# Non-Suicidal Self-Injury, Online Activity and Emotional Health Among Adolescents

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**Abstract**

Non-suicidal self-injury, the deliberate destruction of one's body tissue (e.g., self-cutting, burning) without suicidal intent, consistently ranges from 15% to 20% among adolescents. Recently, more youth are accessing NSSI-related material online despite the potential associated risks (e.g., triggering through explicit content). Importantly, preliminary research suggests that adolescents who engage in NSSI may use the Internet more often and for different reasons than their non-self-injuring peers. Additionally, while getting health information and obtaining emotional support may underlie NSSI online activity, the motivations and needs of adolescents who go online for emotional health-related issues, particularly among adolescents who self-injure is not known. This study is the first to directly examine 1) the frequency of general Internet use, 2) the frequency of Internet use for emotional health reasons, and 3) the online activities related to emotional health among adolescents who engage in NSSI. Participants were 58 adolescents who reported current engagement of NSSI (Mage = 14.36 58; SD = .55; 79% female); 28 who reported past engagement of NSSI (Mage = 14.39; SD = .50); 50% female); 56 who reported never engaging NSSI (Mage = 14.51; SD = .51; 55% female). Participants completed the How I Deal With Stress questionnaire (HIDS; Heath & Ross, 2007) and the Beck Depression Inventory for Youth (BDI-Y; Beck, Beck, & Jolly, 2001) in groups during class time to screen for NSSI, risk-taking (RT) and elevated depressive symptomology. Those at-risk completed follow-up individual interviews that included the Emotional Health Online Behvaviour Assessment (EHOBA; Lewis & Heath, 2012) to examine online interactions. Results from a one-way ANOVA indicated that adolescents who currently engage in NSSI use specific websites more frequently than those who have

stopped engaging in NSSI (i.e., YouTube) and those with no history of NSSI (i.e., YouTube and Tumblr). Further, results from a MANOVA indicated that adolescents who currently engage in NSSI use the social media sites more frequently for emotional health reasons, regardless of gender. Chi-square tests revealed significant group differences, such that those with a history of self-injury online more often to give/receive support, read information, look at pictures/videos and blog, and are more interested in emotional health topics of depression, self-injury, sadness and eating disorders compared to their non-self-injuring peers. In conclusion, this study demonstrates that adolescents who currently engage in NSSI have a different profile of Internet use, indicative of connecting online, whereas adolescents with a past history of NSSI are most often comparable to individuals who have never engaged in NSSI. Findings highlight the importance of the Internet as a form of support for adolescents engaging in NSSI.

## Résumé

L'automutilation non-suicidaire (AMNS) est définie comme étant une altération consciente, intentionnelle, et directe des tissus de l'organisme sans intention suicidaire et exclut tous comportements socialement acceptés. Récemment, plus de jeunes accèdent matériau AMNS liée en ligne malgré les risques potentiels associés (p.ex., le déclenchement grâce à un contenu explicite). La recherche préliminaire suggère que les adolescents qui se livrent à AMNS peuvent utiliser l'Internet plus souvent et pour des raisons différentes que leurs pairs non-automutilation. En outre , même si l'information sur la santé et le soutien affectif peuvent sous-tendre l'activité en ligne AMNS , les motivations et les besoins des adolescents qui vont en ligne pour les questions liées à la santé émotionnelle , en particulier chez les adolescents qui se mutilent est inconnue. Cette étude est la première à examiner directement 1) la fréquence de l'utilisation générale d'Internet, 2) la fréquence de l'utilisation d'Internet pour des raisons de santé émotionnelle, et 3) les activités en ligne liées à la santé émotionnelle chez les adolescents qui s'automutilent. Les participants étaient 58 adolescents qui ont déclaré l'engagement actuel de l'AMNS (Mâge = 14.36 58; SD = 0,55; 79% de femmes); 28 qui a signalé l'engagement passé de NSSI (Mâge = 14.39; SD = 0,50); 50% de femmes); 56 qui ont déclaré ne jamais engager AMNS (Mâge = 14,51; SD = 0,51; 55% de femmes). Les participants ont rempli The How I Deal With Stess Questionnaire (HIDS; Heath & Ross, 2007) et le Beck Depression Inventory for Youth (BDI-Y; Beck, Beck, et Jolly, 2001) en groupe pendant les heures de classe pour dépister la présence d'AMNS, la prise de risqué (RT) et la symptomatologie dépressive élevée. Ceux terminé à risque ont fait des entretiens individuel et on complies le Emotional Health Online Behaviour Assessment (EHOBA; Lewis & Heath, 2012) pour évaluer les interactions en ligne. Les résultats indiquent que les adolescents qui s'automutilent utilisent des sites Web spécifiques plus souvent que ceux qui ont arrêté l'automutilation (p.ex., YouTube) et les personnes sans antécédents de NSSI (p.ex., YouTube et Tumblr). De plus, les résultats révèle que les adolescents qui s'automutilent actuellement utilisent les sites de médias sociaux le plus souvent pour des raisons de santé émotionnelle, sans distinction de sexe. De plus, il existe des différences significatives entre les groupes, tels que ceux ayant des antécédents d'automutilation vont en ligne plus souvent pour donner / recevoir un soutien, lire des informations, regardez des photos / vidéos et blog, et sont plus intéressés par des sujets de santé émotionnels de la dépression, automutilation, la tristesse et les troubles alimentaires par rapport à leurs pairs non-

automutilation. En conclusion, cette étude montre que les adolescents qui s’automutilent actuellement ont un profil différent de l'utilisation d'Internet, l'indicatif de connexion en ligne, alors que les adolescents ayant des antécédents d'automutilation non suicidaire sont le plus souvent comparables à des personnes qui ne sont jamais engagés dans l’AMNS. Les résultats soulignent l'importance de l'Internet comme une forme de soutien pour les adolescents qui s’engagent a l'AMNS.

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# CHAPTER 1
# Introduction

Non-suicidal self-injury (NSSI) refers to the direct and deliberate destruction of one's body tissues without suicidal intent and for purposes not socially sanctioned (International Society for the Study of Self-Injury [ISSS], 2007). Among those who self-injure, onset of the behavior is most commonly reported between 11 to 15 years age (Heath, Toste, Nedecheva, & Charlebois, 2008; Muehlenkamp & Gutierrez, 2004; Nixon, Cloutier, & Jansson, 2008; Rodham & Hawton, 2009; Ross & Heath, 2002). NSSI is also most prevalent among adolescents, with 15-20% of adolescents reporting having engaged in NSSI at least once in their lives, with 25% of these adolescents indicating they have engaged in self-injury repetitively (Laye-Gindhu & Schonert-Reichl, 2005; Muehlenkamp & Gutierrez, 2004; Nixon, Cloutier, & Aggarwal, 2002; Ross & Heath, 2002; Whitlock, Eckenrode, & Silverman, 2006b). In light of the increasing evidence of the potential association with suicide (e.g., Nock, Joiner, Gordon, Lloyd-Richardson, & Prinstein, 2006), these high rates of NSSI among adolescents are alarming and highlight the importance of this major health concern.

Also during adolescence, Internet use is becoming increasingly prevalent. Adolescents go online more often than both older and younger individuals (Lenhart, Madden, & Hitlin, 2005; Lenhart, Rainie, & Lewis, 2001), with 87% of youth 12 to 17 years of age reporting Internet use. Specifically, adolescent Internet users have been found to use the Internet to get health information and to seek help for emotional problems (Gould, Munfakh, Lubell, Kleinman, & Parker, 2002). Thus, the Internet may serve as a powerful resource for youth desiring information about socially sensitive topics and as a

creative means to express one's self and connect with others. Given that the Internet provides a low-risk venue for finding and receiving acceptance, social support, and validation (Lewis & Baker, 2011; bb; Whitlock, Purington, & Gershkovich, 2009), it may have particular relevance for adolescents who feel marginalized (i.e., those engaging in NSSI).

Recently, the presence of NSSI on the Internet has grown considerably. Accordingly, in 2010 the International Society for the Study of Self-injury (ISSS) recognized the emergence of NSSI activity on the Internet (e.g., searching for information, sharing experiences) and the importance of conducting research in this particular area (ISSS, 2007). Preliminary studies of NSSI and Internet use suggest that adolescents who engage in NSSI may use the Internet more often and for different reasons than their non-self-injuring peers (Heath, Toste, & McLouth, 2010; Mitchell & Ybarra, 2007). For example, youth who self-injure may be using the Internet for longer periods of time, more frequently as a socialization tool, and illustrate greater incidences of risky online behaviours, suggesting that general Internet experiences for youth who engage in self-injury may be different than that of their peers who do not engage in NSSI (Mitchell & Ybarra, 2007). However, this relation has yet to be directly evaluated. Moreover, while results of investigations of possible gender differences in online communication have been inconclusive (Thayer & Ray, 2006), some research suggests that gender may play an important role in understanding the reasons for Internet use among adolescents who engage in self-injury (Duggan, Heath, Lewis, & Baxter, 2011).

In the past decade there has been a growing debate about the risks and benefits of exposure to NSSI material online. On the one hand, studies have shown that those who

engage in NSSI use the Internet as a means of communication, to receive acceptance, social support, and validation (Lewis & Baker, 2011; Lewis, Rosenrot, & Messner, 2012c; Whitlock et al., 2006b; Whitlock et al., 2009) and several findings support the utility of the Internet for reaching youth who seek assistance from online professionally driven websites (e.g., Self-Injury Outreach and Support: http://sioutreach.org/; Lewis, Heath, Sornberger, & Arbuthnott, 2012b; Moyer, Haberstroh, & Marbach, 2008; Whitlock, Lader, & Conterio, 2007). On the other hand, research shows that some websites may maintain or promote the behaviour by sharing NSSI methods and tips about how to conceal NSSI and information regarding first-aid tips (Lewis & Baker, 2011; Lewis, Heath, St. Denis, & Noble, 2011; Lewis, Heath, Michal, & Duggan, 2012a; Whitlock et al., 2006b; Whitlock et al., 2007). Moreover, NSSI websites and videos with graphic content have been found to often lack warnings which is particularly problematic as research demonstrates that many youth who self-injure find graphic material online to be upsetting and triggering (Lewis & Baker, 2011; Lewis et al., 2011; Whitlock, Powers, & Eckenrode, 2006). Altogether, NSSI content on the Internet that is not monitored by professionals may be harmful and may maintain NSSI for some youth.

As NSSI-related content continues to grow on the Internet, the motivations for sharing NSSI experiences online have also emerged as an important field. While it has been suggested that getting information and obtaining emotional support may underlie NSSI e-communication (Lewis et al., 2012a; Whitlock et al., 2006b), few studies have more directly examined this, particularly in adolescence. One exploratory study aiming to identify differences among online and offline help-seeking among youth who engage in NSSI found that young people who were least likely to seek help overall, were most likely to seek help

online in relation to self-injury (Frost & Casey, 2015). Other research suggests that the motivations for posting messages about NSSI are not the same as motivations for engaging in NSSI (Rodham, Gavin, Lewis, St. Denis, & Bandalli, 2013). Specifically, while motivations for engaging in NSSI most commonly include affect regulation, relief from distress, escape, and communication of distress (e.g., Evans, Hawton, & Rodham, 2004; Klonsky, Muehlenkamp, Lewis, & Walsh, 2011; Nock, 2010; Walsh, 2012), the motivations for posting messages about NSSI appear to be more outwardly directed (Rodham et al., 2013). Moreover, preliminary research suggests that differences exist in reasons for starting, temporarily stopping, and continuing NSSI e-communication (Lewis & Michal, 2014).

Throughout the NSSI adolescent literature, most researchers fail to separate those who currently engage in NSSI from those with a lifetime history of NSSI (e.g., Claes, Houben, Vandereycken, Bijttebier, & Muehlenkamp, 2010; Hawton, Rodham, Evans, & Weatherall, 2002b; Muehlenkamp & Brausch, 2012). However, growing evidence of the psychosocial differences among adolescents who currently engage in self-injury and those who have stopped (e.g., family support, self-esteem, resilience, emotional suppression) suggests that researchers should differentiate between adolescents who report current versus past self-injury (Claes et al., 2010; Hawton et al., 2002b; Muehlenkamp & Brausch, 2012). Despite the evidence that those with current self-injury differ substantially from those with a history of self-injury, no study has examined possible differences in online activity between these two groups.

