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Group Separation and Classification of Non-Suicidal Self-Injury

in a University Student Population

By

Jann MacIsaac

A Thesis
Submitted to the Faculty of Graduate Studies
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at the University of Windsor

Windsor, Ontario, Canada

2018

Group Separation and Prediction of Non-Suicidal Self-Injury

in a University Student Population

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ABSTRACT

Non-suicidal self-injury (NSSI) has gained an increasing amount of attention in the research literature since being included as topic for future research in the DSM-5 (APA, 2013). Currently, two models of NSSI exist, and both place a primacy on the role of the behaviour in regulating negative affect (Chapman et al., 2006; Nock, 2009). Past research has shown that there is considerable heterogeneity in the contextual, functional, and psychiatric profiles of people engaging in this behaviour (Klonsky & Olino, 2008). This underlying heterogeneity likely indicates that distinct sub-populations of people engaging in NSSI exist based on these factors. In the current study, university students were placed into three groups based on the last episode of NSSI (e.g., no history, proximal episode or past year, and distal episode or not within past year) and these groups were separated based on responses to variables covering personality, emotionality, emotion regulation, impulsivity, psychopathology, resiliency, mindfulness, and self-compassion. Results revealed that the NSSI-Proximal year group was best separated from the other two groups by a linear discriminant function conceptualized as compassionate self-care. Higher scores on the function were more indicative of participants in both NSSI groupings. However, results from a MANOVA revealed no significant difference between No NSSI and the NSSI-Distal group on the variables. The results from the study provide additional support for the importance of identifying NSSI sub-groups in order to improvement the prevention and treatment of non-suicidal self-injury.

ACKNOWLEDGEMENTS

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KEY TERMS

NSSI: Non-suicidal self-injury; direct, deliberate destruction of one's own body tissue in the absence of intent to die occurring in non-psychotic, cognitively intact individuals. These behaviours are not socially and/or culturally sanctioned.

NSSI-Proximal: Participants in this group reported an episode of NSSI within the past year.

NSSI-Distal: Participants in this group reported a history of NSSI, but not within the past year.

BFI: Big Five Inventory

CD-RISC-25: Connor-Davidson Resilience Scale 25-items

DERS-18: Difficulty in Emotion Regulation Scale 18-items

DSHI: Deliberate Self-Harm Inventory

GAD-7: Generalized Anxiety Disorder 7-items

ICSRLE: Inventory of College Students' Recent Life Experiences

MAAS: Mindful Attention Awareness Scale

PANAS: Positive and Negative Affect Scale

PHQ-9: Patient Health Questionnaire 9-items

PSS: Perceived Stress Scale

RT-18: Risk-Taking Questionnaire

SCS-SF: Self-Compassion Scale Short-Form

SPS: The Social Provisions Scale

TAS-20: Toronto Alexithymia Scale-20

UPPS-P: UPPS-P Impulsivity Inventory

CHAPTER 1

Introduction: Context of the Problem

Within the realm of non-suicidal self-injury research, the definition of terms matters. We must have a definition that adequately defines the boundaries of non-suicidal self-injury. However, the interchangeable use of terms such as *deliberate self-harm, self-injury, non-suicidal self-injury*, and *self-mutilation* within the literature may confound our understanding of the behaviour (Gratz, 2001). Furthermore, Gratz (2001) notes that researchers may use these terms to describe behaviours that are better described as suicidal behaviours, further complicating our understanding of non-suicidal self-injury. For the purposes of this study, I will be using the term *non-suicidal self-injury* (hereafter referred to as NSSI) to define, explain, and discuss the act of intentionally harming one's self without conscious suicidal intent. In this study, NSSI is operationalized as the direct, deliberate destruction of one's own body tissue in the absence of intent to die occurring in non-psychotic, cognitively-intact individuals, and are behaviours not socially and/or culturally sanctioned (Chapman, Gratz, & Brown, 2006; Gratz, 2001; Nock, 2009; Muehlenkamp, 2005). Within this definition, three issues need to be elaborated: intent, severity, and culturally-sanctioned forms of 'self-injurious' behaviour (Chapman et al., 2006; Gratz, 2001; Kuentzel et al., 2012; Nock, 2009).

The most salient aspect of NSSI is that it is a deliberate act, with *no* intention to die (Chapman et al., 2006; Gratz, 2001; Nock, 2009; Muehlenkamp, 2005). While individuals who engage in NSSI are at a higher risk for suicidal ideation, attempted suicide, and completed suicide, the underlying intention behind the behaviour is different and important to understand (Muehlenkamp, 2005, Chan

et al., 2016). Muehlenkamp (2005) delineates the differences between NSSI and suicidal behaviours in terms of intent, lethality, chronicity, methods, cognitions, reactions, aftermath, demographics, and prevalence. When taking these factors into account, NSSI is characterized by an intent to avoid or remove distress; it is repetitive in nature, and people are thinking about relief, not death (Muehlenkamp, 2005). Conversely, the intent of suicidal behaviour is to end one's life and/or relieve intense suffering it occurs infrequently, and a person's thoughts are about death, dying, or suicide (Muehlenkamp, 2005; Hayashi et al., 2017; Wyder & De Leo, 2007).

A second issue is related to the repetitiveness and severity of the behaviour. Favazza (1998) proposed three general categories of NSSI: stereotypic, major, and superficial/moderate. The definition of NSSI used in this study excludes repetitive, stereotypic forms of self-injury often seen in individuals with developmental disorders or intellectual disabilities (Chapman et al., 2006). Next, the definition excludes more severe forms of self-injury, such as auto-castration, because these behaviours are often seen in psychotic individuals and are not representative of individuals who engage in NSSI (Chapman et al., 2006; Nock, 2009). Favazza (1998) further divides the superficial/moderate type of NSSI into two subcategories: compulsive and episodic-repetitive. The former involves types of self-injurious behaviours (e.g., nail-biting, trichotillomania) that are done compulsively, often without conscious intent. Thus, the type of NSSI being examined in this study involves the episodic-repetitive type. That is, the behaviour is done with conscious intent with the goal being to manage one's affective or cognitive state. Finally, to fall under the umbrella of NSSI, the behaviour must not be culturally or socially sanctioned. Thus, forms of destruction to body tissue or the alteration of the body, such as

tattooing or piercing, would not be classified as NSSI. Although these could be construed as deliberate acts, even going so far as to be a coping method, they are socially/culturally sanctioned and accepted.

Although the literature has been able to arrive at a somewhat agreed upon definition of NSSI, it is only within the past 10 to 15 years that we have gained an understanding of the behaviour (Klonsky, Victor, & Boaz, 2014). As a result, historically the knowledge base on NSSI was rather limited, focusing mainly on theoretical reasons for the behaviour over empirical data (Klonsky, Victor, & Boaz, 2014). The early focus on this behaviour viewed NSSI as primarily a women's issue and not something that happened to men (Favazza & Conterio, 1989). However, as I discuss later when reviewing the prevalence of NSSI, more recent research has shown that rates of NSSI are relatively comparable across men and women, with rates being highest for members of the transgender community. Another historical issue in the literature is that NSSI was considered to be a symptom of borderline personality disorder (APA, 2000). However, research has shown that NSSI occurs outside of borderline personality disorder (Glenn & Klonsky, 2013). In fact, Glenn & Klonsky (2013) demonstrated that NSSI is associated with clinically significant impairment regardless of being co-morbid with borderline personality disorder. In fact, the literature demonstrates NSSI is more common amongst psychiatric populations experiencing psychological and emotional distress (Klonsky, Victor, & Boaz, 2014). As such, the empirical research demonstrates that NSSI is more wide-reaching than previously thought. In fact, as discussed later, NSSI is used by adolescents and adults, and clinical and non-clinical populations (Klonsky, 2007).

Thus, in recognition of the growing issue of NSSI, the American Psychiatric Association (2013) included Non-Suicidal Self-Injury Disorder in the *Diagnostic and Statistical Manual of*

Mental Disorders Fifth Edition's section for conditions warranting further study. Per the DSM-5: NSSI is an intentional act, whereby a person self-inflicts damage on five or more days (within the past year) with no suicidal intent. The goal of NSSI is: to obtain relief from a negative feeling or cognitive state; to resolve interpersonal difficulties; or to induce a positive feeling state. These goals must be met during or shortly after the self-injurious act (APA, 2013). In addition, the person also experiences at least one of the following: interpersonal difficulties, negative feelings, or thoughts occurring in the period immediately prior to the self-injurious act; preoccupations with the intended behaviour that is difficult to control; or, frequent preoccupation with NSSI, even when it is not acted upon.

In the above description from the psychiatric community, three trends are noteworthy. First, NSSI is largely used to reduce a negative affective state. Second, NSSI is a behaviour that is learned over time, increasing in its automaticity as the individual continues to engage in the behaviour. Third, NSSI can be considered its own disorder outright, known as *non-suicidal self-injury disorder* (APA, 2013). In support of the DSM-5 paradigm for NSSI, two main models attempting to explain NSSI place a clear emphasis on the connections between affect regulation, self-punishment, and interpersonal influence, along with reinforcement involved with maintaining the behaviour (Experiential Avoidance Model: Chapman et al., 2006; Integrated Theory Model: Nock, 2009). While the DSM-5 makes references to inducing positive feelings, this is likely tied to the idea that people may engage in self-harm to 'snap out' of a dissociative state or reduce feelings of 'numbness' (Chapman et al., 2006; Klonsky, 2007).

The inclusion of NSSI in the DSM-5 raises several questions including: How prevalent is NSSI? Who is at risk for NSSI? How do we understand NSSI? What are the functions and risk factors for NSSI?

Prevalence of Non-Suicidal Self-Injury

Addressing the prevalence of NSSI is not without its challenges. Accurate estimates of the prevalence of NSSI are difficult to obtain for a few reasons. First, most people engaging in NSSI do not seek clinical attention (APA, 2013), so studies may be presenting lower estimates of the true numbers. Studies may also run into a self-selection bias and rates may be inflated (Kuentzel et al., 2012). Second, the criteria used to determine if someone is engaging in NSSI can introduce bias into prevalence estimates. For instance, Cheng et al. (2010) found that in their sample of college students (N=2,184), 10.5% of men and 16.1% of women had engaged in one episode of NSSI. However, when the researchers shifted the criteria to five or more lifetime incidents, this number decreased to 5.3% for men and 9.3% for women. Similarly, Kuentzel et al. (2012) found in their sample of college students (N=5,691), which controlled for selection bias, that 12.8% of the sample had engaged in one NSSI incident, with 2.5% engaging in five or more incidents. Another issue is related to whether researchers are studying clinical or non-clinical populations. Researchers have found that rates of NSSI are around 21% in adult clinical populations (Briere & Gil, 1998), compared to approximately 4-5% in non-clinical populations (Briere & Gil, 1998; Klonsky, Oltmanns, & Turkheimer, 2003). A final issue comes down to if we are looking at adults or adolescents. There is a trend for rates of NSSI to be higher in adolescents, which may suggest that rates peak in adolescent to young adulthood, and then slowly decline as the person ages (APA, 2013). For instance, Muehlenkamp, Claes, Havertape, & Plener

(2012) in their broad review of prevalence studies for NSSI in adolescents found a lifetime prevalence rate of 18%. Further complicating prevalence estimates, rates may be inflated depending on how a researcher measures NSSI (Muehlenkamp et al., 2012). For example, Muehlenkamp and colleagues (2012) found that behaviour-based measures, such as the Deliberate Self-Harm Inventory (Gratz, 2001), yield higher rates than single-item assessment measures. The researchers note that this is likely because single-item measures have tended to capture only select forms of NSSI, such as cutting, as opposed to a larger sampling of behaviours seen in behaviourally-based measures. In general, the research literature seems to indicate that rates of NSSI appear to range from 4% to 14% in non-clinical populations, with adolescents tending to have higher rates.

Additional considerations when estimating the prevalence of NSSI include whether rates differ based on basic demographic differences (e.g., age, gender, income, ethnicity, and religious affiliation and conviction). Kuentzel and colleagues (2012) attempted to address the lack of diversity in samples looking at NSSI, as well as conflicting findings on demographic differences. In their ethnically-diverse, college sample, the researchers found that in terms of age, younger individuals (less than 27 years-old) had higher rates of NSSI compared to older individuals (older than 27 years-old). This finding is consistent with the literature indicating rates are higher in adolescents and young adults, compared to older adults (APA, 2013; Nock, 2009). In addition, Kuentzel and colleagues (2012) found that rates of NSSI differed based on ethnic background; such that roughly 21% of people identifying as multi-racial endorsed some form of NSSI; 17% of White people endorsed NSSI; and rates were lowest for Black individuals (7.9%) and people identifying as Arab American or Middle Eastern (6.5%). When looking at religious affiliation and conviction, the researchers found that those with weaker religious

beliefs/religiosity were more likely to engage in NSSI. No differences were seen with regard to income

level.

Sex/Gender has traditionally been defined as a binary matrix (male/man and female/woman),

but this is extremely rigid and limiting in capturing the range of sex/gender diversity (Butler, 1990;

Fausto-Sterling, 1992; Fausto-Sterling, 2012; Shibley-Hyde et al., 2018). Progressively, gender may be

more broadly understood as learned, fluid, and diverse, as well as non-binary (Tobin et al., 2010).

