Correlates of disclosure of non-suicidal self-injury amongst Australian university students

Sylvanna Mirichlis, Penelope Hasking, Stephen P. Lewis and Mark E. Boyes

Sylvanna Mirichlis is based at the School of Population Health, Curtin University, Perth, Australia.
Penelope Hasking is based at the Enable Institute, School of Population Health, Curtin University, Perth, Australia.
Stephen P. Lewis is based at the Department of Psychology, University of Guelph, Guelph, Canada.
Mark E. Boyes is based at the Enable Institute, School of Population Health, Curtin University, Perth, Australia.

Received 30 July 2021
Revised 18 October 2021
8 December 2021
10 December 2021
Accepted 11 December 2021

Mark Boyes is supported by the National Health and Medical Research Council, Australia (Investigator Grant 1173043). The other authors have no conflicts of interest to disclose.

Abstract

Purpose – *Non-suicidal self-injury (NSSI) is associated with psychological disorders and suicidal thoughts and behaviours; disclosure of NSSI can serve as a catalyst for help-seeking and self-advocacy amongst people who have self-injured. This study aims to identify the socio-demographic, NSSI-related, socio-cognitive and socio-emotional correlates of NSSI disclosure. Given elevated rates of NSSI amongst university students, this study aimed to investigate these factors amongst this population.*

Design/methodology/approach – *Australian university students (*n *= 573) completed online surveys; 80.2% had previously disclosed self-injury.*

Findings – *NSSI disclosure was associated with having a mental illness diagnosis, intrapersonal NSSI functions, specifically marking distress and anti-dissociation, having physical scars from NSSI, greater perceived impact of NSSI, less expectation that NSSI would result in communication and greater social support from friends and significant others.*

Originality/value – *Expanding on previous works in the area, this study incorporated cognitions about NSSI. The ways in which individuals think about the noticeability and impact of their NSSI, and the potential to gain support, are associated with the decision to disclose self-injury. Addressing the way individuals with lived experience consolidate these considerations could facilitate their agency in whether to disclose their NSSI and highlight considerations for health-care professionals working with clients who have lived experience of NSSI.*

Keywords *Non-suicidal self-injury, Disclosure, Self-disclosure, Self-injury*

Paper type *Research paper*

Self-harm refers to the poisoning or injury to oneself regardless of intent, thus including both non-suicidal self-injury and suicidal behaviour [National Institute for Health and Care Excellence (NICE), 2013]. Non-suicidal self-injury (NSSI) is the deliberate damage to one's own body without suicidal intent, often by cutting, burning and/or scratching (International Society for the Study of Self-Injury, 2020; Swannell *et al.*, 2014). An individual may be intrapersonally (e.g. emotion regulation) or interpersonally motivated (e.g. communicating distress) to self-injure (Taylor *et al.*, 2018). Approximately 5.5% of adults, 13.4% of young adults and 17.2% of adolescents report a history of NSSI (Swannell *et al.*, 2014). Typically commencing during adolescence, a second peak onset period occurs amongst between 20 and 24 years of age, coinciding with the age of many university students (Gandhi *et al.*, 2018). This is reflected in the prevalence of NSSI in this population, with 20.2% of university students having lived experience and with 10% of students engaging in self-injury for the first time in their first year of university (Kiekens *et al.*, 2019; Swannell *et al.*, 2014). NSSI is associated with various mental health difficulties, and later suicidal thoughts and behaviour, including amongst university students (Fox *et al.*, 2015; Klonsky *et al.*, 2014). NSSI is also associated with poorer academic outcomes (Kiekens *et al.*, 2016).

Disclosing NSSI may facilitate a range of benefits, e.g. catalysing support seeking, empowerment and acceptance in the face of NSSI stigma (Burke *et al.*, 2019; Rosenrot and Lewis, 2018). What is considered to be appropriate in terms of how support is provided can vary across individuals and situations; however, empathetic strength-based approaches are encouraged (Lewis and Hasking, 2021a, 2021b). Engaging in this way with individuals who disclose their self-injury could provide a welcoming space to explore empirically supported interventions for NSSI, such as dialectical behaviour therapy (Fortune *et al.*, 2021; Turner *et al.*, 2014), which could in turn mitigate the negative outcomes specifically associated with NSSI-such as suicide (Ammerman *et al.*, 2021; Lewis and Hasking, 2021a, 2021b). Despite the potential benefits of NSSI disclosure, there are several barriers. Among these are internalised stigma and concerns about how disclosure might impact recipients, anticipated stigma (e.g. fear of judgement) and anxiety related to disclosure (Long, 2018; Rosenrot and Lewis, 2018).

Understanding the factors associated with NSSI disclosure amongst students could be instrumental in identifying ways to help reduce barriers and foster beneficial outcomes in this population. In their research with undergraduate students, Armiento *et al.* (2014) and Ammerman *et al.* (2021) found suicide ideation and risk were associated with higher likelihood of NSSI disclosure, as were pain and severity of tissue damage, better friendship quality, support from a significant other and fewer depressive symptoms. Armiento *et al.* (2014) reported disclosure to be associated with interpersonal functions of NSSI, whilst Ammerman *et al.* (2021) found intrapersonal functions to be linked to disclosure.

