Why do individuals join online non-suicidal self-injury communities? The link between NSSI, e-communities, and perceived social support

by

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ABSTRACT

WHY DO INDIVIDUALS JOIN ONLINE NON-SUICIDAL SELF-INJURY COMMUNITIES? THE LINK BETWEEN NSSI, E-COMMUNITIES, AND PERCEIVED SOCIAL SUPPORT

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Online communities regarding non-suicidal self-injury (NSSI) have become a topic of interest among researchers and mental health professionals. This study examined reasons why individuals who self-injure participate in NSSI e-communities, if their needs are being met by these communities, and if the content being generated and accessed by these individuals maps onto their initial reasons for joining. Further, this study tried to explore the possible link between spending time within the NSSI e-communities and perceived social support and NSSI behaviour. Online questionnaires were administered to 71 individuals who self-injure from different NSSI communities on the Internet. Results indicated that the primary reasons associated with joining online NSSI communities relate to social support (e.g., "To feel less alone"); this was followed by seeking information and then by wanting to help others (i.e., other members of the e-community). Participants reported that the NSSI e-communities fulfilled the needs associated with their reasons for initially seeking out NSSI e-communities. Fulfillment of needs was also significantly correlated with higher levels of perceived online peer support and more time spent online within the e-communities. When online, participants indicated that they typically read and wrote about others' experiences relating to NSSI and some feelings of isolation. They also engage in NSSI e-communication in order to vent about emotions and specific problems. Time spent online in NSSI e-communities was significantly correlated with higher levels of perceived online peer support, lower levels of perceived family support, and more frequent NSSI. Further research needs to better understand these links and explore the mechanisms responsible for these potential relations.

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Why do individuals join online non-suicidal self-injury communities?

The link between NSSI, e-communities, and perceived social support

Non-suicidal self-injury (NSSI) is the direct and deliberate destruction of one's own body tissue without conscious suicidal intent (International Society for the Study of Self-Injury, 2007). NSSI includes, but is not limited to: cutting, scraping, scratching, and burning skin. NSSI confers risk for psychiatric illness, physical injury, and represents a strong predictor of suicidality, with 50-75% of those with a history of NSSI attempting suicide (Nock & Favazza, 2009). The prevalence rate of NSSI in the general population is 5.9% (Klonsky, 2011) but among adolescents and young adults there is a consistent rate across numerous studies of 13.9 to 21.4% (for a review see Nock & Favazza, 2009). Given the consequences associated with NSSI and the high rates of NSSI engagement among youth and young adults, it is critical to understand the factors that may play a role in the onset and maintenance of NSSI.

Functions of NSSI can be both intrapersonal and interpersonal in nature (Klonsky & Glenn, 2009). In particular, emotion regulation has been noted as the primary reason for NSSI; specifically, NSSI functions as a coping strategy to reduce psychological distress (Heath, Ross, Toste, Charlebois, & Nedecheva, 2009; Klonsky, 2011; Klonsky & Glenn, 2009; Nock & Prinstein, 2004, 2005). Not surprisingly, higher levels of emotion dysregulation are related to NSSI (Gratz & Roemer, 2004). Indeed, those who have more severe NSSI (i.e., a combination of higher frequency, greater variety of methods, and more recent history of NSSI) have difficulty with emotion-focused coping and have increased psychological distress compared to those who have a less severe history of NSSI (Williams & Hasking, 2010). Several other intrapersonal functions of NSSI have also been reported in the literature. For instance, individuals who self-injure may do so in order to reduce or avoid an impulse to attempt suicide (Klonsky & Glenn,

2009). Other individuals self-injure in order to experience emotion – often when experiencing depersonalization or dissociation in which they feel unreal, outside their own body, or feel numb (i.e., no emotion). This is thought to occur either through the experience of physical pain or the sight of blood (Klonsky, 2007).

Interpersonal functions of NSSI, such as social influence and peer bonding, are also endorsed by those who have a history of NSSI (Klonsky & Glenn, 2009). Social influence refers to the use of NSSI to gain help or support from others (Klonsky & Glenn, 2009). For instance, some individuals may not always have readily available social support and may use NSSI to let others know the extent of their suffering. Peer bonding relates to the use of NSSI to fit in with others around them who engage in the same behaviour.

The above functions suggest that interpersonal factors may contribute to NSSI. Indeed, those with a history of NSSI report having less family and peer social support than those who have no history of NSSI (Heath et al., 2009; Muehlenkamp, Brausch, Quigley, & Whitlock, 2013). Moreover, satisfaction with perceived social support has been shown to protect against future NSSI (Wichstrøm, 2009). To this end, social isolation may be a frequent experience among those who self-injure (Whitlock, Powers, & Eckenrode, 2006), possibly due to a combination of poor social problem-solving skills and poor communication skills (Claes, Houben, Vandereycken, Bijttebier, & Muehlenkamp, 2010; Nock, 2009; Nock & Mendes, 2009).

General Online Activity

Internet use has grown over the last few years and youth aged 12 to 17 and young adults aged 18 to 29 remain among two of the largest groups of Internet users (Lenhart, Purcell, Smith, & Zickuhr, 2010). In 2009, 93% of youth and young adults were likely to go online, compared to, 81% of adults 30 to 49, 70% of adults 50 to 64, and 38% of adults 65 and older. Specifically,

social networking websites have become increasingly popular among youth and young adults, with 73% and 72%, respectively, using these websites and nearly half accessing them daily (Lenhart et al., 2010). In addition, as many as 81% of youth go online to access e-material on video or picture sharing websites (Rideout, Foehr, & Roberts, 2010), and a large proportion of them (38% of youth, 37% of young adults) create this type of e-material for others to view (Lenhart et al., 2010).

Youth commonly use the Internet to get news, play games, make purchases (e.g., buying books, clothing, music), and to get health-related information (Lenhart et al., 2010). Health related information is sought out by 31-55% of youth and 72% of young adults (Lenhart et al., 2010; Rideout et al., 2010). At least 17% of youth say that they look for sensitive or difficult to talk about health related information online (Lenhart et al., 2010). One-way to access this health information is via e-communities, also known as online discussion forums and message boards (Rodham, Gavin, & Miles, 2007). These e-communities give people the opportunity to share their own experiences, but also a chance to access information, support, and resources about a specific health related issues.

NSSI Online Activity

Recently, researchers have examined the nature of NSSI material (e.g., text, images, and videos) available online (e.g., Lewis, Heath, St. Denis, & Noble, 2011a; Whitlock et al., 2006). NSSI e-material can be found on websites dedicated to sharing video or pictures, blogging websites (i.e., websites in which people chronicle their personal experiences with NSSI), and social networking or e-community websites (i.e., websites in which members can post text, images, or videos relating to NSSI and interact with others who self-injure) (Duggan et al., 2012; Lewis & Baker, 2011; Lewis et al., 2011a; Lewis, Heath, Michal, & Duggan, 2012a; Lewis,

Heath, Sornberger & Arbuthnott, 2012b; Whitlock et al., 2006). Researchers suggest that those who self-injure engage in more online activity in general than those who do not self-injure (Mitchell & Ybarra, 2007). Online activities related to NSSI involve communication between those who self-injure (Rodham et al., 2007; Whitlock et al., 2006) and involve obtaining NSSI information and resources (Michal, Arbuthnott, & Lewis, under review). This aligns with research indicating that youth and young adults search for information regarding topics that are sensitive and otherwise difficult to discuss offline (Lenhart et al., 2010; Rideout et al., 2010). It would also support recent work indicating that individuals use the Internet to obtain NSSI information and to communicate with others who self-injure (Baker & Fortune, 2008; Lewis, Rosenrot, & Messner, 2012c; Michal et al., under review; Whitlock et al., 2006). To date, research examining NSSI e-material has primarily focused on what is being posted and, in part, why it has been posted online (Duggan et al., 2012; Lewis & Baker, 2011; Lewis et al., 2011a; 2012a; Rodham et al., 2007; Whitlock et al., 2006); very little research has directly examined the impact that this material has on those involved. Based on this research examining NSSI e-material, researchers have suggested that the NSSI material available on online communities may carry both risks and benefits for those who self-injure and who access it (Lewis & Baker, 2011; Lewis et al., 2012a, 2012b; Whitlock et al., 2006).

Potential benefits of NSSI online activity. Online communities have particular relevance to those who self-injure as they provide a place to share their NSSI experiences with others when this may not seem possible offline (Duggan et al., 2012; Johnson, Zastawny, & Kulpa, 2010; Lewis & Baker, 2011; Lewis et al., 2012a, 2012b, 2012c; Murray & Fox, 2006; Rodham et al., 2007; Whitlock et al., 2006). They allow members to communicate and perhaps to gain social support by venting to other members during difficult times (e.g., expressing that

they have an urge to self-injure because of troubles at home) (Baker & Fortune, 2008; Duggan et al., 2012; Johnson et al., 2010; Lewis et al., 2012a; Murray & Fox, 2006; Rodham et al., 2007; Whitlock et al., 2006). This sharing of experiences may decrease feelings of social isolation among adolescents (Lewis & Baker, 2011; Lewis et al., 2012b; Whitlock et al., 2006). It is possible that these NSSI e-communities also have utility for individuals who self-injure when they experience acute distress and are in crisis. Specifically, individuals may go to these websites during these times and could receive supportive responses from site members that may assuage distress (Baker & Fortune, 2008; Lewis & Baker, 2011; Rodham et al., 2007). For example, in one study, participants reported using NSSI e-communities to obtain support and help (46.3%) given its non-judgmental atmosphere, to share their NSSI experiences, and connect with others (Johnson et al., 2010). In addition to this, researchers found that 77.6% of those who accessed e-communities did so because the community members made them feel less isolated (Johnson et al.). This sentiment was echoed in other research that also indicated that e-communities provided a place where members could feel understood and where members could go when they had feelings of acute distress (Baker & Fortune, 2008).