When a person's biological sex aligns with their gender identity, this is known as being *cisgender*. Most

people would self-identify as cisgender, meaning there is congruency with their sex/gender. However,

for some people, their biological sex (whether, male, female, or intersex) does not align with their

gender identity, expression, or behaviour. For these people, the umbrella term of trans might be used

instead to self-identify one's gender identity or lack thereof (Testa et al., 2012). Lev (2004) suggested

the use of trans, instead of *transgender*, because it is more inclusive, incorporating identities that may

not fall under the traditional transgender term. In terms of gender differences, earlier research tended

to focus on NSSI as being predominantly an issue seen in ciswomen (Favazza & Conterio, 1989;

Suyemoto, 1998). However, these earlier preconceptions were brought into question as more recent

studies have found that no practically significant differences are found between cismen and ciswomen

(APA, 2013; Fliege et al., 2009; Klonksy & Muehlenkamp, 2007; Kuentzel et al., 2012). For example,

Kuentzel and colleagues (2012) found lifetime prevalence rates of 13.6% for women and 11.0% for

men in their ethnically-diverse, college sample. Nevertheless, a more recent meta-analysis on cisgender

differences in NSSI, found that overall, women were 1.5 times more likely to report a history of NSSI

than men, but many different forms of self-harm were comparable in terms of their odds-ratio (Bresin

& Schoenleber, 2015). Although limited and relatively recent, research for trans individuals suggests that rates are higher compared to cisgender individuals, with one study finding that roughly 37% of trans participants had a history of NSSI (Claes et al., 2015). Interestingly, Marshall and colleagues (2016), found in their systematic review of NSSI within the Trans community, that trans men are at the highest risk of NSSI compared to trans women (Marshall et al., 2016). Marshall and colleagues did not include any information on other identities such as trans non-binary. The research on gendered differences in NSSI would suggest that people of all gender identities and expressions are susceptible to starting this behaviour as a way to cope with negative affect and stress. Thus, higher rates seen in the Trans community may reflect the higher levels of harassment, discrimination, and hate they face in society, impacting their ability to effectively cope with the oppressive ideologies present in the society we currently occupy (Bauer & Scheim, 2015; Greene, 2005; Marshall et al., 2016).

Impact of the Knowledge Base on NSSI

The prevalence research literature shows that NSSI does not discriminate when it comes to ethnic, religious, and SES backgrounds. The current rates of NSSI reported in the literature paint a troubling picture and some researchers believe that rates of NSSI are increasing (Nock, 2009). Furthermore, individuals engaging in NSSI are at an increased risk for suicide (Chan et al., 2016). The urgency for understanding NSSI is clear when we consider that this behaviour typically begins in adolescence; and that suicide is one of the leading causes of death for youth (StatsCan, 2018). Furthermore, a better understanding of NSSI could lead to the development of programming for parents and teachers to raise awareness about NSSI and how they can identify and address the behaviour, potentially preventing people from completing suicide.

Given the complexity of NSSI, it is likely that distinct sub-populations exist under the broader NSSI label and identifying these sub-populations is necessary to improve prevention and treatment efforts (Klonsky & Olino, 2008; Nock & Prinstein, 2005). Evidence for distinct sub-populations exist can be found in the research findings that show we can meaningfully group people based on function (Nock & Prinstein, 2005; Nock, 2009) or severity and frequency of method (Andover, Pepper, Ryabchenko et al., 2005; Klonsky & Olino, 2008). Thus, given the fact that people vary in their method, frequency, motivations, and functions underlying NSSI, there is reason to suspect that people can be meaningful grouped as different sub-populations around these different aspects of NSSI. However, achieving that level of understanding requires moving past prevalence studies, risk factors, and correlates. It requires researchers to start looking at what are the underlying constructs, cognitive processes, and biological processes that differentiate potential sub-groups of people who engage in NSSI. As an example, Klonsky & Olino (2008) wanted to examine how different manifestations of NSSI appear to be linked with different psychiatric profiles. In their study, the researchers examined a group of people who engage in NSSI using latent class analysis to determine if there were sub-groups of individuals who engage in NSSI. Their findings identified four sub-groups of people who engage in NSSI, derived from derived from 205 college students out of 815 who had endorsed NSSI in a mass screening given to introductory psychology undergraduates. Two sub-groups were particularly salient, the first included individuals with moderate-high probabilities of engaging in numerous forms of NSSI with high levels of both socially reinforcing and automatically reinforcing functions, characterized by high anxiety. The other group included people who had a high probability of cutting; high levels for automatically reinforcing functions of NSSI; and, these individuals also tended to self-

injure alone unlike the other group. This study indicates that even within individuals who engage in

NSSI, there is heterogeneity in terms of function, method, and context. Furthermore, these two

groups had higher levels of psychopathology, were more likely to have a history of suicide

attempts/ideation, and required more aggressive treatment (Klonsky & Olino, 2008).

CHAPTER 2

Literature Review

Models of Non-Suicidal Self-Injury (NSSI)

To fully understand NSSI requires a framework to explain how people start harming themselves, the functions of NSSI, and factors related to NSSI. Currently, two complementary models exist to explain NSSI. First, Nock's (2009) Integrated Theoretical Model of NSSI provides an overarching framework in understanding NSSI based on distal risk factors creating inter- and intra-personal vulnerabilities, which predispose a person to respond to stressful events in a maladaptive manner. Within this framework, four main functions of NSSI exist: intrapersonal negative reinforcement, intrapersonal positive reinforcement, interpersonal negative reinforcement, and interpersonal positive reinforcement.

Within Nock's (2009) Model, distal factors such as childhood abuse, hostile family environment, and a genetic predisposition for high emotional/cognitive reactivity engender NSSI-specific inter- and intra-personal vulnerabilities (Nock, 2009). When a person experiences a stressful event, such as a breakdown in a relationship, the individual may choose to engage in NSSI. While the mechanism underlying this choice is unknown, and might be different for sub-groups of NSSI, affect regulation is reported to be a key factor in deciding to engage in NSSI (Nock, 2009). However, the exact nature of how this produces affect regulation is unclear (Nock, 2009). A closer examination of the functions of NSSI is provided in the next section. The final part of Nock's model is that after the person engages in NSSI, the behaviour is reinforced if it has achieved its function. Nock (2009) covers several popular hypotheses for the potential cause and maintenance of NSSI, but the number of

potential reasons for NSSI suggest that no single hypothesis will apply to every person who self-harms. A closer look at how people start to self-injure is provided after a review of the functions of NSSI.

The second model, Chapman et al.'s (2006) Experiential Avoidance Model (or EAM) can be viewed as a focused explanation of the negatively reinforcing inter- and intra-personal functions of NSSI. In a sense, the EAM attempts to explain the reinforcing effect of NSSI. Within this model, the focus is on the reduction of unpleasant internal experiences, whereby NSSI is negatively reinforcing due to its powerful ability to terminate these aversive internal states. Thus, underlying both Nock's (2009) model and Chapman and colleagues' model, is the theory that NSSI's general function is to help people manage their response to aversive emotional states. Per the EAM, a stimulus generates an emotional response, which interacts with inter- and intrapersonal factors to incentivize avoidance behaviours, which leads to self-harm. NSSI is maintained through the negatively reinforcing effects of the behaviour, whereby a reduction in the intensity of or escape from the unwanted emotional arousal is experienced. In other words, a person is experiencing basic escape conditioning when they engage in NSSI. Over time, the negative reinforcement, habituation to the negative effects of NSSI (such as pain or scarring), and rule-governed behaviour ("I am upset, therefore I must self-harm"), exacerbate the cycle. This leads to NSSI becoming an automatic, conditioned response to aversive emotional arousal.

Functions of Non-Suicidal Self-Injury

Klonsky (2007), in a review on the functions of NSSI, looked at 18 studies examining the functions of NSSI based on self-report, phenomenological reports, and lab-based measures. The researcher found that the functions receiving the most attention were affect regulation, self-punishment, anti-dissociation/feeling generation, and interpersonal influence. However, the strongest

support was for affect regulation, with self-punishment being second. A more recent review of the

functions of NSSI also indicates the primacy of affect regulation in the behaviour (You et al., 2018).

The function of NSSI for affect regulation is to alleviate intense, overwhelming negative emotions,

and is endorsed by both adults and adolescents, clinical or non-clinical (Klonsky, 2007). The function

of NSSI for self-punishment reasons is that NSSI is an expression of anger or hatred towards the self

and is thought to provide relief in that moment (Klonsky, 2007; Klonsky & Muehlenkamp, 2007).

These functions closely mirror the functions of NSSI implicitly in both Nock's model and Chapman

et al.'s model. In fact, Chapman et al. (2006) go as far as to suggest that affect regulation is the primary

function of NSSI, with all other functions being subsumed under this over-arching function. Further,

NSSI may serve multiple functions for individuals; they are not mutually exclusive. For example, a

person experiences acute negative affect prior to the NSSI episode. After the person engages in NSSI,

they experience decreased negative affect. The reduction of this negative affect is one of the key reasons

why someone would use NSSI. However, this process does not explain why people first begin using

NSSI as a method for regulating their affective experiences.

How People Start Engaging in Non-Suicidal Self-Injury

In Nock's (2009) and Chapman et al.'s (2006) models, an emphasis is placed on the person

having underlying vulnerabilities to highly aversive emotions and thoughts, in addition to poor distress

tolerance or emotion regulation. Thus, when a person experiences these aversive states, there is an

incentive to avoid the experience. Through self-harm, a person is employing a form of experiential

avoidance to gain temporary relief from their negative experience. This stress response combines with

NSSI-specific vulnerabilities that increase the likelihood that the person begins to engage in NSSI. Of

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course, NSSI is then strengthened through the reinforcing effects it has in achieving this function. Over time, the person starts turning to this behaviour more automatically when faced with distressing internal states. Chapman et al. (2006) do not directly address why someone may begin engaging in NSSI; however, they consider NSSI to be subsumed under a larger category of experiential avoidance behaviours. Qualitative research on motivations and functions behind people using NSSI could help provide more clarity on this matter (for example, see: Rosenrot & Lewis, 2016; Weiner, 2016). Chapman et al.'s (2006) focus is placed more on what predisposes someone to using experientially avoidant behaviours as a way to more generally regulate their experience. Nock (2009), however, posits six NSSI-specific factors that may increase the probability of someone engaging in NSSI: social learning, self-punishment, social signaling, pragmatism, pain analgesia, and implicit identification. It is possible these factors are implicitly represented or considered in the EAM. It should be noted that one or a combination of Nock's six factors could increase the likelihood of NSSI. That is, the factors are not explicitly causal agents, but rather they increase the risk of starting to self-harm.

Nock (2009) hypothesizes that social learning plays a key role in influencing someone's decision to use NSSI to regulate their affective experiences. For example, a person may decide to try NSSI because they have seen friends engage in the behaviour, or learned about NSSI through the media (e.g., Radovic & Hasking, 2013). Self-punishment motivations may influence a person towards NSSI because the self-harm acts as a proxy for "self-directed abuse learned via repeated abuse or criticism by others" (Nock, 2009, p. 80). In fact, Glassman et al. (2007) found that self-criticism mediated the relation between childhood abuse and NSSI. A third factor influencing the use of NSSI is social signaling. In this case, a person has developed in an invalidating environment, where they have

learned that normal ways of communicating distress are not well received. Thus, the person escalates to NSSI to communicate the severity of their distress (Nock, 2008). The fourth factor, or pragmatic hypothesis, states that people use NSSI because it is fast and easily accessible, particularly when other forms of coping (e.g., alcohol and drugs) are not easily obtained. The fifth factor, pain analgesia was developed from research findings that a significant majority of individuals who engage in NSSI report that they do not feel pain when engaging in the act and appear to have higher pain thresholds than those who do not self-injure (Glenn et al., 2014). The final factor, implicit identification, is the idea that a person comes to identify as, for example, a 'cutter.' Not only is this implicit identification believed to be indicative of more severe pathology (Muehlenkamp, 2005), but Nock (2009) suggests it leads the person to select NSSI over other behaviours in terms of distress. In other words, a person who views themselves as a 'cutter' and engages in cutting, because that is what they do to regulate emotions.

Distal and Proximal Factors for Non-Suicidal Self-Injury

With an understanding of the functions of NSSI and NSSI-specific vulnerability factors, we can shift our focus to general risk factors for NSSI. Nock (2009) talks about distal factors, and intra- and interpersonal factors, and Chapman et al. (2006) looks at factors that influence experiential avoidance tendencies. These factors can be grouped into three main, potentially overlapping categories: childhood abuse (distal factor), emotional factors (proximal factor), and psychological factors (proximal factor). However, a few words of caution are warranted given the nature of these research findings. The clear majority of the research in this area has been cross-sectional, with only a handful of studies using longitudinal designs (Fliege et al., 2009; Wilcox et al., 2012). In addition, there is a heavy reliance on retrospective self-report, which may introduce bias into the literature findings.

As such, the literature available on risk factors or correlates needs to be evaluated within the context of these limitations.