Other factors?

Psychological theorists suggest additional factors could play a role in the decision to disclose personal information (Chaudoir and Fisher, 2010; Greene, 2009). As cognition is featured heavily in such models, it is possible that a student's decision to disclose their NSSI to another person would, at least in part, be driven by their perceptions and thoughts about their self-injury. Indeed, the way individuals conceptualise their own self-harm has been a topic of exploration within and beyond psychology (Simopoulou and Chandler, 2020). Salient cognitions might include expected and perceived outcomes of the behaviour, self-efficacy to resist NSSI and anticipation or internalisation of stigma (Greene, 2009; Hasking *et al.*, 2017; Rosenrot and Lewis, 2018). For example, if an individual expects to be judged for having self-injured, they may be less likely to disclose that they have done so, whilst perceiving negative outcomes of their self-injury may encourage disclosure (i.e. to potentially seek support). Visibility (e.g. scarring) and well-being (e.g. resilience, self-esteem) are among the other considerations featured in Greene's (2009) and Chaudoir and Fisher's (2010) models. If such considerations contribute to the understanding of NSSI disclosure, this could further promote its beneficial outcomes.

The current study

The aim of this exploratory study was to identify correlates of NSSI disclosure among university students by investigating socio-demographic, NSSI-related, socio-cognitive and socio-emotional constructs. The correlates considered were informed by prior research (Ammerman *et al.*, 2021; Armiento *et al.*, 2014) whilst also aiming to expand on this work, by inclusion of such cognitive factors such as self-efficacy and expected outcomes of NSSI, as well as presence of scarring and resilience.

Method

Participants

A sample of 573 university students with lived experience of NSSI was aggregated across three surveys; 80.6% were women, 15.2% were men and 4.2% identified as another gender

(Table 1). Participants were aged between 17 and 52 years (M = 23.66, SD = 6.55), with 62.5% reporting a previous mental illness diagnosis (most commonly depression/anxiety disorders). The mean age of NSSI onset was 13.96 years (SD = 3.91), and the three most common primary forms of self-injury were cutting (52.4%), self-battery (14%) and severe scratching (8.9%). Most participants (57.1%) had self-injured within the past year. Of the 460 (80.2%) who had previously disclosed their NSSI, 77.8% did so to a friend, 57.8% to a mental health professional, 55.7% to their partner, 40.2% to a parent, 29.3% to a general practitioner, 19.8% to a sibling, 8% to a teacher and 6.5% to another relative.

Procedure

Following ethical approval, the surveys were advertised via the university's research participation pool. Participants provided informed consent before completing online surveys, which took approximately 1 hour. Participants were awarded with course credit and were provided with coping resources (e.g. contacts for support services). The surveys

Table 1 Descriptive statistics disaggregated by disclosure status

Conceptual group	*Factor*	*Mean (SD)* *Disclosed*	*Not disclosed*	*Effect size*
Socio-demographic	Gender[a] (N = 549)	–	–	φ = 0.06
	Mental illness diagnosis[b]***	–	–	φ = 0.21
	Age[b]	23.72 (6.49)	23.45 (6.85)	d = –0.04
NSSI-related	Marking distress[b]**	2.43 (1.87)	1.77 (1.67)	partial η^2 = 0.02
	Anti-dissociation[b]**	2.78 (2.03)	2.11 (1.95)	partial η^2 = 0.02
	Pain[b]	–	–	Cramer's V = 0.10
	Frequency (N = 562)	–	–	Cramer's V = 0.11
	Main form* (N = 559)	–	–	Cramer's V = 0.23
	Time elapsed (N = 571)	–	–	Cramer's V = 0.13
	Scars*** (N = 426)	–	–	φ = 0.19
	Impact* (N = 427)	15.73 (4.73)	13.68 (4.82)	d = –0.85
	Awareness of public stigma (N = 174)	55.48 (19.96)	52.39 (19.03)	partial $\eta^2 < 0.00$
	Internalised stigma (N = 174)	63.48 (18.67)	61.45 (20.44)	
Socio-cognitive	NSSI outcome expectancy			
	Communication[b]**	9.84 (4.62)	11.27 (4.98)	partial η^2 = 0.01
	Negative social[b]	12.06 (4.40)	12.56 (4.57)	partial $\eta^2 < 0.00$
	Pain[b]	13.85 (3.81)	12.86 (3.58)	partial η^2 = 0.01
	Negative self[b]	13.67 (3.70)	13.02 (3.85)	partial $\eta^2 < 0.00$
	Self-efficacy to avoid NSSI[b]	21.70 (8.37)	22.22 (7.64)	partial η^2<0.00
Socio-emotional	Distressb	29.51 (9.37)	29.12 (8.52)	d = –0.04
	Social support			
	Friend* (N = 253)	20.76 (6.09)	18.02 (6.48)	partial η^2 = 0.03
	Family (N = 253)	16.65 (7.29)	15.95 (6.08)	partial $\eta^2 < 0.00$
	Significant*** (N = 253)	21.42 (7.22)	16.51 (6.90)	partial η^2= 0.06
	Resilience (N = 253)	15.94 (4.82)	15.41 (4.47)	partial $\eta^2 < 0.00$
	Self-esteem (N = 253)	23.90 (6.12)	22.44 (5.33)	partial $\eta^2 < 0.00$

