

An Examination of Disclosure of Nonsuicidal Self-injury among University Students

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ABSTRACT

Despite the widespread prevalence of nonsuicidal self-injury (NSSI) among community-based samples, little is known about which self-injurers disclose their NSSI or the factors that promote disclosure among self-injurers. To address this gap in the literature, we examined whether disclosers could be differentiated from nondisclosers on the basis of NSSI characteristics (e.g. frequency of NSSI and severity of NSSI), NSSI motivations (e.g. interpersonal and intrapersonal motivations) and psychosocial factors (e.g. suicidal ideation and self-esteem). Participants consisted of a large sample of 268 self-injuring undergraduate students ($M_{\text{age}} = 19.07$ years, 70.3% women) at a Canadian university. Results indicated that 57% of self-injurers had never disclosed their NSSI to anyone. Self-injurers were most likely to disclose to peers and romantic partners. Logistic regression analyses revealed that pain during NSSI, severity of NSSI, interpersonal motivations for engaging in NSSI, higher suicidal ideation and higher friendship quality were all associated with a greater likelihood of NSSI disclosure. Our findings suggest that individuals with severe NSSI and suicidal ideation may be more likely to disclose. Moreover, our findings underscore the importance of equipping friends and romantic partners with effective responses to NSSI disclosures to promote more formal help-seeking behaviours among self-injurers. Copyright © 2014 John Wiley & Sons, Ltd.

Key words: self-injury; disclosure; university sample; young adults

Nonsuicidal self-injury (NSSI) refers to the direct and deliberate destruction of bodily tissue in the absence of suicidal intent (Nock & Favazza, 2009) and includes behaviours such as cutting, burning and head-banging (Gratz, Conrad, & Roemer, 2002; Heath, Toste, Nedecheva, & Charlebois, 2008; Klonsky & Olinio, 2008). Although NSSI tends to have its onset in early adolescence between ages 13 and 15 years (Glenn & Klonsky, 2009; Heath et al., 2008; Nock, 2010; Nock & Prinstein, 2004), recent research indicates that

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early adulthood also is a period of increased NSSI initiation (Heath et al., 2008; Whitlock, Eckenrode, & Silverman, 2006). In fact, recent estimates indicate that 12–38% of young adults report lifetime histories of NSSI (Gratz et al., 2002; Hamza, Willoughby, & Good, 2012; Heath et al., 2008; Klonsky & Glenn, 2009). Despite the widespread prevalence of NSSI, however, very few self-injurers actually disclose their NSSI behaviours to others (Evans, Hawton, & Rodham, 2005; Whitlock et al., 2006). Disclosure of NSSI, however, may provide self-injurers with increased opportunities for support from family and friends and may lead to increased access of mental health resources. Importantly, researchers have yet to examine which self-injurers are most likely to disclose their NSSI, but insight into the factors associated with disclosure of NSSI may provide a better understanding of how to promote disclosure among self-injurers. To address this gap in the literature, we examined whether NSSI disclosers could be differentiated from NSSI nondisclosers on NSSI characteristics (e.g., frequency of NSSI, number of methods and severity of NSSI), motivations for NSSI and several psychosocial indices (e.g. suicidal ideation and self-esteem).

DISCLOSURE OF NONSUICIDAL SELF-INJURY

Although NSSI is a widely occurring health concern, recent research reveals that very few self-injurers actually disclose their NSSI behaviours. Indeed, estimates indicate that as many as 30–56% of self-injurers have never disclosed their NSSI to anyone (Evans et al., 2005; Martin, Swannell, Hazell, Harrison, & Taylor, 2010; Michelmore & Hindley, 2012; Nixon, Cloutier, & Jansson, 2008; Whitlock et al., 2006), and the majority of self-injurers have only disclosed their NSSI once or twice (Heath, Ross, Toste, Charlebois, & Nedecheva, 2009). In addition, findings suggest that self-injurers overwhelmingly disclose to informal sources (i.e. friends and parents) rather than formal sources (i.e. psychologists and counsellors; Fortune & Hawton, 2005; Heath et al., 2008; Heath, Baxter, Toste, & McLouth, 2010). For example, recent estimates suggest that only 9–16% of young-adult self-injurers have disclosed their NSSI to a mental health professional (Baetens, Claes, Muehlenkamp, Grietens, & Onghena, 2012; Whitlock et al., 2011), suggesting that the majority of self-injurers prefer to discuss their behaviours with a close friend or family member rather than a mental health provider (Evans et al., 2005).