Taken together, these findings suggest that accessing health-related information and support may be of particular importance when considering the needs of individuals sharing NSSI experiences online. However, little information is known about differences in online

behaviours among adolescents who indicate current or past history of NSSI compared to their non-self-injuring peers, why adolescents who engage in NSSI are motivated to access online NSSI health-related information, or the emotional health topics and activities that most commonly appeal to them. Thus in the current thesis, the frequency of Internet use for both general reasons and for emotional health reasons among adolescents who currently engage in NSSI compared to individuals with a past history of NSSI, as well as their non-self-injuring peers was investigated. Furthermore, this study explored the reasons for accessing emotional health material online, the types of activities adolescents report participating in, and the emotional health topics in which they are most interested. The evaluation of online activity among adolescents who engage in NSSI constitutes an important contribution to the field as it as it provides a better understanding of the pattern of Internet use among adolescents who engage in NSSI and offers valuable indications into how to best support these adolescents.

# CHAPTER 2
# Review of Literature

## Internet Use in Adolescence

Online communication has become a centrepiece in the social life of adolescents. Youth go online more often than both older and younger individuals (Lenhart, Madden, & Hitlin, 2005; Lenhart, Rainie, & Lewis, 2001), and rates continue to rise. Specifically, 87% of youth 12 to 17 years of age use the Internet, up 10% in the past five years (Lenhart et al., 2005). Of these adolescents, more than half log on daily and close to one-quarter report going online even more frequently (Lenhart et al., 2005). Moreover, the extent of adolescents' online lives has also expanded. Half of adolescents that use the Internet live in a home with broadband connection, with an overwhelming majority of all adolescents, 84%, owning at least one personal media device (e.g., a desktop, laptop computer or a cell phone), thus granting easy Internet access. Consequently, adolescents are more likely to play games online, get news, and also seek health information (Lenhart et al., 2005). For example, 31% of adolescent Internet users have been found to use the Internet to get health information; a growth of 47% in the number of adolescents using the Internet in this capacity since 2000 (Lenhart et al., 2005). Moreover, nearly one fifth of adolescents report that they access the Internet in order to seek help for emotional problems (Gould, Munfakh, Lubell, Kleinman, & Parker, 2002).

Some studies suggest that Internet use may facilitate social interaction by making it easier for individuals to connect with both people they know, as well as with strangers. For example, recent reports indicate that 73% of adolescent Internet users aged 12 to 17 report using online social networking sites such as MySpace or Facebook, compared with 47% of adult Internet users (Lenhart, Purcell, Smith, & Zickuhr, 2010). Additionally, 38% of

adolescents report using the Internet to share creative material online, such as stories, photos, or videos, and 57% of adolescent Internet users report watching or downloading a video online (Lenhart et al., 2010; Purcell, Rainie, Mitchell, Rosenstiel, & Olmstead, 2010) Thus, the Internet may serve as a powerful resource for youth to express themselves, connect with others, and seek out desired information, especially information about socially sensitive topics (e.g., emotional health). This may have particular relevance for adolescents who feel marginalized, because it provides a low-risk venue for finding and receiving acceptance, social support, and validation (Lewis & Baker, 2011; Whitlock, Powers, & Eckenrode, 2006; Whitlock, Purington, & Gershkovich, 2009).

## Non-Suicidal Self-Injury in Adolescence

Non-suicidal self-injury (NSSI) refers to the direct and deliberate destruction of one's body tissue without suicidal intent and for purposes not socially sanctioned (International Society for the Study of Self-Injury [ISSS], 2007). Research demonstrates that a majority of those who engage in these behaviours do so in adolescence, with regular age of onset between 11 and 15 years of age (Klonsky & Muehlenkamp, 2007; Ross & Heath, 2002; Sourander et al., 2006; Whitlock, Eckenrode, & Silverman, 2006). Among community-based adolescents, North American prevalence rate consistently range between 15% to 20% , with 25% of these adolescents indicating they have engaged in self-injury repetitively (e.g., Muehlenkamp, Claes, Havertape, & Plener, 2012; Muehlenkamp & Gutierrez, 2004; Ross & Heath, 2002), while other adolescent samples ranging as high as 28% (e.g., Lloyd-Richardson, Perrine, Dierker, & Kelley, 2007). Often mistaken for suicidal behaviours (e.g., suicide attempt), NSSI behaviours are in fact distinct from suicidal

behaviours, particularly with regards to their intent and severity. For example, suicidal behaviours aim to cease existence and often require medical attention, whereas NSSI is most often used as a way to manage underlying emotional distress and rarely requires medical attention (Muehlenkamp, 2005; Nock, 2009). However, these behaviours are not mutually exclusive, and NSSI in adolescence remains a significant issue. For example, NSSI typically precedes suicide attempts and may be an especially important predictor of future suicide attempts (Muehlenkamp & Gutierrez, 2004; Nock, Joiner, Gordon, Lloyd-Richardson, & Prinstein, 2006; Wilkinson & Goodyer, 2011). In addition, youth that engage in NSSI experience high levels of intense negative emotions (e.g., Adrian, Zeman, Erdley, Lisa, & Sim, 2011), are at-risk for interpersonal problems (e.g., Nock, 2009; Nock et al. 2006), and may be more likely to engage in suicidal behaviours (Guan, Fox, & Prinstein, 2012; Whitlock et al., 2006b).

Among adolescent samples, research addressing NSSI has commonly assessed lifetime incidents of NSSI behaviours rather than current engagement in NSSI (e.g., Claes, Houben, Vandereycken, Bijttebier, & Muehlenkamp, 2010; Hawton, Rodham, Evans, & Weatherall, 2002b; Muehlenkamp & Brausch, 2012). While results from these studies may be informative, important differences between those who currently engage in NSSI and those who have stopped may be hidden. For example, Rotolone and Martin (2012) found that young people who currently engaged in self-injury were more likely than those with a history of the behaviour to report lower levels of family support, self-esteem, satisfaction with life and resilience. Other research indicates that compared to adolescents who have ceased engaging in NSSI, those who continue to engage in the behaviours report greater frequency of self-injury, greater severity of self-injury, lower cognitive reappraisal, and

higher emotional suppression (Andrews, Martin, Hasking, & Page, 2013). Thus, the profile of adolescents who have engaged in NSSI may differ depending on the recency of the behaviours.

**Gender Differences**

Female adolescents consistently report higher rates of NSSI than male adolescents (Bakken & Gunter, 2012; Muehlenkamp, Williams, Gutierrez, & Claes, 2009; Whitlock et al., 2006a; Wilcox et al., 2012). Female adolescents are also more likely to engage in NSSI more regularly compared to their male peers (e.g., Laye-Gindhu & Schonert-Reichl, 2005; Muehlenkamp & Gutierrez, 2004; Nixon, Cloutier, & Jansson, 2008). Yet, a common misconception is that NSSI is solely a female behaviour. While as many as 24% of girls report having self-injured, approximately 12% of boys do, and empirical research suggests that the gender gap may be narrower than previously assumed (Deiter, Nicholls, & Pearlman, 2000; Heath, Toste, Nedecheva, & Charlebois, 2008; Walsh, 2012; Whitlock et al., 2006a). Interestingly, the gender gap seems to diminish over time, illustrated by similar lifetime rates of NSSI among male and female university students (Heath et al., 2008; Serras, Saules, Cranford, & Eisenberg, 2010; Whitlock et al., 2006a). In addition, research has indicated that male adolescents are less likely than their female peers to self-report NSSI (Heath, Schaub, Holly, & Nixon, 2008), which may be an important factor in determining prevalence rates. The overarching difference between genders may be *how* adolescent girls and adolescent boys self-injure, meaning the methods and location of injuries on the body. Compared to males, females may be more likely to engage in cutting and scratching, whereas males may be more likely to punch or hit themselves or an object

(e.g., wall) with the intention of causing themselves harm. Accordingly, females may be more likely to injure their wrists and thighs and males may be more likely to injure their hands (Sornberger, Heath, Toste, & McLouth, 2012; Whitlock et al., 2006a).

**Functions of NSSI**

Many youth who self-injure have difficulty describing *why* they self-injure, and many youth report multiple reasons for NSSI (Klonsky, Muehlenkamp, Lewis, & Walsh, 2011). Moreover, the reasons for self-injuring may change over time (Klonsky, 2007; Klonsky et al., 2011; Nock, 2009). Nevertheless, research indicates that emotion dysregulation is the most commonly endorsed factor for the use of self-injury to cope (Klonsky et al., 2011; Nock, 2009, 2010). Empirical evidence suggests that the primary function of NSSI is to avoid psychological pain and to express psychological distress (Evans et al., 2004; Klonksy, 2007; Nock & Prinstein, 2004, 2005; Walsh, 2012). In other words, the majority of adolescents who engage in NSSI use this behaviour as a way to cope with or to manage underlying emotional pain (Gratz, 2003; Klonsky, 2007; Walsh, 2012). In fact, one study showed that 52.9% of adolescents who reported having self-injured endorsed engaging in NSSI ‘‘to stop bad feelings’’ (Polk & Liss, 2009). Thus, as a result of being unable to cope with intense and intolerable negative emotions (e.g., anger, sadness, stress), some individuals self-injure to reduce, manage, or escape from these feelings, and experience an emotional/physiological “relief” from these feelings for a short time. Other commonly reported reasons for engaging in NSSI include an anti-dissociation function, in which individuals self-injure to feel something in the presence of numbness or

depersonalization, and an anti-suicide function, in which NSSI controls suicidal thoughts and urges, and self-punishment or self-directed anger (Klonsky, 2007).

## Non-Suicidal Self-Injury and Online Activity

In the past few years, there has been a rapid growth of NSSI-related content available online. Preliminary studies of NSSI and Internet use suggest that adolescents who engage in NSSI may use the Internet more often and for different reasons than their non-self-injuring peers. For example, Heath, Toste, and McLouth (2010) examined the online socialization activity among high school students who reported engaging in NSSI and compared them to students who did not report this behaviour. The findings indicated that 34% of the high school students who reported engaging in NSSI used the Internet to make friends, compared with only 19% of their non-self-injuring peers (Heath et al., 2010). More specifically, 51% of those who reported engaging in NSSI endorsed maintaining a personal webpage, in contrast to only 31% of their peers who did not report engaging in NSSI (Heath et al., 2010). Similarly, in an exploratory study Mitchell and Ybarra (2007) examined Internet use and activities among youth who reported having engaged in deliberate self-harm (DSH; a broader term which does not distinguish whether suicidal intent is present or not and includes self-poisoning and substance abuse; Hawton, Haw, Houston, & Townsend, 2002a). Youth who reported having engaged in DSH were more likely to use the Internet, use chat rooms, have close online relationships, and share personal information online compared with their non DSH peers (Mitchell & Ybarra, 2007). Youth who had reported engaging in DSH were also more likely to engage in online risky sexual behaviour, including using sexual screen names and having sexual discourse with online strangers

(Mitchell & Ybarra, 2007). Although these preliminary findings have importance, certain limitations should be addressed. In particular, the measure of self-harm used in this study was limited to only one question referring to any non-fatal act, regardless of intention and as such makes no distinction between NSSI and suicidal behaviour. While a relation between NSSI and suicidal behaviours exists, it is well established that self-injury and suicidal behaviours are distinct in their phenomenology, characteristics, and intent (Muehlenkamp, 2005; Walsh, 2012). Furthermore, there may be important differences in the online behaviour of adolescents who engage in NSSI who do and do not report suicidal ideation (Muehlenkamp & Gutierrez, 2004).

Overall, studies suggests that youth who self-injure may be using the Internet for longer periods of time, more frequently as a socialization tool, and illustrate greater incidences of risky online behaviours. The general Internet experiences for self-injuring youth may consequently be different than that of their peers who do not engage in these behaviours. Furthermore, there may also be differences in Internet experiences among adolescents with different courses of NSSI. For example, while approximately half of adolescents who report engaging in NSSI continue to self-injure over follow-up periods of 1-5 years (Andrews et al., 2013; Hankin & Abela, 2011; Whitlock et al., 2006a; Wichstrom, 2009), others report a decrease of NSSI behaviours throughout high school (Gilleta, Scholte, Engels, Ciairano, & Prinstein, 2012) and many cease the behaviours over time (Whitlock et al., 2006a). Consistently, one study found that among adults engaging in NSSI, the use of e-communities to obtain support occurred most often used during times of high stress compared to low stress, and that previously met needs contributed to temporarily stopping e-communication (Lewis & Michal, 2014). It is thus possible that Internet use

among those who currently self injure may be different in several ways, including the reasons for going online, the frequency of online activity, and the specific activities that appeal to them. To date, possible differences between adolescents who currently engage in NSSI, compared to adolescents with a history of NSSI have not been examined.