Notes: [a]"Other" gender filtered out as violated expected frequencies assumption, [b]N = 573, *$p < 0.05$, **$p < 0.01$, ***< 0.001

were completed in separate collections of data, after which data were aggregated such that the final sample comprised only of those with lived experience. Although students could complete more than one of the surveys, we removed duplicate cases from the data set to ensure each student had only one response in the data.

Measures

The factors investigated are organised into theoretically informed groups (Chaudoir and Fisher, 2010; Hasking *et al.*, 2017). Demographic information is presented in terms of "socio-demographic" factors. Information about individuals' self-injury is referred to as "NSSI-related" factors. Cognitions about NSSI are presented under "socio-cognitive factors", and social and emotion-related factors are grouped within socio-emotional.

Disclosure. Participants were asked whether they had ever told anyone of their NSSI and were asked to indicate each person they had told from a list (friend, parent, sibling, other relative, partner, teacher, mental health professional, general practitioner, other).

Non-suicidal self-injury-related factors The Inventory of Statements About Self-Injury (ISAS; Klonsky and Glenn, 2009) was used to collect the following NSSI information: primary method, whether participants experience pain from the behaviour, and the amount of time that elapses between experiencing the urge and engaging in the behaviour. Participants were also asked, "How many times have you self-injured in the last year?" This section of the ISAS has good test–retest reliability (r = 0.85; Klonsky and Olino, 2008). Section 2 of the ISAS assesses NSSI functions, on a scale from 0 = not relevant to 2 = very relevant. Good test–retest and internal reliability has been demonstrated for intrapersonal and interpersonal subscales (r = 0.60-0.82, α = 0.80–0.87; Glenn and Klonsky, 2011; Klonsky and Glenn, 2009). The intrapersonal (α = 0.83) and interpersonal (α = 0.90) scales demonstrated excellent internal consistency in the current sample.

To measure impact of NSSI, participants responded on a scale from 1 = strongly disagree to 5 = strongly disagree, to: "causes me significant distress", "causes other people significant distress", "causes interference in my interpersonal life", "causes interference in my academic life" and "causes interference in other important areas of my life"; (total α = 0.81). Participants were also asked "Do you have any physical scarring as a result of your self-injury?".

The Internalised Stigma of Mental Illness Inventory (Ritsher *et al.*, 2003) was adapted to assess whether participants believe that stigmatising views of NSSI apply to themselves. Items (e.g. "I can't contribute anything to society because I have self-injured") were responded to on a five-point scale (1 = strongly disagree, 5 = strongly agree). Validity has been established, and the measure has demonstrated excellent test–retest reliability (r = 0.92) and internal consistency (α = 0.90; Ritsher *et al.*, 2003). Internal consistency was excellent in the current sample (α = 0.91).

The ten-item awareness subscale of the Self-Stigma of Mental Illness Scale (Corrigan *et al.*, 2006) was adapted to assess the degree to which participants perceive the general public holds stigmatising beliefs about NSSI. Items (e.g. "I think the public believes: most people who self-injure cannot be trusted") were responded to on a nine-point response scale (1 = strongly disagree, 9 = strongly agree). Higher scores indicated stronger belief that NSSI is stigmatised by the public. Validity and good test–retest reliability (r = 0.73) and internal consistency (α = 0.91) have been demonstrated for the subscale (Corrigan *et al.*, 2006). Internal consistency was excellent in the current sample (α = 0.95).

Socio-cognitive factors. The NSSI Expectancy Questionnaire (Hasking and Boyes, 2018) is a 25-item measure of expected outcomes of engaging in self-injury. A scale from 1 = extremely unlikely to 4 = extremely likely is used across the five subscales of expectancies about NSSI: affect regulation, negative social outcomes, communication expectancies, pain

and negative self-beliefs, with higher scores indicating stronger outcome expectancies. Good convergent and discriminant validity and good subscale internal consistency have been demonstrated (Hasking and Boyes, 2018). Internal consistency was good in the current sample (α = 0.70–0.90).

An adaptation of Czyz *et al.*'s (2014) measure of Self-Efficacy to Avoid Suicidal Action was used to assess self-efficacy to resist engaging in self-injury. Responses to the six items (e.g. How certain are you that you will not self-injure in the future?) are rated from 1 = very uncertain to 6 = very certain, with higher scores indicating higher self-efficacy to resist NSSI. Good convergent validity of the original scale has been demonstrated, as has excellent internal consistency, α = 0.96 (Czyz *et al.*, 2014). The adapted scale has been used previously in NSSI research (Hasking and Rose, 2016), and internal consistency was excellent in the current sample (α = 0.90).

