Self-Injury Behaviors In Cyber Space

Jamie Marie Duggan
McGill University, Canada

Janis Whitlock,
Cornell University, United States of America

Abstract

This entry describes the evolution and current state of research related to Non-suicidal self-injury on the Internet across a variety of mediums, including social networking websites, video-sharing websites, and informational websites. Although the full influence of such online behaviours on off-line behaviours and functioning remains relatively unknown, it appears that such activities pose both risks and benefits to mental health and wellbeing. Online activities may provide individuals with a history of or interest in self-injury with guidance and education, informal support, a sense of community as well as allow for personal expression. However, such activities can also serve to trigger, reinforce, and normalize self-injury and may substitute for off-line relationships. The pervasiveness of self-injury online suggests that regular assessment of on-line activity is an important aspect of self-injury treatment. The chapter concludes with suggestions for utilizing the Internet as a novel approach to self-injury prevention and intervention efforts.

Introduction

Non-suicidal self-injury is defined as the deliberate, self-inflicted destruction of body tissue without suicidal intent, and for purposes not socially sanctioned (ISSS, 2010). Nomenclature varies within the field and includes terms such as *self-injury*, *self-injurious behavior, self-mutilation*, *bodily harm, deliberate self-harm,* and *self-cutting*. Certain terms, such as "deliberate self-harm," often refer to behaviors with and without suicidal intent and thus can include behaviors such as hanging, self-poisoning and deliberate substance abuse. Due to the well-documented differences between suicidal and self-injurious behavior with regards to intent, lethality, methodology, functions and treatment, it is essential to emphasize and understand the distinction between the two

terms (See Walsh, 2006 for a review). While the contents of this chapter may include studies dedicated to examining deliberate self-harm, the focus of the chapter is restricted to self-injurious behavior undertaken without suicidal intent and most commonly referred to as *Non-suicidal self-injury*.

Online behaviours include social networking, information seeking, picture sharing, and video posting. The current chapter presents a comprehensive summary of existing literature regarding NSSI behaviours across a variety of mediums, while concomitantly examining the beneficial and detrimental influences of such online activities on virtual and real life functioning. The chapter will conclude with a discussion of the implications of on-line behaviors in self-injury prevention and intervention efforts and suggestions for future research. As NSSI and Internet use are both more common among adolescents than any other age group, and all NSSI-Internet studies to date find a predominately adolescent presence, what follows is essentially a review of the on-line NSSI-related behaviors of adolescents. The following self-injury message board posts provide an example of self-injury behaviours in cyber space:

"I'm writing to ask you, as an ex-cutter and a person still dealing with the effects of self-injury in my life, to please take down the pictures you have on your website. They help no cutter or cutter's friend to understand what happens. Instead, they inspire sick, twisty feelings of inadequacy and self-pity, which, in turn, may lead to deeper, worse cuts, and a desire not to stop. You're making the problem worse, not better… Sort things out... I appreciate what you're trying to do, but I feel you're making it harder for self-injurers to stop and get help".

"…For some people the pictures may be 'harmful', I personally have never met anyone else who was affected negatively by them…I also am a recovering self-injurer, I however was infinitely helped by these living testaments to the fact that we are not alone. There is no way that I could have gone this long without cutting without this site, especially the pictures page".

-Self-injury message board posts

Background Information

Interest in and study of NSSI has grown exponentially within the last decade. Self-injury was initially identified as a behavior most often seen among atypically functioning populations and most commonly found in clinical settings, including individuals diagnosed with psychosis and borderline personality disorder (Walsh, 2006). However, during the 1990's and early part of the new millennium, growing awareness of NSSI among community populations of youth prompted inquiry into the scope and nature of the "new" and "puzzling" disorder (Welch, 2004). Since then, NSSI has garnered a high degree of attention in mainstream media such as movies, music, and news reports as evidenced by an increase from almost non-existent to hundreds of references per year over the span of half a decade (Walsh, 2006; Whitlock, Purington, & Gershkovich, 2009). Whether this awareness reflected an actual increase in cases or simply an awakening to a more longstanding issue will remain indefinitely obscure since empirical baseline data on NSSI prevalence in community populations of youth is non-existent in the US prior to this time. It does suggest, however, that NSSI is a behavior unlikely to recede into the annals of social and clinical history any time soon.

NSSI prevalence rates vary dramatically by study and population. Within clinical populations, estimates range from 38% to 82% among adolescents (Nixon, Cloutier, & Aggarwal, 2002; Nock, & Prinstein, 2004) and 21% to 65% among adults (Briere & Gil, 1998; Claes, Vandereycken, & Vertommen, 2005). The large variability among clinical prevalence rates can be attributed to numerous factors, including inpatient and outpatient samples, gender distribution, and nature of clinical settings. Within community samples (non-clinical) lifetime prevalence rates range from 12% to 37%

among adolescents (See Jacobson & Gould, 2007 and Rodham & Hawton, 2009 for reviews) and 12% to 20% among university and college students (Heath, Toste, Nedecheva, & Charlebois, 2008, Whitlock, Eckenrode, & Silverman, 2006; Whitlock, et al., in press). NSSI most commonly begins between the ages of 12 to 15 (Rodham & Hawton, 2009; Whitlock & Selekman, in press) but ranges for age of onset can be quite wide. For example, in a community sample of high school students, 25 % of youth reporting NSSI began prior to age 12 (Ross & Heath, 2002) whereas 25% to 40% of all individuals between the ages of 17 to 24 with NSSI history have reported starting after 17 (Whitlock et al., 2006, Whitlock et. al., in press). Most often practiced in seclusion, the most common NSSI forms reported by adolescents and young adults include scratching, cutting, punching or banging objects with the conscious intention of self-injury, punching or banging oneself, biting, ripping or tearing the skin, carving on the self, and burning (Briere & Gil, 1998; Heath et al., 2008; Klonsky, 2007a, 2007b; Laye-Gindu & Schonert-Reichl, 2005; Nock, 2010; Whitlock, et al., 2006; Whitlock & Selekman, in press).