**Risks and Benefits of Online NSSI Activity**

The nature of online NSSI activity among youth has received increasing attention and is of concern as NSSI material on the Internet has been posited to include both potential benefits and potential risks to those accessing this online material. On the one hand, research indicates the Internet may be a preferred medium for isolated youth and young adults to communicate with others (Lewis, Heath, St. Denis, & Noble, 2011; Rodham, Gavin, & Miles, 2007). This may be especially true for adolescents that are engaging in NSSI, as studies have shown that those who engage in NSSI use the Internet not only as a means of communication, but also as a way to receive acceptance, social support, and validation (Lewis & Baker, 2011; Whitlock et al., 2006b; Whitlock et al., 2009). Other research focusing on e-communities suggest that participating in the online communities increases positive emotions and feelings such as a sense of belongingness, and also provides resources (e.g., coping tips) and recovery-focused messages (Johnson, Zastawny, & Kulpa, 2010; Lewis, Heath, Sornberger, & Arbuthnott, 2012b). In some instances, self-harm and suicide sites have been found to even contribute to one's recovery, facilitate change in behaviours and decrease urges to self-injure (Baker & Fortune, 2008). Given these advantages, several findings support the utility of the Internet for reaching youth who seek assistance from online professionally driven websites (e.g., Self-Injury Outreach and

Support: http://sioutreach.org/)(Lewis et al., 2012; Moyer, Haberstroh & Marbach, 2008; Whitlock, Lader, & Conterio, 2007).

On the other hand, accessing NSSI information from the Internet also carries potential risks. One major concern is that peer-driven websites are accessed more often than professionally driven websites, and clear differences exist between the two (Duggan, Heath, Lewis, & Baxter, 2011; Lewis, Heath, Michal, & Duggan, 2012a). For example, NSSI websites and videos often contain graphic photographs, digital imagery and narratives (Lewis & Baker, 2011; Lewis et al., 2011). While the majority of this NSSI content is accessible to general audiences, just under half of them are uploaded without content warnings (Lewis et al., 2011). This is particularly problematic as research indicates that some youth who self-injure find graphic material online to be upsetting and triggering (Lewis & Baker, 2011; Lewis et al., 2011; Whitlock et al., 2006b). In other words, coming across this graphic content online may in fact prompt the behaviour for youth you have engaged in NSSI. In addition to the possibly triggering content of informal sites with NSSI content, they also often centre on melancholic themes and messages, which may strengthen hopeless attitudes about NSSI recovery (Lewis & Baker, 2011; Lewis et al., 2011). Moreover, very few NSSI videos actively discourage the behaviour (Lewis et al., 2011). On the contrary, some may even promote or maintain the behaviour. For example, some NSSI sites have been used for sharing NSSI methods and tips about how to conceal NSSI, and share information between users regarding first-aid tips, including ways to prepare oneself for NSSI and how to tend to wounds after NSSI (e.g., how to clean a wound) (Lewis & Baker, 2011; Lewis, Heath, Michal, & Duggan, 2012a; Whitlock et al., 2006b; Whitlock et al., 2007). Adolescents who self-injure and who access this material may therefore be

exposed to learning new ways to self-injure, how to prepare for and carry out the behaviours, and how to hide the behaviours from others (e.g., friends, family). This may consequently reinforce the idea that NSSI should be kept secretive or that is it is an acceptable coping mechanism. Thus, NSSI content on the Internet may be harmful and may maintain NSSI for some youth when not monitored by professionals.

This phenomenon may be similar to the emergence of pro-anorexia Web sites that sensationalized an anorexia lifestyle, particularly among young female viewers (Duggan et al., 2011; Mulveen & Hepworth, 2006). This is of particular concern as some NSSI material (e.g., videos on YouTube) is typically be posted by young adult female posters (Duggan et al., 2011). While many younger female posters are likely to also be posting NSSI videos, this has not been examined. This may be particularly important given that research demonstrates gender differences in preferences for specific Internet usage (e.g., Bimber, 2000; Thayer & Ray, 2006; Weiser, 2000). For example, female Internet use has been suggests to be driven primarily by interpersonal communication (e.g., chatting), whereas males report Internet use mainly for purposes related to entertainment and leisure (e.g., playing games) (Weiser, 2000). However, possible gender differences in online communication have been inconclusive (Thayer & Ray, 2006), and this has yet to be examined among adolescent populations.

**Motivations for NSSI Online Activity**

Despite the potential risks of online NSSI activity, sharing experiences of NSSI online (e.g., photographs, videos and online discussions) is becoming increasingly more common. While it has been suggested that getting information and obtaining emotional

support may underlie NSSI e-communication (Lewis et al., 2012c; Whitlock et al, 2006), few studies have directly examined this, particularly in adolescence.

In an exploratory study aiming to identify differences among online and offline help-seeking among youth who engage in NSSI, Frost and Casey (2015) found that young people who were least likely to seek help overall, were most likely to seek help online in relation to self-injury. Importantly, these individuals also had significantly higher levels psychological distress, suicidal ideation and degree of self-injury compared to those who did not seek help online for self-injury. They also reported more frequent and recent self-injurious behaviour and were more likely to have required medical help as a results of NSSI, compared to young people who had not sought help online (Frost & Casey, 2015).

While motivations for engaging in NSSI commonly centre on affect regulation (e.g., Evans et al, 2004; Klonsky et al., 2011; Nock, 2010; Walsh, 2012), some research suggests that posting messages about NSSI online may be driven by ulterior motives. For example, through observational research, Rodham and colleagues (2013) found that the motivations for posting messages about NSSI appeared to be more outwardly directed (Rodham, Gavin, Lewis, St. Denis, & Bandalli, 2013). Specifically, the researchers found that those contributing to the site used it for their own purposes to confess or to mark a turning point in NSSI behaviour (Rodham et al., 2013). They also used it to act as a deterrent to others (e.g., "to warn others"), to dispel myths and to offer or seek support (Rodham et al., 2013). Consistent with other research, individuals posting NSSI material online may be targeting different audiences (both those who self-injure and those who do not) (e.g., Lewis & Baker, 2011), and for different reasons. However, the demographic information of the text-based posts that were analysed is not known, in particular, it is unknown if this theme analysis is

consistent with adolescents' experiences with NSSI. Another important finding was that individuals posting messages were disapproving of professionals who offered support, claiming that anyone who did not personally engage in the behaviour could not understand (Rodham et al., 2013). This is consistent with other research showing that many of those who engage in NSSI do not come to the attention of healthcare professionals (Hawton, Rodham, Evans, & Harriss, 2009).

One current study by Lewis and Michal (2014) is the first to provide preliminary evidence for the reasons for starting, temporarily stopping, and then continuing NSSI e-communication by directly asking participants about their experiences with NSSI e-communication. Through a content theme analysis, they found that seeking support, getting support, offering help, and understanding NSSI were the main reasons for joining e-communities. However, when e-communication no longer met the needs of individuals or they experienced stress or triggers, they tended to stop their participation in these e-communities temporarily (Lewis & Michal, 2014). The researchers also found that similar to reasons for starting e-communication, getting support and help appear to contribute to the continuation of NSSI e-communication. While the current research provides useful exploratory work, future research is needed to validate existing findings. Other investigations adopting similar approaches may be helping in the study of e-communication about health-related behaviours, particularly as it relates to adolescents who engage in NSSI as this has yet to be examined.

## Summary

In sum, it appears adolescents who report engaging in NSSI may be using the Internet for longer periods of times, more frequently as a socialization tool, and illustrate

higher incidences of risky online behaviours compared to their non-self-injuring peers (Heath et al., 2010; Mitchell & Ybarra, 2007). Moreover, preliminary research suggests that general Internet experiences for youth who engage in self-injury may be different than the experiences of their peers (Heath et al., 2010; Mitchell & Ybarra, 2007; Rodham et al., 2013). However, limitations pertaining to the existing literature have been documented. Most importantly, the relation between Internet use and adolescents who engage in NSSI has yet to be directly evaluated, in particular among adolescents who currently engage in NSSI and those who have ceased engaging in the behaviour. Moreover, while gender differences exist regarding Internet use among the general population (e.g., Weiser, 2000), it is unknown if Internet use differs between male and female adolescents who engage in NSSI. Understanding more globally the Internet use reported by adolescents who self-injure will provide valuable information regarding the associations between NSSI, Internet use and online interactions. This is especially important given the potential risks (Lewis & Baker, 2011; Lewis et al., 2011; Lewis, et al., 2012b; Whitlock et al., 2006b; Whitlock et al., 2007) and the potential benefits (Johnson et al., 2010; Lewis & Baker, 2011; Lewis et al., 2012b; Moyer et al., 2008; Whitlock et al., 2006b; Whitlock et al., 2007) of accessing NSSI-related material on the Internet.

Next, while a limited number of studies have examined the content of online NSSI-related material (e.g., Duggan et al., 2011; Lewis et al., 2011) even fewer efforts have examined the motivations of NSSI online activities. Research indicates that the most common reasons for engaging in NSSI reported by adolescents are to manage emotional distress (e.g., Evans et al., 2004; Klonsky et al., 2011; Nock, 2010; Walsh, 2012, and furthermore that the Internet may provide an important form of support for young people

engaging in NSSI (Frost & Casey, 2015). Additionally, getting health information and obtaining emotional support may underlie NSSI online activity (Lewis et al., 2012c; Whitlock et al, 2006). However, the motivations and needs of adolescents who go online for emotional health-related issues, particularly adolescents who self-injure, are not known. Moreover, while research suggests that those who currently engage in NSSI may have different needs and motivations for going online compared to those who have never engaged in the behaviours or who may have stopped, it is unknown if Internet use for emotional health reasons corresponds only to the period of NSSI or if it persists once individuals cease engaging in NSSI behaviours.

## Research Objectives

1. The first objective was to examine the frequency of general Internet use between adolescents who currently engage in NSSI, adolescents with a past history of NSSI, and adolescents with no history of NSSI. It was hypothesized that:
    1.1. Individuals who currently engage in NSSI will report more frequent general Internet use compared to individuals with a previous history of NSSI and individuals with no history of NSSI.
    1.2. Individuals with a past history of NSSI will report more frequent general Internet use compared to individuals with no history of NSSI.

2. The second objective was to examine the frequency of Internet use for emotional health reasons among adolescents who currently engage in NSSI, adolescents with a past history of NSSI, and adolescents with no history of NSSI. It was hypothesized that:

2.1. Individuals who currently engage in NSSI will report more frequent Internet use for emotional health reasons compared to individuals with a previous history of NSSI and individuals with no history of NSSI.

2.2. Individuals with a past history of NSSI will report more frequent Internet use for emotional health reasons compared to individuals with no history of NSSI.

2.3. Female participants across all groups will report higher frequency of Internet use for emotional health reasons compared to males.

3. The third objective was to investigate motives of online activity for emotional health reasons, common emotional health topics of interest, and specific online activities used for emotional health reasons among adolescents who currently engage in NSSI, adolescents with a past history of NSSI and adolescents with no history of NSSI. Given the exploratory nature of this objective, no hypothesis was made.

# Chapter 3
# Method

## Participants

Participants were drawn from a larger pool of participants in Grade 9 from high schools in the Montreal region in Quebec taking part in a project investigating stress and coping strategies. All participants for the current study ($N$ = 142; $M_{age}$ = 14.43, $SD$ = .57; 64.1% female) were selected for follow-up interviews based on screening items for elevated depressive symptoms (See table 1), engagement in NSSI, and/or engaging in risky things (RT) (e.g., drug use, alcohol use, promiscuous or unprotected sexual activities) to cope with stress (See table 1). Only adolescents who reported engaging in the behaviour(s) that correspond to the definition of non-suicidal self-injury (International Society for the Study of Self-Injury [ISSS], 2007) were classified in the NSSI groups. Adolescents who reported currently engaging in NSSI (i.e., past 3 months) were categorized as the Current NSSI group ($n$ = 58; 79% female); those who reported stopping the engagement of NSSI (i.e., no NSSI engagement within the last year) were categorized as the Past NSSI group ($n$ = 28; 50% female); and those who reported never engaging in NSSI were categorized as the No NSSI group ($n$ = 56; 55% female).

Participants reported English (96.5%) as their primary language spoken at home. The vast majority indicated Canada (96.5%) as their country of birth, followed by United States (.7%), and others (.7%). Participants also identified themselves as heterosexual (87.8%), homosexual/lesbian (.7%), bisexual (5.7%), and questioning (1.4%).

An a priori power analysis using the G*power computer software (Faul, Erdfelder, Lang, & Buchner, 2007) indicated that a total sample of 144 participants would be needed

to have 90% power for detecting a medium sized effect (i.e., effect size $f$ = .30) when employing the traditional .05 criterion for statistical significance.