Socio-emotional factors. The K10 (Kessler *et al.*, 2002) is a ten-item measure of psychological distress. Items (e.g. "About how often did you feel tired out for no good reason?") are responded to using a five-point scale (1 = none to 5 = all of the time), with higher scores indicating higher levels of distress. Validity and good internal consistency of the K10 has been established (α = 0.93; Kessler *et al.*, 2002). Internal consistency in the current sample was excellent (α = 0.92).

The Multidimensional Scale of Perceived Social Support (Zimet *et al.*, 1988) measures the perceived social support from family, friends and significant others. Twelve items (e.g. "There is a special person who is around when I am in need") are rated on a scale from 1 = very strongly disagree to 7 = very strongly agree, with higher scores reflecting higher levels of social support. Zimet *et al.* (1988) established moderate construct validity and good test–retest reliability across subscales (family, r = 0.85; friends, r = 0.75; significant other, r = 0.72). Internal consistency was excellent in the current sample (α = 0.93–96).

Resilience was assessed with the six-item Brief Resilience Scale (Smith *et al.*, 2008). Items, (e.g. "I tend to bounce back quickly after hard times") were responded to on a five-point scale (1 = strongly disagree to 5 = strongly agree), with higher scores indicating greater resilience. Validity and good internal consistency have been established, α = 0.80–0.91 (Smith *et al.*, 2008). Internal consistency in the current sample was excellent (α = 0.86).

The Rosenberg Self-Esteem Scale (Rosenberg, 1965) is a ten-item measure of one's negative and positive feelings towards themselves. Responses to items (e.g. "I feel that I have a number of good qualities") are scored on a scale from 1 = strongly disagree to 4 = strongly agree, with higher scores indicating higher levels of self-esteem. The measure has been demonstrated to be valid, stable over time (r = 0.69), and internally consistent (α = 0.88–0.90; Robins *et al.*, 2001). Internal consistency in the current sample was excellent (α = 0.91).

Analysis

After screening and cleaning the data, the factors were grouped according to the broader (i.e. socio-demographic, NSSI-related, socio-cognitive and socio-emotional) concepts with which they aligned. Aside from providing some consistency across the study, it is assumed that the dependent variables within each MANOVA analysis are related (Field, 2009). Given not all measures were included in each of the surveys, sample sizes differ across analyses. Chi-square test of contingencies was used when variables were nominal, independent sample *t*-tests were used when there was one scale criterion variable and MANOVAs were used when there were multiple related constructs. Bonferroni corrections were used where appropriate. All variables had less than 5% of data missing, and expectation maximisation was used to impute missing scale data.

Results

Socio-demographic factors

Disclosure of NSSI was not associated with gender, $\chi^2(1, N = 549)=2.17$, $p = 0.14$ or age, $t(571) = -0.38$, $p = 0.70$ 95% CI [–1.62–1.09]. NSSI disclosure was associated with having a mental illness diagnosis, $\chi^2(1, N = 573) = 26.19$, $p < 0.001$, with participants who had not disclosed their NSSI being less likely to report a mental illness diagnosis.

Non-suicidal self-injury-related factors

In multivariate analyses, disclosure was associated with the function of NSSI, $\lambda = 0.95$, $F(13, 559) = 2.11$, $p = 0.012$, partial $\eta^2=0.047$; specifically, univariate analyses indicate an association between disclosure and greater use of NSSI as a means of marking distress, $F(1, 571) = 11.93$, $p = 0.001$, and for anti-dissociation, $F(1, 571) = 10.06$, $p = 0.002$.

Disclosure was not associated with frequency of NSSI, $\chi^2(5, N = 562) = 7.21$, $p = 0.21$, but was associated with having physical scars from NSSI, $\chi^2(1, N = 426) = 15.07$, $p < .001$. Participants who had not disclosed their NSSI were less likely to report having physical scars.

Fisher's exact test was used to examine relations between pain and time elapsed between experiencing the urge to self-injure and engagement. NSSI disclosure was not associated with pain ($p = 0.07$) nor the elapsed time ($p = 0.13$). When examining the primary forms of NSSI, the Monte Carlo statistic was used. There was a moderate association between disclosure and the primary form of NSSI such that participants who did not disclose NSSI were more likely report cutting as a primary form of self-injury and less likely to report severe scratching as their primary form of self-injury, $\chi^2(12, N = 559) = 28.31$, $p < 0.05$, 95% CI [0.004–0.007].

The likelihood of disclosure increased with impact of NSSI, $t(425) = -3.34$, $p < 0.05$, 95% CI [–3.25, –0.84]. Disclosure was not associated with anticipated public stigma nor internalised stigma, $\lambda = 1.00$, $F(2, 171) = 0.365$, $p = 0.695$.

Socio-cognitive factors

In multivariate analyses, disclosure was related to expected outcomes of NSSI and self-efficacy to avoid NSSI ($\lambda = 0.97$, $F(6, 566) = 2.58$, $p = 0.018$, partial $\eta^2=0.027$). More specifically, univariate analyses indicated that disclosure was associated with less of an expectation that NSSI would result in communication ($F(1, 571) = 8.37$, $p = 0.004$). Disclosure was not associated with the other outcome expectancies, nor self-efficacy to avoid NSSI.