One reason self-injurers may be unwilling to disclose their NSSI is because of the stigma surrounding self-injurious behaviours (Fortune, Sinclair, & Hawton, 2008b). For example, recent research on high school teachers' perceptions of NSSI suggests that many teachers regard NSSI as horrifying and believe that self-injurers engage in NSSI behaviours to seek attention from others (Carlson, DeGeer, Deur, & Fenton, 2005; Heath, Toste, Sornberger, & Wagner, 2011). Other studies have determined that even clinical and medical staff have negative attitudes towards self-injurious behaviours, such as feelings of frustration, anger and helplessness about the patient's self-injurious behaviours (Saunders, Hawton, Fortune, & Farrell, 2012). Self-injurers seem to be aware of these negative perceptions, because when asked to report their reasons for withholding their NSSI engagement, they report that they fear being stigmatized and labelled as attention-seeking, worry others will not understand their reasons for engaging in NSSI, and are concerned that disclosure will lead to more problems (Fortune, Sinclair, & Hawton, 2008a; Klineberg, Kelly, Stansfeld, & Bhui, 2013). Recent research suggests that disclosing a concealed stigmatized identity (i.e. information about oneself that is socially devalued—e.g., self-injury), however, may lead to increased opportunities for

support and guidance, greater acceptance and understanding, and lead to greater relationship quality between the discloser and confidant (see the review of Pachankis, 2007). Indeed, when youth were asked the best way to prevent self-injury, students felt being able to disclose NSSI was the first step towards NSSI prevention (Fortune et al., 2008b).

FACTORS INFLUENCING WILLINGNESS TO DISCLOSE

Although research on the disclosure of NSSI is limited, the benefits of disclosure (e.g. increased psychosocial well-being and physical health) of other health risk behaviours (e.g. anorexia and suicidal behaviour) have been widely documented (Chaudoir & Quinn, 2010; Corrigan & Rao, 2012; Pennebaker & Francis, 1996; Smart & Wegner, 1999). Given the widespread benefits of disclosure of other mental health concerns, encouraging disclosure of NSSI may provide important opportunities for individuals who engage in NSSI to seek support, advice, and guidance. Moreover, researchers have suggested that disclosure to informal sources (e.g., friends) may serve as a mediator towards initial medical or professional contact (Wu, Whitley, Stewart, & Liu, 2012). Identifying those individuals most likely to disclose, therefore, may provide important insight into how disclosure may be encouraged. Although very little research has examined factors associated with the disclosure of NSSI, several factors have been found to promote disclosure of other health risk behaviours.

Recent theory suggests that one of the most powerful influences of an individual's willingness to disclose is the expected reaction of the confidant (Derlega, Anderson, Winstead, & Greene, 2011; Chaudoir & Fisher, 2010; Sprecher & Hendrick, 2004). When an individual is trying to determine whether to disclose, the potential receiver is considered in terms of the type of relationship quality, as well as the receiver's potential reaction to this information (Greene, 2009). According to Sprecher and Hendrick (2004), in intimate relationships, disclosure is positively correlated with relationship quality, which includes trust, satisfaction and commitment. Similarly, in two other studies, the closer an individual felt towards the respondent, the more likely he or she expected a positive reaction to the information and the more likely he or she was to disclose (Afifi & Olson, 2005; Derlega et al., 2011).

People also have been found to be more likely to disclose to others when they have higher self-esteem and greater confidence in themselves (Gaucher et al., 2012). Greene (2009) claims that in order for an individual to disclose to a respondent, the individual must first evaluate his or her own ability to send the appropriate message to the respondent. Similarly, research has shown that individuals who are confident that they can communicate their concealed stigmatized identity effectively to others are more likely to disclose (Chaudoir & Fisher, 2010). Lastly, the degree of intrapersonal distress an individual is experiencing also may impact whether he or she is willing to disclose. For example, higher levels of suicidal ideation have been associated with lower levels of disclosure of suicidal thoughts (Apter, Horesh, Gothelf, Graffi, & Lepkifker, 2001; Horesh & Apter, 2006).

THE PRESENT STUDY

Although findings indicate that various factors may influence an individual's willingness to disclose mental health concerns, there has been little research on disclosure of NSSI. Specifically, researchers have yet to examine whether NSSI disclosers differ from NSSI nondisclosers, although this may provide new insight about the factors that promote NSSI disclosure. In the

present study, we first examined the prevalence and sources of NSSI disclosure among a large sample of self-injurers. Next, we examined whether disclosers could be differentiated from nondisclosers by NSSI characteristics, motivations and psychosocial indices.

From previous research of community-based young adults engaging in NSSI (Heath et al., 2009; Whitlock et al., 2011), we expected that a minority of self-injurers would report NSSI disclosure. Research indicates that self-injurers tend to disclose to informal sources such as friends, rather than formal sources such as counsellors and psychologists (Evans et al., 2005; Fortune et al., 2008b; Nixon et al., 2008; Whitlock et al., 2006). Few studies, however, have examined multiple sources of informal NSSI disclosure, including parents, boy/girlfriends and peers, as well as more formal sources (e.g. psychologists and medical practitioners). To address this gap in the literature, we asked self-injurers to report on their NSSI disclosures to a variety of sources in the present study. We expected that participants would primarily disclose to informal sources (i.e. friends and family) rather than formal sources.