Table 1

*Frequency of elevated depressive symptomology and risk-taking behaviours across participant groups.*

| | Current NSSI ($n$ = 58) | | Past NSSI ($n$ = 28) | | No NSSI ($n$ = 56) | |
|---|---|---|---|---|---|---|
| | *n* | % | *n* | % | *n* | % |
| Depressive symptomology | | | | | | |
| Average | 22 | 37.93 | 16 | 57.14 | 42 | 75.0 |
| Mildly elevated | 10 | 17.24 | 6 | 21.43 | 7 | 12.5 |
| Moderately elevated | 11 | 18.97 | 3 | 10.71 | 5 | 8.93 |
| Extremely elevated | 15 | 25.86 | 3 | 10.71 | 2 | 5.36 |
| Risk-Taking | | | | | | |
| Drug | 12 | 20.69 | 5 | 17.86 | 13 | 25.21 |
| Alcohol | 13 | 22.41 | 4 | 14.29 | 17 | 30.36 |
| Risky Sex | 4 | 6.90 | 0 | 0.00 | 2 | 3.57 |
| Vandalism | 3 | 5.17 | 2 | 7.14 | 3 | 5.36 |
| Theft | 3 | 5.17 | 0 | 0.00 | 6 | 10.71 |
| Gambling | 0 | 0.00 | 0 | 0.00 | 2 | 3.57 |
| Other | 0 | 0.00 | 0 | 0.00 | 3 | 5.36 |

*Note.* Depressive symptomology based on Beck Depression Inventory Youth Version (BDI-Y) total *T scores* for ages 11-14: Average, $T = < 55$; Mildly elevated, $T = 55\text{-}59$; Moderately elevated, $T = 60\text{-}69$; Extremely elevated, $T = 70+$.

**Measures**

**How I Deal with Stress Questionnaire** (HIDS; Heath & Ross, 2007)(see Appendix A). The HIDS is a 31-item self-report questionnaire that presents a list of commonly used coping strategies by adolescents during stressful situations. This questionnaire was used to collect demographic information and to screen for the presence of non-suicidal self-injury in adolescents. In the first section of the HIDS, participants are asked to indicate their: a) age, b) gender, c) sexual orientation, d) language(s) spoken at home, e) country of permanent residence, and f) country of birth. In the second section, participants are asked to rate their use of 31 healthy (e.g., read, exercise) and less healthy (e.g., drink, stop eating, physically hurt myself on purpose) stress coping strategies on a four-point Likert scale (1 = *never*; 4 = *frequently*). Adolescents who indicate that they have ever physically hurt themselves on purpose as a way to cope with stress are prompted to complete a follow-up section where they are asked to indicate which behaviours they have used to intentionally hurt themselves without suicidal intent (e.g., cutting, scratching, burning). They also are asked to report on feelings experienced after having engaged in NSSI, lifetime and three-month prevalence rate of their reported self-injury, and whether or not they have stopped engaging in the behaviour. Previous research using the HIDS with a similar sample reported the measure's internal consistency to be moderately strong ($a$ = .78) (Heath, Ross, Toste, Charlebois, & Nedecheva, 2009). In addition, those who indicated NSSI on the HIDS were interviewed to confirm their NSSI status.

**The Emotional Health Online Behaviour Assessment** (EHOBA; Lewis & Heath, 2012) (see Appendix B). The EHOBA is self-report questionnaire that was created

to assess online behaviours. Participants are asked about the frequency of their Internet use for general reasons (i.e., "How often have you used the following websites?") and for emotional health reasons (i.e., "How often do you use the following websites for emotional health reasons? E.g., getting info about anxiety, finding support for difficulties you're having, etc."). For these two questions, participants are given a list of Internet sites (e.g., YouTube, Facebook, Twitter) to rate on a five- point Likert scale (0 = *never*; 1= *rarely*; 2 = *sometimes*; 3 = *often*; 4 = *very often*). Next, participants are asked more questions about the specific Internet sites they visit for emotional health reasons, including open ended-questions (e.g., "If you are using a search engine like Google, Yahoo! Or Bing, what might be some examples of the emotional health search terms you would enter? Example: Stress; Stress and Anxiety; How can I deal with my stress?" and "Do you have favourite sites that you use for emotional health reasons? If yes, please list them here"). Participants are then asked about how they access emotional health related Internet sites (i.e., "How do you find out about the emotional health sites you visit?") and are asked to rate a list of options (e.g., "I search for information on my own" and "I get links and suggestions from friends/family/ others") on a five- point Likert scale (i.e., 0 = *never*; 1= *rarely*; 2 = *sometimes*; 3 = *often*; 4 = *very often*). Finally, participants are asked specific questions related to their online activity for emotional health reasons (e.g., "When you go online for emotional health reasons, what topics are you interested in?" and "When do you online for emotional health reasons, what kind of activities are you doing?). For these items, participants are given a list of response items (e.g., chatting, reading information, posting pictures) and are instructed to check off the items that are

applicable to them. The EHOBA showed acceptable internal consistency for this study, as determined by Cronbach's alpha ($a$ = .68).

**Beck Depression Inventory for Youth** (BDI-Y; J. S. Beck, A. T. Beck, & J. B. Jolly, 2001) (see Appendix C). The BDI-Y is a 20-item self-report measure of negative thoughts, feelings of sadness, and the physiological symptoms of depression for children and adolescents between 7 and 14 years of age. Participants rate each statement (e.g., "I feel empty inside", "I think that my life is bad") on a 4-point Likert scale (i.e., 0 = never; 1= sometimes; 2 = often; 3 =always) indicating how applicable each statement is to them. All items are phrased in a consistent negative valence, with higher scores reflecting greater depressive symptoms; summated scores range from 0 to 60. For 11- to 14-year-olds, scores of 29 or higher are considered extremely elevated, scores of 21–28 moderately elevated, and scores of 17–20 mildly elevated, with remaining scores reflecting average depressive symptomatology. The BDI-Y demonstrates high internal consistency with alpha coefficients ranging from .86 and .96 and good convergent validity between scores on the Children's Depression Inventory (CDI) ($r$ = .70) (Beck, Beck, & Jolly, 2001).

**Procedure**

The study was part of a larger three-year longitudinal study of stress and coping during high school. Once the appropriate institutional review board approved the project all 7th graders from participating schools were invited to take part in the study. Participants for the current study were all students in grade nine who continued to participate for all three years ($N$ = 767). The project was introduced to students during homeroom period and parental consent forms were distributed (see Appendix D).

Students who had parental consent to participate in the study completed an assent form, which provided detailed information about the main research purposes, procedure, and compensation of the overarching three-year study (see Appendix E). All students who received parental consent and consented to participate in the study completed the questionnaires. Students completed the questionnaires in 45-minute sessions during class time in their school classrooms in groups of 20 or more. Participants were spread out in the classroom and were provided with a black divider to cover their work ensuring that each participant completed the forms individually and confidentially. Prior to the completion of the questionnaires in the group assessment, participants were informed that some students would be chosen to meet with a member of the research team for an individual follow-up interview session.

Adolescents who indicated elevated levels of depressive symptoms on the BDI-Y (i.e., BDI-Y Total scores and/or endorsed item, “I wish I were dead”), and/or endorsed items “I do risky things to cope with stress” and/or “ I physically hurt myself on purpose” on the HIDS were selected for individual follow-up interviews. The individual interviews consisted another battery of questionnaires, including the EHOBA, and ending with a suicide-risk assessment. An additional group of students (approximately 3-5 randomly selected participating students per school), who did not engage in risk taking (RT) behaviours and/or NSSI, were also interviewed as a comparison group and to ensure that students interviewed were not identifiable to peers as targeted for difficulties All interviews were conducted by graduate students in school psychology trained by a psychologist on suicide risk assessments. Students who completed an individual follow

up interview received a ten-dollar gift card. Furthermore, all participating students' names were entered in a draw for four $50 gift cards.

# CHAPTER 4
# Results

## Data Analyses

Prior to conducting analyses, Internet sites for general use and Internet sites for emotional health reasons variables were examined through SPSS for accuracy and data entry, values, and fit between their distributions and assumptions of multivariate analyses. There were no cases with missing values on the variables of interest. Three websites (Piddit, MySpace, Flickr) were not endorsed by any participants across all groups for both general use and use for emotional health reasons, and were thus removed from the analyses.

## Frequency of General Internet Use

To test hypotheses 1.1 and 1.2 examining general Internet use frequency across NSSI groups, a one-way analysis of variance (ANOVA) was conducted. The groups consisted of individuals who currently engage in NSSI ($n$ = 58), those with a past history of NSSI ($n$ = 28), and those that have never engaged in NSSI ($n$ = 56). A Bonferonni correction was made to the significance cut-off in order to adjust for multiple comparisons and decrease family-wise error rate. There were no outliers in the data on YouTube, Facebook, Twitter, Tumblr, Reddit, Instagram, Blogs, Pinterest, Wikipedia, Surfing, and "other sites" variables, as assessed by inspection of boxplots. Internet use scores for each group of participants were normally distributed, as assessed by Shapiro's Wilk's test ($p > .05$), and there was homogeneity of variances of Internet use between each group across all variables as assessed by Levene's test for equality of variances ($p > .05$).

Results showed a statistically significant difference in Tumblr frequency scores among NSSI groups, $F$ (2, 142) = 6.77, $p$ = .002, $\eta_p^2$ =.04 (see Table 2). Follow-up Tukey post-hoc tests revealed that the Current NSSI group ($M$ = 2.09, $SD$ = .1.68) had a statistically significant higher mean score than the No NSSI group ($M$ = 1.09, $SD$ = 1.47), $p$ = .003, and the Past NSSI group ($M$ = 1.11, $SD$ = 1.57), $p$ = .012. No significant difference was found between the Past NSSI group and the No NSSI group (see Table 3).

A statistically significant difference in YouTube frequency scores was also found among NSSI groups, $F$ (2, 142) = 2.77, $p$ = .005, $\eta_p^2$ = .04 (see Table 2). Follow-up Tukey post-hoc tests revealed that those in the Current NSSI group ($M$ = 3.85, $SD$ = .73) had a significantly higher mean score than the No NSSI group ($M$ = 3.07, $SD$ =.97), $p$ = .021 (see Table 3). No significant difference was found between the Current NSSI group and the Past NSSI group, or between the Past NSSI group and the No NSSI group.

No significant differences were found between NSSI status groups on Facebook, Twitter, Reddit, Instagram, Blogs, Flickr, Pinterest, Wikipedia, general surfing, or "other sites" variables (see Table 2).

**Frequency of Internet Use for Emotional Health Reasons**

A principal components analysis (PCA) was run on the questionnaire that measured frequency of Internet use for emotional health reasons on 9 Internet sites (i.e., YouTube, Facebook, Twitter, Tumblr, Reddit, Instagram, Blogs, Pinterest, Wikipedia). Variables "other" and "general surfing" were removed from the analysis due to their unclear characterizations and therefore lack of interpretability.

Table 2

*Analysis of variance (ANOVA) between NSSI groups and frequency of Internet sites for general reasons*

| Variables | *df* | *F* | $\eta_p^2$ | *p* |
|---|---|---|---|---|
| Tumblr | 2 | 6.77 | .04 | .002* |
| YouTube | 2 | 2.77 | .04 | .005* |
| Facebook | 2 | 1.10 | .02 | .336 |
| Twitter | 2 | 3.11 | .04 | .048 |
| Reddit | 2 | .50 | .01 | .605 |
| Instagram | 2 | .39 | .01 | .676 |
| Blogs | 2 | 1.82 | .03 | .166 |
| Pinterest | 2 | .14 | .00 | .866 |
| Wikipedia | 2 | 1.28 | .02 | .281 |
| General surfing | 2 | .64 | .01 | .527 |
| Other | 2 | 1.43 | .02 | .242 |

*$p < .005$

Table 3

*NSSI group means and standard deviations for frequency of general Internet use*

| | Current NSSI ($n$ = 58) | | Past NSSI ($n$ = 28) | | No NSSI ($n$ = 56) | |
|---|---|---|---|---|---|---|
| Variables | *M* | *SD* | *M* | *SD* | *M* | *SD* |
| Tumblr | 2.09 | 1.68 | 1.11 | 1.57 | 1.09 | 1.47 |
| YouTube | 3.85 | 0.73 | 3.21 | 0.88 | 3.07 | 0.97 |
| Facebook | 3.09 | 1.23 | 2.68 | 1.40 | 2.84 | 1.26 |
| Twitter | 1.97 | 1.67 | 1.04 | 1.58 | 1.80 | 1.68 |
| Reddit | 0.21 | 0.72 | .36 | 0.91 | 0.36 | 0.99 |
| Instagram | 1.84 | 1.72 | 1.54 | 1.62 | 1.85 | 1.67 |
| Blogs | 0.78 | 1.2 | .39 | 0.99 | 0.45 | 0.92 |
| Pinterest | 0.12 | 0.42 | .18 | 0.67 | 0.16 | 0.53 |
| Wikipedia | 1.60 | 1.06 | 1.89 | 1.10 | 1.91 | 1.15 |
| General surfing | 2.72 | 1.30 | 2.46 | 1.37 | 2.48 | 1.22 |
| Other | 0.72 | 1.41 | .89 | 1.50 | 0.43 | 0.99 |

The suitability of PCA was assessed prior to analysis. Inspection of the correlation matrix showed that all variables had at least one correlation coefficient greater than .30. The overall Kaiser-Meyer-Olkin (KMO) measure was .72, above the commonly recommended a value of .6 (Kaiser, 1974), and Bartlett's Test of Sphericity was statistically significant ($p < .001$), indicating that the data was suitable for factor analysis. The PCA revealed three components that had eigenvalues greater than one and which

explained 26.80%, 15.02% and 13.81% of the total variance, respectively. Visual inspection of the scree plot indicated that two components should be retained (Cattell, 1966). In addition, a two-component solution met the interpretation criterion. As such, two components were retained (See Appendix F).