Although most research finds adolescent and young adult females to be 1.5 to 3 times more likely to self-injure than their male peers (Conterio & Lader, 1998; Favazza, 1999; Whitlock, et al., 2006; Whitlock et al., in press), other empirical research suggests that the gender gap may be narrower than previously assumed (Briere & Gil, 1998; Deiter, Nicholls, & Pearlman, 2000; Dulit, Fyer, Leon, Brodsky, & Frances, 1994; Galley, 2003; Heath et al., 2008; Martin, Rozanes, Pearce, & Allison, 1995; Whitlock & Selekman, in press). Similarly, study of NSSI and ethnicity in adolescents and young adults are inconclusive. While a small number of studies comparing Caucasian to non-

Caucasian youth show significant differences (Muehlenkamp & Gutierrez, 2004, 2007) other studies show similarly high rates in minority samples (Favazza, 1999; Laye-Gindhu & Schonert-Reichl, 2005; Whitlock & Knox, 2007) or only modest differences between Caucasians and Asian students (Whitlock et al., 2006; Whitlock et. al, in press). There is some evidence linking NSSI to sexual orientation as the prevalence of NSSI is elevated among individuals with bisexual and questioning sexual orientation status (Skegg, Nada-Raja, Dickson, Paul, & William, 2003; Whitlock et al., 2006; Whitlock, et al., in press).

Although NSSI is, by definition, distinct from suicide, many individuals with NSSI history are at an increased risk for suicide related behaviors (Muehlenkamp & Guiterrez, 2004; Nock, Joiner, Gordon, Lloyd-Richardson & Prinstein, 2006; Whitlock & Knox, 2007; Whitlock et. al., unpublished data). Emerging research suggests NSSI most often precedes suicide-related behaviors and may thus serve as a warning sign for distress that may place individuals at risk for suicide (Whitlock & Knox, 2007; Whitlock et. al., unpublished data). It is also true, however, that the majority of individuals who engage in NSSI do not exhibit any suicidal behavior at all (Muehlenkamp & Guiterrez, 2004; Nock et al., 2006; Whitlock & Knox, 2007; Whitlock et. al., unpublished data). Similarly, although NSSI is comorbid with a variety of other mental health related disorders, a significant number of individuals (44% in one study) report NSSI as a separate behavior (Gollust et al., 2008). Taken together, it is evident that early intervention is critical.

In general, a broad base of empirical evidence suggests that the primary function of NSSI is to avoid psychological pain, to express psychological distress, and to refocus one's attention away from negative stimulus (Hawton & Rodham, 2006; Klonksy, 2007b;

Nock & Prinstein, 2004, 2005; Rodham, Hawton, & Evans, 2004; Selekman, 2009; Selekman & Shulem, 2007; Walsh, 2006). Other endorsed functions include self-punishment, anti-dissociation, and anti-suicide, and functions are not mutually exclusive, nor fixed, varying across the lifespan, as well as across populations (See Klonsky & Muehlenkamp 2007 for a review).

Leading Researchers Examining Self-Injury Online

Like the advent of Internet itself, exploration of the presence and influence of NSSI online on the real life of human beings is in fledgling stages, with the earliest studies originating in the beginning of the new millennium. Moreover, the dearth of basic understanding of the shape and size of on-line NSSI communities coupled with the challenges associated with determining the influence of on-line life on off-line behavior and functioning has resulted in largely descriptive studies of web-based NSSI communities and exchanges to date. Earliest pioneering scholars studying online behaviors related to self-injury include Prasad and Owens from the University of Leeds School of Medicine (2001), Adler and Adler, (2005, 2007, 2008) from the University of Colorado, Murray and Fox from Lancaster University, Whitlock and colleagues (2006, 2006, 2007) from Cornell University, Rodham, Gavin, & Miles (2007) from the University of Bath, and Mitchell and Ybarra (2007) from the University of New Hampshire. Current leading researchers include Heath (2009, 2011) and Lewis (2011) from McGill and Guelph University respectively.

The focus of the studies undertaken by early scholars parallel popular trends and evolutionary patterns in modalities of on-line exchange, by transitioning from discussion boards and informational websites, to social networking sites and video sharing sites

such as YouTube. For example, in 2005, a group search using the well known Yahoo!

search engine by Murray and Fox (2006) recorded 170 results using the term self-harm,

and 180 results for the term self-injury, whereas an identical search today yields over

400 and 300 search results respectively. A simple search today, using the term "self-

injury" on the popular search engine Google yields 1, 640 000 results (2011). Although

it cannot be assumed that all results pertain specifically to self-injury, a brief

examination suggests that the majority is in fact, related. Similarly, Whitlock and

colleagues (2006) monitored the growth over time of active message boards dedicated

to self-injury and not only found hundreds of NSSI-focused websites, but an increase of

100 new message boards within a one-year time frame. A recent search on the popular

video-sharing site YouTube revealed over 5000 videos dedicated to self-injury (Lewis,

Heath, Denis, & Noble, in press).