Childhood abuse, particularly sexual abuse, is one of the most consistent findings in studies looking at the risk factors and/or correlates of NSSI (Nock, 2009; Fliege et al., 2009; Xavier, Cunha, & Gouveia, 2015). Within Nock's (2009) model, childhood abuse is considered a distal risk factor because it may have an indirect effect on NSSI. Furthermore, per Nock (2009), because childhood abuse—along with predispositions for high emotional and cognitive reactivity—is a risk factor in general for psychopathology, the connection between NSSI and psychological disorders can be attributed to the fact that they share similar risk trajectories. What this may indicate, then, is that NSSI is a unique behaviour and not the symptom of any particular mental health or personality disorder. Additionally, controlling for emotional reactivity removes the association between NSSI and childhood abuse (Weierich & Nock, 2008), and psychological disorders (Nock et al., 2008), gives further evidence that childhood abuse does not *cause* NSSI, per se. Rather, an interaction between the distal factors and proximal factors is likely to increase the likelihood of NSSI (Fliege et al., 2009).

In terms of emotional factors implicated in NSSI, researchers have found consistent evidence for the role of alexithymia or the difficulty in identifying and describing emotions, in addition to issues with expressing emotions (Garsich & Wilson, 2015; Gratz, 2006; Fliege et al., 2009). Researchers have also found that people engaging in NSSI tend to have higher levels of negative emotionality (Brown, Williams, & Collins, 2007; Chapman et al., 2006; Xavier et al., 2015). Finally, researchers have noted that people engaging in NSSI have higher levels of emotion dysregulation and poor distress tolerance compared to those not engaging in NSSI (Chapman et al., 2006; Gratz & Roemer, 2008; Perez, Venta,

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Garnaat, & Sharpt, 2012). In fact, Perez et al. (2012) found that the limited access to emotion regulation strategies was the only subscale of the DERS that accounted for a significant variance in NSSI after controlling for other aspects of emotion dysregulation, gender, and psychopathology. Taken together, the research on the emotional factors related to NSSI provides support for both Nock's (2009) model and Chapman et al.'s (2006) model. Specifically, individuals engaging in NSSI typically have an intensive emotional landscape, combined with an inability to identify and express emotions (which, in theory, is required to select an effective coping strategy). This emotional intensity interacts with an individual's poor/limited emotion regulation skills, thereby increasing the probability of the person using NSSI when faced with a stressful situation.

In further support of the two models of NSSI, several theoretically relevant psychological factors/correlates for NSSI have also been identified in the research literature. Fliege et al. (2009), in their systematic review on the correlates of NSSI, found strong support for an association between NSSI and depression, anxiety, and aggression across numerous studies. Similarly, Klonsky, Oltmanns, and Turkheimer (2003) found that in their sample of military recruits, participants with a history of NSSI scored higher on self- and peer-report measures of personality disorder symptoms, including borderline, dependent, schizotypal, and avoidant personality, in addition to higher levels of depression and anxiety. Brown (2009) found that in college students, those with a history of NSSI had higher levels of neuroticism and openness to experience, with lower levels of agreeableness and conscientiousness, compared to people with no history of NSSI. Fliege et al. (2009) also found support across several studies for an association between dissociative experiences and NSSI. Additionally, as

previously discussed, self-blame or self-derogation has been linked to NSSI (Glassman et al., 2007; Klonsky et al., 2003; Fliege et al., 2009).

There is also evidence for the role of impulsivity and NSSI. Specifically, Hamza, Willoughby, and Heffer (2015) found in their meta-analysis of 27 studies that people who engage in NSSI have higher self-reported levels of impulsivity. While Hamza et al.'s (2015) review found that this association held across different types of impulsivity self-reports (e.g., UPPS and BIS), inconsistent findings were found for lab-based measures. The researchers go on to note that this inconsistency could be related to non-ecologically valid measures of impulsivity for people engaging in NSSI. Specifically, they suggest that this inconsistency might be related to impulsivity being linked to emotionally charged situations. Unfortunately, there has been a lack of research has examining how people who engage in NSSI might perform on lab-based measures of impulsivity after an emotional manipulation task.

Two other psychological factors are worth mentioning that are not addressed in either the model of NSSI: self-compassion and mindfulness. Although the evidence is preliminary, there is a reason to expect that these constructs may interact with NSSI and may act as protective factors against NSSI (Dixon-Gordon et al., 2014; Dobbins, 2014; Lundh, Karim, & Quilisch, 2007; Xavier et al., 2015). Neff (2003) defines self-compassion as comprising self-kindness or being kind to oneself in times of pain or failure; common humanity, which involves the perceiving of one's experiences as part of the larger human experience; and, mindfulness, which involves being aware of painful thoughts and emotions without over-identifying with them. In theory, if a person is compassionate towards themselves, the act of NSSI would be antithetical to this position. In support of this, Xavier et al.

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(2015) found in their study of NSSI in adolescents that fear of compassion for the self was related to NSSI. In addition, Xavier, Pinto-Gouveia, and Cunha (2016) found that self-compassion was a protective factor against NSSI through a moderation effect on depressive symptoms in their study examining NSSI in adolescents. In line with the role that mindfulness plays in self-compassion, Dobbins (2014) in their dissertation found a significant correlation between NSSI and two facets of mindfulness: acting with awareness and non-judging of inner experience. Finally, Dixon-Gordon et al. (2014) examined the role of executive attention in relation to NSSI. They found that NSSI was significantly related to deficits in executive attentional networks, but not alerting or orientation networks. This is noteworthy because research suggests that meditation differentially improves executive functioning by favouring the executive attentional network (Chan & Woollacott, 2007; Tang, Hölzel, & Posner, 2015). These preliminary connections of self-compassion and mindfulness to the risk factors/correlates discussed would suggest that mindfulness and improving a person's sense of self-compassion could be one method of intervention to use with people who engage in NSSI.

The Current Study

My review of the literature supports the assumption that the heterogeneity seen in the descriptive, contextual, and functional aspects of NSSI suggests potentially meaningful ways of grouping people who engage in the behaviour based on these aspects. This heterogeneity would suggest that people engaging in NSSI do not form a single homogenous population all engaging in the behaviour in the same way or for the same reason. Furthermore, the literature also provides consistent support for several correlates of NSSI, indicating that the majority of individuals are prone to negative emotionality, poor distress tolerance, and psychological distress. However, the number of correlates

implicated with NSSI creates several problems for researchers interested in studying this behaviour. In addition, the inter-correlated nature of the constructs makes it difficult to know which have the largest effect on non-suicidal self-injury. Furthering our understanding of the constructs most central to NSSI can help researchers and clinicians: 1) identify sub-groups most at risk for this behaviour; 2) identify sub-groups currently engaging in this behaviour; and/or 3) wanting to target certain constructs within groupings to improve outcomes for these individuals. This, of course, raises the two-part research question of what correlates are most important for group separation in NSSI, and, what correlates are most important for predicting NSSI group membership?

Initially, the proposed study was designed to carry out a cluster analysis to explore potential sub-groups of NSSI and how they are separated. However, given the sample size requirements of representativeness for cluster analysis (Hair et al., 2010) in conjunction with a potentially lower prevalence rate of NSSI (<5%), an alternative analysis plan was considered involving discriminant function analysis. This analysis could be useful because it still allows an analysis of how groups are separated based on a linear combination of variables (Green & Salkind, 2014; Tabachnick & Fidell, 2013). These linear combinations are conceptualized as representing underlying latent constructs. Thus, discriminant function analysis is able to address the research question of how sub-groups of NSSI are best separated on a subset of theoretically-relevant variables. However, unlike cluster analysis, where group membership is determined in an exploratory bottom-up approach (Hair et al., 2010), discriminant function analysis grouping is top-down (Tabachnick & Fidell, 2013). In other words, group membership is already known or assigned by the researcher. For the present study, groupings of *No NSSI, NSSI-Distal*, and *NSSI-Proximal* based on responses to the DSHI question asking when the

last NSSI episode happened. Participants would be placed into *NSSI-Distal* if they reported no NSSI

episode in the past year; whereas, *NSSI-Proximal* was based on if they reported an NSSI episode in the

past year. This analysis allowed for an examination of how these groups of individuals are best

separated on the subset of theoretically relevant variables, while still providing adequate sample sizes

for the groups. Although discriminant function analysis might not provide the same information as

cluster analysis, an exploration of how basic sub-groups of NSSI are best separated is still possible

(Huberty & Olejink, 2006).

Due to issues meeting the sample size assumption of representativeness for cluster analysis, the

following hypotheses and data analysis are based on the alternative data analysis strategy. Thus, for the

current study, the following exploratory hypotheses were examined:

Hypothesis 1A: The NSSI-Proximal group can be reliably separated from NSSI-Distal group

and No NSSI group based on a linear combination of the theoretically-relevant variables.

Hypothesis 1B: Self-compassion and mindfulness will have a significant relation to the linear

discriminant function (LDF) separating the three groups.

Hypothesis 2A: NSSI group membership can be accurately predicted (better than chance)

using a linear combination of the theoretically relevant variables providing group separation.

Hypothesis 2B: Self-compassion and mindfulness will make a significant contribution to

classification after controlling for other theoretically relevant variables.

The present study used descriptive discriminant analysis to address the first set of research

hypotheses. Predictive discriminant analysis was used to address the second set of research hypotheses.

It is hoped that the results of the study can be used to guide future research on identifying sub-

populations of NSSI, and on how to best improve treatment for people at risk for or already engaging

in NSSI.

CHAPTER 3

Method

Participants

Participants for the study were recruited from the Department of Psychology's Participant

Pool, with recruitment for the study running concurrently with data collection. The study began in

September 2017 and data collection concluded in April 2018. Recruitment was open to all University

of Windsor students eligible for the Participant Pool, with the only requirement being that the person

was fluent in English, as all measures in the test battery were in English. Due to concerns about self-

selection bias the study was advertised as looking at student's personality, coping behaviours, and their

stress. Initially, the sample size of 300 was selected based on the intention of conducting a cluster

analysis and its sample size assumption (Hair et al., 2010). However, given the potentially low

prevalence rate of NSSI identified in the literature review (<4 -14%), participants were over-sampled to

ensure a sufficient number of people with a history of NSSI were recruited and for any missing/invalid

data. Therefore, in total, 314 participants were recruited for the study. Concerns about sample size and

the representativeness of the derived clusters remained at the end of data collection, necessitating a

switch in the original data analysis plan. Thus, I decided that a discriminant function analysis would

provide comparable, albeit less distinct, group separation on the theoretically relevant variables

(Huberty & Olejink, 2006). Given this change, to ensure any potential analysis would be powerful

enough to detect an effect, I calculated the *post hoc* power of the analysis using G*Power 3, which

indicated that a final sample size of 277, with Cohen's $f^2 = .23$, and $\alpha = .05$, was over-powered, $(1 - \beta)$

= 1. However, given that the effect sizes were in the medium-range, the subsequent findings do appear to be both statistically and clinically significant.

Procedure

After receiving study approval from the University of Windsor Research Ethics Board, potential participants could access the study via the Department of Psychology's Participant Pool website. Once this was completed, potential participants came to a shared lab space at the University of Windsor campus to complete the informed consent process. This process started with the students being provided the letter of consent to review (see Appendix A). I reviewed the consent form with the participants to ensure they understood their research rights as outlined by the TCPS-2. Participants were given an opportunity to ask any questions about the informed consent letter or research project before they began the test battery on one of four iPads. Participants were also provided a letter of information and a list of on-campus mental health resources. Once participants started the test battery on their iPad, they would reach a point in the survey where I would administer the computerized NIH Flanker Task. After completing the NIH Flanker Task, participants were brought back to the survey and completed the rest of the test battery. Participants were compensated for their time with 2.5 points credited to their Participant Pool account which provides bonus credit in participating Psychology courses.

The test battery, comprised of a series of questionnaires and a behavioural measure of impulsivity, was hosted on Qualtrics and presented to participants in a randomized order (except the demographics form). The series of questionnaires participants were asked to complete are described below.

Measures

Demographics questionnaire. Demographic information was collected for all participants,

including: age, gender, race/ethnicity, marital status, year of study and faculty, employment status,

current residence, GPA, and meditation experience. These data were used to describe the sample.

Deliberate Self-Harm Inventory (DSHI: Gratz, 2001). Participants completed the

Deliberate Self-Harm Inventory, which is a 16-item, behaviour-based self-report measure of NSSI. For

each item on this measure, the participant is asked if they have ever carried out the specific behaviour

(yes/no). If the participant endorses the item, the survey then asks directed questions about the

behaviour, such as "*How many times have you done this?*" or "*When was the last time you did this?*" In

the present study, the DSHI demonstrated good reliability (α = .76). For this study, participant

responses on the DSHI were used to categorize people into 'No NSSI History' (70% of the sample),

'NSSI-Distal (16% of the sample), and 'NSSI-Proximal' (14% of the sample) groupings.

Inventory of Statements About Self-Injury (ISAS: Klonsky & Glenn, 2009). To

complement the information from the DSHI, participants also answered questions about the

functions behind any reported self-harm. The ISAS is a two-part inventory, which assesses the

descriptive and functional features behind a person's self-harm. The second part, used in the present

study, assesses 13 functions of NSSI commonly endorsed by people. The ISAS was used in the present

study to provide functional information about participant's self-reported history with NSSI. For the

current study, internal consistencies for the 13 functions of NSSI ranged from α = .68 (Sensation

Seeking) to α = .89 (Anti-Suicide), demonstrating acceptable to excellent reliability.