Socio-emotional factors

Disclosure was not associated with psychological distress, $t(571) = -0.4$, $p = 0.69$, 95% CI [–2.29, 1.51]. Multivariate analysis of social support, resilience and self-esteem found an overall difference in disclosure status ($\lambda = 93$, $F(5, 247) = 3.67$, $p = 0.003$, partial $\eta^2 =0.069$). Participants who had previously disclosed their NSSI reported greater social support from their significant other ($F(1, 251) = 16.11$, $p < 0.001$) and friends ($F(1,251) = 6.8$, $p = 0.01$). There was no difference based on perceived social support from family, resilience or self-esteem.

Discussion

Identifying factors, which are associated with NSSI disclosure, could be instrumental in promoting beneficial and mitigating negative outcomes of disclosure (Lewis and Hasking,

2021a, 2021b); thus, the aim of this study was to investigate such factors, including NSSI cognitions among university students. Most participants (80.2%) had previously disclosed their NSSI, and this was associated with having a mental illness diagnosis, engaging in NSSI for intrapersonal reasons, having physical NSSI scars, perceiving greater impact of one's self-injury, not expecting communicative outcomes from NSSI and reporting greater support from significant others and friends. Addressing factors such as these could be useful in promoting disclosure, thus providing opportunity for intervention that could be used to reduce the associated suicide risk (Klonsky *et al.*, 2014). Note that not all factors (e.g. stigma) were associated with NSSI disclosure, highlighting key distinctions between this and previous research, as addressed below.

Although characteristics of the sample (e.g. age of onset) were consistent with that of university student populations, the rate of disclosure in this sample was high, given that rates of disclosure in the literature vary between 17 and 89%; notably, the rate at which NSSI was disclosed to formal sources was higher than what is generally observed (Simone and Hamza, 2020). It is plausible that different groups of people within the student population may be more likely to have disclosed their self-injury (Simone and Hamza, 2020). The majority of this sample reported having a mental illness and may have been more likely to engage with health professionals (i.e. formal source) as a result, thereby offering another setting in which disclosure could occur. Additionally, given that participants were not asked to specify the nature of the disclosure, instances of NSSI discovery could have been captured, whereas these would have been excluded in some other research, thus contributing to variance in disclosure rates. Future research should investigate the rates of disclosure (clarifying whether voluntary) across diverse samples and recipients, which in turn would assist person-centred practice (Lewis and Hasking, 2021a, 2021b). An additional point for future consideration is the phenomenon of individuals participating in NSSI research such as this, despite indicating not having previously disclosed their self-injury.

The present findings indicated that disclosure was associated with NSSI-related scarring, as well as social support. How noticeable one considers their NSSI to be could reflect signs such as scarring or the method of self-injury. Such factors could lead to the self-injury being discovered potentially against the individual's wishes, highlighting that navigating NSSI disclosure can have implications in terms of individuals' agency over sharing personal information. For example, if a student's NSSI scars were noticed by their lecturer, this could raise concerns about how the lecturer may then choose to use that information (e.g. sharing that information on with others, discriminating against the student because they have self-injured). Concerns about outcomes such as these have previously been identified as barriers to future disclosures and thus may contribute to a reluctancy to seek support not only within the university setting but externally (Simone and Hamza, 2020). As per Ammerman *et al.* (2021) and Armiento *et al.* (2014), it seems that specific elements relating to distress (e.g. suicide ideation) may contribute to disclosing NSSI, rather than general distress assessed in the present study. Though similar to Ammerman *et al.* (2021), the lack of association between stigma and disclosure contrasts the broader NSSI disclosure literature (Rosenrot and Lewis, 2018). Furthermore, the association between disclosure and intrapersonal functions of NSSI (rather than interpersonal) contributes to the literature (Ammerman *et al.*, 2021; Armiento *et al.*, 2014). The associations between NSSI disclosure and self-injury serving to mark distress, and to avoid dissociation, are reflective of experiences of disclosure (Simone and Hamza, 2020). If a student self-injures to indicate that they are distressed, disclosing this self-injury could provide further opportunities to communicate what they are experiencing. Furthermore, NSSI disclosure can be an emotional experience involving the presence of both the student disclosing and their confidant, this generation of feeling is consistent with wanting to avoid dissociation from emotional experiences (i.e. by way of NSSI). Future research would be useful in clarifying

the nature of the relationships (or lack thereof) between NSSI disclosure and stigma, as well as the underlying reason for engaging in NSSI.