In light of the prevalence rates and largely stigmatized nature of the behavior, the

increasing presence of online self-injury content is not surprising. The hidden and

secretive nature of the behavior is well protected by the interface of a computer screen,

which offers anonymity and privacy. Additionally, virtual communities serve as an

unparalleled emotional outlet offering immediate and easy access to individuals and

groups and providing acceptance, belonging and support from individuals with shared

experiences and interests (Whitlock et al., 2006; Whitlock, Lader, & Conterio, 2007).

Despite the sense of social connection and real time exchange, online interactions are

neither face-to face nor real-life. This feature may provide individuals with a heightened

sense of social distance and control, specifically regarding how they choose to present

themselves online. Individuals who engage in self-injury are well matched to these

benefits, as they typically demonstrate emotion regulation difficulties and heightened emotional sensitivity, specifically related to social rejection and interpersonal relationships (Walsh, 2006; Whitlock et al., 2006; Whitlock, Lader, & Conterio, 2007).

Cyber Behaviors of Youth Engaging in Self-Injury

With the vast majority of youth (93%) accessing the Internet on a daily basis, primarily for socialization purposes (Lenhart, 2010), pop culture references such as "the always on" or "mobile" generation are apt descriptors for those many know as "digital natives" (born after 1985). Growing up in the digital age has changed the landscape of individual and social life considerably. For example, although youth are consistently shown to be resistant to formal help seeking in general (Miller, Muehlenkamp, & Jacobson, 2009), the advent of the Internet provides modern youth with an easily accessible, informational resource, appealing to individuals who seek privacy and anonymity – a venue for help-seeking previously not available to any generation. Among a sample of American youth, 18% reported seeking help for emotional problems online, via chat rooms, instant messaging, and informational websites (Gould, Munfakh, Lubell, Kleinman, & Parker, 2002). Moreover, among a sample of youth aged 12 to 17, 31% of American youth reported using the Internet as an online resource to get information pertaining to health, dieting and fitness, of which 17% reported seeking help for "sensitive" natured topics (Purcell, 2010). The sheer volume of opportunity for unregulated and/or unsupervised contact to limitless information and individuals makes adolescents using the web not only vastly more independent than their early generation peers but significantly more vulnerable to negative messages and interactions. When combined with isolation commonly experienced by individuals engaging in NSSI, both

risk and opportunity for helpful or hurtful messages and exchanges are heightened.

      Due to the complexity of interaction between on-line life, NSSI, and developmental stage, NSSI-Internet scholars have surfaced a multihued portrait of the scope and nature of on-line NSSI communities. For example, Whitlock and colleagues (2006) pioneered the first study to observe and document adolescent use of self-injurious specific online message boards, analyzing the 10 most active message boards dedicated to self-injury, and over 3000 individual posts, varying in moderation level. Results suggested that individuals who identified themselves as females' aged 12 to 20 populated the majority of message boards. Additionally, half of all message boards were cross-listed with conditions such as depression, eating disorders and suicide, suggesting that many users accessing self-injury online content experience a variety of comorbid emotional and behavioral issues. Analyses of posted content revealed that online exchanges were multifaceted. Although the most popular type of exchange was provision or solicitation of informal social support among message board members, less potentially healthy exchanges also occurred including normalization and encouragement of self-injurious behaviors, the sharing of self-injuring techniques, scar management and concealment tips, and reinforcement of self-injury as an adaptive coping mechanism. The authors concluded that such virtual exchanges within online communities can be beneficial for otherwise isolated individuals as they may fulfill core developmental needs of stigmatized individuals in search of affirmation, a sense of community, and a chance to interact with others experiencing similar difficulties (Whitlock et al., 2006). The authors also caution, however, that meeting such core needs in thi sway may be detrimental, since leaving the NSSI community may threaten

a deeper, more developmentally salient sense of belonging, which members may be resistant to challenge or lose (Whitlock et al., 2006).

While message boards remain a popular way of sharing and connecting with others, video based sharing has grown exponentially in popularity since the public introduction of "YouTube" in early 2006. Indeed, recent statistics indicate that seven in ten adult and well over half (70% of adults and 57% of adolescent) of Internet users have watched or download a video online (PEW Teens and social media report, 2007; Purcell, 2010). Additionally, video creation has now become a notable feature of online life, with about one in seven adult and teen Internet users (14%) uploading a video onto the Internet (PEW Teens and social media report, 2007; Purcell, 2010). Like text only message boards, video posting allows for exchange by poster(s) and viewers with all of the same development opportunities and risks as message boards. Unlike text only exchange, video posting appeals to multiple senses (visual and auditory) and often combines artistic and/or graphic imagery with music, poetry, and narrative to simultaneously stimulate affective responses and convey a message. This combination of affective stimulation and cognitive messaging can be particularly potent for viewers since they often include visual imagery and/or in vivo acts of self-injury along with music and/or spoken or written narrative intended to convey a wide range of emotions and messages (Lewis et al., in press; Whitlock et al., 2007).

In a study aimed at exploring and describing the presence and nature of virtual NSSI video sharing, Lewis, Heath, Denis, and Noble (2011) examined the top 50-viewed YouTube character (i.e., videos with a live individual) and non-character videos (i.e. no live individual portrayed), on a variety of qualitative and quantitative variables.

Results indicated that NSSI videos up loaders identified themselves as mostly female (95%) and were an average age of 25 years of age. Of all videos, 80% were accessible by a general audience and did not require a YouTube account (which requires viewers to verify that they are 18 years of age or older). A large majority of non-character videos (90%) had visual representations of NSSI, and included text, NSSI photographs and imagery and music. On average, non-character videos depicted more graphic NSSI imagery and multiple NSSI methods (e.g., cutting, burning) with more than half (58%) providing a trigger warning. Of the character videos, 28% depicted a live act of NSSI, mostly in the form of cutting. Responses to videos were largely positive and included comments indicating viewer acceptance and identification with themes presented in the videos. Despite the frequently graphic nature of the images and/or story, the majority of all videos failed to provide audience members with a trigger warning. The researchers concluded that although video sharing offers another avenue for both creative expression and informal social support, the affective and cognitive appealing nature of the videos might inadvertently normalize and/or glamorize self-injury for an already vulnerable population (Lewis et al., in press).