Risk Taking-18 Questionnaire (RT-18: de Haan et al., 2011). The RT-18 was used to

assess the general risk-taking behaviours of the participants. The RT-18, is an 18-item, yes/no

questionnaire, which asks questions like "*I often do things on impulse*" or "*I like 'wild' uninhibited*

parties." This questionnaire was developed to assess risk-taking behaviour in adults and has a two-

factor structure: 1) level of risk-taking and 2) risk assessment. The RT-18 is scored by summing the

responses to the items and creating a total score, with higher scores reflecting more levels of risk-taking

or risk assessment, respectively. For the current study, the RT-18 Behaviour sub-scale had an α = .82,

while the RT18-Assessment sub-scale had an α= .77, both indicating an acceptable level of reliability.

Descriptive statistics for the RT-18 are summarized in Table 1.

Difficulty in Emotion Regulation Scale-18 (DERS-18: Victor & Klonsky, 2016). The

DERS-18 is a modified version of the original Difficulty in Emotion Regulation Scale (DERS: Gratz

& Roemer, 2004), which is designed to assess clinically relevant difficulties in emotion regulation. The

DERS-18 is composed of the strongest items from each of the DERS original six subscales: awareness

of one's emotions; clarity about one's emotions; acceptance of one's emotions; access to effect emotion

regulation strategies; ability to engage in goal-directed behaviour during negative emotions; and ability

to manage one's impulses during negative emotions. The DERS-18 uses a Likert-like scale ranging

from 1 (*Almost never*) to 5 (*Almost always*). An example item from the scale is "*When I am upset, I*

believe that I will remain that way for a long time." An administrative error lead to the last item being

inadvertently left out of the survey. Thus, the total DERS score was calculated by summing the scores

for the remaining 17 items, with higher scores reflecting more difficulties in emotion regulation.

Although I used a slightly modified version of the DERS-18, due to item 18 being inadvertently left

out of the online survey, the measure based on 17 items still displayed excellent reliability at the total

scale level ($\alpha = .91$). Descriptive statistics for the DERS-18 are summarized in Table 1.

Toronto Alexithymia Scale-20 (TAS-20: Bagby, Taylor, & Parker, 1994). Participants'

level of Alexithymia was measured with the TAS-20, which is a 20-item scale measuring three aspects

of alexithymia: difficulty identifying feelings, difficulty describing feelings, and externally-oriented

thinking. The TAS-20 uses a Likert response scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly*

Agree). An example of an item from the TAS-20 is "*I am often confused about what emotion I am*

feeling." A total score was calculated by summing responses across the 20-items, with higher scores

reflecting more issues in identifying or describing emotions. In the present study, the TAS-20

reliability was acceptable ($\alpha = .74$). Descriptive statistics for the TAS-20 are summarized in Table 1.

Positive and Negative Affect Scale (PANAS: Watson, Clark, & Tellegen, 1988). The

PANAS is a 20-item self-report questionnaire designed to assess two higher-order valence states of

Positive Affect (PA) (e.g., "*strong*", "*inspired*") and Negative Affect (NA) (e.g., "*afraid*", "*nervous*").

The PANAS is rated on a scale ranging from 1 (*Very slightly or not at all*) to 5 (*Extremely*). The PA

and NA scales of the PANAS are scored by summing a participant's responses to the PA and NA

items, with higher scores reflecting greater levels of PA or NA. In the current study, both Positive

Affect (α = .91) and Negative Affect (α = .89) had excellent reliability. Descriptive statistics for the

PANAS are summarized in Table 1.

UPPS-P Impulsive Behaviour (UPPS-P: Lynam, Smith, Whiteside, & Cyders, 2006).

Participants' self-reported impulsivity was measured with the UPPS-P, which is a revised version of the

UPPS Impulsive Behavior scale (Whiteside & Lynam, 2001). The UPPS-P assesses positive urgency

(Cyders, Smith, Spillane, Fischer, Annus, & Peterson, 2007) in addition to the four pathways assessed

in the original version of the scale: Negative Urgency, (lack of) Premeditation, (lack of) Perseverance,

and Sensation-Seeking. The scale response format ranges from 1 (*Agree Strongly*) to 4 (*Disagree*

Strongly). *Negative urgency* refers to a person's tendency to engage in impulsive behaviour under

conditions of negative affect. *Positive urgency* refers to a person's tendency to engage in impulsive

behaviour under conditions of positive affect. *Premeditation* refers to a person's difficulty in thinking

or reflecting upon the consequences of an action before they carry out the action. *Perseverance* refers

to a person's inability to remain focused on tasks that are boring or difficult. Finally, *sensation-seeking*

refers to a person's tendency to enjoy and pursue exciting activities. In the current study, α coefficients

ranged from .83 (Perseverance) to .95 (Positive Urgency), representing good to excellent reliability.

Descriptive statistics for the UPPS-P are summarized in Table 1.

NIH Flanker Inhibitory Control and Attention Test. Participants' executive function

and attention were assessed using the NIH's Flanker Task, which is conducted on an iPad. In this task,

participants "indicate the left-right orientation of a centrally presented stimulus while inhibiting

attention to the potentially incongruent stimuli that surround it" (Zelazo et al., 2015, p. 4). On some

trials, the orientation of the flanking stimuli is congruent with the central stimulus, while the flanking

stimuli are incongruent on other trials. It is thought that performance on the incongruent trials

provides a measure of inhibitory control. The NIH Flanker Task has been demonstrated to have good

validity and excellent test-retest reliability (Zelazo et al., 2015). A demonstration of this task is available

at: http://www.healthmeasures.net/explore-measurement-systems/nih-toolbox/intro-to-nih-

toolbox/cognition. Age-corrected descriptive statistics for the NIH-Flanker Inhibitory Control and

Attention Test are summarized in Table 1.

Mindful Attention Awareness Scale (MAAS: Brown & Ryan, 2003). The MAAS was designed to assess individual differences in mindful states over time or dispositional mindfulness. The MAAS is a 15-item questionnaire rated on a six-point Likert scale from 1 (*Almost Always*) to 6 (*Almost Never*). An example of an item is "*I find it difficult to stay focused on what's happening in the present.*" Higher scores on the MAAS indicate higher levels of mindfulness. In the present study, the MAAS demonstrated excellent reliability ($\alpha = .90$). Descriptive statistics for the MAAS are summarized in Table 1.

Patient Health Questionnaire-9 (PHQ-9: Kroenke & Spitzer, 2002). Participants' level of depression was measured with the PHQ-9. This is a 9-item self-report questionnaire based on the nine criteria used in the DSM-IV to diagnose depressive disorders. The PHQ-9 uses a Likert-type scale ranging from 0 (*Not At All*) to 3 (*Nearly Every Day*) to measure participant's experiences with symptoms of depression (e.g., "*Feeling down, depressed, or hopeless.*"). In the present study, the PHQ-9 demonstrated excellent reliability ($\alpha = .88$). Descriptive statistics for the PHQ-9 are summarized in Table 1.

Generalized Anxiety Disorder-7 (GAD-7: Spitzer, Kroenke, Williams, & Lōwe, 2006). Participants' level of general anxiety and worry was measured with the GAD-7. This 7-item self-report questionnaire uses a Likert-type scale ranging from 0 (*Not at all*) to 3 (*Nearly every day*) and assesses a

person's experiences with several manifestations of general anxiety and worry (e.g., "*Feeling nervous,*

anxious, or on edge?"). The GAD-7 had excellent reliability in the current study (α = .89). Descriptive

statistics for the GAD-7 are summarized in Table 1.

Perceived Stress Scale (PSS: Cohen, Karmarck, & Mermelstein, 1983). Participants'

perceived level of stress was measured with the PSS. This is a 14-item questionnaire design to measure

the degree to which situations in a person's life are viewed as stressful. The PSS uses a 5-point Likert-

type scale ranging from 0 (*Never*) to 4 (*Very Often*) to assess the appraisal of stress in life events (e.g.,

"*In the last month, how often have you felt confident about your ability to handle your personal*

problems?"). In the current study, the scale had questionable reliability for the sample (α = .66).

Descriptive statistics for the PSS are summarized in Table 1.

Big Five Inventory (BFI: John, Donahue, & Kentle, 1991). Participants' Big Five

personality dimensions were measured using the BFI. The BFI consists of 44-items tapping into the

traits defining each of the Big Five dimensions: Agreeableness, Conscientiousness, Extraversion,

Openness to Experience, and Neuroticism. The BFI has been shown to have good internal

consistency, test-retest reliability, and good validity. BFI items are rated on a 5-point scale ranging from

1 (*Disagree strongly*) to 5 (*Agree strongly*) (John & Srivastava, 1999). An example item is "*I am someone*

who tends to be disorganized." In the current study, reliability coefficients ranged from .70 (Openness

to experience) to .86 (Extraversion), representing a range of acceptable to excellent reliability.

Descriptive statistics for the BFI are summarized in Table 1.

Connor-Davidson Resilience Scale 25 (CD-RISC-25: Connor & Davidson, 2003).

Participants' ability to cope with stress, or resilience, was measured with the CD-RISC. This measure

is a 25-item self-report questionnaire, with each item rated on a 5-point scale ranging from 0 (*Not true*

at all) to 4 (*True nearly all the time*). An example item is "*I am not easily discouraged by failure.*" A

total score is calculated by summing across the items, with higher scores reflecting greater resilience or

ability to thrive in the face of adversity (Connor & Davidson, 2003). The CD-RISC-25 is

recommended for use in studies where a researcher is looking at adaptive and maladaptive coping

strategies for stress. For the current study, the CD-RISC-25 showed excellent reliability ($\alpha = .90$).

Descriptive statistics for the CD-RISC-25 are summarized in Table 1.

The Social Provisions Scale (SPS: Cutrona & Russell, 1987). Participants' perceived levels

of social support was assessed using the SPS. The SPS is a 24-item scale composed of six domains,

which reflect what individuals receive from other people as part of an interpersonal relationship. The

six domains include guidance (advice or information), reliable alliance (assurance that others can be

counted on in times of stress), reassurance of worth (recognition of one's competence), attachment

(emotional closeness), social integration (a sense of belonging to a group of friends), and opportunity

for nurturance (providing assistance to others). The SPS uses a Likert scale ranging from 1 (*Strongly Disagree*) to 4 (*Strongly Agree*). An example item is "*I have close relationships that make me feel good.*" A total score is achieved by summing the item responses, with higher scores reflecting higher levels of perceived social support. For the current study, the SPS showed excellent reliability (α = .92). Descriptive statistics for the SPS are summarized in Table 1.

Inventory of College Students' Recent Life Experiences (ICSRLE: Kohn, Lafreniere, & Gurevich, 1990). Participants' recent stressful life events were measured with the ICSRLE. This measure contains 49-items, which are rated on a 4-point scale ranging from 1 (*Not at all part of my life*) to 4 (*Very much part of my life*) and cover a variety of stressful experiences students may have faced in the previous month. An example item is "*Having your trust betrayed by a friend,*" or "*Having your contributions overlooked.*" In the present study, the measure had excellent reliability (α = .92). Descriptive statistics for the ICSRLE are summarized in Table 1.

Self-Compassion Scale Short-Form (SCS-SF: Raes, Pommier, Neff, & Gucht, 2011). Participants' perceived sense of self-compassion was measured with the SCS-SF. The SCS-SF is a 12-item self-report questionnaire, rated on a scale ranging from 1 (*Almost never*) to 5 (*Almost always*), designed to assess the psychological construct of self-compassion (Raes, Pommier, Neff, & Gucht, 2011). The SCS-SF is scored by first reverse-scoring a participant's responses to negative items (e.g.,

"*When I fail at something important to me I become consumed by feelings of inadequacy*"). Then, the

negative items are summed with positive items (e.g., "*I try to be understanding and patient towards*

those aspects of my personality I don't like") for a final score. Higher scores on the SCS-SF reflect higher

levels of self-compassion. For the current study, the scale showed good reliability ($\alpha = .85$). Descriptive

statistics for the SCS-SF are summarized in Table 1.

      Validity Questions. To ensure that participants are paying attention during the completion

of the survey battery, I included two validity items per measure. These items simply tell the

participant, if paying attention, how to answer the question. For example, on the DERS-18, one

question will be "*When reading this question, I will respond with 'About Half the Time.'*" If

participants failed 2+ validity indicator pairings, their data would be excluded from subsequent

analysis.

CHAPTER 4

Results

Data Screening

  Data Integrity & Validity. Prior to the completion of data collection, one participant who

had completed the study asked to have their data withdrawn. Thus, the sample size for the initial data

integrity and validity checks involved 313 participants. The first step in screening the dataset involved

a review of the time to completion and embedded validity questions. Participants who completed the

survey in less than 35-minutes and/or failed 2+ pairings of validity indicators were removed from

subsequent analysis. This initial screen indicated that 33 (10.54%) participants did not meet these basic

validity conditions. Their data was excluded from subsequent analysis, leaving 280 participants in the

sample to check necessary statistical assumptions for the intended discriminant analyses (Tabachnick

& Fidell, 2013). All data screening and assumptions were conducted at the grouped-level (Tabachnick

& Fidell, 2013). Participants were placed into three groups based on their history of NSSI: 1) No NSSI

($n = 194$); 2) NSSI-Distal ($n = 44$); and, 3) NSSI-Proximal ($n = 39$). Thus, the total lifetime prevalence

rate of any NSSI in the sample was 29.96%, while the past year incidence rate of any NSSI was slightly

lower at 14.08%.

