |
| | Binge/under eat | 06.4 _a | Binge/under eat | 10.1 _a | 0.026 |
| | Exercise | 32.5 _a | Exercise | 35.8 _a | 0.265 |
| | Self-injure | 00.0 _a | Self-injure | 02.1 _a | 0.004 |
| | Shop | 56.1 _a | Shop | 56.0 _a | 0.911 |
| | None | 10.6 _a | None | 06.2 _a | 0.011 |
| Self-punishment | Alcohol | 01.5 _a | Alcohol | 06.0 _b | *** |
| | Smoke | 01.0 _a | Smoke | 03.4 _a | 0.001 |
| | Bite nails | 01.4 _a | Bite nails | 04.6 _a | 0.001 |
| | Punch someone | 00.2 _a | Punch someone | 02.5 _b | *** |
| | Marijuana | 01.0 _a | Marijuana | 03.4 _a | 0.001 |
| | Binge/under eat | 07.0 _a | Binge/under eat | 14.0 _b | *** |
| | Exercise | 12.8 _a | Exercise | 14.9 _a | 0.178 |
| | Self-injure | 00.0 _a | Self-injure | 13.5 _b | *** |
| | Shop | 02.3 _a | Shop | 01.4 _a | 0.202 |
| | None | 79.3 _a | None | 60.2 _b | *** |

Note: Different subscripts within a row denote significant group differences at $p < 0.001$.

*** Significant differences at $p < 0.001$.

2.3.2. Nonsuicidal self-injury (NSSI)

To assess NSSI involvement, participants completed the Inventory of Statements about Self-Injury (ISAS, Klonsky and Glenn, 2009). A list of self-injurious behaviors was provided (e.g., cutting, burning) and participants were asked to indicate how many times in their life they had intentionally engaged in each of the behaviors listed, without lethal intent.

2.3.3. Functions index

Using six commonly endorsed NSSI functions from the ISAS, including three intrapersonal functions (i.e., affect regulation, anti-dissociation, self-punishment) and three interpersonal functions (i.e., interpersonal boundaries, interpersonal influence, peer bonding), we created an index designed to assess the various types of behaviors participants engaged in when they wanted to address a particular function. In six separate questions, participants checked off the behaviors [from a list of 10, including drink alcohol, smoke cigarettes, bite nails, punch someone, smoke marijuana, binge/under eat, exercise, self-injury (e.g., cutting), shop or none of the above] in which they engaged when they: (1) “want to reduce stress,” “want to reduce anxiety,” as well as “feel good” (all affect regulation functions), (2) “feel numb and want to feel something” (anti-dissociation), (3) “get others to leave you alone” (interpersonal boundaries), (4) “get attention from others” (interpersonal influence), (5) “punish yourself” (self-punishment), or (6) “because your friends are doing it” (peer bonding).

3. Results

Of the total sample, 39.5% indicated having engaged in NSSI at least once. Of those individuals who engaged in NSSI, 5.9% engaged in the behavior once, 15.8% engaged in the behavior 2–4 times, 24% engaged in the behavior 5–10 times, 33.0% engaged in the behavior 11–50 times, 7.1% engaged in the behavior 51–100 times and 14.2% engaged in the behavior more than 100 times. The most commonly endorsed types of self-injury were self-hitting and head banging (21.9%), hair pulling and pinching (24%), and cutting (12.1%). Among those participants who engaged in NSSI, 30.7% reported using only one method of NSSI, 28.8% reported two methods, 17.4% reported three methods, 10% reported four methods, and 13.1% reported five or more methods of NSSI. Respondents were divided into two groups: (1) participants with no history of NSSI (labeled the “non-NSSI” group, $N=658$, 59.4%) and (2) participants who had engaged in NSSI at least once (labeled the “NSSI” group, $N=437$, 39.5%). Groups did not differ in age, sex or parental education, $ps > 0.05$.

As outlined in Table 1, we calculated the percentage of participants in each group who reported engaging in each coping behavior (e.g., drinking alcohol, smoking) to serve each of the six functions (e.g., affect regulation, peer bonding). To assess whether groups significantly differed in their frequency of coping behaviors for each regulatory function, we conducted several chi-square analyses. Given the use of multiple analyses, a Bonferroni adjustment was applied ($p < 0.001$). Although participants in both groups reported engaging in a variety of behaviors to regulate their affective and social experiences, chi-square analyses indicated that a significantly higher percentage of individuals in the non-NSSI group endorsed using *none* of the coping behaviors listed (as indicated by the “None” category) for anti-dissociation, interpersonal influence and self-punishment than in the NSSI ($p < 0.001$). In addition, several significant group differences in the frequency of participants reporting maladaptive coping behaviors were identified, whereby more participants in the NSSI group endorsed maladaptive coping behaviors in order to serve the functions as compared to the non-NSSI group (see Table 1 for significant differences for each function). Finally, given that individuals were included in the NSSI group if they reported having *ever* engaged in NSSI, we repeated the analyses including only participants who indicated recent NSSI use (i.e., NSSI within the past year). Importantly, the pattern of results did not differ.

4. Discussion

In total, 39.5% of the sample reported having engaged in NSSI at least once and many individuals reported multiple incidents. Although our prevalence of NSSI may seem high, our estimate is comparable to other studies with community samples that have employed checklist measures of NSSI behaviors, as well as studies involving first-year undergraduate students (Gratz et al., 2002; Klonsky and Glenn, 2009; Klonsky and Olino, 2008).

Consistent with Nock’s (2009) prediction, both groups endorsed a variety of behaviors to regulate their affective and social experiences, suggesting NSSI may be associated with other health-risk behaviors because these behaviors serve similar functions. Compared to the group of non-injurers, however, a higher percentage of individuals with a history of NSSI engaged in maladaptive coping behaviors (i.e., marijuana, binge/under eating) to regulate the six functions of affect regulation, anti-dissociation, interpersonal boundaries, interpersonal influence, peer bonding and self-punishment. Several studies have shown that individuals who engage in NSSI report higher levels of psychopathology (e.g., depression, anxiety) as compared to non-injurers (Ross and Heath, 2002; Klonsky and Glenn, 2009). Individuals who engage in NSSI, therefore, may have greater difficulty regulating their affective and social experiences than individuals who do not engage in NSSI, and as a result, are at increased risk for a variety of maladaptive coping behaviors, in addition to NSSI.

Interestingly, individuals who engaged in NSSI were significantly more likely to endorse at least one of the coping behaviors for anti-dissociation, interpersonal influence and self-punishment, suggesting that individuals who engage in NSSI may experience these needs more often than individuals who do not engage in NSSI. Moreover, the highest percentage of individuals who endorsed self-injury did so specifically to regulate the need to self-punish, suggesting NSSI may serve the function of self-punishment better than some of the other coping behaviors.

Strengths of the present study include the use of a large sample of self-injurers, a comparison non-NSSI group, and the examination of several coping behaviors. Further, while the results may not be generalizable to other age groups or individuals from different geographic regions, the present study provides the first exploratory report of the specificity of six of the most commonly endorsed motivations for engaging in NSSI. Although more research on this topic is needed, including the addition of clinically based samples, our findings offer preliminary evidence that individuals who engage in NSSI may experience greater need for anti-dissociation, interpersonal influence and self-punishment than individuals who do not engage in NSSI, and indicate that NSSI may be a coping behavior selected specifically to regulate the need to self-punish.

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