We examined which NSSI characteristics best differentiated individuals who had disclosed their NSSI from individuals who had not disclosed their NSSI (i.e. frequency of NSSI, whether the participant experienced pain during NSSI, time elapsed between the urge to act and engagement in NSSI, desire to stop NSSI, severity of NSSI and number of methods of NSSI). Many studies have not examined these characteristics in relation to NSSI disclosure, but recent research suggests that the number of methods a self-injurer employs may be related to disclosure. Specifically, Heath, Baxter, Toste, and McLouth (2010) found that individuals who reported a greater number of NSSI methods were more likely to access school-based support groups for these behaviours. Although these researchers did not assess NSSI disclosure specifically, these findings suggest that individuals who engage in more methods of NSSI may be more likely to self-disclose their NSSI behaviours. Given that no previous research has examined whether other NSSI characteristics are associated with disclosure, our analysis was largely exploratory.

We also examined whether self-injurers' motivations for engaging in NSSI were associated with NSSI disclosure. Research on the functions of NSSI indicates that NSSI motivations typically fall into two primary categories: intrapersonal functions (e.g. emotionally reinforcing motivations, such as reducing stress and anxiety) and interpersonal functions (e.g., socially reinforcing motivations, such as fitting in with peers; Klonsky & Glenn, 2009; Nock & Prinstein, 2004). Our study is the first to examine whether individuals who disclose their NSSI behaviours differ in NSSI motivations. We hypothesized that individuals who engaged in NSSI behaviours for interpersonal motivations (e.g., fitting in with peers) would be more likely to disclose their behaviours than individuals who engaged in NSSI for intrapersonal motivations, because individuals who report interpersonal motivations may be more likely to engage in NSSI in a social context.

Finally, we examined whether different psychosocial factors were associated with disclosure of NSSI. As already highlighted, many different psychosocial factors (e.g. suicidal ideation, self-esteem and relationship quality) have been associated with the disclosure of other stigmatized behaviours, but no research has examined whether these indices are related to the disclosure of NSSI. To address this gap in the literature, we examined whether NSSI disclosers could be differentiated from nondisclosers on suicidal ideation, self-esteem, friendship quality and daily hassles. On the basis of previous research with other health-risk behaviours, we hypothesized that those with better friendship quality (Derlega et al., 2011; Sprecher & Hendrick, 2004), lower suicidal ideation (Horesh &

Apter, 2006), greater stress and higher self-esteem (Derlega, Winstead, Greene, Serovich, & Elwood, 2004; Gaucher et al., 2012) would be more likely to disclose their NSSI.

METHOD

Participants

The present sample was drawn from a sample of 836 second-year undergraduate students (71% women, $M_{\text{age}} = 19.15$) from a mid-sized Canadian university, who were part a larger ongoing longitudinal project examining adjustment in university. In total, 268 respondents (32%) from this larger study reported a lifetime history of NSSI and were included in the present study. 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 (Statistics Canada, 2006). Data on socio-economic status indicated mean levels of education for mothers and fathers falling between 'some college, university or apprenticeship program' and 'completed a college/apprenticeship/ technical diploma'. In total, less than 2% of data were missing owing either to nonresponse or an insufficient number of responses. Missing values were imputed using the expectation-maximization algorithm. Methodological research has demonstrated that maximum likelihood estimation is preferable to pairwise deletion, list-wise deletion or means substitution (Schafer & Graham, 2002).

Procedure

Participants were invited to participate in the present study by way of emails, posters and classroom announcements. Students were given \$20 to complete the survey. The study was approved by the university ethics board prior to survey administration, and all participants provided informed active consent before participation. The survey was administered by trained research personnel. At the end of the survey, participants were provided with information on accessing and contacting relevant counselling services in case of any distress.

Measures

Demographics. Age, sex and parental education (one item per parent), averaged for participants reporting on both parents ($r = .40$), were assessed on a scale of 1 (*did not finish high school*) to 6 (*professional degree*).

Nonsuicidal self-injury. Participants completed the Inventory of Statements about Self-Injury (ISAS, Klonsky & Glenn, 2009) to specifically address whether they had engaged in *direct* forms of self-injury. A list of eight self-injurious behaviours was provided (i.e. cutting, burning and head-banging), and participants were asked to indicate how many times they had intentionally engaged in each of the behaviours listed within the past year, without lethal intent. Participant responses regarding lifetime frequency of NSSI were collapsed into the following six categories to create a normalized measure of NSSI frequency: 1 incident, 2–4 incidents, 5–10 incidents, 11–50 incidents, 51–100 incidents and more than 100 incidents (see Heath et al., 2008, for a similar categorization). Participants were also asked to indicate whether they experienced physical pain while self-injuring