Cognitive accounts of NSSI highlight a role for multiple NSSI-related outcome expectancies, as well as self-efficacy to avoid self-injury (Hasking *et al.*, 2017). However, in the current study, disclosure was only associated with lower communication expectancies (e.g. NSSI making it easier to share feelings). It is possible that telling others about one's self-injury was important if individuals did not believe that their engagement in NSSI itself would foster communication, regardless of any perceived negative outcomes (Hasking and Boyes, 2018). The finding that the other cognitive factors investigated were not associated with disclosure indicates that these may be less relevant to the process of navigating disclosure. Importantly, the current findings do not necessarily suggest that cognitive factors should be disregarded when targeting NSSI disclosure among students. It is plausible that the way individuals think about their self-injury (as well as factors related to it) and the prospect of disclosing it is relevant to voluntary disclosure, which the current study did not specifically examine. Broader health psychology models of disclosure suggest this is the case when voluntarily disclosing personal information, and as such, describe the types of mental evaluations an individual might make when deciding whether to disclose such information (Chaudoir and Fisher, 2010; Greene, 2009). Drawing on these models in the future could contribute to a more comprehensive understanding of voluntary NSSI disclosure, specifically voluntary disclosure, and potentially provide malleable targets for intervention where the goal is to facilitate disclosure.

Implications, limitations and future research

A few key implications have been illuminated in this study, one being the importance of mental health professionals as well as other people working with university students being prepared to respond appropriately to NSSI disclosure and helping them to navigate future disclosures. The potential value of support more broadly as well as the need to foster one's own agency in deciding to disclose their self-injury, and to whom, has also been highlighted, as well as the complexity of such a decision. There are some limitations to bear in mind when considering the findings and implications of this research. Future research should broaden the scope of investigation, e.g. by drawing on other disciplines such as sociology, to identify additional constructs that could be important to NSSI disclosure. Possible avenues include cognitive factors such as self-efficacy to disclose and disclosure outcome expectancies, as well as a broader examination of the social setting and/or characteristics of disclosure recipients (Chaudoir and Fisher, 2010; Greene, 2009). This study did not differentiate between factors that contributed to the decision to disclose, as compared to outcomes of disclosure, or being otherwise associated with disclosure. It is possible that different factors would be relevant to specific aspects of the disclosure experience; thus, when applying these findings to practice, a practitioner (e.g. university-based counsellors) should work with the student/client to tailor their approach (Chaudoir and Fisher, 2010; Lewis and Hasking, 2021a, 2021b). Interviews could be used in future to learn about people's lived experiences of NSSI disclosure.

Nonetheless, the findings of this study indicate that the potential NSSI has for fostering interactions with others, the impact that NSSI may have on the individual and the support they receive from friends and significant others could be important to university students' decisions to disclose NSSI. Such findings bear importance for health-care providers and university staff working with students/clients who self-injure, highlighting potential factors to consider when working collaboratively towards person-centred care and recovery (Lewis and Hasking, 2021a, 2021b). Given disclosure of NSSI has the potential to promote self-advocacy amongst individuals with lived experience of NSSI, understanding barriers and facilitators to disclosure is important (Rosenrot and Lewis,

2018). Future research could benefit from being grounded in broader theoretical models of disclosure and informed by individuals with lived experience of self-injury (Lewis and Hasking, 2019).

References

Ammerman, B.A., Wilcox, K.T., O'Loughlin, C.M. and McCloskey, M.S. (2021), "Characterizing the choice to disclose nonsuicidal self-injury", *Journal of Clinical Psychology*, Vol. 77 No. 3, pp. 683-700.

Armiento, J.S., Hamza, C.A. and Willoughby, T. (2014), "An examination of disclosure of nonsuicidal self-injury among university students", *Journal of Community & Applied Social Psychology*, Vol. 24 No. 6, pp. 518-533.

Burke, T.A., Piccirillo, M.L., Moore-Berg, S.L., Alloy, L.B. and Heimberg, R.G. (2019), "The stigmatization of nonsuicidal self-injury", *Journal of Clinical Psychology*, Vol. 75 No. 3, pp. 481-498.

Chaudoir, S. and Fisher, J.D. (2010), "The disclosure processes model: understanding disclosure decision making and postdisclosure outcomes among people living with a concealable stigmatized identity", *Psychological Bulletin*, Vol. 136 No. 2, pp. 236-256.

Corrigan, P.W., Watson, A.C. and Barr, L. (2006), "The self-stigma of mental illness: implications for self-esteem and self-efficacy", *Journal of Social and Clinical Psychology*, Vol. 25 No. 8, pp. 875-884.

Czyz, E.K., Bohnert, A.S.B., King, C.A., Price, A.M., Kleinberg, F. and Ilgen, M.A. (2014), "Self-efficacy to avoid suicidal action: factor structure and convergent validity among adults in substance use disorder treatment", *Suicide and Life-Threatening Behavior*, Vol. 44 No. 6, pp. 698-709.

Field, A.P. (2009), *Discovering Statistics Using SPSS*, 3rd ed., Sage, London.

Fortune, S., Sharma, V., Bowden, L., Hobbs, L., Marshall, D., Mitchell, C., Clarke, A., Robinson, J., Shave, R., Macleod, E., Witt, K.G., Hawton, K., Jordan, V. and Hetrick, S.E. (2021), "Prevention of self-harm and suicide in young people up to the age of 25 in education settings", *Cochrane Database of Systematic Reviews*, Vol. 1, pp. 1-16.