  Univariate Outliers. Prior to screening for univariate outliers, I first examined the dataset to

ensure there were no clear errors in data entry, as well as checking that the measured variables had

plausible means and standard deviations. This was conducted for all variables in the dataset and not

just those used in the subsequent discriminant function analysis. Univariate outliers were assessed by

group and prior to multiple imputation (see next section), using a z-score of ±3, corresponding to $p <$

35

.001. There was a total of eight univariate outliers spread across the variables. Univariate outliers were handled with a Winsorizing procedure whereby the outlier was changed to be 1-unit below/above the next closest value, in order to maintain the rank-order of scores. For example, on the DERS-18, one participant in the 'No NSSI' group had a total score of 75 (the highest in the group), which was Winsorized to 71 (i.e., remaining the highest score).

Missing Data. For the No NSSI group, 48% of the variables had some form of incomplete data at the scale level, 26.80% of the participants had missing data in some form at the scale level, and 1.69% of values were missing at the data matrix level (McKnight, McKnight, Sidani, & Figueredo, 2007). There was an average of 6.39% missing data per incomplete case within this group. Little's MCAR test was significant, χ^2 (427) = 553.26, $p < .001$, suggesting a pattern to the missing data. The most common missing data pattern for this group involved missing data on the TAS-20, with 9.8% of people missing a scale score.

For the NSSI-Proximal group, 16% of the variables had missing data at the scale level, 10.26% of the participants had missing data at the scale level, and just 0.41% of values were missing at the data matrix level (McKnight et al., 2007). There was an average of 4.0% missing data per incomplete case within the NSSI-Proximal group. Little's MCAR test was non-significant, $p = .76$, indicating no clear pattern to the missing data.

For the NSSI-Distal group, 28% of the variables had missing data at the scale level, 20.45% of the participants had missing data in some form at the scale level, and 1.18% of the data was missing at the data matrix level (McKnight et al., 2007). There was an average of 5.77% missing data per

incomplete case within this group. Little's MCAR test was non-significant, $p = .35$, indicating no clear missing data pattern.

Overall, there was no clear missing-data mechanism influencing the data, suggesting that the data was missing at random (Enders, 2010; McKnight et al., 2007). Thus, I decided that multiple imputation at the scale level instead of item level was appropriate to replace any missing scale values (Enders, 2010; McKnight & McKnight, 2007). Multiple imputation is considered a gold standard technique to use when handling missing data and does not have the inherent issues/biases seen in other forms of imputation, such as mean substitution (Schafer & Graham, 2002). The imputation model used to predict the missing values included all relevant predictors in the dataset.

Multivariate Outliers. After imputation, I examined the dataset for any multivariate outliers using a Mahalanobis critical value $\chi^2 (25) = 52.620$, $p = .001$ (Tabachnick & Fidell, 2013). Results revealed that three participants in the No NSSI group were multivariate outliers. A stepwise regression was used to examine what caused these three participants to be multivariate outliers (Tabachnick & Fidell, 2013). One participant was an outlier based on a combination of their high scores on anxiety, depression, negative emotionality, impulsivity, perceived stress, and emotion regulation. A second participant was an outlier because they reported very high stress levels, but low anxiety and neuroticism, and high conscientiousness and positive emotionality. The third participant was an outlier because of their high extroversion and openness to experience, coupled with high dispositional mindfulness, but lower levels of perceived social support. The three multivariate outliers were removed from subsequent analysis.

Sample Characteristics

      No Self-Reported History of NSSI. Of the total sample, 194 (70%) participants reported no history of NSSI. These participants were, on average, 21.61 years old (*SD* = 5.85) and predominantly single (71%), white (52%), and women (82.5%). The majority of these participants tended to work part-time (67.5%) and live with their family (48.7%). The majority of participants endorsed majors within the Faculty of Arts, Humanities, and Social Sciences or FAHSS (55.7%) and were in their first (24.7%) or second year (27.3%) of study. Most participants tended to reported GPAs in the range of 70-80 (43.8%) and 80+ (34%). A Kruskal-Wallis one-way ANOVA was used to compare the groups on GPA and experience with mindfulness, with no significant differences found between the groups on these two variables, p = .53 and p = .80, respectively. In addition, a one-way ANOVA for age indicated no significant difference between groups, p = .33. Chi-squared tests were used to examine if/how groups differed on demographics. Results showed that the only significant association was between grouping and gender, χ^2 = 10.68, p = .03, with more people who identified as men belonging to the no NSSI group. See Table 2 for complete demographic information for all groups.

Table 1

Descriptive Statistics for Variables by Group

Variable	Grouping		
	No NSSI (*n* = 194)	NSSI-Distal (*n* = 44)	NSSI-Proximal (*n* = 39)
TAS-20	*M* = 46.59 [44.96, 48.21], *SD* = 11.47	M = 51.15 [47.43, 54.86], *SD* = 12.22	*M* = 53.48 [49.48, 57.49], *SD* = 12.36
CD-RISC-25	***M* = 71.82 [70.13, 73.51], *SD* = 11.93**	***M* = 68.64 [65.65, 71.63], *SD* = 9.83**	***M* = 56.19 [51.84, 60.54], *SD* = 13.41**
GAD-7	***M* = 8.08 [7.34, 8.83], *SD* = 5.25**	***M* = 10.50 [8.78, 12.22], *SD* = 5.64**	***M* = 12.74 [11.31, 14.18], *SD* = 4.44**
PHQ-9	***M* = 8.05 [7.25, 8.86], *SD* = 5.70**	***M* = 11.07 [8.99, 13.14], *SD* = 6.82**	***M* = 15.44 [13.65, 17.23], *SD* = 5.53**
NIH*	*M* = 108.10 [105.51, 110.70], *SD* = 18.31	*M* = 108.26 [102.18, 114.34], *SD* = 20.00	*M* = 106.52 [100.47, 112.57], *SD* = 18.66
SPS	*M* = 82.88 [81.68, 84.08], *SD* = 8.46	*M* = 80.74 [77.67, 83.81], *SD* = 10.09	*M* = 78.91 [75.98, 81.85], *SD* = 9.04
PANAS Pos	***M* = 34.40 [33.32, 35.48], *SD* = 7.63**	***M* = 31.39 [29.44, 33.33], *SD* = 6.40**	***M* = 26.31 [23.57, 29.04], *SD* = 8.43**
PANAS Neg	***M* = 21.61 [20.49, 22.72], *SD* = 7.88**	***M* = 24.53 [22.33, 26.73], *SD* = 7.24**	***M* = 27.67 [25.31, 30.02], *SD* = 7.26**
RT18 Behaviour	*M* = 13.35 [12.96, 13.73], *SD* = 2.71	*M* = 13.34 [12.64, 14.04], *SD* = 2.29	*M* = 14.25 [13.37, 15.13], *SD* = 2.71
RT18 Assessment	*M* = 15.45 [15.13, 15.77], *SD* = 2.29	*M* = 15.27 [14.58, 15.96], *SD* = 2.28	*M* = 14.82 [13.97, 15.68], *SD* = 2.64
BFIe	*M* = 3.25 [3.13, 3.36], *SD* = .83	*M* = 3.06 [2.82, 3.30], *SD* = .79	*M* = 2.74 [2.45, 3.04], *SD* = .90
BFIa	*M* = 4.01 [3.93, 4.10], *SD* = .60	*M* = 3.86 [3.72, 4.00], *SD* = .45	*M* = 3.88 [3.67, 4.09], *SD* = .65
BFIc	*M* = 3.71 [3.63, 3.80], *SD* = .60	*M* = 3.55 [3.35, 3.76], *SD* = .66	*M* = 3.38 [3.15, 3.60], *SD* = .69
BFIn	***M* = 3.01 [2.89, 3.21], *SD* = .81**	***M* = 3.43 [3.19, 3.67], *SD* = .80**	***M* = 4.06 [3.84, 4.28], *SD* = .68**
BFIo	*M* = 3.54 [3.46, 3.61], *SD* = .56	*M* = 3.61 [3.42, 3.80], *SD* = .62	*M* = 3.52 [3.33, 3.72], *SD* = .60
ICSRLE	***M* = 96.24 [93.37, 99.12], *SD* = 20.33**	***M* = 107.85 [102.31, 113.40], *SD* = 18.24**	***M* = 115.13 [109.46, 120.80], *SD* = 17.49**

Table 1

Descriptive Statistics for Variables by Group (Cont.)

	Grouping		
Variable	No NSSI (*n* = 194)	NSSI-Distal (*n* = 44)	NSSI-Proximal (*n* = 39)
SCS.SF	*M* = 36.94 [35.74 38.14], *SD* = 8.47	*M* = 33.02 [30.57, 35.47], SD = 8.06	*M* = 26.92 [24.83, 29.01], *SD* = 6.45
UPPS.P Neg-Urg	*M* = 23.38 [22.43, 24.32], *SD* = 6.56	*M* = 26.52 [24.58, 28.47], *SD* = 6.41	*M* = 29.95 [27.74, 32.15], *SD* = 6.80
UPPS.P Premed	M = 20.64 [19.86, 21.43], *SD* = 5.56	*M* = 21.02 [19.33, 22.71], *SD* = 5.56	*M* = 21.72 [19.95, 23.49], *SD* = 5.45
UPPS.P Persev	*M* = 18.75 [18.09, 19.40], *SD* = 4.62	*M* = 19.73 [18.28, 21.17], *SD* = 4.75	*M* = 22.03 [20.32, 23.73], *SD* = 5.26
UPPS.P Senseek	*M* = 31.42 [30.27, 32.56], *SD* = 8.08	*M* = 31.91 [29.77, 34.05], *SD* = 7.05	*M* = 29.10 [26.57, 31.64], *SD* = 7.82
UPPS.P PosUrg	*M* = 24.06 [22.85, 25.28], *SD* = 8.59	*M* = 26.09 [23.30, 28.88], *SD* = 9.18	*M* = 27.56 [24.41, 30.72], *SD* = 9.73
PSS Total	*M* = 20.79 [19.83, 21.75], *SD* = 6.76	*M* = 23.02 [20.93, 25.11], *SD* = 6.87	*M* = 23.90 [21.93, 25.87], *SD* = 6.07]
DERS-18	*M* = 36.87 [35.24, 38.50], *SD* = 11.53	*M* = 41.93 [38.17, 45.69], *SD* = 12.37	*M* = 49.69 [46.32, 53.07], *SD* = 10.42
MAAS	*M* = 4.11 [3.98, 4.23], *SD* = .86	*M* = 3.67 [3.39, 3.94], *SD* = .90	*M* = 3.36 [3.15, 3.58], *SD* = .67

Note. Bolded items were retained for interpretation in discriminant function analysis. TAS-20 = Toronto Alexithymia Scale; CD-RISC = Connor-Davidson Resilience Scale-25; GAD = Generalized Anxiety Disorder-7; PHQ-9 = Patient Health Questionnaire-9; NIH* = NIH Flanker Task Age Corrected Score; SPS = Social Provision Scale; PANAS-Pos = Positive and Negative Affective Scale Positive Emotions; PANAS-Neg = Positive and Negative Affective Scale Negative Emotions; RT18-Behaviour = Risk-Taking-18 Behaviour Scale; RT-18 Assessment = Risk-Taking-18 Assessment Scale; BFIe = Extraversion; BFIa = Agreeableness; BFIc = Conscientiousness; BFIn = Neuroticism; BFIo = Opennness to experience; ICSRLE = Inventory of College Student's Recent Life Experiences; SCS.SF = Self-Compassion Scale Short Form; UPPS.P Neg-Urg = Negative Urgency; UPPS.P-Premed = Premeditation; UPPS.P-Persev = Perseverance; UPPS.P Senseek = Sensation Seeking; UPPS.P PosUrg = Positive Urgency; PSS-Total = Perceived Stress Scale; DERS18 = Difficulty in Emotion Regulation Scale-18; MAAS = Mindful Attention and Awareness Scale.