Studies aimed at investigating differences in the on-line behavior of self-injurious youth when compared to their non-injurious peers reinforce the popularity of on-line communities to individuals with self-injury history. For example, Heath and colleagues (2009) examined online socialization activity among youth who reported engaging in self-injury and found that 34% used the Internet to make friends, of which more than half reported maintaining a personal web page. Comparably, only 19% of their non-self-injuring peers reported using the Internet as a socialization tool, of which only 31% had

personal web pages (Heath, Toste, & McLouth, 2009). The greater on-line social dependency of individuals with a history of self-injury may, as suggested by the authors, reinforce the tendency to avoid real life relationships and difficulties. As suggested by Whitlock et al. (2007), such online social experiences may serve as a poor substitute for real life relationships, and inadvertently hinder the adaptive development of core interpersonal skills, as virtual interactions lack typical social rules, which are common and important within real-life interactions.

In addition to showing greater online dependency, youth who engage in NSSI appear to exhibit greater online risk related behaviors. For example, Mitchell and Ybarra (2007) surveyed 1500 American youth aged 12 to 17 and compared the Internet use and activities among youth who reported recently engaged in deliberate self-harm with those who did not. Although both groups were equally likely to socialize online with known acquaintances, youth who engaged in self-harm were more likely to disclose personal information, have close online relationships with strangers, use sexual screen names, and engage in online sexual encounters with strangers, when compared to non self-harming youth. Although on-line behaviors are not necessarily generalizable to off-line life, such findings suggest concerning trends. Moreover, such online activities could serve as a gateway to more dangerous behaviors both online and offline, conferring increased risk to an already vulnerable population.

Cyber Behaviors of Adults Engaging in Self-Injury

Although self-injury most often begins and ends in childhood or adolescence, it is not an exclusively adolescent phenomenon. Beginning in 2003, Adler and Adler began examining data collected from e-mail communications and self-injury message boards

amongst individuals aged sixteen to fifty, in an attempt to understand the implications of self-injury cyber communities and subculture (Adler & Adler, 2005, 2007, 2008). In one of the first studies to explore Web sites and public postings of individuals who practice self-injury, they identified a group of sites they identified as "pro-self-injury" sites, where self-injury was viewed as a voluntary and adaptive lifestyle choice and as a long-term coping mechanism, similar to the highly popular pro-anorexia and pro-suicide websites. Such sites encouraged members to denounce any feelings of stigmatization and to embrace their self-injury, often offering practical suggestions for engaging in self-injury (Alder & Adler, 2008). These findings were the first to draw attention to the existence of such overt, pro-self injury online attitudes and material that deliberately advocated and encouraged self-injurious thoughts and behaviors.

Although all of the above reviewed studies document or caution about risks associated with high dependency on virtual self-injury sites or communities, it is important to note that online participation and community membership may offer salient benefits to some individuals with self-injury history. For example, Murray and Fox (2006) investigated positive and negative aspects associated with being a member of a popular self-harm discussion group and found most participants endorsed beneficial properties of group membership including obtaining support, freedom of expression, anonymity, and privacy, all of which facilitated their their control of and recovery from self-injury (Murray & Fox, 2006). The majority of respondents (73%) attributed membership to an overall reduction in frequency and severity of self-injurious episodes while only 11.5% of respondents attributed group membership to negative effects, including the learning and reenactment of more severe self-harming methods. Similarly, Rodham, Gavin, & Miles

(2007) qualitatively analyzed 65 interactions on three popular self-harm message board and found that most users found the on-line forum to be an important source of support in a crisis or a potential self-harming episode, a useful place to express and share feelings and emotions, and validation where members sought confirmation of their worth from other members (Rodham et al., 2007). In keeping with this, Johnson and colleagues surveyed members of a virtual community dedicated to self-injury, and found that members cited community and a sense of connection as the most prominent reasons for membership. Indeed, almost half endorsed visiting the message boards at least once a day and indicated in on-line forums that their self-injury behavior had decreased since becoming a member (Johnson, Zastawny, & Kulpa, 2009).

Informational Online Self-Injury Resources

Although there exists a small and growing body of literature aimed at examining the content and usefulness of web-based health information, very little of this research is specific to self-injury. To date, two studies have examined content available on websites offering health advice to individuals with self-injury history. In the earliest of the two self-injury studies Owens and Prasad (2001) investigated the Internet as a source of self-help for individuals who engage in deliberate self-harm and found that available content most often took the form of informal sharing of practical information, guidance, and constructive advice provided by individuals with self-injury history. Although such peer based sharing is often useful in reducing stigma and provision of practical tips, it may lack factual and/or instrumentally helpful information and resources. Similarly, Moyer, Haberstroh, and Marbach (2008) conducted a analysis of 37 non-interactive online resources for self-injury, in order to evaluate the quality of available

online information related to self-injury. Of the analyzed 37 websites, three categories were identified. Twenty-two websites were identified as informational and factual, offering definitions, relevant literature, and outside references concerning self-injury. The majority of these websites were regularly updated, utilized privacy policies, and provided authorship information. Ten of the websites were classified as supportive, where viewers could access fellow users written and visual attestations of their history of self-injury material. Lastly, five websites were classified as pro-self-injury, offering highly triggering material with the tendency to glorify and normalize self-injury. Only six sites were certified by the Health on the Net (HON) foundation, which ensures that websites have been evaluated in order to meet online health information standards (Moyer et al., 2008). The authors conclude that although individuals may have the ability to recognize and avoid triggering material, such websites can provide viewers with false and inaccurate information, which may serve to propagate misconceptions of self-injurious behaviors, and potentially confer more harm than benefit.