In addition to receiving support through interaction with others, it is not uncommon for NSSI e-communities to offer various types of resources and support materials. Many communities include recovery and treatment information, as well as offer a place to share stories about the members' past successful and unsuccessful recovery attempts, and current difficulties and triumphs relating to recovery or treatment (Lewis et al., 2012a; Rodham et al., 2007). They also offer lists of NSSI alternatives in terms of strategies that can be used when an urge to self-injure is experienced (Whitlock et al., 2006).

Another possible benefit related to NSSI e-community activity is that individuals may experience a decrease in NSSI behaviours. For instance, in one study, a majority of participants (55.8%) reported that their NSSI decreased after starting to visit the e-communities, however, a quarter of these participants stated that their NSSI initially increased before decreasing overall (Johnson et al., 2010). The rest indicated that there was no change in their NSSI (31.1%) or that their NSSI increased (13.1%) (Johnson et al.). In another study, Murray & Fox (2006) reported that 34.2% of participants indicated no change in their NSSI behaviour and only 21.5% reported that their NSSI had declined, which is much lower than the 55.8% cited by Johnson and colleagues (2010). Although the study by Johnson and colleagues (2010) provides some initial insight into the potential impact of online NSSI activity on NSSI behaviour, features of NSSI (e.g., frequency, methods) were not formally assessed so it remains unclear the degree to which NSSI might have decreased in frequency or when this happened (e.g., soon after NSSI e-communication or after repeated e-communication). Similarly, it was unclear which types of online activities are associated with these self-reported changes in NSSI behaviour as certain activities may have different effects on those involved (Lewis et al., 2012a). Finally, the study had a small sample size so the extent to which findings are generalizable is difficult to ascertain.

Potential risks of NSSI online activity. Although there appear to be benefits of online NSSI activity (Johnson et al., 2010; Lewis et al., 2012a, 2012b; Murray & Fox, 2006; Rodham et al., 2007; Whitlock et al., 2006), participation in NSSI e-communities may also have adverse effects such as possible maintenance of NSSI behaviour, which may hinder recovery from NSSI (Lewis et al., 2012b; Rodham et al., 2007; Whitlock et al., 2006). Users of video sharing websites have been noted to self-disclose their NSSI experiences through e-video on the popular website YouTube (Lewis et al., 2011a, 2012b). These videos depict a variety of NSSI related

material including videos of people talking about NSSI, videos of people in the act of NSSI, or non-character visual imagery related to NSSI such as pictures of NSSI, and informational or hopeless (e.g., showing sadness or crying) messages related to NSSI (Lewis et al., 2011a). According to research, informational, melancholic, or hopeless messages are one of the most common types of NSSI videos on YouTube. These videos are often mixed (i.e., neither against nor pro-NSSI) about their message regarding NSSI. Videos that show non-character imagery relating to NSSI tend to show more graphic depictions of NSSI than NSSI videos with a person talking about NSSI or in the act of NSSI. The non-character imagery videos also tend to have more views, comments, and were more often listed as favourites. In a study examining the comments made to these videos, most comments were about sharing NSSI experiences, and of these, the most common characteristic of the disclosures was a failure to mention recovery (42.89%) (Lewis et al., 2012b). This may mean that NSSI behaviour is maintained when time is spent online looking at a variety of NSSI content and messages in videos, pictures, and text that may be hopeless or melancholic in nature. These messages with NSSI content may portray NSSI as a viable way to cope or may suggest that people not seek help (Lewis & Baker, 2011; Lewis et al., 2011a, 2012b).

In addition to the above, NSSI may be maintained when individuals access other forms of NSSI messages (Lewis & Baker, 2011; Rodham et al., 2007; Whitlock et al., 2006). For instance, in many e-communities, members present NSSI as an effective coping strategy (i.e., it works to provide relief from distress) and further indicate that they have no other option that works to relieve perceived intolerable emotional pain (Lewis & Baker, 2011; Rodham et al., 2007; Whitlock et al., 2006). Related to this, many messages posted online describe NSSI as an addictive behaviour that cannot be stopped and that individuals are powerless against NSSI and

NSSI urges (Lewis, Rodham, Gavin, & St. Denis, 2011b; St. Denis, Lewis, Rodham, & Gavin, 2012). Further, NSSI behaviour mentioned on these e-communities are often ignored or minimized in their seriousness by individuals who respond empathetically to the initial message concerning NSSI (Rodham et al., 2007). If those who self-injure repeatedly access these types of messages, it may foster a dangerous narrative (e.g., NSSI is a viable way to cope) that may contribute to NSSI continuation and a reduced likelihood for help-seeking (Lewis & Baker, 2011; Lewis et al., 2011, 2012a, 2012b).

Other material posted on NSSI e-communities presents tips or details related to specific NSSI methods, first-aid tips, and how to hide fresh cuts or minimize old scars (Lewis & Baker, 2011; Murray & Fox, 2006; Rodham et al., 2007; Whitlock et al., 2006). This material may further maintain NSSI by increasing the variety and possibly the severity of methods at the disposal of those who engage in NSSI (Lewis & Baker, 2011; Rodham et al., 2007; Whitlock et al., 2006). It may also discourage help-seeking behaviour as individuals are given strategies that may encourage them to hide their behaviours from others and to tend to wounds without needing to seek medical attention.

Researchers have expressed concern that material found on NSSI websites and NSSI e-communities may trigger NSSI urges and behaviour (Lewis & Baker, 2011; Murray & Fox, 2006). Triggering refers to the process by which an individual accesses e-material that is emotionally upsetting and this experience increases urges to self-injure and, consequently, may lead to NSSI behaviour (Baker & Lewis, 2013; Lewis & Baker, 2011; Lewis et al., 2012a). In one study, although some participants reported a decrease in their NSSI as a consequence of being involved in the e-community, over a third of participants found the text descriptions of NSSI triggered an urge to self-injure (Murray & Fox, 2006). Much of the NSSI imagery found

online, including pictures and videos, do not contain trigger warnings (e.g., a warning before the video that the images or content may trigger an urge to self-injure) despite being graphic in nature (Baker & Lewis, 2013; Lewis & Baker, 2011; Lewis et al., 2011a). Few of these videos discourage NSSI and may pose a risk of triggering those with a history of NSSI as they see the graphic pictures or live enactments of NSSI (Lewis et al., 2011a). Thus, individuals may be exposed to triggering material. Triggering effects may be difficult for researchers to assess due to the need for ecological real-time monitoring, however, the link between NSSI behaviour and NSSI e-material can still be investigated.

Current study

Given the above-mentioned risks, and the paucity of research examining the covariation of online NSSI activity, features of NSSI (e.g., frequency) and concomitants (e.g., perceived social support), the current study examined NSSI as it relates to online benefits and risks. Social support has been identified as a possible reason for individuals seeking out online NSSI activities such as e-communities (Johnson et al., 2010; Whitlock et al., 2006), and perceived social support, outside of e-communities, may be lower among those who engage in online NSSI activity (Rodham et al., 2007; Whitlock et al., 2006). However, research to date has not formally explored this. Moreover, few efforts have investigated reasons for online NSSI e-communication in general; indeed, there may be reasons other than seeking support that drive online NSSI activity. To date, studies examining reasons for online NSSI activity have relied on examination of what individuals post online apart from asking individuals directly. One goal of the current study was to go beyond these content analytic approaches (i.e., reading and coding content found in the NSSI e-communities) and to explore self-reported reasons underlying members' e-activities.

Another goal of this research was to establish whether there is a link between NSSI e-activity and NSSI behaviour. To date, no research has addressed this issue and establishing this link would open new avenues for future work related to reports indicating that this information has an impact on the individuals in terms of their cessation and recovery from NSSI behaviour (Duggan et al., 2012; Lewis & Baker, 2011; Lewis et al., 2011a, 2012a, 2012b; Rodham et al., 2007; Whitlock et al., 2006). It has been suggest that more online NSSI activity is associated with more NSSI behaviour (Lewis & Baker, 2011; Lewis et al., 2011a; Rodham et al., 2007; Whitlock et al., 2006), however no study has explored this formally by asking participants about each. From this research, it is hoped to further understand the link between e-material and NSSI behaviour, which can further aid intervention and treatment planning surrounding the management of NSSI related online behaviours (Lewis et al., 2012a). This may offer next steps for research in this area by establishing which issues (e.g., different types NSSI related online behaviours) are most relevant to track for those who self-injure and are involved in e-communities.