Fox, K.R., Franklin, J.C., Ribeiro, J.D., Kleiman, E.M., Bentley, K.H. and Nock, M.K. (2015), "Meta-analysis of risk factors for nonsuicidal self-injury", *Clinical Psychology Review*, Vol. 42, pp. 156-167.

Gandhi, A., Luyckx, K., Baetens, I., Kiekens, G., Sleuwaegen, E., Berens, A., Maitra, S. and Claes, L. (2018), "Age of onset of non-suicidal self-injury in Dutch-speaking adolescents and emerging adults: an event history analysis of pooled data", *Comprehensive Psychiatry*, Vol. 80, pp. 170-178.

Glenn, C.R. and Klonsky, E.D. (2011), "One-year test-retest reliability of the inventory of statements about self-injury", *Assessment*, Vol. 18 No. 3, pp. 375-378.

Greene, K. (2009), "An integrated model of health disclosure decision-making", in Afifi, T.D. and Afifi, W.A. (Eds), *Uncertainty, Information Management, and Disclosure Decisions: Theories and Applications*, Routledge, New York, NY, pp. 226-253.

Hasking, P. and Boyes, M. (2018), "The non-suicidal self-injury expectancy questionnaire: factor structure and initial validation", *Clinical Psychologist*, Vol. 22 No. 2, pp. 251-261.

Hasking, P. and Rose, A. (2016), "Preliminary application of social cognitive theory to nonsuicidal self-injury", *Journal of Youth and Adolescence*, Vol. 45 No. 8, pp. 1560-1574.

Hasking, P., Whitlock, J., Voon, D. and Rose, A. (2017), "A cognitive-emotional model of NSSI: using emotion regulation and cognitive processes to explain why people self-injure", *Cognition and Emotion*, Vol. 31 No. 8, pp. 1543-1556.

International Society for the Study of Self-Injury (2020), "About self-injury", available at: https://itriples.org/category/about-self-injury/ (accessed May 2021).

Kessler, R.C., Andrews, G., Colpe, L.J., Hiripi, E., Mroczek, D.K., Normand, S., Walters, E.E. and Zaslavsky, A.M. (2002), "Short screening scales to monitor population prevalences and trends in non-specific psychological distress", *Psychological Medicine*, Vol. 32 No. 6, pp. 959-976.

Kiekens, G., Claes, L., Demyttenaere, K., Auerbach, R.P., Green, J.G., Kessler, R.C., Mortier, P., Nock, M.K. and Bruffaerts, R. (2016), "Lifetime and 12-month nonsuicidal self-injury and academic performance in college freshmen", *Suicide and Life-Threatening Behavior*, Vol. 46 No. 5, pp. 563-576.

Kiekens, G., Hasking, P., Claes, L., Boyes, M., Mortier, P., Auerbach, R.P., Cuijpers, P., Demyttenaere, K., Green, J.G., Kessler, R.C. and Myin-Germeys, I. (2019), "Predicting the incidence of non-suicidal self-injury in college students", *European Psychiatry*, Vol. 59, pp. 44-51.

Klonsky, E.D. and Glenn, C.R. (2009), "Assessing the function of non-suicidal self-injury: psychometric properties of the inventory of statements about self-injury (ISAS)", *Journal of Psychopathology and Behavioral Assessment*, Vol. 31 No. 3, pp. 215-219.

Klonsky, E.D. and Olino, T.M. (2008), "Identifying clinically distinct subgroups of self-injurers among young adults: a latent class analysis", *Journal of Consulting and Clinical Psychology*, Vol. 76 No. 1, pp. 22-27.

Klonsky, E.D., Victor, S.E. and Saffer, B.Y. (2014), "Nonsuicidal self-injury: what we know, and what we need to know", *The Canadian Journal of Psychiatry*, Vol. 59 No. 11, pp. 565-568.

Lewis, S.P. and Hasking, P. (2019), "Putting the 'self' in self-injury research: inclusion of people with lived experienced in the research process", *Psychiatric Services*, Vol. 70 No. 11, pp. 1058-1060.

Lewis, S.P. and Hasking, P.A. (2021a), "Self-injury recovery: a person-centered framework", *Journal of Clinical Psychology*, Vol. 77 No. 4, pp. 884-895.

Lewis, S.P. and Hasking, P.A. (2021b), "Understanding self-injury: a person-centered approach", *Psychiatric Services*, Vol. 72 No. 6, pp. 721-723.

Long, M. (2018), "'We're not monsters. . .we're just really sad sometimes': hidden self-injury, stigma and help-seeking", *Health Sociology Review*, Vol. 27 No. 1, pp. 89-103.

National Institute for Health and Care Excellence (NICE) (2013), "Self-harm quality standard [QS34] introduction and overview", available at: www.nice.org.uk/guidance/qs34/chapter/Introduction-and-overview (accessed October 2021).

Ritsher, J.B., Otilingham, P. and Grajales, M. (2003), "Internalized stigma of mental illness: psychometric properties of a new measure", *Psychiatry Research*, Vol. 121 No. 1, pp. 31-49.