In sum, research to date in this area suggests that participation in virtual self-injury communities may pose both risks and benefits to health and wellbeing. Such findings underscore the importance of providing guidance and education about how to balance the benefits of informal support, community, and opportunities for expression and exchange, with the dangers which include sacrificing off-line relationships for more fleeting and intangible on-line ones, yoking the practice of an adverse behavior with deeper needs and desires for community, and reinforcing self-injury through association with many others who may view it as a normal, even healthy, part of life. The ubiquity of the Internet forces individuals who engage in NSSI, as well as clinicians, parents, and

other individuals invested in supporting individuals who self-injure, to contend with such

multifaceted opportunities and risks on a daily basis.

The Role of The Internet in Self-Injury Assessment and Treatment

To date, the incorporation of Internet assessment is relatively uncommon in

therapy (Whitlock et al., 2007). Although estimates of the number of individuals who use

the Internet to access self-injury information, resources, and/or communities remain

uncertain, the proliferation of self-injury focused websites suggests that the Internet is a

popular venue for individuals seeking such information. Similarly, although the influence

of the Internet on off-line self-injury behavior has yet to be investigated, the sheer

prevalence of online communities and messages suggests that mental health

practitioners, parents, and anyone treating or serving individuals with self-injury behavior

or history would be remiss to ignore the likely influence of the Internet on offline

behaviors. Such was the conclusion of Whitlock, Lader and Conterio (2007) who set out

to assess the role of the Internet in psychotherapy for individuals who engage in self-

injury. Based on a review of the literature, the authors presented a series of

recommendations for clinicians and concluded that the regular assessment of Internet

use may not only be beneficial, but may potentially serve as a crucial component of the

therapeutic and recovery process in the modern age. The authors acknowledge the

double-edged nature of Internet use during the therapeutic process, cautioning clinicians

to be aware of the dangers of Internet use for self-injuring individuals while

simultaneously remaining aware of the possible auxiliary therapeutic benefits of

moderated web communities and information (Whitlock et al., 2007). Additionally, the

researchers suggest that clinicians familiarize themselves with the range of virtual

communities available to self-injurious clients in order to increase understanding concerning the NSSI online perspective. Such knowledge would allow mental health professions to engage in knowledgeable discussions with their clients and to direct clients to accredited sites that are moderated and/or affiliated with professionals or to those likely to provide valuable information and resources. By including assessment of and familiarity with virtual self-injury community options, clinicians will be better poised to incorporate and use, or at least address the risks associated with, virtual resources in the therapeutic process. Whitlock and colleagues (2007) recommend that self-injury focused and general Internet use assessment be conducted at intake and periodically throughout therapy. Additionally, mental health professionals can suggest that clients track Internet activity through a daily log, documenting frequency, activities, feelings, emotions and behaviors both during and following self-injury focused online (Whitlock et al., 2007). Clients can also be encouraged to explore web-based modalities dedicated to self-injury with their psychotherapist, and jointly decide which ones are appropriate given the clients current level of functioning. Alternatively, clients can be encouraged to bring a "print screen" to therapy sessions, in the event that they would like to discuss certain online exchanges, or visual material. Assessment of both NSSI specific Internet use and general Internet use can provide valuable information about frequency, purpose and function of online behaviors. It may also shed light on the extent of client involvement among online communities, and specific influences of online behavior on off line functioning and overall therapeutic process.

Implications for Web-Based Self-Injury Intervention and Prevention

The prolific on-line prevalence of self-injury suggests that the Internet may

represent a contemporary and novel approach to intervention and prevention for NSSI, as it provides the opportunity to reach out to a diverse and often otherwise difficult to access population. This may prove particularly useful for youth since engaging virtually, and potentially anonymously, may remove many of the traditional boundaries associated with the provision of mental health services which tend to dissuade youth from accessing services. Since the practice of self-injury is often intertwined with feelings of shame and secrecy, such virtual services may prove to be particularly useful. Furthermore, utilizing the Internet as a web-based tool offers numerous advantages for mental health care provision, including removing geographical, financial, and temporal constraints associated with traditional therapy (Zabinki, Celio, Jacobs, Manwaring, & Wilfley, 2003).

The multifaceted nature of the Internet allows for differentiated intervention and prevention approaches, as suggested by Zabinki and colleagues (2003), which include psycho education, asynchronous communication (i.e., interactions between individuals that do not occur during real time, such as message boards and video-posting), and synchronous communication (interactive discussions similar to real-life interactions, as they occur in real-time, such as chat rooms and video-discussions). Lessons learned from forays into virtual intervention in the field of eating disorders, an equally maladaptive behavior, offer several useful reflections on how NSSI prevention and intervention may be conducted on-line where studies show that computerized interventions and electronically delivered prevention programs have promising results among eating disordered populations of female college students (See Zabinski et al., 2001a, 2001b for a review).