Table 2

Sample Demographic Information by Frequency

	Grouping		
Variable	No NSSI (*n* = 194)	NSSI-Distal (*n* = 44)	NSSI-Proximal (*n* = 39)
Age, *M* (*SD*)	21.61 (5.85)	20.43 (1.89)	20.92 (2.91)
Gender			
Women	160	38	37
Men	34	5	1
Trans*	-	1	1
Ethnicity			
Indigenous	2	-	1
Asian or Asian (Non-Arab) descent	33	5	4
Hispanic/Latino	4	-	1
Non-Hispanic Black or African descent	14	4	1
Non-Hispanic White, Caucasian, or European descent	101	28	32
Arab or Middle-Eastern Descent	33	6	-
Other	7	1	-
Marital Status			
Single	138	29	19
Romantic Relationship	42	12	16
Married/Common Law	11	3	4
Divorced/separated and single	2	-	-
Divorced/separated and in a romantic relationship	1	-	-
Level of Employment			
Full-time (including volunteer work)	10	3	1
Part-time (including volunteer work)	131	30	27
Not currently employed or volunteering	53	11	10
Prefer not to answer	-	-	1

Table 2

Sample Demographic Information by Frequency Continued

	Grouping		
Variable	No NSSI (*n* = 194)	NSSI-Distal (*n* = 44)	NSSI-Proximal (*n* = 39)
Faculty			
Arts, Humanities, and Social Sciences	108	30	33
Science	33	8	3
Business Administration	18	4	-
Education	6	1	1
Engineering	3	-	-
Human Kinetics	16	-	-
Nursing	1	-	1
Inter-faculty program	9	1	1
GPA			
Below 60	3	1	-
60-70	33	9	11
70-80	85	21	11
80+	66	42	16
Prefer not to answer	7	2	1
Meditation experience			
No experience	100	20	15
Highly variable	35	13	17
3 or fewer times per week every week for 6 months	22	4	2
Less than 6 months of experience	6	2	-
3 or fewer times per week for more than 6 months	18	4	4
More than 6 months of experience	6	1	-
Prefer not to answer	7	-	1

NSSI-Distal Group Characteristics. For this group, 44 participants had a self-reported history of NSSI, but not within the past year. The participants were, on average, 20.43 years old (SD = 1.89) and were predominantly single (65.9%), white (63.6%), and women (86.4%). The majority of these participants tended to work part-time (68.2%) and live with their family (56.8%). The majority of participants were majors in FAHSS (68.2%) and were in their third (33.7%) or fourth year (21.7%). Participants tended to report GPA's in the range of 70-80 (38.6%) and 80+ (32.5%). See Table 2 for more demographic information.

Within this grouping, there was also heterogeneity in the forms of NSSI used, with the commonly endorsed form of NSSI for participants involving cutting (31%). The most commonly endorsed functions for NSSI, assessed through the ISAS, were affect regulation (M = 3.59, SD = 1.88) and self-punishment (M = 2.61, SD = 2.35).

NSSI-Proximal Group Characteristics. Within this group, 39 participants reported self-harm within the past year. The participants were, on average, 20.92 years old (SD = 2.91) and predominantly single (48.7%), white (82.1%), and women (94.9%). The majority of these participants tended to work part-time (69.2%) and live with their family (61.5%). The majority of participants were majors in FAHSS (84.6%) and were in their first year (25.6%) or third year (28.2%) of study. The majority (41%) reported a GPA of 80 or above. See Table 2 for additional demographic information.

Within this grouping, there was considerable heterogeneity in the forms of NSSI reported, but the most commonly reported form was cutting (30.8%). The most commonly endorsed functions for NSSI, assessed through the ISAS, were affect regulation (M = 4.18, SD = 1.71) and self-punishment (M = 3.95, SD = 2.09).

These initial descriptive findings are consistent with my review of the NSSI literature, which indicates that people use NSSI as a way to manage their emotional landscape and to punish themselves (Klonsky, 2007).

Assumptions

Descriptive discriminant function and predictive discriminant analysis have several statistical assumptions that should be met prior to conducting the analysis to increase confidence in the solution. In situations where the assumptions are violated, classification or inference could be biased (Huberty & Olejnik, 2006; Tabachnick & Fidell, 2013). First, in terms of sample size, unequal group sizes pose no special issue for a discriminant function; however, at the very least the sample size of the smallest group needs to exceed the number of predictor variables (Tabachnick & Fidell, 2013).

Next, univariate normality and multivariate normality were examined by group. To assess univariate normality, z-scores were derived for skewness and kurtosis by dividing these respective statistics by their standard error. These z-scores were compared against a cut-off value of ±3, corresponding to a $p < .001$. Thus, any variables with values outside this range would suggest potential issues with univariate normality (Tabachnick & Fidell, 2013). In addition, Q-Q plots were used to visually assess if the assumption for univariate normality was satisfied. Finally, Shapiro-Wilk tests for normality were examined to round-out this assumption. The results revealed that the PHQ-9, PANAS-Neg, RT18-Behaviour, RT18-Assessment, UPPS.P-PosUrg, PSS, and DERS18 had significant issues with skewness according to their z-score values. However, an examination of the Q-Q plots indicated that the data approximated a theoretical normal distribution. The Shapiro-Wilk tests also revealed issues with univariate normality; however, this test is sensitive to sample size and may not

be the best indication of normality when considered alone (Pituch & Stevens, 2016). In terms of

multivariate normality, there is no feasible way to test for normality of all linear combinations of

sampling distributions of means for the predictors (Tabachnick & Fidell, 2013). In general,

multivariate normality is inferred if univariate normality is achieved. Nevertheless, discriminant

analysis (like MANOVA) is robust to failures of normality if the violation is caused by skewness rather

than outliers (Tabachnick & Fidell, 2013). Because the data was screened for outliers and the issues

with normality are likely related to mild deviations in skewness, the analysis being conducted is likely

robust to a potential violation. In addition, central limits theorem indicates that the sampling

distribution of means for the variables approach a normal curve as sample size increases, which

underlies the assumption for normality (Tabachnick & Fidell, 2013). Finally, transforming the

variables would have fundamentally altered the interpretation of the constructs being examined

(Tabachnick & Fidell, 2013). As such, no transformations of variables were undertaken.

The next assumption assessed prior to analysis was linearity amongst the variables. An

examination of all possible bivariate combinations is not feasible. Thus, following advice from

Tabachnick & Fidell (2013), scatterplots were assessed by selecting variables most likely to fail this

check (e.g., variables with opposite skewness values). The results of this analysis indicated that the

assumption of linearity was satisfied as the combinations examined depicted clear linear/ellipsoid

patterns.

The next assumption examined was for the presence of multicollinearity or singularity

amongst the variables. An examination of the pooled within-group correlation matrix revealed no

correlations that were approaching 1. In addition, an examination of the squared multiple correlations

(SMCs) did not give any indication that multicollinearity was present as the highest SMC was below .8

(Tabachnick & Fidell, 2013). See Table 3 for the pooled within-group correlations for the variables

used in the descriptive and predictive discriminant analysis.

The final assumption assessed through a series of analyses was for homogeneity of variance-

covariance matrices. This process started with examining the variance ratios for the largest and smallest

variances between the groups, then Levene's Test for Equality of Variances, followed by Box's M test,

and the log determinants to converge on the tenability of this assumption (Huberty & Olejnik, 2006;

Tabachnick & Fidell, 2013). First, an examination of the largest variance to the smallest variance for

each variable indicated that all ratios were close to 1, with the largest variance ratio being for BFI-

Agreeableness at 2.2. Next, an examination of Levene's Test for Equality of Variances revealed that all

variances were equal ($p < .05$) with the exception of BFI-Agreeableness, $F(2,274) = 3.96$, $p = .02$. Box's

Test of Equality for Covariance Matrices was significant, Box's M = 956.11, $F(650, 32114.09) = 1.12$,

$p = .02$. Finally, the log determinant for No NSSI = 55.57, NSSI-Proximal = 47.65, and NSSI-Distal =

48.80. Taken together, this would indicate that for the descriptive discriminant analysis, the

assumption is tenable for a few reasons. First, Box's M test is often significant because of issues with

multivariate normality (Pituch & Stevens, 2016). Given that some of the variables had multivariate

normality issues due to skewness, and that discriminant analysis is robust to violations of normality

caused by skewness, it is likely that this is causing Box's M test to be significant. Second, univariate

analysis indicates that variances are equal. Third, the logs of the determinants are not largely discrepant

(Huberty & Olejnik, 2006). Thus, for the descriptive discriminant analysis, a linear discriminant

function (LDF) was used, and for the predictive descriptive analysis, a linear classification rule (LCF)

would be used.

Descriptive Discriminative Analysis Results

For the present analysis, the three grouping-variable levels are defined as No NSSI ($n = 194$),

NSSI-Distal ($n = 44$), and NSSI-Proximal ($n = 39$). The review of the literature highlighted several

different outcome variables for which people with a history of NSSI differ from those with no history

of NSSI, including: negative emotionality, emotion dysregulation and distress tolerance, psychological

distress, personality, and impulsivity. The literature also indicates that self-compassion and

mindfulness can act as protective factors against NSSI. Examining how the groups differ on these

variables simultaneously is important for understanding how the variables interact with group

membership. Identifying a subset of variables that provides maximum separation between the groups

is useful for clinicians and researchers because it can focus our efforts on addressing and identifying the

correlates of NSSI sub-groups. Thus, a descriptive discriminant analysis was conducted to address

group separation on the aforementioned variables. The assumptions for this analysis have been

covered in the previous section, but as the assumption of multivariate normality was potentially

violated for some variables, some caution is warranted in the final interpretations. See Table 1 for

descriptive statistics for the theoretically-relevant variables.

Prior to examining the research hypothesis of how the groups are maximally separated, an

initial multivariate analysis of variance (MANOVA) was conducted to test for group differences.

These results indicated significant differences existed amongst the groups on the criterion variables, Λ

$= .65$, $F(50, 500) = 2.45$, $p < .001$, $\omega^2 = .35$. The resulting effect size indicates that 35% of the variance

in the outcome variables is accounted for by group membership. This finding provides initial support

for the first set of research hypotheses that the groups can be meaningfully separated on the variables.

The linear discriminant functions (LDFs) derived from the descriptive discriminant analysis (DDA)

were examined to better understand how the groups are separated on the variables.

In total, two LDFs were obtained that provided maximal separation between the groups. To

determine if the group separation is best described in one or two dimensions, statistical test results and

the LDF plots were examined. The statistical test results (obtained via the SPSS DISCRIMINANT

function) indicate that only the first LDF provided significant group separation, $\Lambda = .65$, χ^2 (50, $N =$

277) = 114.11, $p < .001$, $\omega^2 = .35$, Canonical $R^2 = .32$. Thus, the first LDF accounted for 91.2% of the

between-group variance and 35% of the relationship between the predictors and groups, which is a

medium-sized effect. Group centroids and statistical information for the two LDFs are reported in

Table 4. An examination of the group centroids indicates that the first LDF is separating the NSSI-

Proximal group (Group Centroid = 1.60) from both the No NSSI (Group Centroid = -.38) and NSSI-

Distal group (Group Centroid = .27). The second LDF, which was not significant, appeared to be

weakly separating people with NSSI-Distal from the other two groups. See Figure 1 for a plot of the

group centroids. Thus, partial support for Hypothesis 1A is found, such that the groups could be

separated, but the nature of this separation was only between the NSSI-Proximal group and the other

two groups. The relative closeness of the group centroids between the NSSI-Distal group and No

NSSI Group suggests these groups are comparable on the function. This would indicate that people

who have engaged in NSSI within the past 12-months are a sub-group different from people who,

although having a history of NSSI, have not engaged in NSSI within the past 12-months.

Figure 1.

Group Centroids for Discriminant Function
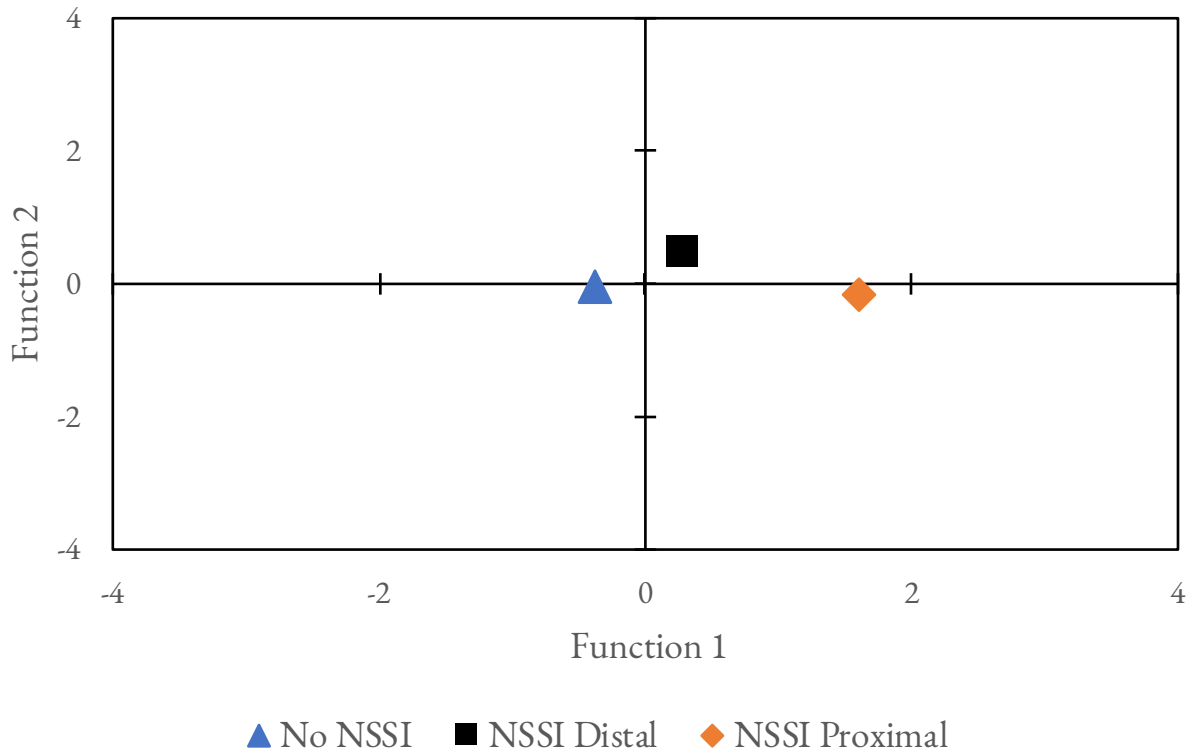
Note. The x-axis represents discriminant function scores on Function 1, while the y-axis represents discriminant function scores on Function 2. Group separation can be seen by projecting the centroids down to their respective function axis.