The two-component solution explained 41.82% of the total variance. Given the assumed correlation among variables, a Direct-Oblimin orthogonal rotation was employed to aid interpretability (Tabachnick & Fiddell, 2007). Coefficients less than 0.3 were suppressed to make for easier interpretation. Overall, the rotated solution exhibited relative 'simple structure' (Thurstone, 1947). The interpretation of the data was consistent with the factors the questionnaire was designed to measure, with strong factor loadings of social media sites on Component 1 (i.e., Facebook, Twitter, Instagram, and Tumblr) and non-social media sites (i.e., Wikipedia, Pinterest, Blogs and Reddit) on Component 2. Given the interactive nature of YouTube videos and comments, and due to stronger factor loadings on component 1, it was included in the social media component (see Table 4).

Next, to test hypotheses 2.1-2.3 examining difference sin Internet use for emotional health reasons across NSSI groups and gender, a one-way multivariate analysis of variance (MANOVA) was run. The independent variables were the NSSI groups (i.e., Current NSSI, Past NSSI or No NSSI) and gender. The dependent variables were social media sites and non-social media sites factor scores from the two factors. The differences between Internet use for emotional health reasons between NSSI groups on the combined dependent variables was statistically significant, $F = (4, 142) = 2.60$, $p = .039$; Wilks' $\Lambda = .92$; partial $\eta^2 = .037$.

Table 4

*Factor loadings and communalities based on a principal component analysis with Direct Oblimin rotation.*

| | Rotated Component Coefficients | | |
|---|---|---|---|
| Items | Component 1 | Component 2 | Communalities |
| Instagram | .761 | | .561 |
| Twitter | .737 | | .537 |
| Facebook | .676 | | .443 |
| YouTube | .565 | .308 | .476 |
| Tumblr | .459 | | .239 |
| Wikipedia | | .744 | .569 |
| Blogs | | .679 | .459 |
| Pinterest | | .476 | .299 |
| Reddit | | .430 | .181 |

*Note*. Factor loadings > .3 supressed.

There was no significant effect of gender on Internet use for emotional health reasons among females ($M$ = 5.32) and males ($M$ = 3.34) across NSSI groups ($p$ = .057). Additionally the interaction between NSSI status and gender was not statistically significant (see Table 5).

Follow-up univariate ANOVAs showed that there was a statistically significant difference for the NSSI groups on use of social media for emotional health reasons, $F$ = (2, 142) = 5.02, $p$ = .008, partial $\eta^2$ = .07. No significant difference for NSSI groups was found for use of non-social media sites for emotional health reasons (see Table 6).

Table 5

*Main effects of Internet use for emotional health reasons across NSSI groups and gender*

| *Main Effect* | *df* | *Wilks' Λ* | $\eta^2$ | *p* |
|---|---|---|---|---|
| NSSI Group | 4 | .92 | .04 | .039* |
| Gender | 2 | .96 | .04 | .057 |
| NSSI Group X Gender | 4 | .99 | .01 | .873 |

*$p < 0.05$

Table 6

*Univariate effects of Internet use for emotional health reasons and gender on NSSI groups*

| Dependent Variables | *df* | *F* | $\eta^2$ | Observed Power | *p* |
|---|---|---|---|---|---|
| Social Media Sites | 2 | 5.02 | .07 | .81 | .008* |
| Non Social Media Sites | 2 | .75 | .01 | .18 | .473 |

*$p < 0.05$

Follow-up Tukey post-hoc tests revealed that those in the Current NSSI group ($M$ = 1.00, $SD$ = .79) had significantly higher mean scores than the Past NSSI group ($M$ = .56, $SD$ = .61), $p$ = .014, and significantly higher mean scores than individuals in the No NSSI group ($M$ = .48, $SD$ = .57), $p$ = .000, for use of social media sites for emotional health reasons. No significant mean differences were found between the Past NSSI group and No NSSI group on use of social media sites for emotional health reasons (see Table 7).

**Online Activity for Emotional Health Reasons**

Chi-square tests (with Bonferroni Correction) and follow-up comparisons were performed to examine an association between the reasons for going online for emotional health reasons across NSSI groups (i.e., current NSSI, past NSSI, and no NSSI). Results revealed a significant association between NSSI groups and going online for emotional health reasons, "to get support from other people who are dealing with the same thing as me",$\chi^2$ (2, $N$ = 142) = 22.52, $p$ = .000, *phi* = .41, and "to support other people who are

dealing with the same things as me", $\chi^2$ (2, $N$ = 142) = 12.17, $p$ = .002, *phi* = .30. Those who reported currently engaging in NSSI were more likely to go online to get/give support compared to those who did not report currently engaging in NSSI and those with no history of NSSI. No association was found between NSSI group and going online for emotional health reasons to "get general information about a topic" ($p$ = .310), "to see if I have a problem" ($p$ = .171), or "to share my experience/story with others" ($p$ = .080).

Significance for an association between NSSI group and going online "to get support from a mental health professional", or "other reasons" could not be calculated as more than 20% of the data had an expected count less than five. Across all groups, participants most often accessed emotional health reasons online to learn information, and were least likely to go online to get help from mental health professional (see Figure 1).

Next, Chi-square tests (with Bonferroni Correction) and follow-up comparisons were performed to examine the association between NSSI group and the type of online activities used for emotional health reasons. A significant association was also found between NSSI group and reading, $\chi^2$ (2, $N$ = 142) = 6.03, $p$ = .049, *phi* = .21. Those who reported currently engaging in NSSI were more likely to go online to read information compared to both those who did not report currently engagement of NSSI and those who reported never engaging in NSSI. In addition, those who reported engaging in NSSI in the past were more likely to go online to read information compared to those who reported no history of NSSI.

Those who reported engaging in NSSI were significantly more likely to look at pictures, $\chi^2$ (2, $N$ = 142) = 7.20, $p$ = .027, *phi* = .22, and look at videos, $\chi^2$ (2, $N$ = 142) =

6.180, $p = .046$, *phi* = .21, and blogging, $\chi^2$ (2, $N = 142$) = 12.72, $p = .002$, *phi* = .30, compared to those who did not report currently engaging in NSSI and those with no history of NSSI.

No significant associations were found between NSSI group and chatting ($p = .069$), quizzes ($p = .857$), posting pictures ($p = .280$), posting videos ($p = .314$), posting comments ($p = .059$), or general surfing ($p = .071$). Significance for an association between NSSI status and "Other" Internet activities could not be calculated as more than 20% of the data had an expected count less than five (see Figure 2).

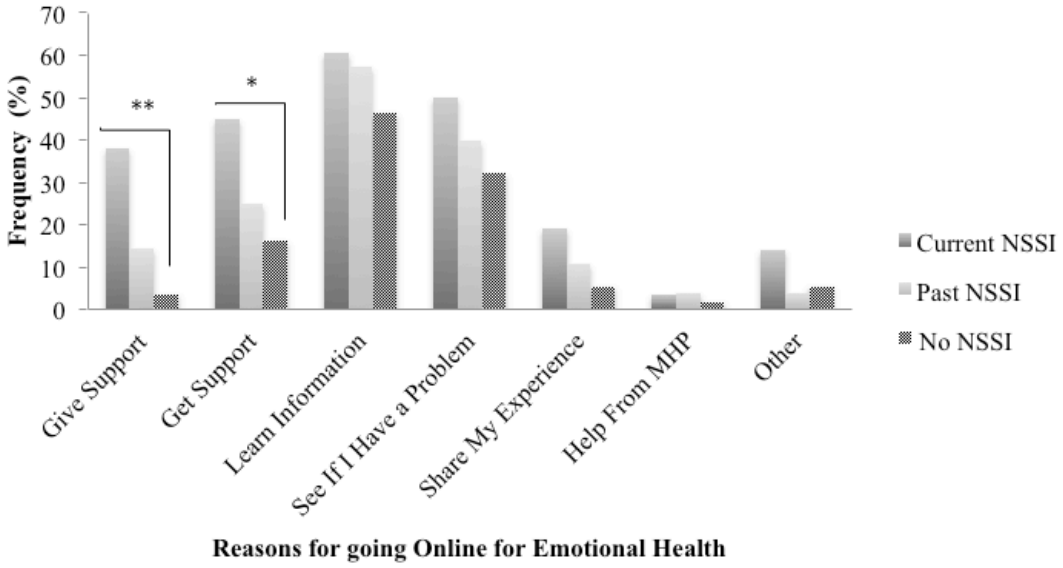


*Figure 1.* Bar chart representing group differences in reasons for going online for emotional health reasons. ** = $p < .001$; * = $p < .05$.

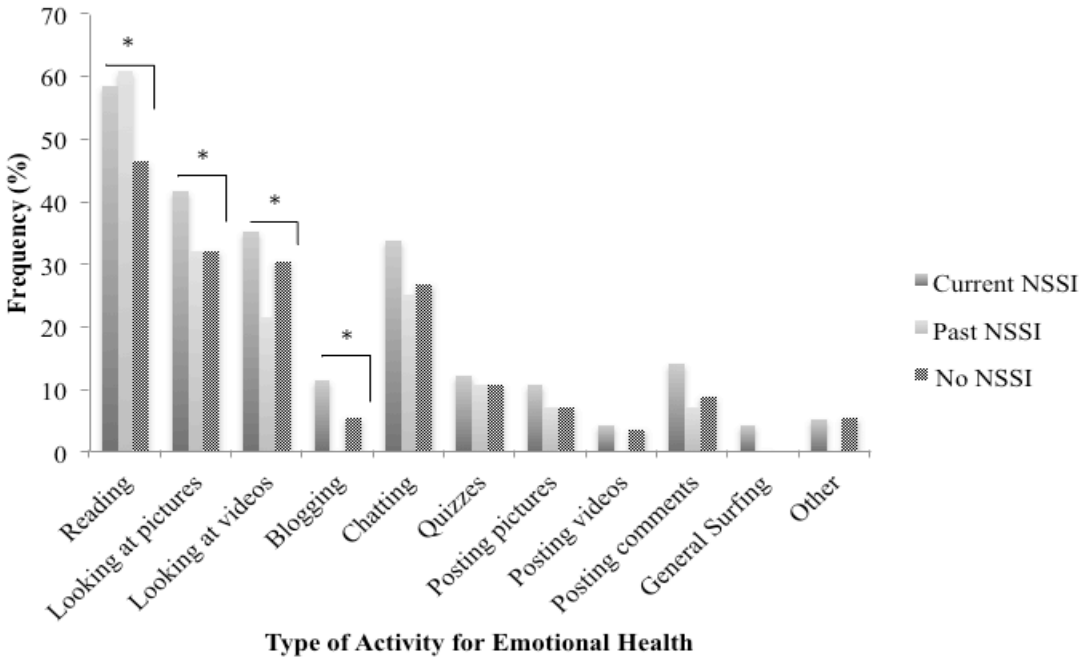


*Figure 2.* Bar chart representing group differences in online activities for emotional health reasons. * = $p < .05$

Finally, Chi-square tests (with Bonferroni Correction) were performed to examine the association between NSSI group and online emotional health topics of interest for emotional health reasons. An association was found between NSSI group and interest in depression, $\chi^2$ (2, $N$ = 142) = 16.77, $p$ = .000, *phi* = .34, self-injury, $\chi^2$ (2, $N$ = 142) = 26.57, p = .000, *phi* = .43, sadness, $\chi^2$ (2, $N$ = 142) = 9.93, $p$ = .007, *phi* = .26, and eating disorders, $\chi^2$ (2, $N$ = 142) = 9.752, $p$ = .008, *phi* = .262. Those who reported currently engaging in NSSI were more likely to be interested in online topics of depression, self-injury and eating disorders compared to those who did not report current engagement of NSSI and those with no history of NSSI. Individuals who reported engaging in NSSI in the past, but not currently, were more likely to be interested in online topics of sadness

compared to those who reported current engagement in NSSI and those with no history of NSSI.