Such studies also suggest, however, that although the Internet may appear to be a particularly promising venue for self-injury intervention and prevention, there are also notable limitations. For example, the lack of accredited informational online resources is problematic, as the way in which self-injury is depicted and presented may vary as a function of accreditation, administrator status and level of professionalism. Websites that lack professional accreditation force viewers to rely heavily on the informal insight from current and past self-injurers and may ultimately do more harm than good. Thus, while informational websites may serve as an innovative venue for presenting psycho educational material and credible NSSI information, it is essential that these be created, administered and/or monitored by individuals equipped to facilitate healthy exchange and growth (if personal exchange is indicated by the nature of the intervention or prevention program) and to handle unintended risks that arise as a result of the program (Owens et al., 2001; Walsh, 2006; Whitlock et al., 2006). Furthermore, all Internet-based intervention and prevention efforts must be prepared to address circumstances such as iatrogenic effects, unforeseen crises, limited client investment, as well as ethical considerations such as confidentiality and privacy issues (Zabinski et al., 2003).

Directions for Future Research and Summary

Preliminary research has laid a foundation for understanding the scope and nature of NSSI online activities but would be immensely augmented by longitudinal data as well as studies dedicated to exploring the relationship of on-line life to off-line life. Such information would assist in understanding changes in NSSI online content, participant demographics, and content and patterns of exchange over time (Lewis et al., in press). Furthermore, studies intended to elucidate differences between individuals

who do and do not access virtual communities would aid in creating informational sites and web-based interventions programs likely to benefit individuals with NSSI history who use the Internet as a primary source of NSSI information and exchange.

Future research would also benefit greatly from examination of factors that distinguish individuals who prefer certain on-line modality to others. For example, what variables differentiate an individual who chooses to post a video, which depicts their own acts of self-injury, compared to an individual who engages in online social exchange related to NSSI on a discussion board? It is possible that online activities may serve as an indication as to different NSSI severity profiles, which may serve to assist mental health professionals during the course of therapy and to provide greater information as to the influence of NSSI online behaviors on offline behaviors. Finally, social networking sites such as Facebook and Twitter have led to an explosion of activity within the world of social networking. With the advent of many cell phone applications, individuals are essentially online all the time. Researchers would benefit greatly from examining trends and patters of NSSI online activities and content on these among these popular social networking sites, as they may provide even greater insight into the NSSI online youth perspective. It is possible that such innovative approaches can be succinctly integrated into traditional therapeutic approaches, so that both are maximized and strongly benefit the needs of the client (Zabinski et al., 2003; Whitlock et al., 2007).

In sum, it is evident that research is clearly needed in order to determine what the best web-based avenue is to reach various NSSI populations. The continued growth of NSSI content online appears limitless, as are the opportunities to empirically

examine and further understand online activities concerning NSSI, and the influence they exert on both online and offline behaviors. As such, the future of self-injury in cyberspace is an exciting one, filled with immeasurable opportunities to improve the not only the current understanding of NSSI, but to improve prevention efforts, assessment practices and intervention approaches.

References

Adler, P. A., & Adler, P. (2008). The cyber worlds of self-injurers: Deviant communities, relationships and selves. *Symbolic Interaction, 3*, 33-56. Retrieved from http://researcher.royalroads.ca/moodle/course/view.php?id=878/

Adler, P. A., & Adler, P. (2007). The demedicalization of self-injury: From psychopathology to sociological deviance. *Journal of Contemporary Ethnography, 36*, 537-570. doi:10.1177/0891241607301968

Adler, P. A., & Adler, P. (2005). Self-injurers as loners: The social organization of solitary deviance. *Deviant Behavior* 26:345-78. doi:10.1080/016396290931696

Briere, J., & Gil, E. (1998). Self-mutilation in clinical and general population samples: Prevalence, correlates, and functions. *American Journal of Orthopsychiatry, 68*, 609–620. doi:10.1037/h0080369

Claes, L., Vandereycken, W., & Vertommen, H. (2005). Self-care versus self-harm: Piercing, tattooing, and self-injuring in eating disorders. *European Eating Disorders Review, 13*, 11-18. doi:10.1002/erv.612

Conterio, K., & Lader, W. (1998). Bodily harm: The breakthrough healing program for self-injurers. New York: Hyperion.

Deiter, P. J., Nicholls, S. S., & Pearlman, L. A. (2000). Self- injury and self capacities: Assisting an individual in crisis. *Journal of Clinical Psychology, 56*, 1173-1191. Retrieved from http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1097-4679

Dulit, R., Fryer, M., Leon, A., Brodsky, B., & Frances, A. (1994) Clinical correlates of self-mutilation in borderline personality disorder. *American Journal of Psychiatry, 15*, 1305-1311. Retreived from http://ajp.psychiatryonline.org/

Favazza, A. R. (1999). Self mutilation. In D.G. Jacobs (Ed.), The Harvard medical school guide to suicide assessment and intervention (pp. 125-145). San Francisco: Jossey-Bass.

Favazza, A. R. (1998). The coming of age of self-mutilation. *Journal of Nervous and Mental Disease, 186*, 259-268. doi: http://dx.doi.org/10.1097/00005053-199805000-00001

Galley, M. (2003). Student self-harm: silent school crisis. *Education Week*, p. 2.

Gollust, S. E., Eisenberg, D., & Golberstein, E. (2008). Prevalence and correlates of self- injury among university students. *Journal of American College Health, 56*, 491-498. doi: http://dx.doi.org/10.3200/JACH.56.5.491-498

Gould, M. S., Munfakh, J. L. H., Lubell, K., Kleinman, M., & Parker, S. (2002). Seeking help from the Internet during adolescence. *Journal of the American Academy of Child & Adolescent Psychiatry, 41*, 1182-1189. doi:10.1097/00004583-200210000-00007

Heath, N. L., Toste, J. R., & McLouth, R. Unpublished raw data.