(1 = *no*, 2 = *sometimes*, 3 = *yes*), the amount of time elapsed between the urge to self-injure and the act of NSSI (i.e. 1 = *less than one hour* to 6 = *more than 1 day*), whether they wanted to stop self-injuring (1 = *no*, 2 = *sometimes*, 3 = *yes*) and the severity of their typical self-injury (1 = *mild, superficial tissue damage* to 3 = *severe tissue damage*). The number of methods participants engaged in was calculated by totalling the different types of NSSI behaviours participants endorsed. Participants were also asked to indicate their motivations for engaging in the self-injurious acts, using three intrapersonal functions (i.e. affect regulation, antidissociation and self-punishment) and three interpersonal functions (i.e. interpersonal boundaries, interpersonal influence and peer bonding) from the ISAS. Participants indicated how relevant each motivation was to them on a 3-point Likert scale (1 = *not relevant* to 3 = *very relevant*). The ISAS has been shown to have good internal consistency and construct validity in previous research (Glenn & Klonsky, 2011; Klonsky & Glenn, 2009).

Disclosure of nonsuicidal self-injury. Disclosure was measured by asking participants 'have you told anyone that you self-harm?' Participants were then provided with a list of options (i.e. friend, boyfriend/girlfriend, mother, father, brother, sister, doctor, teacher/professor, counsellor, social worker and psychologist) and were asked to select any individuals to whom they had disclosed their NSSI.

Suicidal ideation. Participants completed an assessment of past-year suicidal ideation from the Suicide Behaviors Questionnaire-Revised (SBQR; Osman, 2002). Participants were asked to indicate their frequency of suicidal ideation over the past 12 months (i.e. recent suicidal ideation) on a scale from 1 (*never*) to 5 (*very often*). The SBQR has been shown to have good internal consistency and validity in both clinical and nonclinical samples in previous research (Osman, 2002).

Self-esteem. Self-esteem was assessed using Rosenberg's (1965) 10-item scale and required participants to indicate the extent to which they agreed or disagreed with items such as 'I take a positive attitude toward myself' using a 5-point scale from 1 (*strongly disagree*) to 5 (*strongly agree*). The Cronbach alpha for the scale was .92.

Friendship quality. Friendship quality was assessed using 18 items (e.g. 'My friends accept me as I am') from Armsden and Greenberg's (1987) Inventory of Parent and Peer Attachment, using a scale from 1 (*almost never or never*) to 4 (*almost always or always*). Cronbach's alpha was .91.

Daily hassles. Daily hassles were assessed using 26 items (adapted from Willoughby, 2008) in which participants were asked to indicate the frequency of being bothered by daily hassles with friends, peers and university work (e.g. trying to get good marks) using a 3-point scale from 1 (*almost never bothers me*) to 3 (*often bothers me*). Cronbach's alpha for the scale was .84.

Plan of analysis. First, we examined the prevalence of NSSI disclosures among our sample of self-injuring undergraduate students. Next, we examined the percentage of self-injurers who disclosed their NSSI behaviours to a variety of informal (e.g. family and friends) or formal sources (e.g. counsellor). To determine whether self-injurers who disclosed their NSSI could be differentiated from self-injurers who had not disclosed their NSSI on NSSI characteristics, NSSI motivations and psychosocial indices, three binary logistic regression analyses were conducted. For each analysis, first, a constant-only model predicting NSSI disclosure (i.e. 0 = *nondiscloser*, 1 = *discloser*) was analysed, and this

model was then compared with a full model with all the predictors. Given the use of multiple logistic regression analyses, a Bonferroni correction was applied and an alpha of .02 was used to determine significance.

RESULTS

From the larger sample, 268 participants (32%) indicated they had engaged in NSSI at least once in their lifetime. Among participants with a history of NSSI, 154 (57%) had never disclosed their NSSI to anyone (69% of men had never disclosed, compared with 53% of women). Self-injurers primarily disclosed their NSSI behaviours to informal sources (e.g. friends, boyfriends/girlfriends and mother/father), although some self-injurers had disclosed to formal sources (e.g. medical doctor, counsellor, psychologist or social worker). See Figure 1 for percentages of NSSI disclosures to each of the sources of disclosure. In total, 74% of disclosers had disclosed only to an informal source (i.e. friend, boy/girl friend, mother, father, sister or brother), and 26% had disclosed to both formal and informal sources.

Binary logistic regression analysis was used to predict NSSI disclosure using the six NSSI characteristics as predictors (i.e. NSSI frequency, experience of pain during NSSI, time elapsed between urge to self-injure and act of NSSI, desire to stop self-injuring, severity of NSSI and number of methods of NSSI). The full model provided a significantly better fit to the data than the constant-only model, $X^2(6) = 42.04$, $p < 0.01$. The full model correctly classified 66% of cases, which was 30.5% better than chance. See Table 1 for regression coefficients, Wald statistics, odds ratios and 95% confidence intervals. Results indicated that self-injurers who reported greater physical pain during NSSI and greater severity of NSSI were more likely to disclose their NSSI behaviours. There was also a trend effect for desire to stop self-injuring, such that individuals who reported greater desire to stop self-injuring were more likely to disclose their NSSI behaviours.