Research Goal 1a: Reasons for NSSI e-Communication. The first goal was to establish why individuals first seek out NSSI e-communities. This was assessed using a self-report measure related to NSSI e-activity created specifically for this study that helped to explore these reasons. It was hypothesized that social support (e.g., obtaining social support, reducing social isolation) would be the primary (i.e., most common and most important) reason for seeking out online NSSI communities followed by informational reasons (e.g., wanting to understand NSSI in self or others). Specifically, participants would select social support reasons most frequently from the list provided in the self-report questionnaire and rank these reasons as primary most often. This aligns with research suggesting that individuals appear to want social support from

these e-communities (Baker & Fortune, 2008; Duggan et al., 2012; Johnson et al., 2010; Lewis et al., 2012a; Murray & Fox, 2006; Rodham et al., 2007; Whitlock et al., 2006). This also aligns with research suggesting that individuals often seek out NSSI information online through NSSI websites and online communities; however this suggestion has yet to be formally examined (Johnson et al., 2010; Lewis et al., 2012c; Michal et al., under review).

Research Goal 1b: Fulfillment of needs related to reasons for NSSI e-Communication. The next goal was to establish whether the needs were being met and this was again explored by the NSSI e-activity measure created for this study. Further exploratory analyses were computed to determine if these individuals felt that their needs (e.g., need for social support) associated with their reasons for engaging in NSSI e-activity were being met by that particular online activity. For example, if individuals went online to obtain social support (i.e., their reason), this would suggest an implicit need for support. Accordingly, individuals were asked to rate, in general, if the NSSI e-community fulfilled their needs for seeking out the communities. Although it is exploratory in nature, it is possible that participants would feel at least some fulfillment of needs from the NSSI e-communities if their needs were related to social support.

After examining whether participants felt that their needs were met, these ratings were correlated with perceived social support (i.e., online and offline peer support, family support). Perceived social support related to family support was measured using an established self-report questionnaire, the Perceived Social Support Family Scales (Procidano & Heller, 1983). Peer support was measured by modifying the Friend Scale for the purpose of this study to measure both offline peer support and online peer support (Procidano & Heller, 1983). It was hypothesised that family support and offline peer support would be negatively correlated to

needs fulfillment, while online peer support would be positively correlated with needs fulfillment. Furthermore, individuals who feel higher degrees of fulfillment of their needs are potentially more likely to stay within the NSSI e-communities as the communities continue to meet the specific needs being sought. Therefore, needs fulfillment was hypothesized to be positively correlated with time spent online within the NSSI e-communities as measured by the NSSI e-activity measure.

Research Goal 1c: e-Activity relating to reasons for NSSI e-Communication. The measure related to NSSI e-activity further helped to explore what e-activities participants engaged in and if their e-activities relate to these initial needs. Participants were first asked what activities they most often engaged in within the NSSI e-communities. For example, whether they read or wrote content. Participants were then asked to select and rank topics read and written about during their time within the NSSI e-communities. In line with similar research (Baker & Fortune, 2008; Rodham et al., 2007; Whitlock et al., 2006), and following the hypothesis that individuals go online for social support reasons, it was further hypothesized that interpersonal messages would be most likely the themes of content read and written about by the members of the NSSI e-communities.

Research Goal 2: Perceived Social Support and Time Online. The next research goal was to establish if spending more time online in NSSI e-communities was related to perceived levels of social support as measured by the NSSI e-activity measure and the self-report measures of perceived social support. It was hypothesised that perceived offline social support (i.e., family support, offline peer support) would correlate negatively with time spent participating in NSSI e-communities. Conversely, perceived online support (i.e., online peer support) would correlate positively with time spent participating in NSSI e-communities. This aligns with research

indicating that those with a history of NSSI commonly have less social support, in general and from family, than those who have no history of NSSI (Heath et al., 2009; Muehlenkamp et al., 2013) and suggestions that those individuals who self-injure may use online communication as means to reduce social isolation (Lewis & Baker, 2011; Lewis et al., 2012b; Whitlock et al., 2006).

Research Goal 3: NSSI Frequency and Time Online. Finally, the last research goal was to determine if time spent online in NSSI e-communities was related to changes in NSSI behaviours. NSSI behaviour was measured using an established measure of NSSI behaviour that specifically measures NSSI frequency across 13 different NSSI methods (Klonsky & Glenn, 2009). It was hypothesized that time spent online participating in NSSI related e-activity within the e-communities would be positively correlated with NSSI frequency. Researchers have suggested that NSSI e-activity is associated with NSSI behaviour (Lewis & Baker, 2011; Lewis et al., 2011a, 2012b), but no research has examined this link. An initial link needs to be established between general NSSI e-activity and NSSI behaviour before further in depth exploration can be warranted, specifically related to speculation that NSSI may be maintained through continued and repeated NSSI related e-activity.

Methods

Participants

71 participants volunteered to participate from various popular NSSI e-communities. Compensation for participation was provided in the form of a draw for four $50 CAD gift cards to various websites. Participants were primarily female (81.69%), then male (15.49%), and finally transgender (1.41%) between the ages of 16 to 57 ($M = 24.07$, $SD = 8.28$). Most individuals identified as Caucasian/White (84.51%), followed by multi-racial (4.23%), Asian

(1.41%), Latino (1.41%), and other (i.e., Australian, British, Canadian, or Russian) (7.04%). Just over half of all participants were from the United States of America (57.75%), while many were from Canada (15.49%), the United Kingdom (mainly England and one Ireland) (12.68%), Australia (5.63%), followed by Germany (2.82%), Finland (1.41%), Russia (1.41%), Sweden (1.41%), and The Netherlands (1.41%). Participants were heterosexual (46.48%), Bisexual (22.54%), Questioning (14.08%), Pansexual (4.23%), Lesbian (4.23%), Asexual (2.82%), and Other (4.23%). One person chose not to disclose gender or ethnicity and three did not disclose age.

All participants had a history of NSSI. Participants reported using between two and thirteen methods of NSSI ($M = 6.93$, $SD = 2.63$). The most common method was cutting (90.14%), followed by banging or hitting self (80.28%), and severe scratching (78.87%). Cutting is most frequently reported as a main form of NSSI (91.55%). A majority of participants wanted to stop their NSSI (57.75%), but a sizable portion did not (40.85%).

Measures

Demographics. Participants completed a brief demographics questionnaire inquiring about age, gender, ethnicity, country of residence, sexual orientation, and how the participant was referred to the study website (i.e., from what NSSI e-community, as discussed further below in the Procedure) (Appendix A).

Non-suicidal self-injury. Lifetime frequency of NSSI, which was a key variable related to Research Goals 2 and 3, was assessed using the Inventory of Statements About Self-injury (ISAS; Klonsky & Glenn, 2009). The ISAS is a comprehensive measure of NSSI behaviour including lifetime frequency, recency, severity, and functions of 13 NSSI behaviours (e.g., burning, cutting, pinching, other not listed). The Functions scales typically display high internal

consistency, (α = .80 to .88; Klonsky & Glenn, 2009), but for the purpose of this study, only the ISAS Lifetime Frequency of each behaviour and ISAS Total Frequency was used.

Internet Usage. The Online Questionnaire (OQ) was developed for the purpose of this study and was used to measure various Internet usage questions related to online NSSI communities (Appendix B).

Related to Research Goal 1a, the first section asked about the reasons for seeking out NSSI e-communities and comprised 27 different reasons for initially visiting NSSI e-communities (OQ-Reasons; α = .84). These discrete reasons were created based on theoretical, empirical, and practical knowledge of NSSI e-communities (Lewis & Baker, 2011; Lewis et al., 2012a, 2012c; Whitlock et al., 2006). Participants were allowed to select multiple reasons from a checklist of possible reasons. All reasons were assessed using the following question: "Which of the following best describes reasons why you first sought out self-injury websites or online communities (i.e., self-injury message boards, YouTube channels, Facebook groups etc.) where others who self-injure communicate with each other?"

To further explore Research Goal 1a, participants were asked to rank-order their top three reasons (OQ-Rankings) based on the following question: "Which of the following best describes your top reasons why you first sought out self-injury websites or online communities where others who self-injure communicate with each other?"

Next, to explore Research Goal 1b, participants were asked to rate whether their needs (associated with the aforementioned reasons) were met after visiting NSSI e-communities (OQ-Needs). Specifically, they indicated the degree to which they agreed with the following question: "Have you found what you were looking for when visiting self-injury websites or online

communities where others who self-injure communicate with each other?". Response items include: "Completely", "Mostly", "Somewhat", "A little", or "Not at all."

A subsequent section of the OQ, relating to Research Goal 1c, examined the nature of participants' involvement with NSSI e-communities. Specifically, one question asked participants whether they read or accessed content in these communities, by asking: "Do you read posts about self-injury when visiting self-injury websites or online self-injury communities?" This was followed by the question: "Do you write posts about self-injury when visiting self-injury websites or online self-injury communities?" From here, participants were asked about the nature of the posts they read (OQ-Read) in NSSI e-communities, using the following question: "What kinds of posts do you read about self-injury when visiting self-injury websites or online self-injury communities (Check all that apply)" Next, they were asked about the nature of what they posted or wrote online using the following question: (OQ-Written) "What kinds of posts about self-injury do you write when visiting self-injury websites or online self-injury communities (Check all that apply)". Twenty discrete responses for both read and written posts were presented to participants as choices, which were created based on theoretical, empirical, and practical knowledge of NSSI e-communities (Lewis & Baker, 2011; Lewis et al., 2012a, 2012c; Whitlock et al., 2006).