Heath, N. L., Toste, J. R., Nedecheva, T., & Charlebois, A. (2008). An examination of Non-suicidal self-injury in college students. *Journal of Mental Health Counseling, 30*, 137-156. Retrieved from http://www.amhca.org/news/journal.aspx

International Society for the Study of Self-injury. (2010, October 28). About Self-injury. Retrieved October 28, 2010, from: http://www.isssweb.org/aboutnssi.php.

Jacobson, C. M., & Gould, M. (2007). The epidemiology and phenomenology of non-suicidal self-injurious behavior among adolescents: A critical review of the literature. *Archives of Suicide Research, 11*, 129-147. doi:10.1080/13811110701247602

Johnson, G. M., Zastawny, S., & Kulpa, A. (2010). E-Message boards for those who self-injure: Implications for e-health. *International Journal of Mental Health Addiction, 8,* 566–569. doi: 10.1007/s11469- 009-9237-x

Klonsky, E. D. (2007a). The functions of deliberate self-injury: A review of the evidence. *Clinical Psychology Review, 27,* 226-239. doi:10.1016/j.cpr.2006.08.002

Klonsky, E.D. (Ed.) (2007b, November Issue, Edited Volume). Non-suicidal self-injury. *Journal of Clinical Psychology/In Session*. doi:10.1002/jclp.20411

Klonsky, E. D., & Muehlenkamp, J. J. (2007). Self-injury: A research review for the practitioner. *Journal of Clinical Psychology, 63*, 1045–1056. doi: http://dx.doi.org/10.1002%2Fjclp.20412

Laye-Gindhu, A, Schonert-Reichl, K. A. (2005). Non-suicidal self-harm among community adolescents: Understanding the 'whats' and 'whys' of self-harm. *Journal of Youth and Adolescence, 34*, 447–457. doi:10.1007/s10964-005-7262-z

Lenhart, A. (2010). Social media & young adults (PEW Internet and American Life Project). Retrieved from the PEW Research website: http://www.pewInternet.org/ presentations/2010/Feb/Department-of-Commerce.aspx

Lewis, S. P., Heath, N. L., Denis, J. M., & Noble, R. N. (in press). Representations of self-injury on YouTube: An emerging phenomenon. *Pediatrics*.

Martin, G., Rozanes, P., Pearce, C., & Allison., S. (1995). Adolescent suicide, depression and family dysfunction. *Acta Psychiatr Scand,* 92, 336–344. doi:10.1111/j.1600-0447.1995.tb09594.x

Miller, A. L., Muehlenkamp, J. J., & Jacobson, C. M. (2009). Special issues in treating adolescent Non-suicidal self-injury. In M. Nock (Ed.), Understanding Non-suicidal self-injury: Origins, assessment, and treatment (pp. 251-270). Washington: APA Books.

Mitchell, K. J., & Ybarra, M. L. (2007). Online behavior of youth who engage in self-harm provides clues for preventative intervention. *Preventative Medicine, 45*, 392-396. doi: 10.1016/j.ypmed.2007.05.008

Moyer, M., Haberstroh, S., & Marbach, C. (2008). Self-injurious behaviors on the net: A survey of resources for school counselors. *Professional School Counselling, 11*, 277-284. doi:10.5330/PSC.n.2010-11.277

Muehlenkamp, J. J., & Gutierrez, P. M. (2004). An investigation of differences between self-injurious behavior and suicide attempts in a sample of adolescents. *Suicide and Life-Threatening Behavior, 34*, 12-23. doi:10.1521/suli.34.1.12.27769

Muehlenkamp, J. J., & Gutierrez, P. M. (2007). Risk for suicide attempts among adolescents who engage in Non-suicidal self-injury. *Archives of Suicide Research, 11*, 69–82. doi: 10.1080/13811110600992902.

Murray, C. D., & Fox, J. (2006). Do Internet self-harm discussion groups alleviate or exacerbate self- harming behaviour? *Australian e-Journal for the Advancement of Mental Health, 5,* 225-233. Retrieved from http://www.auseinet.com/journal/vol5iss3/murray.pdf

Nixon, M. K., Cloutier, P. F., & Aggarwal, S. (2002). Affect regulation and addictive aspects of repetitive self-injury in hospitalized adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry, 41*, 1333–1341. doi:10.1097/00004583-200211000-00015.

Nock, M. K. (2010). Self-Injury. *The Annual Review Of Clinical Psychology, 6,* 339-363. doi:10.1146/annurev.clinpsy.121208.131258

Nock, M. K., Joiner, T. E., Gordon, K. H., Lloyd-Richardson, E., & Prinstein, M. J. (2006).Nonsuicidal self-injury among adolescents: Diagnostic correlates and relation to suicide attempts. *Psychiatry Research, 144*, 65–72. doi:10.1016/j.psychres.2006.05.010

Nock, M. K. & Prinstein, M. J. (2005). Contextual features and behavioral functions of self- mutilation among adolescents. *Journal of Abnormal Psychology, 114*, 140-146. doi:10.1037/0021-843X.114.1.140

Nock, M. K. & Prinstein, M. J. (2004). A functional approach to the assessment of self-mutilative behavior in adolescents. *Journal of Consulting and Clinical Psychology, 72*, 885-890. doi:10.1037/0022-006X.72.5.885

Prasad, V., & Owens, D. (2001). Using the Internet as a source of self-help for people who self-harm. *Psychiatric Bulletin, 25*, 222-225. doi:10.1192/pb.25.6.222

Purcell, K. (2010). The state of online video (PEW Internet and American Life Project). Retrieved from the PEW Research website: http://www.pewInternet.org/~/media//Files/Reports/2010/PIP-The-State-of-Online-Video.pdf

Rodham, K., Gavin, J., & Miles, M. (2007). I hear, I listen and I care: A qualitative investigation into the function of a self-harm message board. *Suicide and Life Threatening Behavior, 37, 422-430*. doi:10.1521/suli.2007.37.4.422

Rodham, K., & Hawton, K. (2009) Epidemiology and phenomenology of non-suicidal self-injury. In M. Nock (Ed.), Understanding Non-suicidal self-injury: Origins, assessment, and treatment (pp. 37-62). Washington: APA Books.