No significant associations were found between NSSI status and anger ($p$ = .972), loneliness ($p$ = .052), stress ($p$ = .415), coping ($p$ = .411), self-esteem ($p$ = .091) and anxiety ($p$ = .327). Significance for interest in the topics of suicide, alcohol, drugs, gambling, grief, stress due to illness, could not be calculated as more than 20% of the data had an expected count less than five (see Figure 3)

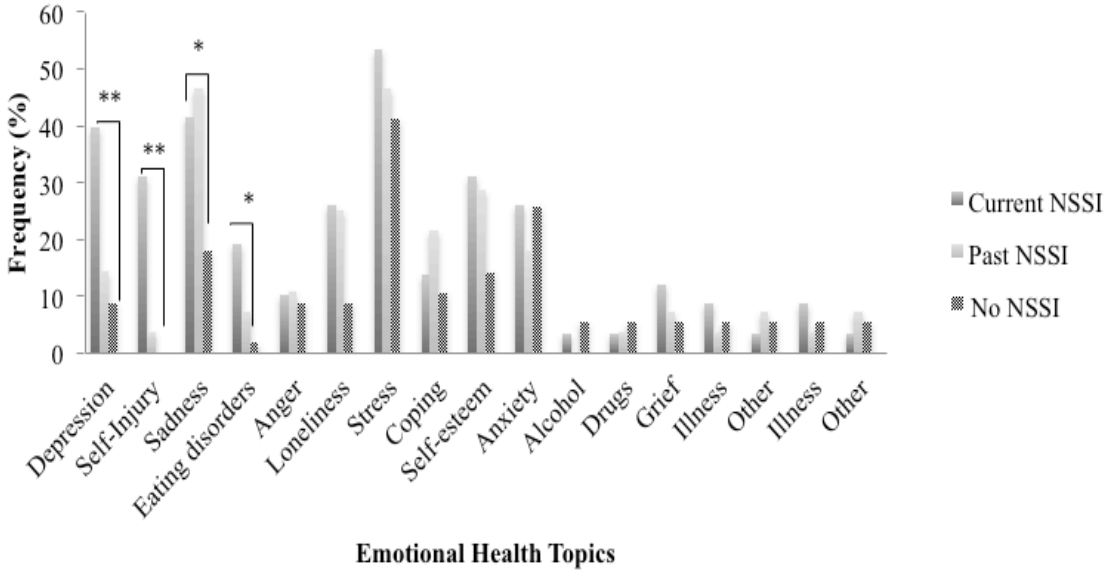


*Figure 3.* Bar chart representing group differences in online emotional health topics.

** = $p < .001$; * = $p < .05$.

# CHAPTER 5
## Discussion

The current study presents an original contribution to the literature on NSSI and online activity among adolescents as it demonstrates that adolescents who currently engage in NSSI are more likely to spend time on social media sites for emotional health reasons compared to those who have ceased engaging in the behaviour(s) and those who have never self-injured. More specifically, youth who currently engaged in NSSI report using social media sites to both receive and offer support to others who are dealing with similar matters. Accordingly, the research goals were to examine differences in frequency of Internet use for general purposes and for emotional health reasons among male and female adolescents who report engaging in NSSI, those who have stopped, and those who have never self-injured. Lastly, this study aimed to examine online activity for emotional health reasons among these adolescents; the reasons for going online for emotional health reasons, the emotional health topics they are interested in and the type activities they are doing.

With respect to general Internet use, it was expected that adolescents who have ever engaged in NSSI would indicate a higher frequency of Internet use than those who have not engaged in NSSI. This hypothesis was partially supported, as adolescents who reported currently engaging in NSSI were found to use certain Internet sites (i.e., Tumblr) significantly more often than adolescents with a past history of NSSI, and significantly more often than adolescents (i.e., YouTube and Tumblr) who did not report any history of NSSI. Contrary to previous research (Heath, Toste, & McLouth, 2010; Mitchell & Ybarra, 2007), these findings did not show full support for increased frequency of general Internet use among adolescents who engage in NSSI compared to those who do not. This

may be due to differences in the way Internet activity has been measured, as previous studies have asked about overall use without breaking down usage by individual sites. However, consistent with research indicating possible differences in reasons for being online (Heath et al., 2010; Mitchell & Ybarra, 2007), the findings of the current study suggest that differences may exist regarding specific Internet sites, which may serve different purposes. For example, YouTube and Tumblr are similar in that they both allow users to share multimedia videos and other content across a variety of topics. Video-sharing websites often offer information for a variety of topics and may foster a sense of community among its users. It may be that these particular sites are providing a sense of social support and validation that may be lacking offline for adolescents who are engaging in NSSI. Thus, apart from virtual communities that are explicitly about NSSI (e.g., NSSI discussion forums, websites), these findings provide further evidence of communities for those who self-injure on general and popular sites (e.g., YouTube) (Lewis & Baker, 2011; Lewis et al., 2012c; Lewis et al., 2011; Whitlock et al., 2006b).

In terms of Internet use for emotional health reasons, the hypotheses were partially supported. Specifically, adolescents who currently reported engaging in NSSI were more likely to go online for emotional health reasons than adolescents with no previous history of NSSI. Notably, this finding related to social media sites only. Given the nature of social media sites, these findings highlight the role of communication online. Consistent with previous research, the preference for using social media sites for emotional health reasons indicate that this may in fact be an accessible platform to communicate, receive acceptance, social support, and validation (e.g., Klonsky, Muehlenkamp, Lewis, & Walsh, 2011; Lewis et al., 2012; Nock, 2009, 2010). While

females in the current study spent slightly more time online compared to their male peers, and previous evidence suggests that differences exist in online communication between genders (e.g., Thayer & Ray, 2006), this association was not concluded. These results suggest that searching for support online is equally sought out among adolescent males. It is likely that regardless of possible differences in the methods and functions of self-injury, both male and female adolescents share similar experiences, such as facing difficult stigmatization around NSSI in the offline world, and thus share like needs for seeking out support online.

Moreover, as an original contribution to the literature, it was found that Internet use differed depending on the recency of the self-injury engagement. Specifically, individuals who indicated current NSSI engagement reported the use of social media sites (e.g., Facebook, YouTube, Tumblr) for emotional health reasons significantly more often compared to individuals with a past history of NSSI. Yet, unexpectedly, those who have ceased to engage in NSSI were found to be comparable with those who have never engaged in the behaviour in terms of going online for emotional health related reasons. This suggests that those who have ceased to engage in NSSI no longer felt the need to reach out for support or information online. Consistent with previous research suggesting that getting support online is an important factor for joining and continuing NSSI e-communication, as long as needs of the individuals are being met (Lewis & Michal, 2014), it may be that social-media sites no longer serve a purpose for those who have ceased engaging in NSSI behaviours. Altogether, findings from the current study provide insight into the differences in the needs of adolescents who engage in NSSI depending on whether or not the behaviours are maintained.

The third objective was to gain a better understanding of the motivations and the specific online activities used for emotional health reasons among adolescents engaging in NSSI, those who have stopped and those that never engaged in the behaviour. Among all participants, the most commonly reported reason for accessing emotional health information online was to learn information. Among adolescents who currently engage in NSSI, going online for emotional health reasons was used significantly more often to both receive and to give support to others that are dealing with similar issues. Once again, these findings contribute to the importance of seeking and giving support, and sense of community as critical factors in going online for emotional health reasons. In addition, differences existed among the groups of participants in terms of looking at pictures and/or videos and blogging, which further supports seeking and giving support through online forums and different types of Internet sites as suggested from results in the first part of the current study. Notably, nearly all individuals engaging in NSSI did not report going online to receive help from a mental health professional, which falls in line with other research indicating that individuals posting self-injury messages online were disapproving of professionals who offered support (Rodham et al., 2013).

When asked about what emotional health topics participants were most interested in, adolescents who currently engage in NSSI seem to differ in their interest in sadness, depression, self-injury, and eating disorders. This is consistent with previous findings that adolescents who seek help-online for self-injury have higher levels psychological distress and degree of self-injury compared to those who did not seek help online for self-injury (Frost & Casey, 2015). Surprisingly, those with a history of NSSI reported similar, and sometimes slightly higher interest in going online for information about negative

emotions (e.g., sadness, anger) compared to individuals currently engaging in NSSI. This may suggest that while engagement of NSSI may have ceased for those with a history of NSSI, feelings of distress may still be present, yet these adolescents may have turned to alternative methods of coping with these feelings.

**Limitations**

The current study was able to illustrate that adolescents who engage in NSSI show a different pattern of online activity for emotional health over and above other adolescents who are at-risk for emotional health issues (i.e., higher depressive symptomology, risk-taking behaviours to deal with stress). While having a comparison of at-risk adolescents was appropriate for this study, future directions may wish to replicate findings with a peer-control group for comparison. In addition, while engagement in self-injury was rigorously confirmed, the lack of self-injury over the last year does not confirm full recovery. Future directions should include more longitudinal examination of NSSI history and clarify differences in those who temporary cease NSSI behaviour(s) and those who have fully recovered.

Next, is it is important to consider the use of self-report measures with questionnaire data. In particular, self-reports may be influenced by social desirability bias, altering participants' responses (Fleming, 2012). This may be particularly problematic for an emotional health related questionnaires given that this area of study may be embarrassing for certain individuals, and in particular adolescents. As suggested in previous research (Lewis & Baker, 2011; Whitlock et al., 2006b; Whitlock, Purington, & Gershkovich, 2009), due to the anonymity of the Internet, it seems advantageous to

marginalized groups (e.g., those engaging in NSSI). Assessing Internet use among marginalized groups through online forums may then also prove to be beneficial, as participants will not feel pressure to respond in a way that conforms to what is perceived as the norm in a school classroom context.

While this study provides a more systematic look inside of the world of adolescents who self-injure and spend time online, the study did not monitor if Internet use for emotional health reasons was adaptive or maladaptive. The sites examined were all peer-driven sites, which have been shown to contain clear differences on the quality and nature of information compared to professionally driven websites related to NSSI (Duggan et al., 2012; Lewis & Baker, 2011; Whitlock et al., 2006b). Moreover the term emotional health was used as a broader term for any emotional concerns that adolescents may have, yet this may have had less relevance and missed part of the target population. Specifically, research has shown that a number of adolescents have difficulty describing "why" they self-injure (Klonsky et al., 2011). Thus, for those who do not understand why they are engaging in the behaviour, and specifically what purposes it serves (e.g., emotional relief), the questions asked may have been misleading. Therefore, replication with more specific questions regarding self-injury, rather than a global emotional health concept may be more generalizable.

**Final Conclusions and Clinical Implications**

The current study is the first to examine online activity among adolescents who currently engage in NSSI compared with those who have ceased engaging in the behaviours and those who have never self-injured, finding that adolescents who currently

engage in NSSI have an overall different profile of Internet use, indicative of connecting (sharing and getting support) online, whereas adolescents with a past history of NSSI are most often comparable to individuals who have never engaged in NSSI, although they continue to seek support around mental health issues more than their non-NSSI peers. The findings imply that professionals need to understand that those currently engaging in NSSI are online more often and that they are using the Internet more for support than both adolescents who have ceased engaging in NSSI and those who have never self-injured. Professionals or parents should not consider eliminating this important area of support without consideration of possible consequences.