The next section of this questionnaire assessed time spent visiting NSSI e-communities, which related to Research Goals 1b, 2, and 3. For the purpose of this study, three different questions were asked ($\alpha = 83$). The first looked at the average number of days spent visiting NSSI e-communities in a typical week (OQ-Days per Week Online) by asking "In a typical week, how many days have you visited a self-injury website or online community (i.e., self-injury message boards, YouTube channels, Facebook groups etc.) where others who self-injure

communicate with each other?" The second inquired about the estimated total time spent online

per week visiting NSSI e-communities (OQ-Total Time Spent Online) by asking "In a typical

week, how much time total do you spend visiting a self-injury website or online community (i.e.,

self-injury message boards, YouTube channels, Facebook groups etc.) where others who self-

injure communicate with each other?" Finally, the third question assessed the average time spent

online visiting NSSI e-communities in a single session (OQ-Average Time Spent Online) by

asking "In a typical week, about how long is your AVERAGE visit to a self-injury website or

online community (i.e., self-injury message boards, YouTube channels, Facebook groups, etc.)

where others who self-injure communicate with each other?"

Perceived Social Support. Three versions of the Perceived Social Support Scale (PSS-

Offline Peers, PSS-Online Peers, PSS-Family; Procidano & Heller, 1983) were used to assess

perceived social support received by peers and families to explore Research Goals 1b and 2. In

past research, the original measures of Perceived Social Support Scales had high internal

consistency (Friend Scale: $\alpha = .88$; Family Scale: $\alpha = .90$). The PSS-Friend Scale was modified

to differentiate between offline and online friends (PSS-Offline Peers, PSS-Online Peers) by

specifying in the questionnaire whether it was specific to online or offline friendships. Each

questionnaire was 20-items long and teased apart the three major social support networks that

may be in the life of the participant and how the participant perceives the social support received

by this group. Participants choices on each item included "Yes", "No", and "I don't know",

however the latter is later recoded as a "No". Higher scores on these measures indicated higher

perceived social support for the relevant domains described below.

The Modified Perceived Social Support – Offline Friend Scale (PSS-Offline Peers;

Procidano & Heller, 1983). This measure explored how friends met offline are perceived by the

participant as a social support network (e.g., "My offline friends give me the moral support I need" and "My offline friends come to me for emotional support"). Within this study, this measure had good internal consistency ($\alpha = .89$).

The Modified Perceived Social Support – Online Friend Scale (PSS-Online Peers; Procidano & Heller, 1983). This measure assesses how one's online friends are perceived by the participant as a social support network (e.g., "I rely on my online friends for emotional support" and "My online friends enjoy hearing about what I think"). Within this study, the Online Friend Scale had high internal consistency ($\alpha = .91$).

The Perceived Social Support – Family Scale (PSS-Family; Procidano & Heller, 1983). This measure explores how family members are perceived by the participant as a social support network (e.g., "Members of my family are good at helping me solve problems" and "Most other people are closer to their family that I am"). Within this study, the Family Scale had high internal consistency ($\alpha = .92$).

Procedure

As part of a larger ongoing study, messages were posted in various active NSSI e-communities inviting members of the e-communities to participate in an online study examining e-community membership and participation and NSSI related issues such as emotion dysregulation and social support. Active NSSI e-communities needed to demonstrate recent activity (i.e., new e-material within the past week) to be included in the recruitment phase of the study. A link to the study consent form was provided and individuals who wished to participate had to indicate that they were a minimum of 16 years or older and follow the consent procedure including answering questions related to sufficient understanding. In order to demonstrate sufficient understanding, all participants were asked three questions regarding the informed

consent. These questions included asking about the length of the study, asking if they are allowed to withdraw participation at any point, and asking who they should contact if they have questions or concerns. If they did not answer these questions correctly then they were redirected to a thank-you page, otherwise they received a password from one of the investigators via e-mail for the secure online self-report questionnaire. After participation, participants received a debriefing with information to various crisis or self-injury websites, which could also be accessed at any time throughout the questionnaire. At the end of the study, a draw was held to award 4 gift certificates to random participants.

Power analysis. In order to detect medium-sized effects of $r = .30$ using a correlational analysis at a power of .80 and an alpha of .05, this study would require 82 participants (G*Power, 1992-2010). In order to detect large-sized effects of $r = .50$ using a correlational analysis at a power of .80 and an alpha of .05, this study would require 26 participants (G*Power, 1992-2010). Therefore, this study, with 71 participants, had sufficient power to detect some hypothesized effects.

<div align="center">

Results

</div>

Preliminary Analysis

Frequency of past NSSI episodes (ISAS Total Frequency) was used a dependent variable in analyses. As such, ISAS Total Frequency was explored before further analysis was completed. ISAS Total Frequency in this sample ranged from 13 to 15490 ($M = 1053.30$, $SD = 2352.64$) (Table 1). Based on a review of the variable distribution, Tests of Normality (*Kolmogorov-Smirnov* = .329, *df* = 71, *p* < .001), and skew of 5.14 (*SE* = .285), ISAS Total Frequency was transformed using a logarithmic transformation of base ten for substantially positively skewed variables as per Tabachnick and Fidell (2007). Upon further inspection, the transformed ISAS

Total Frequency had a normal distribution (*Kolmogorov-Smirnov* = .101, *df* = 71, *p* = .072) and

skew of .06 (*SE* = .285), and was therefore suitable for use in subsequent analysis.

Table 1

ISAS Frequency by method					
Method	Participants	Minimum	Maximum	Mean	Standard Deviation
Cutting	64	2	10000	443.68	1306.80
Severe scratching	56	1	1000	67.31	172.08
Biting	42	2	1000	24.99	122.94
Banging or hitting self	57	2	1092	74.18	196.68
Burning	46	1	300	27.32	63.69
Interfering with wound healing (e.g., picking scabs)	50	5	2000	178.04	342.98
Carving	31	1	100	6.56	18.19
Rubbing skin against rough surface	24	1	100	10.30	22.53
Pinching	35	3	5000	126.89	620.42
Sticking self with needles	29	1	500	20.23	66.52
Pulling hair	31	1	2000	62.25	267.72
Swallowing dangerous substances	17	1	50	3.68	11.02
Other	10	1	200	7.87	29.75
All Methods Combined	71	13	15490	1053.30	2352.64

Note: Values given before transformations occurred.

Further preliminary analysis examined the relation between research variables (i.e., perceived social support variables, time spent online variables, and NSSI total frequency) and common demographic control variables (i.e., age and gender) to account for the potential influential role of demographic variables in some NSSI research. Age was not related to any perceived social support variables (PSS-Offline Peers: $r = .25$, $p = .054$; PSS-Online Peers: $r = .08$, $p = .516$; PSS-Family: $r = .13$, $p = .335$), OQ time online variables (OQ-Days per Week Online: $r = .04$, $p = .739$; OQ-Total Time Spent Online: $r = .05$, $p = .679$; OQ-Average Time Spent Online: $r = -.02$, $p = .859$), or ISAS Total Frequency ($r = .12$, $p = .323$). An independent-samples t-test was conducted to compare each variable of interest and gender (i.e., male and female). There was no significant difference in scores for males and females on any of the variables, including perceived social support, time spent online as rated by the OQ, and NSSI frequency as rated by the ISAS Total Frequency (Table 2). Thus, neither age nor gender was considered in any subsequent analyses as control variables.

Table 2

Independent samples t-test results

Item	Gender	N	Mean	Standard Deviation	t	df	p
PSS-Offline Peers	Male	11	7.91	3.81	-1.02	20.68+	.320
	Female	52	9.33	5.67			
PSS-Online Peers	Male	10	8.40	4.25	-0.64	63++	.522
	Female	55	9.69	6.05			
PSS-Family	Male	11	9.18	6.60	1.95	59++	.056
	Female	50	5.68	5.10			
OQ-Days per Week	Male	11	3.82	2.27	-0.60	67++	.548

Online	Female	58	4.29	2.41			
OQ-Total Time Spent	Male	11	3.73	1.74	-1.72	22.39+	.099
Online	Female	58	4.84	2.91			
OQ-Average Time	Male	11	2.55	1.69	-1.07	67++	.288
Spent Online per	Female	58	3.28	2.13			
Session							
OQ-Needs	Male	11	2.18	0.87	-1.40	67++	.168
	Female	58	2.62	0.97			
ISAS Total Frequency	Male	11	2.57	0.53	-0.20	67++	.843
	Female	58	2.61	0.61			

Note: +Equal variance could not be assumed for PSS-Offline Peers and OQ-Total Time Spent Online as per Levene's test for equal variances. The Satterthwaite approximation was used for the degrees of freedom. ++*df* varied due to the differing number of participants who completed the measures involved.

Research Goal 1a: Reasons for NSSI e-Communication

When asked why participants first sought out NSSI e-communities (OQ-Reasons; Table 3), participants choose an average of 9.18 reasons (*SD* = 5.22). The primary reasons for seeking out NSSI e-communities were interpersonal in nature (i.e., social support in the form of reducing social isolation and seeking acceptance or understanding). In particular, the most common response that participants endorsed was "To feel less alone" (71.83%). Percentages were calculated using frequency of endorsement in Table 3, over total number of participants, which was 71. The second most common reason for seeking NSSI e-communities was "To find a group of people who understand me" (67.61%), followed by "To find a group of people who do not judge me" (66.20%), and "To find help for myself by talking to others online" (60.56%). Seeking information about self-injury (52.11%) and providing help/support to others (47.89%)

followed as the next groups of discrete reasons selected. The "Other" reason had the lowest

frequency of selection from the list of 27 reasons. Examples of "Other" include: "To get help

knowing how to tell someone" and "People held me accountable when I caved in and cut myself.