Rodham, K., Hawton, K., & Evans, E. (2004) Reasons for deliberate self-harm: Comparison of self-poisoners and self-cutters in a community sample of adolescents, *Journal of the American Academy of Child and Adolescent Psychiatry,* 43, 80-87. doi:10.1097/00004583-200401000-00017

Ross, S., & Heath, N. L. (2002). A study of the frequency of self-mutilation in a community sample of adolescents. *Journal of Youth and Adolescence, 31*, 67-77. doi:10.1023/A:1014089117419.

Selekman, M. D. (2009). The adolescent and young adult self-harming treatment manual: A collaborative strengths-based brief therapy approach. New York: W. W. Norton & Co.

Skegg, K., Nada-Raja, S., Dickson, N., Paul, C., & Williams, S. (2003). Sexual orientation and self-harm in men and women. *American Journal of Psychiatry,160*, 541–546. doi:10.1176/appi.ajp.160.3.541

Walsh, B. W. (2006). Treating self-injury: A practical guide. New York, NY: Guilford Press.

Welch, E. T. (2004). Self-injury: When pain feels good. Phillipsburg, NJ: P&R Publishing.

Whitlock, J., Eckenrode, J., & Silverman, D. (2006). Self-injurious behaviors in a college population. *Pediatrics, 114*, 1939–1948. doi:10.1542/peds.2005-2543.

Whitlock J., Lader, W., & Conterio, K. (2007). The Internet and self-injury: What psychotherapists should know. *Journal of Clinical Psychology, 63*, 1135-1143.doi:10.1002/jclp.20420

Whitlock, J., & Knox, K. (2007). "The relationship between suicide and self-injury in a young adult population." *Archives of Pediatrics and Adolescent Medicine. 161*, 634-640. doi:10.1001/archpedi.161.7.634

Whitlock, J, Muehlenkamp, J., Purington, A., Eckenrode, J., Barreira, J., Abrams, G.B., Marchell, T., Kress, K., Girard, K., Chin, C., Knox, K. (in press). Non-suicidal self-injury in a College Population: General Trends and Sex Differences. *Journal of American College Health.*

Whitlock, J, Muehlenkamp, J., Purington, A., Eckenrode, J., Grace Martin, K., Smith, E., Barreira, J., Abrams, G.B., Kress, V. (in preparation). Gateway or getaway: the temporal relationship between Non-suicidal self-injury and suicide.

Whitlock, J., Powers, J.L., & Eckenrode, J. (2006). The virtual cutting edge: The Internet and adolescent self-injury. *Developmental Psychology, 42*, 407-417. doi:10.1037/0012-1649.42.3.407

Whitlock, J., Purington, A., Gershkovich, M. (2009). Influence of the media on self injurious behavior. In M. Nock (Eds.) Understanding Non-suicidal self-injury: Origins, Assessment and Treatment (pp. 139-156). APA Books.

Whitlock, J.L. & Selekman, M. (in press). Non-suicidal self-injury (NSSI) across the lifespan. In *Oxford Handbook of Suicide and Self-Injury,* edited by M. Nock. Oxford Library of Psychology, Oxford University Press.

Zabinski, M. F., Celio, A. A., Jacobs, J., Manwaring, J., & Wilfley, D. E. (2003). Internet-based prevention of eating disorders. *European Eating Disorders Review, 11,* 183–197. doi:10.1002/erv.525

Zabinski, M. F., Pung, M. A., Wilfley, D. E., Eppstein, D. L., Winzelberg, A. J., Celio, A., & Taylor, C. B. (2001a). Reducing risk factors for eating disorders: Targeting at-risk women with a computerized psychoeducational program. *International Journal of Eating Disorders, 29*, 401–408. doi:10.1002/eat.1036

Zabinski, M. F., Wilfley, D. E., Pung, M. A., Winzelberg, A. J., Eldridge, K., & Taylor, C. B. (2001b). An interactive Internet-based intervention for women at risk of eating disorders: A pilot study. *International Journal of Eating Disorders, 30*, 129–137. doi:10.1002/eat.1065

Additional Readings

Favazza, A. R. (1996). *Bodies under siege: Self-mutilation and body modification in culture and psychiatry* (2nd ed.). Baltimore, MD: Johns Hopkins University Press.

Gross, E. F., Juvonen, J., & Gable, S. L. (2002). Internet use and well-being in adolescence. *Journal of Social Issues, 58,* 75–90.

Kraut, R., Patterson, M., Lundmark, V., Kiesler, S., Mukopadhyay, T., & Scherlis, W. (1998). Internet paradox: A social technology that reduces social involvement and psychological well-being? *American Psychologist, 53,* 1017–1031.

McKenna, K. Y. A., & Bargh, J. A. (2000). Plan 9 from Cyberspace: The implications of the Internet for personality and social psychology. *Personality and Social Psychology Review, 4,* 57–75.

Walsh, B. W., & Rosen, P. M. (1988). *Self-mutilation: Theory, research and treatment.* New York: Guilford Press.

Key Terms

Non-suicidal self-injury; online behaviours; Internet; social networking websites; video posting; adolescents