Binary logistic regression analysis was used to predict NSSI disclosure using the six NSSI motivations as predictors (i.e. affect regulation, antidissociation, self-punishment, interpersonal boundaries, interpersonal influence and peer bonding). The full model

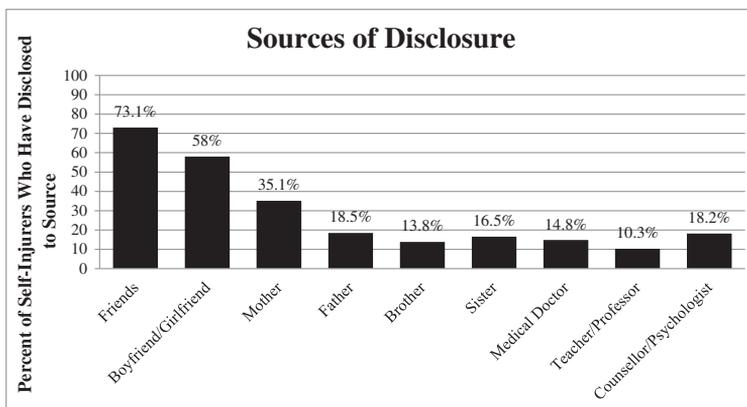


Figure 1. Percent of Self-Injurers Who Have Disclosed to Source.

Table 1. Nonsuicidal self-injury (NSSI) characteristics and NSSI disclosure

Predictor	<i>B</i>	Wald chi-square	Odds ratio (Exp <i>B</i>)	<i>p</i> value	95% confidence interval
Frequency of NSSI	0.116	0.874	1.123	0.350	[0.881, 1.432]
Physical pain during NSSI	0.711	12.975	2.037	0.000	[1.383, 2.999]
Time elapsed between urge and act	0.003	0.003	1.003	0.960	[0.879, 1.146]
Desire to stop self-injuring	0.446	4.149	1.563	0.042	[1.017, 2.401]
Severity of NSSI	1.306	9.817	3.691	0.002	[1.631, 8.356]
Number of methods of NSSI	0.037	0.126	1.038	0.723	[0.844, 1.277]

provided a significantly better fit to the data than the constant-only model, $X^2(7) = 31.93$, $p < 0.01$. The full model correctly classified 69% of cases, which was 34% better than chance. See Table 2 for regression coefficients, Wald statistics, odds ratios and 95% confidence intervals. Only interpersonal influence motivations differentiated disclosers from nondisclosers. Specifically, self-injurers who reported greater interpersonal influence motivations were more likely to disclose their NSSI.

Binary logistic regression analysis was used to predict NSSI disclosure using the four psychosocial indices as predictors (i.e. suicidal ideation, self-esteem, friendship quality and daily hassles). The full model provided a significantly better fit to the data than the constant-only model, $X^2(4) = 46.83$, $p < 0.01$. The full model correctly classified 69% of cases, which was 34% better than chance. See Table 3 for regression coefficients, Wald statistics, odds ratios and 95% confidence intervals. Self-injurers who had greater suicidal ideation and friendship quality were more likely to disclose their NSSI behaviours. There was also a trend for self-esteem, such that self-injurers with greater self-esteem were more likely to disclose their NSSI behaviours.

Table 2. Nonsuicidal self-injury (NSSI) motivations and NSSI disclosure

Predictor	<i>B</i>	Wald chi-square	Odds ratio (Exp <i>B</i>)	<i>p</i> value	95% confidence interval
Affect regulation	0.295	1.369	1.343	0.242	[0.820, 2.199]
Antidissociation	0.606	3.450	1.833	0.063	[0.967, 3.473]
Self-punishment	-0.421	1.490	0.656	0.222	[0.334, 1.290]
Interpersonal boundaries	-0.068	0.030	0.935	0.862	[0.435, 2.008]
Interpersonal influence	1.525	11.299	4.594	0.001	[1.888, 11.175]
Peer bonding	-0.437	1.607	0.615	0.205	[0.289, 1.305]

Table 3. Psychosocial indices and nonsuicidal self-injury (NSSI) disclosure

Predictor	<i>B</i>	Wald chi-square	Odds ratio (Exp <i>B</i>)	<i>p</i> value	95% confidence interval
Suicidal ideation	0.808	31.114	2.244	0.000	[1.689, 2.982]
Self-esteem	0.457	3.439	1.580	0.064	[0.974, 2.561]
Friendship quality	0.860	7.800	2.364	0.005	[1.292, 4.323]
Daily hassles	0.540	1.000	1.715	0.317	[0.596, 4.937]

DISCUSSION

Despite the widespread prevalence of NSSI among young adults (Heath et al., 2008; Hamza et al., 2012; Klonsky & Glenn, 2009), research suggests that few self-injurers actually disclose their NSSI (Evans et al., 2005; Whitlock et al., 2006), and little is known about NSSI disclosure. Specifically, researchers have yet to examine which self-injurers are most likely to disclose their NSSI, although insight into the factors associated with the disclosure of NSSI may provide a better understanding of how to promote disclosure among self-injurers. In the present study, we examined the prevalence of NSSI disclosure among university students and whether self-injurers who have disclosed their NSSI could be differentiated from self-injurers who have not disclosed their NSSI on NSSI characteristics, NSSI motivations and psychosocial adjustment.