It made me less likely to do so".

Table 3

Frequency of reasons for seeking NSSI e-communities

OQ-Reasons	Frequency
To feel less alone	51
To find a group of people who understand me	48
To find a group of people who do not judge me	47
To find help for myself by talking to others online	43
To find information about self-injury	37
To provide support or help to others	34
To find somewhere that I belong	33
To vent about my feelings	30
To stop myself from self-injuring by online distraction (e.g., reading posts, chatting with members)	30
To figure out why I self-injure	29
To reduce my urges to self-injure by online distraction (e.g., reading posts, chatting with members)	29
To find help for myself by finding resources (e.g., crisis lines, therapists)	23
To share my experiences with self-injury	23
To reduce my urges to self-injure by finding alternatives (e.g., ice cubes, rubber bands)	20

To find tips to hide my self-injury	19
To stop myself from self-injuring by finding alternatives (e.g., ice cubes, rubber bands)	18
To ask others about recovery or treatment experiences	18
To trigger my self-injury	16
To stop others from self-injuring	16
To vent about specific problems	15
To find pro-self-injury content and people	14
To find first aid tips	13
To talk about my recovery or treatment experiences	13
To post my stories videos or pictures	10
To find other ways to self-injure	10
To find tips to self-injure more effectively	7
Other	6
Total number of reasons endorsed by 71 participants	652

Note: Multiple reasons could be endorsed.

Given that the former question allowed for multiple reasons to be endorsed, participants were asked to rank their top three reasons (OQ-Rankings) (Table 4). Consistent with being reported most often, social support reasons were also ranked as the primary set of reasons for visiting NSSI e-communities. In particular, in Table 4, column 1 "To feel less alone" (39.13%) was rank-ordered as the most primary reason for NSSI e-communication. Percentages were calculated using frequency of endorsement in Table 4, over total number of participants, which was 71. This was followed by "To find a group of people who understand me" (8.70%), and then

"To find help for myself by talking to others online" (7.25%). Ranked second most primary (Table 4, Column 2) were social support reasons. These included "To find help for myself by talking to others online" (18.84%), followed by "To feel less alone" (10.14%). Ranked third most primary (Table 4, column 3) were the following reasons: "To find a group of people who do not judge me" (10.29%) was most frequently chosen, followed by "To find help for myself by talking to others online", "To figure out why I self-injure", and "To provide support or help to others" (8.82%).

Table 4

Priority Ranking of Reasons from First to Third for seeking out NSSI e-communities

OQ-Rankings	First	Second	Third
To feel less alone	27	7	5
To find a group of people who understand me	6	5	3
To find a group of people who do not judge me	2	5	7
To find help for myself by talking to others online	5	13	6
To find information about self-injury	3	6	3
To provide support or help to others	2	1	6
To find somewhere that I belong	4	6	3
To vent about my feelings	-	4	4
To stop myself from self-injuring by online distraction (e.g., reading posts, chatting with members)	1	2	2
To figure out why I self-injure	4	3	6
To reduce my urges to self-injure by online distraction (e.g., reading posts, chatting with members)	-	1	4
To find help for myself by finding resources (e.g., crisis lines,	4	1	1

therapists)

To share my experiences with self-injury	-	2	3
To reduce my urges to self-injure by finding alternatives (e.g., ice cubes, rubber bands)	-	1	-
To find tips to hide my self-injury	-	-	4
To stop myself from self-injuring by finding alternatives (e.g., ice cubes, rubber bands)	2	-	-
To ask others about recovery or treatment experiences	2	2	1
To trigger my self-injury	1	3	1
To stop others from self-injuring	1	-	1
To vent about specific problems	-	-	-
To find pro-self-injury content and people	2	3	1
To find first aid tips	-	1	2
To talk about my recovery or treatment experiences	-	1	1
To post my stories videos or pictures	-	1	1
To find other ways to self-injure	1	-	1
To find tips to self-injure more effectively	-	1	2
Other	2	-	-
Missing	2	2	3
Total	71	71	71

Note: Only one reason could be endorsed per ranking.

Research Goal 1b: Fulfillment of needs related to reasons for NSSI e-Communication

Participants were asked whether their needs (i.e., those associated with their reasons) for seeking out NSSI e-communities had been met after finding the NSSI e-communities (Table 5). Most participants reported most (38.03%) or complete (16.90%) fulfillment of their needs pertinent to use of NSSI e-communities. Many individuals (33.80%) felt that their needs were at least somewhat met from the e-communities. Only 2 participants (2.82%) did not think that their needs were met, while six (8.65%) thought that their needs were only met a little bit.

Table 5

Whether or not participants' needs were met by the NSSI e-communities

OQ-Needs	Frequency
Completely	12
Mostly	27
Somewhat	24
A little	6
Not at all	2
Total	71

Next, fulfillment of needs was correlated with time spent online visiting NSSI e-communities and Perceived Social Support (PSS) measures (Table 6). Pearson (r) correlations were computed between OQ-Needs and PSS items (i.e., online and offline peer support and family support) and OQ items (i.e., average number of days per week spent online, total time spent online per week, and average time spent per session in the e-communities). There was a significant positive relation between OQ-Needs and PSS-Online Peers ($r = .41$, $p = .001$), but not for OQ-Needs and PSS-Offline Peers ($r = .02$, $p = .879$) and PSS-Family ($r = -.07$, $p = .605$).

This suggests that higher levels of fulfillment of needs by the NSSI e-communities associate with higher levels of perceived social support from online peers. Further, there was a significant positive correlation between OQ-Needs and OQ-Days per Week Online ($r = .38$, $p = .001$), OQ-Total Time Spent Online ($r = .40$, $p < .001$), and OQ-Average Time Spent Online per Session ($r = .38$, $p = .001$). This suggests that higher levels of needs fulfillment is positively related to more time spent online, specifically the average days per week spent online, the total time spent online per week, and average time spent online per session.

Table 6

Correlation between Need Fulfillment and both Perceived Social Support (PSS) measures and time spent online visiting NSSI e-communities (OQ)

Items	r	p	N
PSS-Offline Peers	.02	.879	65
PSS-Online Peers	.41**	.001	67
PSS-Family	-.07	.605	63
OQ-Days per Week Online	.38**	.001	71
OQ-Total Time Spent Online	.40**	.000	71
OQ-Average Time Spent Online per Session	.38**	.001	71

Note: **$p < .01$ level, two-tailed. Participant numbers varied based on number of completed questionnaires.

Research Goal 1c: e-Activity relating to reasons for NSSI e-Communication

The nature of participants' involvement in the NSSI e-communities was assessed by examining their online activities (Table 7). Almost all participants (94.37%) who visited NSSI e-communities indicated they had read posts about self-injury on the NSSI e-communities, while fewer, but still a majority (63.38%), of participants wrote posts about self-injury on the NSSI e-communities. Percentages were calculated using frequency of endorsement in Table 7, over total number of participants, which was 71.

Table 7

Participant accounts of reading or writing messages or posts in NSSI e-communities		
Responses	Frequency count for reading posts	Frequency count for writing posts
Yes	67	45
No	4	26
Total	71	71

Note: All those who wrote posts also read posts, but not vice-versa.

Subsequent analyses were computed to determine the nature of what was read or written (Table 8 to 11). This was done to compare the content of posts read and posts written with reasons for first seeking out these online NSSI communities. Participants selected an average of 11.24 items read (*SD* = 4.51) and 6.27 items written about (*SD* = 3.43). Percentages for posts read were calculated using frequency of endorsement in Table 8 and 9, over total number of participants who read, which was 67 and percentages for posts written were calculated using frequency of endorsement in Table 10 and 11, over total number of participants who wrote posts, which was 45.

With regard to posts read, participants did not select social support content as their most frequently read posts within the NSSI e-communities (Table 8). Specifically, participants most

frequently selected reading "About others' experiences with self-injury" (88.06%). Second most frequently read posts were "About others venting feelings" (85.07%), followed by "About others venting their specific problems" (82.09%), "About how others reduce an urge to self-injure" (77.61%), and "About others feeling lonely" (74.63%). "Other" was rated least frequently (4.48%) and comprised a number of different posts, including "People asking for advice about how to deal with self-injury in the real world" and "relapse stories".

Table 8

Nature of posts read in the NSSI e-communities

Content of posts read	Frequency
About others' experiences with self-injury	59
About others venting feelings	57
About others venting their specific problems	55
About how others reduce an urge to self-injure	52
About others feeling lonely	50
About how other people are on the verge of self-injury	48
About how other people find self-injury to be addictive	47
About how other people started to self-injure	47
About others' recovery or treatment experiences	47
About others' alternatives to self-injury	44
About self-injury information	37
About others' stories videos or pictures	36
About others' tips to hide self-injury	33
About others' first aid tips	32
About topics that will trigger my self-injury	28

About others' ways to self-injure	25
About others being pro-self-injury	20
About resources (e.g., crisis lines, therapists for myself)	19
About others' tips to self-injure more effectively	14
Other	3
Total number of items endorsed by 67 participants	753

Note: Multiple items could be endorsed.