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**Appendix A:**

HIDS

***HOW I DEAL WITH STRESS***
(© Heath & Ross, 2007)

***Please begin by completing the following information:***

**Age:** _____ **Sex:** ❑ Male ❑ Female

**Sexual Orientation:** ❑ Heterosexual ❑ Gay/Lesbian ❑Bisexual ❑ Questioning

What **languages** do you speak at home? ❑ English ❑ French ❑ Other (please specify): _____

Country of **permanent residence** ❑ Canada ❑ USA ❑ Other (please specify): _____

Country of **birth** ❑ Canada ❑ USA ❑ Other (please specify): _____

**Teenagers have to deal with a lot of stress. In a recent survey, youth said they used the following list of strategies to help them deal with problems. We are interested in knowing if you have also used any of these strategies to help you deal with stress.**

***Please read each item and indicate whether you:***
**never** use this strategy (0)
use this strategy **sometimes** (1)
use this strategy **often** to cope with stress (2)
**almost always** use this strategy to cope with stress (3)

| *Coping strategies* | *Never* | *Sometimes* | *Often* | *Always* |
|---|---|---|---|---|
| 1. Try not to think about it | **0** | **1** | **2** | **3** |
| 2. Spend time alone | **0** | **1** | **2** | **3** |
| 3. Go out | **0** | **1** | **2** | **3** |
| 4. Talk to someone | **0** | **1** | **2** | **3** |
| 5. Try to solve the problem | **0** | **1** | **2** | **3** |
| 6. Do something to keep myself busy | **0** | **1** | **2** | **3** |
| 7. Say to myself it doesn't matter | **0** | **1** | **2** | **3** |

| | | | | |
|---|---|---|---|---|
| 8. Listen to music | **0** | **1** | **2** | **3** |
| 9. Exercise | **0** | **1** | **2** | **3** |
| 10. Play sports | **0** | **1** | **2** | **3** |
| ***Coping strategies*** | ***Never*** | ***Sometimes*** | ***Often*** | ***Always*** |
| 11. Read | **0** | **1** | **2** | **3** |
| 12. Go shopping | **0** | **1** | **2** | **3** |
| 13. Overeat | **0** | **1** | **2** | **3** |
| 14. Stop eating | **0** | **1** | **2** | **3** |
| 15. Drink alcohol | **0** | **1** | **2** | **3** |
| 16. Hit someone | **0** | **1** | **2** | **3** |
| 17. Get into an argument with someone | **0** | **1** | **2** | **3** |
| 18. Try to control my weight | **0** | **1** | **2** | **3** |
| 19. Do drugs | **0** | **1** | **2** | **3** |
| 20. Smoke | **0** | **1** | **2** | **3** |
| 21. Do risky things | **0** | **1** | **2** | **3** |
| 22. Physically hurt myself on purpose | **0** | **1** | **2** | **3** |
| 23. Cry | **0** | **1** | **2** | **3** |
| 24. Sleep | **0** | **1** | **2** | **3** |
| 25. Pray or engage in religious activities | **0** | **1** | **2** | **3** |
| 26. Meditate | **0** | **1** | **2** | **3** |
| 27. Video gaming | **0** | **1** | **2** | **3** |
| 28. Chat online (e.g., MSN, Facebook) | **0** | **1** | **2** | **3** |
| 29. General web browsing | **0** | **1** | **2** | **3** |
| 30. Watch television | **0** | **1** | **2** | **3** |
| 31. Text | **0** | **1** | **2** | **3** |
| 32. Other: _____ | **0** | **1** | **2** | **3** |

On a scale of 1 to 10, where 1 is no stress at all and 10 is the most stressed you have ever felt, **how stressed have you been over the past two weeks?** (circle one)

1 2 3 4 5 6 7 8 9 10

## *Do risky things to cope with stress:*

**What kind of risky activities have you engaged in?** (check all that apply)

❑ Drug use ❑ Alcohol use ❑ Promiscuous or unprotected sexual activities

❑ Vandalism ❑ Theft ❑ Gambling

❑ Other dangerous activities, please specify: _____

❑ I have not engaged in any risky or dangerous activities – **skip to next section.**

**After you engaged in risky activities, how did you feel?** (check all that apply)

❑ Calm ❑ Nervous ❑ Ashamed ❑ Tense

❑ Overwhelmed ❑ Energetic ❑ Angry ❑ Anxious

❑ Confident ❑ Relaxed ❑ Excited ❑ Guilty

❑ Happy ❑ Scared ❑ Sad ❑ Other (specify):

**How old were you when you first engaged in these risky activities?**

_____

**In the last 3 months, have you engaged in this behaviour?**

❑ Not at all ❑ Occasionally ❑ Frequently ❑ A lot

**Have you currently stopped engaging in this behaviour?**

❑ Yes ❑ No

If yes, when did you stop? _____

## *Physically hurt self on purpose:*

**Please circle any way that you have intentionally hurt yourself <u>without suicidal intent</u>:**

1. Cut your wrists, arms, or other areas of your body
2. Burned yourself
3. Scratched yourself, to the extent that scarring or bleeding occurred
4. Banged your head against something, to the extent that you caused a bruise to appear
5. Punched yourself, to the extent that you caused a bruise to appear
6. Other (please specify): _____

❑ I have not hurt myself on purpose – **skip to next section.**

**After you hurt yourself on purpose <u>without suicidal intent</u>, how did you feel?** (check all that apply)

❑ Calm ❑ Nervous ❑ Ashamed ❑ Tense
❑ Overwhelmed ❑ Energetic ❑ Angry ❑ Anxious
❑ Confident ❑ Relaxed ❑ Excited ❑ Guilty
❑ Happy ❑ Scared ❑ Sad ❑ Other (specify):

**How old were you when you first hurt yourself on purpose? _____**

**In the last 3 months, have you engaged in this behaviour?**

❑ Not at all ❑ Occasionally ❑ Frequently ❑ A lot

**Have you currently stopped engaging in this behaviour?**

❑ Yes ❑ No

If yes, when did you stop? _____

**How many times have you hurt yourself on purpose throughout your life?** (circle one)

One time 2 to 4 times 5 to 10 times
11 to 50 times 51 to 100 times More than 100 times

## *Video gaming to cope with stress:*

❑ I do not play video games to cope with stress – **skip to next section.**

**After you play video games, how do you feel?** (check all that apply)

❑ Calm ❑ Nervous ❑ Ashamed ❑ Tense
❑ Overwhelmed ❑ Energetic ❑ Angry ❑ Anxious
❑ Confident ❑ Relaxed ❑ Excited ❑ Guilty
❑ Happy ❑ Scared ❑ Sad ❑ Other (specify):

**What types of video games have you used to deal with stress?** (check all that apply)

❑ Home console (e.g., Xbox 360, PS3, Wii)
❑ Mobile (e.g., DS, PSP, iPhone/iPod Touch)
❑ PC/Mac (e..g, World of Warcraft, Crysis)
❑ Other (specify): _____

**When playing video games to deal with stress, how do you prefer to play?** (check all that apply)

❑ Online, with friends I first met in person ❑ Offline, with friends I first met in person

❑ Online, with friends I first met online ❑ Offline, with friends I first met online

❑ Online, with strangers ❑ Offline, by myself

**How many hours per week do you spend:**

- playing video games online? _____
- playing video games offline? _____
- playing any video games on an average weekday? _____
- playing any video games on an average weekend day? _____

## *Other Stressors:*

**Teenagers may find many other things in their lives stressful.**
**What other common stressors do you have?** (check all that apply)

❑ Conflict with parents/family
❑ Conflict between parents (e.g., divorce, separation)
❑ Academic difficulties
❑ Conflict/difficulty with peers

**Bullying about your:** (check all that apply)

| | | |
|---|---|---|
| ❑ Ethnicity | ❑ Religion | ❑ Sexual orientation |
| ❑Gender | | |
| ❑ Athletic ability | ❑ Social style | ❑ Behaviour/mannerisms |
| ❑ Lack of money/things | ❑ Physical appearance | ❑ School performance |

**Appendix B:**

EHOBA

**Emotional Health Online Behaviour Assessment**

**How often have you used the following websites:**

| | | | | | |
|---|---|---|---|---|---|
| **YouTube** | Never | Rarely | Sometimes | Often | Very Often |
| **Facebook** | Never | Rarely | Sometimes | Often | Very Often |
| **Twitter** | Never | Rarely | Sometimes | Often | Very Often |
| **Tumblr** | Never | Rarely | Sometimes | Often | Very Often |
| **MySpace** | Never | Rarely | Sometimes | Often | Very Often |
| **Piddit** | Never | Rarely | Sometimes | Often | Very Often |
| **Reddit** | Never | Rarely | Sometimes | Often | Very Often |
| **Instagram** | Never | Rarely | Sometimes | Often | Very Often |
| **Blogs** | Never | Rarely | Sometimes | Often | Very Often |
| **Flickr** | Never | Rarely | Sometimes | Often | Very Often |
| **Pinterest** | Never | Rarely | Sometimes | Often | Very Often |
| **Wikipedia** | Never | Rarely | Sometimes | Often | Very Often |
| **General Surfing:** _____ | Never | Rarely | Sometimes | Often | Very Often |
| **Other:** _____ | Never | Rarely | Sometimes | Often | Very Often |

**How often have you used the following websites for emotional health reasons? (e.g, getting info about anxiety, finding support for difficulties you're having, etc.):**

| | | | | | |
|---|---|---|---|---|---|
| **YouTube** | Never | Rarely | Sometimes | Often | Very Often |
| **Facebook** | Never | Rarely | Sometimes | Often | Very Often |
| **Twitter** | Never | Rarely | Sometimes | Often | Very Often |
| **Tumblr** | Never | Rarely | Sometimes | Often | Very Often |
| **MySpace** | Never | Rarely | Sometimes | Often | Very Often |
| **Piddit** | Never | Rarely | Sometimes | Often | Very Often |

| | | | | | |
|---|---|---|---|---|---|
| **Reddit** | Never | Rarely | Sometimes | Often | Very Often |
| **Instagram** | Never | Rarely | Sometimes | Often | Very Often |
| **Blogs** | Never | Rarely | Sometimes | Often | Very Often |
| **Flickr** | Never | Rarely | Sometimes | Often | Very Often |
| **Pinterest** | Never | Rarely | Sometimes | Often | Very Often |
| **Wikipedia** | Never | Rarely | Sometimes | Often | Very Often |
| **General Surfing:** _____ | Never | Rarely | Sometimes | Often | Very Often |
| **Other:** _____ | Never | Rarely | Sometimes | Often | Very Often |

**Do you have favourite sites that you use for emotional health reasons?**

☐Yes ☐No

**If yes, please list them here**:_____
_____

**When you go online for emotional health reasons, what topics are you interested in?**
Please check all that apply.

☐ Anger problems
☐ Sadness
☐ Loneliness
☐ Depression
☐ Grief and Loss
☐ Stress
☐ Coping
☐ Self-Esteem
☐ Anxiety
☐ Eating Disorders
☐ Self-Injury
☐ Suicide
☐ Alcohol Problems
☐ Drug Problems
☐ Gambling
☐ Other (Specify): _____

**Why do you go online for emotional health reasons?** Please check all that apply:

☐ To learn general information about a topic
☐ To see if I have a problem
☐ To get support from other people who are dealing with the same thing as me
☐ To give support to other people who are dealing with the same things as me
☐ To share my experience/story with others
☐ To get help from a mental health professional

☐ Other (specify):_____

**When you go online for emotional health reasons, what kind of activities are you doing?** Please check all that apply:

☐ Chatting
☐ Quizzes
☐ Reading information
☐ Looking at pictures
☐ Looking at videos
☐ Posting pictures
☐ Posting videos
☐ Posting comments on what others have posted online
☐ Blogging
☐ General Surfing
☐ Other (specify): _____

**Where are you when you go online for emotional health reasons?** Please check all that apply:

☐ On a home computer
☐ On a school computer
☐ On my phone/blackberry/mobile
☐ On a friend's/relative's computer
☐ On library computer
☐ On my computer (e.g., in your room)
☐ Other (specify):_____

**Usually, what time of day do you go online for emotional health reasons?** Please check all that apply:

☐ In the morning
☐ Mid Day
☐ Afternoon
☐ Evening
☐ Late night

## Appendix C:

BDI-Y

`

Here is a list of things that happen to people and that people think or feel. Read each sentence carefully, and circle the one word (Never, Sometimes, Often, or Always) that tell about you best, especially in the last two weeks. THERE ARE NOT RIGHT OR WRONG ANSWERS.