We found that 57% of self-injurers had never told anyone about their NSSI. Our finding is consistent with a growing body of literature that suggests that many self-injurers do not disclose their NSSI behaviours to others (Evans et al., 2005; Heath et al., 2009; Nixon et al., 2008). Men were also less likely to disclose their NSSI than women, which is consistent with a larger body of literature that men may be less likely to disclose mental health concerns than women (Mackenzie, Gekoski, & Knox, 2006; Sultan & Chaudry, 2008). Researchers have suggested that men may have a more difficult time verbalizing and recognizing emotional distress, revealing 'weaknesses' to others, and have less access to close and responsive social support networks (Mackenzie et al., 2006; Sultan & Chaudry, 2008). Clearly, identifying ways to promote disclosure among men, in particular, will be of clinical importance.

One reason so many self-injurers choose not to disclose their NSSI behaviours may be because of the stigma surrounding NSSI. NSSI is often regarded as an attention-seeking or manipulative behaviour among peers and teachers (Heath et al., 2011; Walsh, 2006), and even clinical and medical staff have negative attitudes towards self-injurious behaviours, such as feelings of frustration, anger and helplessness about the patient's self-injurious behaviours (Saunders et al., 2012). Negative stereotypes about self-injury, therefore, may account for why so many self-injurers choose not to disclose to others. Importantly, research has shown that concealing a stigmatized identity (e.g., self-injurer) may have negative consequences for the secret keeper, such as a preoccupation with the concealed identity, feelings of guilt, social avoidance and negative views towards the self (Pachankis, 2007). Interventions aimed at reducing the stigma around NSSI (i.e. improving understanding of the behaviour, as well as the motivations underlying the behaviour), therefore, may be an effective way to reduce barriers to help-seeking among self-injurers (e.g. fear of stigmatization and being labelled as an attention-seeker and worry about lack of understanding).

We also found that self-injurers overwhelmingly disclosed their NSSI to informal sources (e.g. friends, family and peers) rather than formal sources (e.g. psychologists and medical doctors). Informal sources provide self-injurers with both social and emotional support, which may be the reason why self-injurers disclose to these trusted sources more often (Wu et al., 2012). Moreover, Wu et al. (2012) have suggested that the majority of self-injurers disclose their NSSI to informal sources such as family and friends first, who then act as a mediator for more formal medical contact. Consistent with the claims of Wu et al. (2012), we found that all self-injurers who had disclosed to a formal source had also disclosed to an informal source. Our findings suggest that self-injurers may be disclosing to informal sources first as a way to gain

the support and encouragement they need to contact formal sources such as psychologists and doctors.

One novel finding of our study was that many NSSI disclosures were made to romantic relationship partners, which is a source that previous literature has not examined. Romantic relationships are increasingly important in emerging adulthood, given that finding a romantic partner is a critical developmental task during this age period (Roisman, Masten, Coatsworth, & Tellegen, 2004). Romantic relationships may be characterized by high levels of trust, support and emotional intimacy (Caron, Lafontaine, Bureau, Levesque, & Johnson, 2012), which serve to facilitate NSSI disclosures. Self-injurers may be more confident, therefore, that disclosures will be responded to with warmth and understanding.

Recall that recent theory suggests that one of the most important factors that influences whether an individual will disclose a concealed stigmatized identity and whether the disclosure experience will be a positive one is the response of the confidant (Chaudoir & Fisher, 2010). Given that we found that self-injurers most commonly disclosed to informal sources (e.g. romantic partners and peers), our findings suggest that an important focus of NSSI intervention and prevention strategies should be on equipping parents and peers with effective ways to respond to NSSI disclosures (i.e. responding with warmth, empathy and understanding). Indeed, warm and supportive responding to an NSSI disclosure may reduce self-injurers' psychological distress, facilitate greater understanding and acceptance and promote relationship quality (Chaudoir & Fisher, 2010; Link, Mirotnik, & Cullen, 1991). Moreover, if the confidant responds positively to the NSSI disclosure, more formal help-seeking may be sought by the self-injurer (Wu et al., 2012).