Participants were then asked to rank order the nature of the posts read (Table 9). As a primary reason for reading posts (Table 9, Column 1), participants most frequently selected reading "About others' experiences with self-injury" (19.40%). This was followed by "About others venting feelings" (17.91%) and "About others feeling lonely" (13.43%) as the primary themes for what participants read about within the NSSI e-communities.

Table 9

Priority ranking of nature of posts read from First to Third

OQ-Rankings	First	Second	Third
About others' experiences with self-injury	13	9	4
About others venting feelings	12	7	6
About others venting their specific problems	4	12	4
About how others reduce an urge to self-injure	1	8	4
About others feeling lonely	9	4	4
About how other people are on the verge of self-injury	4	2	3
About how other people find self-injury to be addictive	1	2	6
About how other people started to self-injure	-	3	3
About others' recovery or treatment experiences	7	4	7

About others' alternatives to self-injury	3	2	5
About self-injury information	3	1	5
About others' stories videos or pictures	3	4	2
About others' tips to hide self-injury	-	-	2
About others' first aid tips	-	1	2
About topics that will trigger my self-injury	3	3	3
About others' ways to self-injure	-	1	1
About others being pro-self-injury	-	-	1
About resources (e.g., crisis lines, therapists for myself)	-	2	3
About others' tips to self-injure more effectively	-	-	-
Other	1	-	-
Missing	3	2	2
Total	67	67	67

Note: Only one reason could be endorsed per ranking.

With regards to posts written, participants did not select social support content as their most frequently written about posts within the NSSI e-communities (Table 10). Specifically, participants most frequently selected written posts in order to "About venting my feelings" (68.89%). This was followed by writing "About my experiences with self-injury" (66.67%), "About venting my specific problems" (64.44%), and "About my feeling lonely" (57.78%). "Other" was rated least frequently (4.44%) with themes such as "About encouraging other not to SI and giving others comfort, advice and help."

Table 10

Nature of posts written in the NSSI e-communities	
Content of posts written	Frequency
About venting my feelings	31
About my experiences with self-injury	30
About venting my specific problems	29
About my feeling lonely	26
About my alternatives to self-injury	22
About how I am on the verge of self-injury	20
About how I started to self-injure	17
About how I reduce an urge to self-injure	17
About my recovery or treatment experiences	17
About how I find self-injury to be addictive	16
About self-injury information	11
About my first aid tips	10
About resources (e.g., crisis lines, therapists for myself)	8
About my stories videos or pictures	8
About topics that will trigger my self-injury	6
About my tips to hide my self-injury	6
About my ways to self-injure	3
About being pro-self-injury	2
About my tips to self-injure more effectively	1
Other	2
Total number of items endorsed by 45 participants	282

Note: Multiple items could be endorsed.

When asked to rank order the themes (Table 11), participants most often selected "About venting my feelings" (33.33%), followed by "About my feeling lonely" (17.78%), and "About my recovery or treatment experiences" (15.56%) as their main themes written about within NSSI e-communities (Table 11, Column 1).

Table 11

Priority ranking of nature of posts written from First to Third

OQ-Rankings	First	Second	Third
About venting my feelings	15	7	1
About my experiences with self-injury	6	6	5
About venting my specific problems	2	10	6
About my feeling lonely	8	3	3
About my alternatives to self-injury	-	8	2
About how I am on the verge of self-injury	4	4	5
About how I started to self-injure	-	1	2
About how I reduce an urge to self-injure	-	-	4
About my recovery or treatment experiences	7	1	5
About how I find self-injury to be addictive	-	1	-
About self-injury information	1	-	-
About my first aid tips	-	2	1
About resources (e.g., crisis lines, therapists for myself)	-	-	-
About my stories videos or pictures	1	-	2
About topics that will trigger my self-injury	-	-	2
About my tips to hide my self-injury	1	1	1
About my ways to self-injure	-	-	-

About being pro-self-injury	-	-	-
About my tips to self-injure more effectively	-	-	-
Other	-	-	2
Missing	-	1	4
Total	45	45	45

Note: Only one reason could be endorsed per ranking.

Research Goal 2: Perceived Social Support and Time Online

To examine the relation between Perceived Social Support (PSS) measures and time spent online visiting NSSI e-communities, Pearson (r) correlations were computed between PSS items (i.e., online and offline peer support and family support) and OQ items (i.e., average number of days per week spent online, total time spent online per week, and average time spent per session in the e-communities) (Table 12). There was no significant relation between PSS-Offline Peers and OQ-Days per Week Online ($r = .08$, $p = .518$), OQ-Total Time Spent Online ($r = -.02$, $p = .908$), or OQ-Average Time Spent Online per Session ($r = .03$, $p = .832$). However, there was a significant positive relation between PSS-Online Peers and OQ-Days per Week Online ($r = .32$, $p = .007$), OQ-Total Time Spent Online ($r = .48$, $p < .001$), and OQ-Average Time Spent Online per Session ($r = .37$, $p = .002$). This suggests that higher levels of perceived social support from online peers is positively related to time spent online, specifically the average days per week spent online, the total time spent online per week, and average time spent online per session. In addition to this, there was a significant negative relation between PSS-Family and OQ-Days per Week Online ($r = -.30$, $p = .017$), OQ-Total Time Spent Online ($r = -.39$, $p = .001$). This suggests that lower level of perceived social support involving family is

related to more days spent online and the total time spent online per week. However, there was no significant relation with OQ-Average Time Spent Online per Session ($r = -.17$, $p = .183$).

Table 12

Correlation between Perceived Social Support (PSS) measures and time spent online visiting NSSI e-communities (OQ)

Items		PSS-Offline Peers	PSS-Online Peers	PSS-Family
OQ-Days per Week Online	*r*	0.08	.32**	-.30*
	p	0.518	0.007	0.017
	N	65	67	63
OQ-Total Time Spent Online	*r*	-0.02	.48**	-.39**
	p	0.908	0.000	0.001
	N	65	67	63
OQ-Average Time Spent Online per Session	*r*	0.03	.37**	-0.17
	p	0.832	0.002	0.183
	N	65	67	63

*Note: *p* < .05, two-tailed. **p* < .01 level, two-tailed.

Research Goal 3: NSSI Frequency and Time Online

Next, to examine the relation between NSSI behaviour and time spent online visiting NSSI e-communities, Pearson (r) correlations were computed between ISAS Total Frequency and OQ items (i.e., average number of days per week spent online, total time spent online per week, and average time spent online per session in the e-communities) (Table 13). There was no significant relation between ISAS Total Frequency of NSSI and OQ-Days per Week Online ($r = .19$, $p = .117$), but there was a significant positive relation with OQ-Total Time Spent Online (r

= .27, p = .023), and OQ-Average Time Spent Online per Session (r = .23, p = .049). This

suggests that frequency of NSSI behaviour is positively related to total time and average time

spent online per week on NSSI e-communities.

Table 13

Correlation between NSSI Total Frequency (ISAS) and time spent online visiting NSSI e-communities (OQ)

Items

		ISAS Total Frequency
OQ-Days per Week Online	r	0.19
	p	0.117
OQ-Total Time Spent Online	r	0.27
	p	0.023*
OQ-Average Time Spent Online per Session	r	0.23
	p	0.049*

Note: *p < .05, two-tailed. **p < .01 level, two-tailed. N = 71.

Discussion

This study was conducted to explore NSSI as it relates to reasons for NSSI e-activities,

NSSI behaviours, and perceived social support within NSSI e-communities. Up to this point,

much of the research being conducted has explored the content being posted on the NSSI e-

communities and extrapolated information from this content using empirical knowledge and

theoretical understanding (e.g., Lewis et al., 2012a; Whitlock et al., 2006). This study took an

important next step by directly asking participants about their online and related behaviours.

First, reasons for seeking out NSSI e-communities were examined, fulfillment of needs relating

to the e-communities was determined, and content of NSSI e-activity was explored. Next, the possible links between NSSI e-activity, perceived social support, NSSI behaviours were explored in more depth. Specific findings are presented below. Finally, limitations, future directions, and practical implication are also discussed.

Research Goal 1a: Reasons for NSSI e-Communication

Given the social isolation commonly experienced by those who use NSSI (Whitlock et al., 2006), social support reasons have been suggested to contribute to why individuals engage in online NSSI communication (Baker & Fortune, 2008; Johnson et al., 2010; Lewis & Baker, 2011; Lewis et al., 2012b; Whitlock et al., 2006). However, this has largely been based on what individuals post in NSSI e-communities; few efforts formally examine these reasons from the view of those involved. To explore these reasons, participants were asked why they sought out NSSI e-communities. In general, participants select social support-related reasons (i.e., social support in the form of reducing social isolation and seeking acceptance or understanding) as their primary reasons. This trend is corroborated when participants rank ordered the list of possible reasons. Again, they primarily select social support reasons (e.g., "To feel less alone") as their primary reasons for seeking out NSSI e-communities. In line with previous research, seeking information about NSSI (Johnson et al., 2010; Lewis et al., 2012c; Michal et al., under review) and wanting to provide help or support to others are the next highest rated after social support reasons (Rodham et al., 2007; Whitlock et al., 2006).