To better understand the nature of group separation on the LDF, the resulting group differences on the variables using the correlations between each of the outcome variables and the respective LDF, or the *structure correlation coefficients,* were examined and interpreted (Huberty & Olejnik, 2006; Tabachnick & Fidell, 2013). A correlation of .4 (or 16% overlapping variance) was selected as the interpretation cut-off, thus any variables below that are not included in the LDF interpretation (Tabachnick & Fidell, 2013). See Table 3 for the structure correlation coefficients, standardized function coefficients, and univariate test results. Inspecting both the structure coefficients and standardized discriminant function coefficients indicated that of the original 25 variables, the groups were ultimately separated based on a subset of 11 variables: neuroticism (BFIn), resilience (CD-RISC-25), depression (PHQ-9), self-compassion (SCS-SF), difficulties in emotion regulation (DERS-18), positive emotionality (PANAS-Pos), negative urgency (UPPS.P-NegUrg), student stress (ICSRLE), mindfulness (MAAS), anxiety (GAD7), and negative emotionality (PANAS-Neg). To assist with interpreting the function, pattern of coefficients to determine how a high score is produced on the LDF were examined. Participants having higher scores on this function tended to have higher levels of psychological distress and emotion dysregulation combined with lower scores on self-compassionate/resiliency-related variables. Participants in the NSSI-Proximal group tended to have higher levels of neuroticism (BFIn: $M = 4.06$, $SD = .68$); depression (PHQ-9: $M = 15.44$, $SD = 5.53$); anxiety (GAD-7: $M = 12.74$, $SD = 4.44$); emotion dysregulation (DERS-18: $M = 49.69$, $SD = 10.42$); negative emotions (PANAS-Neg: $M = 27.68$, $SD = 7.26$); impulsivity when experiencing negative emotions (UPPS-P NegUrg: $M = 29.95$, $SD = 6.80$); and stress (ICSRLE: $M = 115.13$, $SD = 17.49$), relative to people in the no NSSI or NSSI-Distal groups (See Table 4 for group means and

standard deviations). At the same time, participants in the NSSI-Proximal group tended to also have

lower levels of resilience (CD-RISC-25: M = 56.19, SD = 13.41); self-compassion (SCS-SF: M =

26.92, SD = 6.45); mindfulness (MAAS: M = 3.36, SD = .67); and positive emotions (PANAS-Pos:

M=26.31, SD = 8.43) relative to the other groups (See Table 4 for group means and standard

deviations). These results provide support for Hypothesis 1B, as self-compassion and mindfulness

were both significantly related to the LDF.

Table 3

Pooled Within-Group Correlations for Discriminant Function Analysis

	CD-RISC-25	GAD-7	PHQ-9	PANAS-Pos	PANAS-Neg	BFIn	ICSRLE	SCS.SF	UPPS.P_NegUrg	DERS-18	MAAS
CD-RISC-25	1										
GAD-7	-.40**	1									
PHQ-9	-.53**	.80**	1								
PANAS-Pos	.66**	-.31**	-.46**	1							
PANAS-Neg	-.41**	.67**	.66**	-0.15	1						
BFIn	-.63**	.63**	.61**	-.51**	.63**	1					
ICSRLE	-.37**	.60**	.67**	-.26*	.51**	.53**	1				
SCS.SF	.55**	-.43**	-.44**	.38**	-.46**	-.63**	-.55**	1			
UPPS.P-NegUrg	-.41**	.42**	.51**	-.32**	.45**	.48**	.50**	-.45**	1		
DERS18	-.57**	.64**	.73**	-.50**	.54**	.64**	.61**	-.64**	.65**	1	
MAAS	0.17	-.39**	-.44**	0.18	-0.21	-.27*	-.43**	.26*	-.40**	-.47**	1

Notes. * *p* < .05, ** *p* <.01. CD-RISC = Connor-Davidson Resilience Scale; GAD = Generalized Anxiety Disorder-7; PHQ-9 = Patient Health Questionnaire-9; PANAS-Neg = Positive and Negative Affective Scale Negative Emotions; BFIn = Neuroticism; ICSRLE = Inventory of College Student's Recent Life Experiences; SCS.SF = Self-Compassion Scale Short Form; UPPS.P Neg-Urg = Negative Urgency; DERS18 = Difficulty in Emotion Regulation Scale-18; MAAS = Mindful Attention and Awareness Scale.

Table 4

Inferential Statistics for Descriptive Discriminant Analysis

Variable	Structure r	Standardized coefficients	*Univariate F* (*p*-value)
TAS-20	.31	-0.28	7.19 ($p = .001$)
CD-RISC-25	**-.65**	**-0.57**	**28.31 ($p < .001$)**
GAD-7	**.47**	**-0.33**	**14.82 ($p < .001$)**
PHQ-9	**.64**	**0.47**	**27.44 ($p < .001$)**
NIH	-.04	0.04	.127 ($p = .881$)
SPS	-.24	0.27	3.80 ($p = .02$)
PANAS-Pos	**-.54**	**-0.14**	**19.48 ($p < .001$)**
PANAS-Neg	**.41**	**-0.06**	**11.18 ($p < .001$)**
RT18 Behaviour	.16	0.16	1.96 ($p = .143$)
RT18 Assessment	-.13	-0.18	1.19 ($p = .31$)
BFIe	-.31	-0.22	6.14 ($p = .002$)
BFIa	-.13	0.01	1.70 ($p = .185$)
BFIc	-.28	0.31	5.18 ($p = .006$)
BFIn	**.68**	**0.14**	**30.76 ($p < .001$)**
BFIo	<.01	0.18	0.35 ($p = .706$)
ICSRLE	**.51**	**0.19**	**18.43 ($p < .001$)**
SCS.SF	**-.63**	**-0.08**	**25.92 ($p <.001$)**

Table 4 (Cont.)

Inferential Statistics for Descriptive Discriminant Analysis (Cont.)

Variable	Structure *r*	Standardized coefficients	*Univariate F* (*p*-value)
UPPS.P Premed	.10	-0.02	0.63 ($p = .532$)
UPPS.P Persev	.35	-0.05	7.94 ($p < .001$)
UPPS.P Senseek	-.13	0.11	1.63 ($p = .198$)
UPPS.P PosUrg	.21	-0.33	3.03 ($p = .05$)
UPPS.P NegUrg	**.51**	**.50**	**17.66 ($p < .001$)**
PSS Total	.25	0.10	4.73 ($p = .01$)
DERS18	**.57**	**0.10**	**21.32 ($p < .001$)**
MAAS	**-.47**	**-0.18**	**15.34 ($p < .001$)**

Note. Bolded items were retained for interpretation. TAS-20 = Toronto Alexithymia Scale; CD-RISC = Connor-Davidson Resilience Scale-25; GAD = Generalized Anxiety Disorder-7; PHQ-9 = Patient Health Questionnaire-9; NIH = NIH Flanker Task Age Corrected Score; SPS = Social Provision Scale; PANAS-Pos = Positive and Negative Affective Scale Positive Emotions; PANAS-Neg = Positive and Negative Affective Scale Negative Emotions; RT18-Behaviour = Risk-Taking-18 Behaviour Scale; RT-18 Assessment = Risk-Taking-18 Assessment Scale; BFIe = Extraversion; BFIa = Agreeableness; BFIc = Conscientiousness; BFIn = Neuroticism; BFIo = Opennness to experience; ICSRLE = Inventory of College Student's Recent Life Experiences; SCS.SF = Self-Compassion Scale Short Form; UPPS.P Neg-Urg = Negative Urgency; UPPS.P-Premed = Premeditation; UPPS.P-Persev = Perseverance; UPPS.P Senseek = Sensation Seeking; UPPS.P PosUrg = Positive Urgency; PSS-Total = Perceived Stress Scale; DERS18 = Difficulty in Emotion Regulation Scale-18; MAAS = Mindful Attention and Awareness Scale.

Table 5

Descriptive Statistics for Descriptive Discriminant Analysis

	Structure *r*	No NSSI	NSSI-Distal	NSSI-Proximal
		M (SD)	M (SD)	M (SD)
Group Centroid				
Function 1		**-0.38**	**0.27**	**1.60**
Function 2		-0.07	0.49	-0.18
BFIn	.68	3.00 (.81)	3.43 (.66)	4.06 (.68)
CD-RISC-25	-.65	71.82 (11.93)	68.64 (9.83)	56.19 (13.41)
PHQ-9	.64	8.05 (5.70)	11.06 (6.82)	15.44 (5.53)
SCS-SF	-.63	36.94 (8.47)	33.02 (8.06)	26.92 (6.45)
DERS-18	.57	36.87 (11.53)	41.93 (12.37)	49.69 (10.42)
PANAS-Pos	-.54	34.40 (7.62)	31.39 (6.39)	26.31 (8.43)
UPPS.P NegUrg	.51	23.38 (6.66)	26.52 (6.41)	29.95 (6.80)
ICSRLE	.51	96.24 (20.33)	107.85 (18.24)	115.13 (17.49)
MAAS	-.47	4.11 (.86)	3.67 (.90)	3.36 (.67)
GAD-7	.47	8.08 (5.25)	10.50 (5.64)	12.74 (4.44)
PANAS-Neg	.41	21.61 (7.88)	24.53 (7.24)	27.67 (7.26)

Note. Bolded function was significant, $p < .001$. Reported structure *r*'s are for Function 1. BFIn = Neuroticism; CD-RISc-25= Connor-Davidson Resilience Scale; PHQ-9 = Patient Health Questionnaire-9; SCS-SF = Self-Compassion Scale Short Form; DERS-18 = Difficulty in Emotion Regulation Scale-18; UPPS.P NegUrg = Negative Urgency; ICSRLE = Inventory of College Student's Recent Life Experiences; MAAS = Mindful Attention and Awareness Scale, GAD = Generalized Anxiety Disorder-7; PANAS-Neg = Positive and Negative Affective Scale Negative Emotions.

Predictive Discriminant Analysis Results

The second part of analysis focuses on the results of the predictive discriminant analysis. The purpose of this analysis was to assess the accuracy of predicting NSSI group membership within the sample of 277 participants using a model derived from the research literature in conjunction with the previous descriptive discriminant analysis (DDA). 10 predictors were selected based on their support in the research literature and the DDA. One predictor, positive emotionality (PANAS-Pos), although significant in the DDA, was not included in the predictive discriminant analysis (PDA) because both theory and the empirical literature indicate that NSSI is generally used to regulate negative affective states (Nock, 2009; Chapman et al., 2006). The predictors used in the following predictive model involve: neuroticism (BFIn), resiliency (CD-RISC-25), depression (PHQ-9), self-compassion (SCS-SF), difficulties in emotion regulation (DERS-18), negative urgency (UPPS.P-NegUrg), student stress (ICSRLE), mindfulness (MAAS), anxiety (GAD-7), & negative emotionality (PANAS-Neg). See Table 6 for structure correlation coefficients, standardized coefficients, means, and standard deviations for the analysis.

Based on the previously described assumptions, a linear classification rule or linear classification function (LCF) was used to predict NSSI-Past Year and No NSSI-Past Year group membership. Prior probabilities were set based on group sizes as this likely reflects real population proportional differences (Tabachnick & Fidell, 2013). Thus, the prior probability for No NSSI-Past Year = .86 and NSSI-Past Year = .14. An external classification was used to account for potential biases and to act as a cross-validation given the already small sample size (Tabachnick & Fidell, 2013). Thus, a jackknife classification procedure was implemented, meaning a person's group membership is

calculated based on an equation where they are left out of the coefficient development for that equation (Huberty & Olejnik, 2006; Tabachnick & Fidell, 2013). The procedure provides an unbiased estimate of a person's group membership because the prediction is made not incorporating their data into the model. The decision to treat people with a history of NSSI as being in the same group as people with No NSSI is based on two findings. First, the initial DDA suggested that group separation was best characterized by this grouping. Second, a MANOVA comparing people with No NSSI and NSSI-Distal was conducted and found to be non-significant ($p = .09$), indicating the groups are similar enough on these variables to be considered as a single grouping unit for the purpose of this analysis.