Another central focus of the present study was to determine if disclosers could be differentiated from nondisclosers on NSSI characteristics, motivations and psychosocial indices. Although frequency of NSSI engagement and the number of methods of NSSI were not significantly related to disclosure of NSSI, both severity of NSSI and whether or not self-injurers experienced pain during NSSI were found to predict increased likelihood of NSSI disclosure. Previous literature has suggested that the number of methods a self-injurer uses to self-harm may be associated with willingness to access school-based services (Heath et al., 2010); however, the presence of pain and severity of NSSI may be stronger predictors of NSSI disclosure than NSSI frequency or number of methods. Individuals with more severe or painful NSSI may be experiencing higher levels of intrapersonal distress or more suicidal thoughts and behaviours (Klonsky & Olino, 2008), which may make these self-injurers more motivated to disclose and seek help. Alternatively, self-injurers who engage in more severe and painful NSSI may also be more inclined to seek medical attention and, in turn, may have to disclose their NSSI behaviours in an effort to access medical services (Hawton, Rodham, Evans, & Harriss, 2009). Disclosures of NSSI, therefore, should be taken seriously by providers of health services, given our finding that individuals engaging in high-severity NSSI were more likely to disclose than individuals with low-severity NSSI.

We also examined whether motivations for engaging in NSSI differentiated disclosers from nondisclosers. Both interpersonal functions (e.g. socially reinforcing motivations) and intrapersonal functions (e.g. emotionally reinforcing motivations) were examined, but only use of interpersonal influence motivations was associated with greater likelihood of NSSI disclosure. Recent research indicates that individuals who engage in NSSI for interpersonal motivations are more likely to self-injure in a social context (e.g. with peers) than individuals who engage in NSSI for intrapersonal reasons (e.g. affect regulation; Klonsky & Glenn, 2009). It is not surprising, therefore, that individuals who engage in

NSSI in the presence of others are more likely to have disclosed their NSSI. Moreover, interpersonal influence motivations are assessed with items such as 'When I self-injure, I am letting others know the extent of my emotional pain' (Klonsky, 2007). Self-injurers engaging in NSSI for interpersonal motivations, therefore, may be more likely to disclose their NSSI because these individuals may already be attempting to communicate their distress to others by engaging in NSSI.

Lastly, associations among psychosocial indices and NSSI disclosure were examined. Results indicated that friendship quality was positively associated with the disclosure of NSSI. Friendships provide an excellent source of emotional support and encouragement during distressing times (Sprecher & Hendrick, 2004). When an individual feels close to someone, he or she may be more likely to expect a positive reaction to the disclosure and an increase in social support from the source of disclosure (Afifi & Olson, 2005). This suggests that a self-injurer may be more likely to disclose their NSSI to a close friend who the self-injurer believes will react in a positive and supportive manner. Researchers have found that individuals who perceive a lack of support and social isolation also perceive a lack of opportunities for disclosure and, therefore, are less likely to disclose (Pennebaker & Francis, 1996). This suggests that being surrounded by support has a large role in promoting disclosure and that programmes should foster effective response strategies to disclosures among friends and peers (e.g. Signs of Self-injury Program; Muehlenkamp, Walsh, & McDade, 2010).

Self-injurers who indicated they were higher in suicidal ideation were also more likely to disclose their NSSI behaviours to others than self-injurers with lower suicidal ideation. Although we expected that self-injurers with high suicidal ideation would be less likely to disclose, our results are consistent with Michelmore and Hindley's (2012) findings that individuals with a greater intent to die were more likely to seek help for their deliberate self-harm behaviours (i.e. self-injury and suicidal behaviour). Our findings are inconsistent with studies that have shown that higher levels of suicidal ideation have been associated with lower levels of disclosure of suicidal thoughts and behaviours (Apter et al., 2001; Horesh & Apter, 2006). These studies specifically assessed disclosure of suicidal behaviour, however, not NSSI. Moreover, the majority of past research has focused on suicidal behaviours, including suicide attempts, whereas the present study only examines suicide ideation. Nevertheless, it is unclear why individuals with higher levels of suicidal ideation are more likely to disclose NSSI behaviours, but not suicidal thoughts and behaviours.

Finally, there was also a trend effect that self-injurers who were higher in self-esteem were more likely to disclose their NSSI behaviours to others. Our results are consistent with a larger literature on disclosure of health risk behaviours, which demonstrates that individuals with low self-esteem are more likely to keep information to themselves and are less likely to disclose health risk behaviours to others (Derlega et al., 2004; Gaucher et al., 2012). Researchers have suggested that individuals consider their own confidence and their ability to communicate the appropriate message they want to send to a given receiver when deciding whether to disclose their health-risk behaviours (Greene, 2009). Our results suggest that in order to encourage more help-seeking behaviours among nonsuicidal self-injurers, treatment programmes should focus on promoting the individual's self-esteem and self-confidence with respect to relaying information to others. Moreover, recent research indicates that individuals who are better able to express their concealed identity to others through verbal communication are more likely to have positive disclosure experiences (Chaudoir & Fisher, 2010). Equipping self-injurers with effective ways to express themselves (i.e. describe their self-injury and relay their underlying motivations), therefore, may also provide better disclosure experiences for self-injurers.