Research Goal 1b: Fulfillment of needs related to reasons for NSSI e-Communication

A majority of participants report that the NSSI e-communities either completely or mostly meet their needs pertinent to use of the NSSI e-communities. Very few indicate that the NSSI e-communities do not or only slightly meet their needs. This suggests that individuals

perceive some benefit from their NSSI e-activity, particularly that certain needs, such as those related to social support, are being met through online communication related to NSSI. Specifically, higher levels of needs fulfillment was associated with higher levels of perceived social support related to online peer support ($r = .41$), but not associated with offline peer support or family support. It follows that individuals who feel higher degrees of fulfillment of their needs are potentially more likely to stay within the NSSI e-communities as the communities continue to meet the specific needs being sought. The results of the correlations suggest further that higher needs fulfillment is positively related to the average number of days per week spent online ($r = .38$), the total time spent online per week ($r = .40$), and average time spent online per day ($r = .38$). This continued exposure to NSSI e-material may contribute to the maintenance of NSSI if individuals remain online for perceived social support gains despite the potential for repeated exposure to possibly negative e-material (e.g., hopeless or melancholic messages or graphic NSSI imagery) (Lewis & Baker, 2011; Rodham et al., 2007; Whitlock et al., 2006).

Goal 1c: e-Activity relating to reasons for NSSI e-Communication

Almost all individuals who participated in this study read messages posted in NSSI e-communities and about two thirds wrote messages within NSSI e-communities. It would follow that the content of an individual's NSSI e-activity would be related to their needs for seeking out the NSSI e-community; however, this was not the case. Participants primarily read posts on the NSSI e-communities that are related to others' experiences with NSSI. Reading posts related to venting about feelings or specific problems are also very common. Reading about others feeling lonely was most commonly selected after these other reasons. Again, when writing in the NSSI e-communities, participants mostly want to vent about feelings or specific problems and post

about their own experiences related to NSSI. Writing about specific feelings of loneliness followed after these other activities.

It is possible that although the content of the e-activity does not directly map onto social support reasons (e.g., selectively writing about wanting understanding from others), participants feel this sense of support after they find a place to vent or talk about their own and others' experiences with NSSI that they may not have had a chance to previously in their offline lives. If so, this would align with previous research that suggests the sharing of experiences may decrease feelings of social isolation and allow for a gain in social support through venting about difficult times (Baker & Fortune, 2008; Johnson et al., 2010; Lewis & Baker, 2011; Lewis et al., 2012b; Rodham et al., 2007; Whitlock et al., 2006). It is also possible that individuals' current needs have changed from their initial reasons for why they sought out NSSI e-communities, for example, their initial need for social support could be satisfied and now their needs reflect venting; however, venting and sharing experiences still seem to serve a social support function and to provide a way to process difficult emotions that seems to be lacking for these individuals.

Research Goal 2: Perceived Social Support and Time Online

A lack of social support has been associated with those who have a history of NSSI (Heath et al., 2009; Muehlenkamp et al., 2013). One manner by which individuals may seek this social support is through online interactions. This link was tentatively established based on current findings. In this study, perceived social support from online peers was related to time spent online visiting NSSI e-communities. The results of the correlations suggest that perceived social support from online peers is positively related to the average number of days per week spent online ($r = .32$), the total time spent online per week ($r = .48$), and average time spent

online per day (r = .37). Individuals may want to stay on these online NSSI communities because they are gaining social support that they were looking for when they first came online.

This is the opposite trend of that found with perceived social support from family and time spent online visiting NSSI e-communities. Previous research has indicated that a lack of perceived family support may be more common among those who self-injure compared to those who did not self-injure (Heath et al., 2009; Muehlenkamp et al., 2013). Here the correlation analyses suggest that lower levels of perceived social support from family is related to a higher average number of days per week spent online (r = -.30) and total time per week spent online (r = -.39). Participants may actively seek out NSSI e-communities for social support reasons and they may be driven to do so because of the lack of perceived social support they find offline and from their families.

Research Goal 3: NSSI Frequency and Time Online

It is posited in the literature that NSSI e-activity may have both beneficial and harmful effects on individuals who self-injure (for a review see Lewis et al., 2012a). One of these possible effects is the maintenance of NSSI behaviour (i.e., a lack of recovery or cessation of NSSI) possibly due to the frequent viewing of material that may maintain NSSI (Duggan et al., 2012; Lewis & Baker, 2011; Lewis et al., 2011a, 2012a, 2012b; Rodham et al., 2007; Whitlock et al., 2006). In order to start exploring the impact of NSSI e-activity on NSSI behaviour, there needs to be a link established between the two behaviours. Findings from this study suggest that NSSI frequency is positively associated with time spent online visiting NSSI e-communities, although the correlations are moderate. Specifically, the total time spent online per week (r = .27) and average time spent online per session (r = .23) are related to NSSI frequency. This offers preliminary support for the notion that maintenance of NSSI could occur through engaging

in NSSI e-activity by establishing the link between NSSI behaviours and NSSI e-activity. More research is necessary to ascertain the nature of the content accessed and mechanisms involved in the link between NSSI behaviours and NSSI e-activity.

Practical and Clinical Implications

The primary reasons that individuals who self-injure seek out NSSI e-communities are social support reasons. This suggests that these individuals could readily benefit from increased support and that online support is very important to them as these e-communities may be fulfilling this need. If this is the case, it would be important in clinical contexts to find ways to foster support for clients who self-injure and that the Internet may be one such way. However, this would need to be monitored in light of the possible risks that have been associated with NSSI e-communities (Lewis & Baker, 2011; Lewis et al., 2012a, 2012b; Whitlock et al., 2006). Specifically, e-outreach initiatives that support those who self-injure and who also spend time online participating in NSSI related e-activity might need to amend their support resources to fill in the gap for what individuals may be lacking online. For example, e-resources could be tailored to guide individuals to specific types of activities that may help the problem area such as suggesting social-skills training or group therapy.

Many individuals who communicate about NSSI via the Internet may have a preference for venting about difficulties in their lives and reading about what others vent about when visiting NSSI e-communities. It is possible that for some venting serves an emotion release or regulation function similar to that of NSSI, which may be a substitute to NSSI in some instances (Baker & Fortune, 2008). Although this can be cathartic by allowing for a way to express emotions or psychological needs and to bring like-minded individuals together (Rodham et al., 2007), in the long-term this may not be the most effective way to elicit support. Indeed,

responses to venting messages are not often problem-centered. Therefore, responses may not be helpful in terms of resolving individuals' difficulties (Rodham et al.). Generally responses to NSSI e-communications (e.g., written venting in e-communities and videos on video-sharing websites) are often mixed in their view of NSSI, do not often focus on recovery, and may be hopeless or melancholic in nature which may contribute to NSSI continuation and a reduced likelihood for help-seeking (Lewis & Baker, 2011; Lewis et al., 2011, 2012a, 2012b; Rodham et al., 2007). Further research should explore these possible outcomes and the possible effects of venting within this context.

Clinicians should assess if their clients engage in NSSI e-activity such as spending time within NSSI e-communities. Although the mechanisms by which NSSI e-activity may contribute to the maintenance of NSSI behaviour have not been established, there is a potential link between spending time within NSSI e-communities and NSSI behaviours. Thus, this may merit consideration when managing NSSI and problematic online activity. The perceived social support that the individual is receiving online, the content of the reading and writing should also be monitored to track possible themes that could potentially influence NSSI behaviours. Specifically, the nature of online peer relationships should be established to determine the extent that some may be providing positive coping benefits and potentially harmful hopeless or melancholic feedback (Lewis et al., 2012a; Whitlock et al., 2006). Additionally, NSSI behaviours should be monitored for changes as the extent of the NSSI e-activity changes.

A functional assessment of NSSI behaviour and NSSI e-activity may be an effective model for how this may be accomplished (Lewis et al., 2012a). This functional assessment should help determine which activities individuals are participating in and how these activities may be affecting this individual's well-being specifically related to NSSI behaviours. A focus of

intervention would be to encourage alternative online activities rather than a complete shift to solely offline activities (Lewis et al.). For example, recommended NSSI e-resources include websites that are professionally monitored with psycho-educational material and support available. Individuals may be reluctant to completely stop NSSI e-activity because of the perceived gains, so switching focus from a potentially harmful environment to one that promotes recovery may be beneficial. Motivational interviewing is one strategy that clinicians may find helpful when encouraging those who self-injure to change their online NSSI activity and general NSSI behaviours (Lewis et al.).

Limitations and Future Directions

Findings need to be interpreted in the context of a few limitations of this study. Although findings align with past research (Baker & Fortune, 2008; Johnson et al., 2010; Lewis & Baker, 2011; Lewis et al., 2012b; Rodham et al., 2007; Whitlock et al., 2006), the results need to be interpreted in light of smaller sample size which affects power to properly detect the associations that may be present within this population and may be missed otherwise. Furthermore, the approach used in this study used a list of reasons for NSSI e-communication based on theoretical, empirical, and practical knowledge. It is possible that individuals may have reasons for engaging in NSSI e-communities that were not assessed in the current study. The order by which items on the lists of reasons may also prime individuals to select certain reasons over others - namely those initially presented. Future research should employ open-ended questions and interviews to explore these and other reasons. Understanding why individuals access NSSI e-communities may inform e-outreach efforts in terms of where to focus resource provision and how to present resources. For example, e-outreach resources may be tailored to the specific types of information individuals want when seeking out information on NSSI e-communities. Further

research should also explore if these reasons associate with repeated engagement in NSSI e-activities; this might help elucidate what aspects of e-activity are likely to be repeated. This is important in light of the possible benefits and risks with which some activities may associate.