| | | 0 | 1 | 2 | 3 |
|---|---|---|---|---|---|
| **41.** | I think that my life is bad. | **Never** | **Sometimes** | **Often** | **Always** |
| **42.** | I have trouble doing things. | **Never** | **Sometimes** | **Often** | **Always** |
| **43.** | I feel that I am a bad person. | **Never** | **Sometimes** | **Often** | **Always** |
| **44.** | I wish I were dead. | **Never** | **Sometimes** | **Often** | **Always** |
| **45.** | I have trouble sleeping. | **Never** | **Sometimes** | **Often** | **Always** |
| **46.** | I feel no one loves me. | **Never** | **Sometimes** | **Often** | **Always** |
| **47.** | I think bad things happen because of me. | **Never** | **Sometimes** | **Often** | **Always** |
| **48.** | I feel lonely. | **Never** | **Sometimes** | **Often** | **Always** |
| **49.** | My stomach hurts. | **Never** | **Sometimes** | **Often** | **Always** |
| **50.** | I feel like bad things happen to me. | **Never** | **Sometimes** | **Often** | **Always** |
| **51.** | I feel like I am stupid. | **Never** | **Sometimes** | **Often** | **Always** |
| **52.** | I feel sorry for myself. | **Never** | **Sometimes** | **Often** | **Always** |
| **53.** | I think I do things badly. | **Never** | **Sometimes** | **Often** | **Always** |
| **54.** | I feel bad about what I do. | **Never** | **Sometimes** | **Often** | **Always** |
| **55.** | I hate myself. | **Never** | **Sometimes** | **Often** | **Always** |
| **56.** | I want to be alone. | **Never** | **Sometimes** | **Often** | **Always** |
| **57.** | I feel like crying. | **Never** | **Sometimes** | **Often** | **Always** |
| **58.** | I feel sad. | **Never** | **Sometimes** | **Often** | **Always** |
| **59.** | I feel empty inside. | **Never** | **Sometimes** | **Often** | **Always** |
| **60.** | I think my life will be bad. | **Never** | **Sometimes** | **Often** | **Always** |

**Appendix D:**

Parent Consent Form

McGill

RESEARCH PROJECT

**Transition to Secondary Schools: How Students Cope**

February 2010

Dear Parent/Legal Tutor,

Adolescence is characterized by considerable change physically, socially, and emotionally; often, the added pressure of starting secondary school can increase the stress associated with this time period. The stressors during the transition to secondary school typically include interpersonal stress (e.g., difficulties with peers or family members), intrapersonal distress (e.g., anxiety, mood, self-esteem), and generalized school stress (e.g., homework stress, test anxiety). Our research team is interested in examining adaptive and maladaptive strategies that youth use to cope with these stressors through 7th, 8th, and 9th grades. Our research has shown that youth may engage in both adaptive coping (e.g., problem-solving, communication), as well as some worrisome coping mechanisms. Your son/daughter's participation will help us to better understand the various ways in which youth cope with stress during transition to high school.

**Project activities:** Students who participate in the project will complete a package of questionnaires *once per year during their first three years of secondary school*. These questionnaires will assess interpersonal, intrapersonal, and school stressors, as well as potential protective factors (e.g., self-efficacy, physical activity, involvement in the community). These sessions will take place in the spring of each year within the school setting. The sessions will be completed in groups of 20 students and will take approximately two hours (two sessions of one hour each). A research assistant will explain the instructions to all students and answer any questions. Students will complete the forms individually and confidentially.

Following each of these sessions, students may be invited to meet with a member of our research team (e.g., graduate student in Educational Psychology) for an individual interview session to clarify their responses. This interview would take approximately one hour. The time of the interview would be arranged to ensure that important class activities are not missed. We are interested in interviewing students who engage in a variety of different coping strategies—as such, not all students will complete individual sessions. Students would participate in a *maximum of 6 hours* of research activities per year if they are selected for individual interviews.

**Audio taping:** For the students who complete an individual session, we request permission to audio tape one aspect of the interview related to students' views of how they can be better supported in dealing with school stress. This information will be critical to help school professionals understand the services that adolescents need during this transition period. Please note that all audiotapes will be coded and kept confidential. The tapes will not be accessible to any school personnel and will only be listened to by researchers at McGill.

**Compensation:** Students will be compensated in several ways for their time and effort. All students who return the consent form regardless of agreement to participate will be entered in a draw for one of two gift cards to a local shopping mall in the amounts of $200 and $100. An additional draw for one of four $50 gift cards to Famous Players will be held following completion of each of the group sessions (e.g., package of questionnaires completed twice per year). Students who participate in the individual interviews will receive one $10 gift card for each session.

**Benefits:** Youth are reporting increased levels of stress and difficulties in coping. Transition to high school is a particularly challenging time. Although there are no direct benefits for individual participants, this project has the potential to greatly enhance our understanding of both risk and protective factors for youth experiencing transition. Following completion of the project, in preparation for the 9th grade, all students who participate will be invited to attend a workshop on effective stress management. Furthermore, information provided by students on how schools can better support them in coping with stress (information collected in the audio taped interview) will be synthesized and shared with school professionals.

**Potential risks:** While there are no direct risks involved in participation in this research project, some participants might be sensitive to some of the questions. Should this issue arise, your son/daughter is free to withdraw from the study at any time. Students are also free to not answer any item that makes them uncomfortable.

Note that all information collected is confidential, and all completed questionnaires will be kept in a locked cabinet accessible only to the primary researcher from McGill University. All data will be coded to ensure confidentiality. No identifying information will be used in any written or oral presentation of the results. Students are free to withdraw from the project at any time.

Although all information is confidential, in the event that your son/daughter is perceived to be a risk to him or herself we are required to break confidentiality and contact you immediately to ensure that your son/daughter receive the support they need. For example, if it is perceived that they may cause life-threatening harm to themselves. In the unlikely event that this occurs we will accompany the student to a designated school mental health professional (counsellor, psychologist, or social worker) who is informed concerning the project goals. This person, together with your son/daughter will contact you. All of this will remain completely confidential between your son/daughter, the mental health professional and yourself, no other personnel at the school will be involved. However, even if you are contacted the full details of your son/daughter's responses must remain confidential although the reason for concern will be shared by the student or the researcher.

Please sign below, indicating whether or not you would like your son/daughter to participate, and return this form to school. Should you have any questions, please feel free to contact me at the coordinates listed below. If you have any questions or concerns about the rights of research participants in this study, please contact the McGill Research Ethics Officer at (514) 398-6831. Thank you so much.

Sincerely,

Nancy Heath, Ph.D.

James McGill Professor
McGill University, Faculty of Education
nancy.heath@mcgill.ca
(514) 398-3439

## CONSENT TO PARTICIPATE IN PROJECT – ***PARENT***

**I have read the above and I understand all of the conditions. I freely consent and voluntarily agree to have my son/daughter participate in this project as described.**

❑ YES ❑ NO ⇢ I consent to my son/daughters' participation in this project.

❑ YES ❑ NO ⇢ I consent to audio taping if my son/daughter is selected to complete an individual interview session.

Signature: _____ Date: _____

Name of **parent/legal tutor** (please print): _____

Name of **student** (please print): _____

Student's date of birth (month/day/year): _____ Grade: _____

Parent telephone number(s): _____

**Appendix E:**

Student Assent Form

McGill

# Transition to Secondary Schools: How Students Cope

ASSENT TO PARTICIPATE IN PROJECT – ***STUDENT***

- This project is about the pressure or stress that students face during the transition to secondary school. Our research team is interested in understanding how teenagers cope with this stress through 7th, 8th, and 9th grades. Your parents have already agreed for you to take part in this project.

- In this project, you will be asked to complete a package of questionnaires *once per year during your first three years of secondary school*. These questionnaires will ask you about stress, coping strategies, as well as the way you feel about yourself and school. These sessions will take place during the spring of each year. We meet with students in groups of 20 during school time and each session takes about two hours (two sessions of one hour each). You complete the questionnaires individually and confidentially.

- Following each of these sessions, we may ask you to meet with a member of our research team for an individual interview session to talk about some of your answers. This interview would take about one hour. We will be meeting with students who indicate many different kinds of coping strategies, so you may not be asked to complete an individual session. We ask your permission to audio tape one part of this interview.

- If you agree, you would participate at least 4 hours of research activities per year—and up to a maximum of 6 hours of research activities per year if you are selected for individual interview sessions.

- Your teachers will not be told about the answers that you give in these interviews. Your parents will also not be told about my answers, unless it is perceived that you are at serious risk to yourself. In the unlikely event that this occurs, you would need to speak with the specific school's designated school mental health professional who would contact your parents with you. No other school personnel will be notified. The full details of your responses will remain confidential and will not be shared with your parents.

- Although there are no direct benefits for individual participants, this project has the potential to improve our understanding of how to help students when they are dealing with stress. Following completion of the project, in preparation for the 9th grade, you will be invited to attend a workshop on effective stress management.

- While there are no direct risks involved in participation in this research project, there may be questions that you find sensitive. If this issue arises, are free to not answer any item that makes you uncomfortable. You are also free to withdraw from the study at anytime.

- You will be compensated in several ways for my time and effort. After each of the group sessions, you will be entered in a draw for one of four $50 gift cards to Famous Players. Also, if you participate in the individual interviews, you will receive one $10 gift card for each session.

- No identifying information about you will be used in any presentation of the results from this project.

- Your classroom work and grades will not be affected by your decision to participate or not to participate.

**I have read the above and understand all of the conditions. I voluntarily agree to participate in this project.**

❑ YES ❑ NO ⇢ I consent to participation in this project.
❑ YES ❑ NO ⇢ I consent to audio taping if I am selected to complete an individual interview.

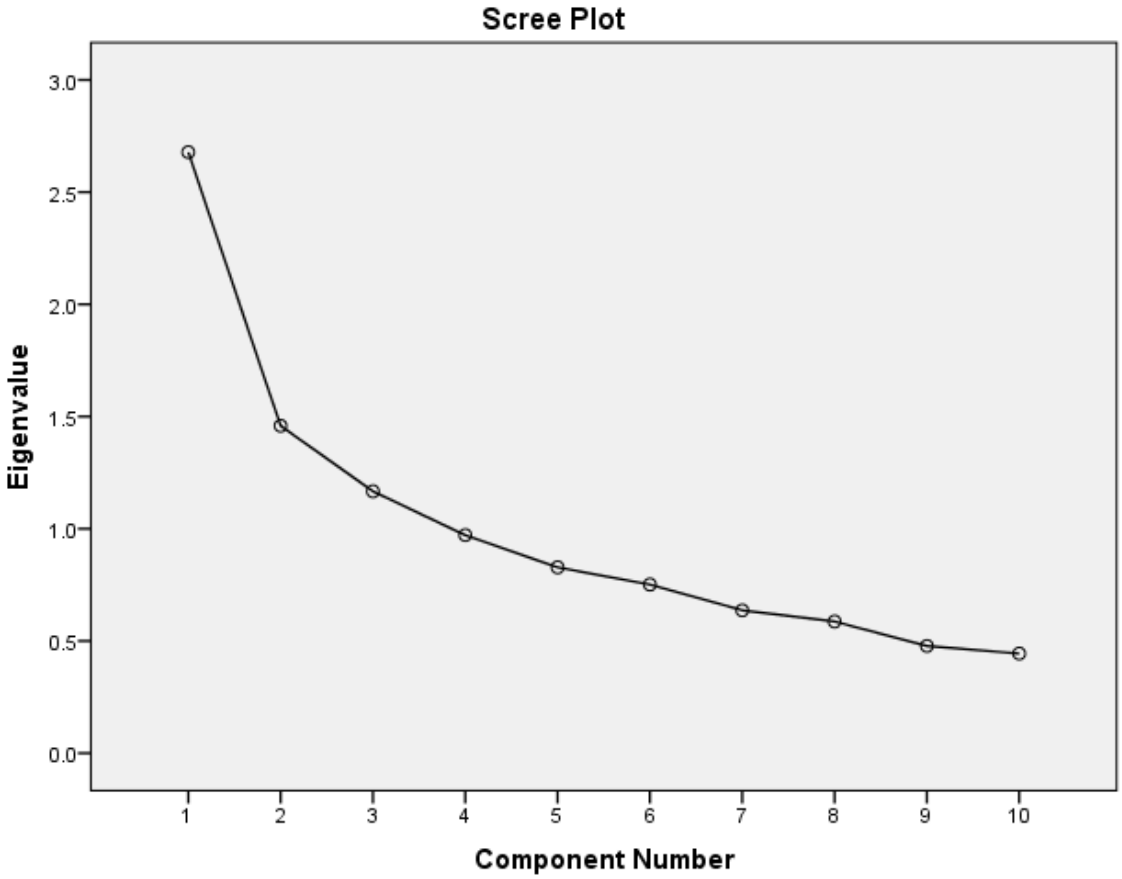
Name: (please print):_____

Signature: _____ Date: _____

Student telephone number(s): _____

**Appendix F:**

Scree plot


Scree Plot
Eigenvalue
3.0
2.5
2.0
1.5
1.0
0.5
0.0
1
2
3
4
5
6
7
8
9
10
Component Number