LIMITATIONS

Despite the many strengths of our study, including the use of a large sample and the focus on NSSI disclosure, our study is not without limitations. First, although our study specifically examined correlates of NSSI disclosure, we did not specifically test bidirectional associations between NSSI disclosure and our predictors (i.e. NSSI characteristics, motivations and psychosocial indices). Although we tested whether specific factors were associated with increased likelihood of NSSI disclosure, it may be that the observed effects are bidirectional and that NSSI disclosure also predicts change in the specific factors examined (i.e. NSSI characteristics, NSSI motivations and psychosocial indices). Nevertheless, our findings provide clinicians with several factors that can be used to differentiate self-injurers who disclose their NSSI from those who do not disclose their NSSI.

Second, although the larger sample was representative of a particular university in Canada, the majority of the participants enrolled in the study were Caucasian and born in Canada; therefore, our findings may not generalize to other geographic regions, including those with differing ethnic and/or demographic backgrounds. Furthermore, our study specifically sampled second-year university students and therefore may not be generalizable to the wider student population (i.e. upper-year students) or young adults not attending university. Moreover, participants were offered \$20 to complete the study, which may have impacted participants' willingness to participate in the present study. In addition, we did not have enough male self-injuring participants to conduct our analyses separately for both men and women. Future research should specifically examine the correlates of disclosures separately for both men and women. Regardless, our findings provide one of the first examinations of the correlates of NSSI disclosure among a large community-based sample.

Third, our finding that 57% of individuals with a history of NSSI did not disclose this behaviour to anyone suggests that self-injurers are highly motivated to conceal this behaviour from others. There may be a group of self-injurers, therefore, who were not included in the present analysis, because they did not disclose their NSSI on the survey or chose not to participate in the study. To encourage honest responding on the survey, however, we took several precautions to ensure participants that their responses would be confidential. Prior to completing the survey, participants were informed that their surveys would contain no identifying information, other than a confidential ID code. When participants completed their surveys, their responses were sealed in an envelope (which participants were informed would be stored under lock and key). It is also noteworthy that no participants chose to terminate study participation or expressed concerns about the confidentiality of their responses. Importantly, we found that 32% of the sample reported a history of NSSI, which is in line with upper-bound estimates from other studies (Gratz et al., 2002; Hamza et al., 2012). Finally, given that the present study was part of a larger study, we did not specifically target self-injurers (i.e. we tried to avoid self-selection biases). Nevertheless, participants were told ahead of time that the survey would include questions about self-injury (in addition to questions about stress and coping in university). A limitation of the present study, therefore, is that our sample may under-represent a larger population of nondisclosers. Moreover, it is unclear from our study whether individuals who chose not to disclose their NSSI on the survey might differ from NSSI disclosers on the study variables.

Fourth, another limitation of the present study was the reliance on a single source of information (i.e. self-reports). The study would have benefited from corroboration by other sources (i.e. parents or peers) at multiple assessment periods. Moreover, our study required

participants to recall their lifetime engagement in NSSI. Thus, it is possible that our study is subject to recall errors. It would be useful for future research to assess frequency of NSSI behaviour in real time using ecological moments sampling, such as the use of daily diaries. Reporting on multiple incidents of NSSI and behaviours also would provide an opportunity to assess the characteristics of multiple episodes of self-injurious behaviours.

CONCLUSION

In summary, we have furthered the research on NSSI disclosure by examining the prevalence of the disclosure of NSSI, and whether NSSI disclosers could be differentiated from nondisclosers on NSSI characteristics, motivations and psychosocial indices. Our finding that the majority of self-injurers have not disclosed their NSSI by early adulthood suggests self-injurers are highly motivated to conceal their NSSI behaviours from others. Reducing the stigma around NSSI, therefore, may be an effective way to reduce barriers to help-seeking among self-injurers (e.g. fear of being misunderstood or labelled as attention-seeking). Among the minority who had disclosed their NSSI, disclosures were typically made to informal sources (e.g. peers and romantic partners), suggesting that an important focus of NSSI intervention and prevention strategies should be on equipping parents and peers with effective ways to respond to NSSI disclosures (i.e. responding with warmth, empathy and understanding). Indeed, we also found that friendship quality was positively associated with NSSI disclosures. Our findings are consistent with a recent theory that suggests one of the most important factors that influences whether an individual will disclose a concealed stigmatized identity is whether the individual believes the confidant will respond positively to the disclosure (Chaudoir & Fisher, 2010). Positive responding to NSSI disclosures may reduce self-injurers' psychological distress, facilitate greater understanding and acceptance and promote relationship quality between the self-injurer and confidant (Chaudoir & Fisher, 2010; Link, Mirotznik, & Cullen, 1991). Moreover, if the confidant responds positively to the NSSI disclosure, more formal help-seeking may be sought by the self-injurer (Wu et al., 2012). Finally, our study provides new insight into which self-injurers may be most likely to disclose their NSSI (i.e. those engaging in severe, painful NSSI for interpersonal motivations) and offers clinicians with ways to discriminate disclosers from nondisclosers.

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