Additionally, this study is cross-sectional in nature. It is difficult to assess the effect of social support on time spent online engaging in NSSI activities and time spent online engaging in NSSI activities on NSSI frequency without establishing a timeline of the behaviours. Longitudinal research helps to establish how the variables relate and how they affect each other over time. It may also provide insight into any possible causal relations that might exist between NSSI behaviour and NSSI e-activity. Moreover, the types of questions asked are further limited in scope in that this study did not establish what individuals were doing online as they spend time in the online NSSI communities. The link between NSSI e-activity and NSSI behaviours remains tentative unless specific aspects of the NSSI e-activities are understood. Further research needs to explore the content of the NSSI e-activities and the qualities of the e-material accessed that may make it more or less harmful to individuals who self-injure (e.g., graphic NSSI stories that could lead to possible triggering effects). Likewise, further research looking at maintenance of NSSI should explore how NSSI changes over time as a function of perceived social support and engaging in NSSI e-activities.

Summary

For those who self-injure, the NSSI material that is available on online NSSI communities may carry potential risks and benefits (Lewis & Baker, 2011; Lewis et al., 2012a, 2012b; Whitlock et al., 2006). This is one of the first studies to ask individuals about their reasons for first seeking out these communities, if their needs are met from these e-communities, and about the nature of their activities relating to reading and writing e-material. Social support,

information, and helping others are essential to why individuals seek out these communities.

Further, some feel that their needs have been met by these e-communities. The tentative link

between social support, time spent online within these communities and needs fulfillment

through these e-communities, as well as between time spent online and NSSI behaviours has

been established; however future research needs to further explore this relation in more depth to

determine the mechanisms related to each.

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Appendix A

Demographics

1. Please indicate your age (in years): _____

2. Please indicate your sex:

    a. Male

    b. Female

    c. Other_____

    d. Would rather not specify

3. Please indicate your ethnicity: _____

4. Please indicate your country of residence: _____

5. Where did you hear about this study?

6. There are many ways that people describe their sexual orientation. How would you

    currently describe your sexual orientation?

    a. Heterosexual

    b. Lesbian

    c. Gay

    d. Bisexual

    e. Transgender

    f. Queer

    g. Questioning

    h. Other: _____

Appendix B

Online Questionnaire (OQ)

OQ-Reasons. Why did you <u>first seek out</u> self-injury websites or online communities (i.e., self-injury message boards, YouTube channels, Facebook groups, etc.) where others who self-injure communicate with each other? (Check all that apply)
To feel less alone
To find help for myself by finding resources (i.e., crisis lines, therapists)
To find support for myself by talking to others online
To find somewhere that I belong
To find pro-self-injury content and people
To find a group of people who understand me
To find a group of people who do not judge me
To find information about self-injury
To figure out why I self-injure
To vent about my feelings
To vent about specific problems
To share my experiences with self-injury
To post my stories, videos, or pictures
To trigger my self-injury
To find other ways to self-injure
To find tips to self-injure more effectively
To find tips to hide my self-injury
To find first aid tips
To reduce my urges to self-injure by online distraction (i.e., reading posts, chatting with members)
To reduce my urges to self-injure by finding alternatives (i.e., ice cubes, rubber bands)
To stop myself from self-injuring by online distraction (i.e., reading posts, chatting with members)
To stop myself from self-injuring by finding alternatives (i.e., ice cubes, rubber bands)
To stop others from self-injuring
To provide support or help to others
To talk about my recovery or treatment experiences
To ask others about recovery or treatment experiences
Other_____

OQ-Rankings. What are the <u>top three reasons you first sought</u> out self-injury websites or online communities (i.e., self-injury message boards, YouTube channels, Facebook groups, etc.) where others who self-injure communicate with each other? (Rank top 3)
To feel less alone
To find help for myself by finding resources (i.e., crisis lines, therapists)
To find support for myself by talking to others online
To find somewhere that I belong
To find pro-self-injury content and people
To find a group of people who understand me

To find a group of people who do not judge me
To find information about self-injury
To figure out why I self-injure
To vent about my feelings
To vent about specific problems
To share my experiences with self-injury
To post my stories, videos, or pictures
To trigger my self-injury
To find other ways to self-injure
To find tips to self-injure more effectively
To find tips to hide my self-injury
To find first aid tips
To reduce my urges to self-injure by online distraction (i.e., reading posts, chatting with members)
To reduce my urges to self-injure by finding alternatives (i.e., ice cubes, rubber bands)
To stop myself from self-injuring by online distraction (i.e., reading posts, chatting with members)
To stop myself from self-injuring by finding alternatives (i.e., ice cubes, rubber bands)
To stop others from self-injuring
To provide support or help to others
To talk about my recovery or treatment experiences
To ask others about recovery or treatment experiences
Other

OQ-Needs. Have you found what you were looking for when visiting self-injury websites or online communities (i.e., self-injury message boards, YouTube channels, Facebook groups, etc.) where others who self-injure communicate with each other?
1. Completely
2. Mostly
3. Somewhat
4. A little
5. Not at all

OQ-Read1. Do you read posts about self-injury when visiting self-injury websites or online self-injury communities?
Yes
No

OQ-Read2. What kind of posts do you read about self-injury when visiting self-injury websites or online self-injury communities? (Check all that apply)
About others feeling lonely
About resources (i.e., crisis lines, therapists) for myself
About self-injury information
About others venting feelings
About others venting their specific problems
About others' experiences with self-injury

About others' stories, videos, or pictures
About others being pro-self-injury
About how other people find self-injury to be addictive
About how other people started to self-injure
About how other people are on the verge of self-injury
About how others reduce an urge to self-injure
About topics that will trigger my self-injury
About others' ways to self-injure
About others' tips to self-injure more effectively
About others' tips to hide self-injury
About others' first aid tips
About others' alternatives to self-injury
About others' recovery or treatment experiences
Other_____

OQ-Read Rankings. What kind of posts <u>do you read</u> about self-injury most often when visiting self-injury websites or online self-injury communities? (Rank top 3)
About others feeling lonely
About resources (i.e., crisis lines, therapists) for myself
About self-injury information
About others venting feelings
About others venting their specific problems
About others' experiences with self-injury
About others' stories, videos, or pictures
About others being pro-self-injury
About how other people find self-injury to be addictive
About how other people started to self-injure
About how other people are on the verge of self-injury
About how others reduce an urge to self-injure
About topics that will trigger my self-injury
About others' ways to self-injure
About others' tips to self-injure more effectively
About others' tips to hide self-injury
About others' first aid tips
About others' alternatives to self-injury
About others' recovery or treatment experiences
Other

OQ-Written. What kind of posts about self-injury <u>do you write</u> when visiting self-injury websites or online self-injury communities? (Check all that apply)
About my feeling lonely
About resources (i.e., crisis lines, therapists) for myself
About self-injury information
About venting my feelings
About venting my specific problems

About my experiences with self-injury
About my stories, videos, or pictures
About being pro-self-injury
About how I find self-injury to be addictive
About how I started to self-injure
About how I am on the verge of self-injury
About how I reduce an urge to self-injure
About topics that will trigger my self-injury
About my ways to self-injure
About my tips to self-injure more effectively
About my tips to hide my self-injury
About my first aid tips
About my alternatives to self-injury
About my recovery or treatment experiences
Other_____

OQ-Written Rankings. What kind of posts about self-injury <u>do you write</u> about self-injury most often when visiting self-injury websites or online self-injury communities? (Rank top 3)
About my feeling lonely
About resources (i.e., crisis lines, therapists) for myself
About self-injury information
About venting my feelings
About venting my specific problems
About my experiences with self-injury
About my stories, videos, or pictures
About being pro-self-injury
About how I find self-injury to be addictive
About how I started to self-injure
About how I am on the verge of self-injury
About how I reduce an urge to self-injure
About topics that will trigger my self-injury
About my ways to self-injure
About my tips to self-injure more effectively
About my tips to hide my self-injury
About my first aid tips
About my alternatives to self-injury
About my recovery or treatment experiences
Other

OQ-Days per Week Online. In a typical week, about <u>how many days</u> have you visited a self-injury website or online community (i.e., self-injury message boards, YouTube channels, Facebook groups, etc.) where others who self-injure communicate with each other?
1 day a week
2 days a week

3 days a week
4 days a week
5 days a week
6 days a week
7 days a week

OQ-Total Time Spent Online. In a typical week, about <u>how much time total</u> do you spend visiting a self-injury website or online community (i.e., self-injury message boards, YouTube channels, Facebook groups, etc.) where others who self-injure communicate with each other?
Less than 15 minutes
Between 16-30 minutes
Between 31-45 minutes
Between 46 minutes to 1 hour
Between 1-2 hours
Between 3-4 hours
Between 5-6 hours
Between 7-8 hours
Between 9-10 hours
More than 10 hours

OQ-Average Time Spent Online per Session. In a typical week, about how long is your <u>AVERAGE</u> visit to a self-injury website or online community (i.e., self-injury message boards, YouTube channels, Facebook groups, etc.) where others who self-injure communicate with each other?
Less than 15 minutes
Between 16-30 minutes
Between 31-45 minutes
Between 46 minutes to 1 hour
Between 1-2 hours
Between 3-4 hours
Between 5-6 hours
Between 7-8 hours
Between 9-10 hours
More than 10 hours