Robins, R.W., Hendin, H.M. and Trzesniewski, K.H. (2001), "Measuring global self-esteem: construct validation of a single-item measure and the Rosenberg self-esteem scale", *Personality and Social Psychology Bulletin*, Vol. 27 No. 2, pp. 151-161.

Rosenberg, M. (1965), *Society and the Adolescent Self-Image*, Princeton University Press, NJ.

Rosenrot, S.A. and Lewis, S.P. (2018), "Barriers and responses to the disclosure of non-suicidal self-injury: a thematic analysis", *Counselling Psychology Quarterly*, Vol. 33 No. 2, pp. 1-21.

Simone, A.C. and Hamza, C.A. (2020), "Examining the disclosure of nonsuicidal self-injury to informal and formal sources: a review of the literature", *Clinical Psychology Review*, Vol. 82, pp. 1-15.

Simopoulou, Z. and Chandler, A. (2020), "Self-harm as an attempt at self-care", *European Journal for Qualitative Research in Psychotherapy*, Vol. 10, pp. 110-120.

Smith, B.W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P. and Bernard, J. (2008), "The brief resilience scale: assessing the ability to bounce back", *International Journal of Behavioral Medicine*, Vol. 15 No. 3, pp. 194-200.

Swannell, S.V., Martin, G.E., Page, A., Hasking, P. and St John, N. (2014), "Prevalence of nonsuicidal self-injury in nonclinical samples: systematic review, meta-analysis and meta regression", *Suicide and Life-Threatening Behavior*, Vol. 44 No. 3, pp. 273-303.

Taylor, P.J., Jomar, K., Dhingra, K., Forrester, R., Shahmalak, U. and Dickson, J.M. (2018), "A meta-analysis of the prevalence of different functions of non-suicidal self-injury", *Journal of Affective Disorders*, Vol. 227, pp. 759-769.

Turner, B.J., Austin, S.B. and Chapman, A.L. (2014), "Treating non-suicidal self-injury: a systematic review of psychological and pharmacological interventions", *The Canadian Journal of Psychiatry*, Vol. 59 No. 11, pp. 576-585.

Zimet, G.D., Dahlem, N.W., Zimet, S.G. and Farley, G.K. (1988), "The multidimensional scale of perceived social support", *Journal of Personality Assessment*, Vol. 52 No. 1, pp. 30-41.

Appendix

Table A1 Correlations of socio-demographic factors

Factors	*1*	*2*	*3*
1. Gender	–	0.06	0.10*
2. Age		–	0.15**
3. Mental illness			–

Notes: *$p < 0.05$; **$p < 0.01$

Table A2 Correlations of NSSI-related factors

Factors	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
1. Intrapersonal functions	–	0.41**	0.17**	0.28**	–0.07	0.01	–0.22**	0.38**	0.03	0.29**
2. Interpersonal functions	–	–	<0.00	0.05	0.02	0.15**	–0.09*	0.28**	0.02	0.24**
3. Frequency	–	–	–	0.18**	–0.04	–0.02	–0.02	0.02	0.14	0.37
4. Scars	–	–	–	–	–0.05	–0.06	–0.26**	0.14**	0.09	–0.02
5. Pain	–	–	–	–	–	–0.05	0.05	0.01	–0.02	0.07
6. Time elapsed	–	–	–	–	–	–	0.04	0.07	–0.09	–0.02
7. Main form	–	–	–	–	–	–	–	–0.14**	0.10	–0.01
8. Impact	–	–	–	–	–	–	–	–	0.07	0.22**
9. Anticipated stigma	–	–	–	–	–	–	–	–	–	0.28**
10. Internalised stigma	–	–	–	–	–	–	–	–	–	–

Notes: *$p < 0.05$; **$p < 0.01$

Table A3 Correlations of socio-cognitive factors

Factors	*1*	*2*	*3*	*4*	*5*	*6*
NSSI outcome expectancies						
1. Affect regulation	–	0.13**	0.27**	–0.19**	–0.07	–0.02
2. Negative social	–	–	0.13**	0.06	0.38**	–0.01
3. Communication	–	–	–	–0.48**	–0.24**	0.10*
4. Pain	–	–	–	–	0.33**	–0.03
5. Negative-self	–	–	–	–	–	–0.06
6. Self-efficacy to avoid NSSI	–	–	–	–	–	–

Notes: *$p < 0.05$; **$p < 0.01$

Table A4 Correlations of socio-emotional factors

Factors	*1*	*2*	*3*	*4*	*5*	*6*
1. Distress	–	–0.17**	–0.14*	–0.21**	–0.40**	–0.58**
Social support						
2. Family	–	–	0.38**	0.37**	0.09	0.25**
3. Friend	–	–	–	0.51**	0.16*	0.27**
4. Significant other	–	–	–	–	0.15*	0.23**
5. Resilience	–	–	–	–	–	0.55**
6. Self-esteem	–	–	–	–	–	–

Notes: $^{*}p < 0.05$; $^{**}p < 0.01$

Corresponding author

Penelope Hasking can be contacted at: penelope.hasking@curtin.edu.au