Group Prediction Results. Please see Table 7 and Table 8 for the 2 x 2 classification table including sensitivity, specificity, negative predictive value, and positive predictive value. The total cross-validated group hit-rate was 87.7%, or 243 participants correctly classified. It should be noted that 210 (75.9%) participants would be expected to be classified by chance alone, thus the LCF improved on chance by approximately 12% (Huberty & Olejnik, 2006). The group hit rate for NSSI-Past Year was 38.46%, while the hit rate for No NSSI-Past Year was 95.80%. As a further index of accounting for chance agreement, kappa was calculated as .38 indicating moderate agreement in the classification, with incorrect classification largely occurring for NSSI-Past Year (Green & Salkind, 2014). The sensitivity, or people correctly classified as having NSSI, was 60%. The specificity, or people correctly classified as not self-harming in the past year, was 90.48%. Although the LCF was not good at confirming NSSI in the past year as the positive predictive value was 38.46%, the ability of the LCF to confirm an individual had not self-harmed in the past year was 95.80%. Thus, the LCF would seem to indicate that highly negative scores suggest past year NSSI is possible, or the person may be at

risk for other maladaptive coping behaviours. On the other hand, positive scores on the function result

could indicate, with confidence, that the person has not engaged in NSSI during the past 12 months.

Stepdown Analysis. A Roy-Bargman Stepdown Analysis (Tabachnick & Fidell, 2013) was

used to determine which predictors accounted for unique variance in the classification of NSSI group

membership. For this analysis, the order of predictors matters, as all the predictors are eventually

tested, but with all previous predictors acting as covariates (Tabachnick & Fidell, 2013). The stepdown

analysis considers the intercorrelations amongst predictors to provide a set of predictors accounting for

a significant amount of unique variance (Tabachnick & Fidell, 2013). The order of predictors entered

into the stepdown analysis were based on the consistency of support found in the literature review,

theoretical rationale, and logic. Thus, the order of predictors: 1) neuroticism (BFIn); 2) negative

emotionality (PANAS-Neg); 3) difficulties in emotion regulation (DERS-18); 4) depression (PHQ-9);

5) anxiety (GAD-7); 6) negative urgency (UPPS.P-NegUrg); 7) self-compassion (SCS-SF); 8)

mindfulness (MAAS); 9) student stress (ICSRLE); 10) and resilience (CD-RISC-25).

The results revealed that at the univariate level, which ignores inter-correlations, all predictors

made significant contributions to group membership (See Table 9 for results). However, after

accounting for the inter-correlations between predictors, only neuroticism (BFIn: $F(1, 275) = 46.24$, p

$< .001$), difficulties in emotion regulation (DERS-18: $F(1, 273) = 4.10$, $p = .04$), depression (PHQ-9: F

$(1,272) = 6.60$, $p = .01$), anxiety (GAD-7: $F(1,271)=4.29$, $p = .04$), and resilience (CD-RISC-25:

$F(1,266)=6.92$, $p = .01$) accounted for a significant amount of unique variance. See Table 10 for full

results. These findings provide additional support for the importance of adaptive emotion regulation

and resiliency for protecting against future NSSI episodes as these variables were highly correlated with

the underlying LCF in such a way that higher scores on these constructs translated to higher scores on this function, which would increase the likelihood as being classified into the NSSI-Past Year group.

Follow-up Analysis for Misclassification. Because one purpose of the study was to understand the group separation and prediction of NSSI, *post hoc* analyses were used to understand why misclassification of people with NSSI in the past year may have occurred. The goal of this analysis was to understand how people incorrectly classified differed from the participants correctly classified as having a recent episode of NSSI as an indirect way to assess if they represented a potentially different sub-grouping. Although no formal hypotheses were considered, a preliminary hypothesis was that the people incorrectly classified would be significantly different on the LCF variables compared to people correctly classified. To test this hypothesis, a MANOVA was conducted, which was followed up with a Roy-Bargman Stepdown Analysis. The results from the initial MANOVA revealed that significant differences existed between people correctly classified as having NSSI and incorrectly classified as not having NSSI, $\Lambda = .214$, $F(10,28) = 10.26$, $p < .001$. At the univariate level, with the exception of negative emotionality (PANAS-Neg) and mindfulness (MAAS), all predictors were significant $p < .02$. A Roy-Bargman Stepdown Analysis was then used to examine group differences on the predictors. Results indicated that people incorrectly classified had significantly lower scores on neuroticism (BFIn: $F(1,37) = 29.22$, $p < .001$), emotion regulation (DERS-18: $F(1\ 35) = 5.66$, $p = .02$), negative urgency (UPPS.P-NegUrg: $F(1, 32) = 16.15$, $p < .001$), and resilience (CD-RISC-25: $F(1, 28) = 6.79$, $p = .02$).

Table 6

Inferential & Descriptive Statistics for Predictive Discriminant Analysis

	Structure *r*	Standardized Coefficient	Grouping	
			No NSSI Past Year	NSSI-Past Year
			M (SD)	*M (SD)*
Group Centroid				
Function 1			**.22**	**-1.35**
CD-RISC-25	.81	.42	71.23 (11.62)	56.19 (13.41)
BFIn	-.77	-.34	3.09 (.82)	4.06 (.68)
PHQ-9	-.73	-.67	8.61 (6.02)	15.44 (5.53)
SCS-SF	.72	.21	36.22 (8.51)	26.92 (6.45)
DERS-18	-.65	.06	37.81 (11.82)	26.31 (8.43)
UPPS.P_NegUrg	-.57	-.18	23.96 (6.71)	29.95 (6.80)
ICSRLE	-.53	.07	98.39 (20.43)	115.13 (17.49)
GAD-7	-.51	.46	8.53 (5.40)	12.74 (4.44)
MAAS	.49	.05	4.02 (.88)	3.36 (.67)
PANAS_Neg	-.45	.14	22.15 (7.84)	27.67 (7.26)

Note. CD-RISC = Connor-Davidson Resilience Scale; GAD = Generalized Anxiety Disorder-7; PHQ-9 = Patient Health Questionnaire-9; PANAS-Neg = Positive and Negative Affective Scale Negative Emotions; BFIn = Neuroticism; ICSRLE = Inventory of College Student's Recent Life Experiences; SCS.SF = Self-Compassion Scale Short Form; UPPS.P Neg-Urg = Negative Urgency; DERS18 = Difficulty in Emotion Regulation Scale-18; MAAS = Mindful Attention and Awareness Scale.

Table 7

Classification Results for Predictive Discriminant Analysis

Actual Group	Predicted Group			
	NSSI-Past Year	No NSSI Past Year	Total	Kappa
NSSI-Past Year	17	22	39	.45
No NSSI-Past Year	10	228	238	
	Sensitivity	Specificity		
	62.96%	91.20%		

Note. *Results reported are from the initial classification procedure.*

Table 8

Jackknife Classification Results for Predictive Discriminant Analysis

Actual Group	Predicted Group			Kappa
	NSSI-Past Year	No NSSI Past Year		
NSSI-Past Year	15	24	Positive Predictive Value = 38.46%	.38
No NSSI-Past Year	10	228	Negative Predictive Value = 95.80%	
	Sensitivity	Specificity		
	60%	90.48%		

Note. *Results reported are from the cross-validated Jackknife classification procedure.*

Table 9

Univariate Results from Roy-Bargman Stepdown Analysis

Variable	MS$_B$	MS$_W$	Univariate F	p-value
BFIn	**31.99**	**.65**	**49.55**	**<.001**
PANAS-Neg	1020.34	60.20	16.95	*<.001*
DERS-18	**4734.77**	**135.48**	**34.95**	**<.001**
PHQ-9	**1563.81**	**35.49**	**44.06**	**<.001**
GAD-7	**595.10**	**27.82**	**21.39**	**<.001**
UPPS.P-NegUrg	1202.60	45.23	26.59	*<.001*
SCS-SF	2895.34	68.25	42.42	*<.001*
MAAS	14.70	.73	20.14	*<.001*
ICSRLE	9387.36	402.02	23.35	*<.001*
CD-RISC-25	**7584.08**	**141.18**	**53.72**	**<.001**

Note. Bolded items represent significant predictors after controlling for previous predictors. *CD-RISC = Connor-Davidson Resilience Scale; GAD = Generalized Anxiety Disorder-7; PHQ-9 = Patient Health Questionnaire-9; PANAS-Neg = Positive and Negative Affective Scale Negative Emotions; BFIn = Neuroticism; ICSRLE = Inventory of College Student's Recent Life Experiences; SCS.SF = Self-Compassion Scale Short Form; UPPS.P Neg-Urg = Negative Urgency; DERS18 = Difficulty in Emotion Regulation Scale-18; MAAS = Mindful Attention and Awareness Scale.*

Table 10

Roy-Bargman Stepdown Analysis Results

Variable	MS_B	MS_W	DF_H	DF_E	Stepdown F	*p*-value
BFIn	**31.99**	**.65**	**1**	**275**	**49.55**	**<.001**
PANAS-Neg	3.77	36.93	1	274	.10	*.75*
DERS-18	**305.29**	**74.38**	**1**	**273**	**4.10**	**04**
PHQ-9	**108.85**	**16.49**	**1**	**272**	**6.60**	**.01**
GAD-7	**34.83**	**8.12**	**1**	**271**	**4.29**	**.04**
UPPS.P-NegUrg	32.38	25.04	1	270	1.29	.26
SCS-SF	98.51	33.56	1	269	2.94	.09
MAAS	.02	.40	1	268	.05	.83
ICSRLE	60.74	163.52	1	267	.37	.54
CD-RISC-25	**618.78**	**89.42**	**1**	**266**	**6.92**	**.01**

Note. CD-RISC = Connor-Davidson Resilience Scale; GAD = Generalized Anxiety Disorder-7; PHQ-9 = Patient Health Questionnaire-9; PANAS-Neg = Positive and Negative Affective Scale Negative Emotions; BFIn = Neuroticism; ICSRLE = Inventory of College Student's Recent Life Experiences; SCS.SF = Self-Compassion Scale Short Form; UPPS.P Neg-Urg = Negative Urgency; DERS18 = Difficulty in Emotion Regulation Scale-18; MAAS = Mindful Attention and Awareness Scale.

CHAPTER 5

Discussion

The purpose of the present study was to explore how different sub-groups of non-suicidal self-injury or NSSI, including those with no history of NSSI, are best separated on several theoretically-relevant variables. By delineating how these sub-groups of people engaging in NSSI are different, clinicians and policy-makers would be better able to prevent, assess, and treat this behaviour. Thus, the first research hypothesis predicted that NSSI-Proximal could be reliably separated from NSSI-Distal and No NSSI. Closely related to this hypothesis, was the prediction that self-compassion and mindfulness would make a significant contribution to NSSI group separation. The second main hypothesis was that a classification rule could be developed that accurately predicted NSSI group membership better than chance. Again, closely related to this hypothesis was the prediction that self-compassion and mindfulness would make significant contributions to classification after controlling for other theoretically relevant variables. Although the initial cluster analysis was not carried out due to concerns about sample size representativeness of the clusters (Hair et al., 2010), the discriminant function analysis still allowed a partial examination of how NSSI groups are separated on the variables by time since last NSSI episode (e.g., NSSI-Proximal to NSSI-Distal) as this allowed sufficiently large group sizes to be maintained.

In the present sample, the lifetime prevalence rate of NSSI was 30% and the past year incidence rate was 14.1%, which is comparable to other studies examining NSSI in college students reviewed in the introduction. The prevalence of NSSI is concerning, but not without precedent and could

represent a cohort effect around age and gender. For example, Klonsky, Victor, & Saffer (2014) report that amongst adolescents and young adults, rates of NSSI range between 15% to 20%. In addition, recent research out of the UK has found that in a sample of 11,000 youth, 22% of girls have engaged in NSSI (The Children's Society, 2018). Considering this sample was composed of predominantly young adult women, the rate of NSSI, while alarming is consistent with other literature and points to a potential increase in self-reported NSSI. Alternatively, perhaps more public awareness about NSSI has led to this increase in self-reported NSSI, rather than a change in the actual base rate of the behaviour. The rate and variety of NSSI methods endorsed is alarming given the non-clinical nature of the sample. The level of past-year self-harm found in this study indicates that university administrators should explore implementing compassion-based harm reduction strategies aimed at targeting the risk factors for students engaging in NSSI. Addressing NSSI is of utmost importance given the fact that it is a risk-factor for completed suicide (Chan et al., 2016) and that suicide is among the leading causes of death for youth (StatsCan, 2018). Second, consistent with previous literature (You, Ren, Zhang, Wu, Zu, & Lin, 2018), people reporting a history of self-harm largely endorsed affective regulation reasons for using non-suicidal self-injury. Finally, in agreement with previous literature, people reporting non-suicidal self-injury tended to have higher levels of trait neuroticism, depression, emotion dysregulation, and poor distress tolerance/ability to cope with stress. The advantage of the present study is that examining the group differences simultaneously across the variables provides a more ecologically-valid way of examining the predictors involved in NSSI as the predictors are correlated in the real world (Harlow, 2005), which can be seen in the pooled within-group correlation table (See Table 3). The

consistency of these findings with the literature helps provide certainty in the final interpretation of group separation given the concerns with multivariate normality.

Hypothesis 1A. The initial MANOVA indicated that significant group differences were present on the outcome variables. Exploring these group differences involved interpreting the linear discriminant functions derived in the follow-up descriptive discriminant analysis. Only one linear discriminant function was significant and indicated that group separation was best characterized on a single dimension involving high levels of psychological and emotional distress combined with low levels of compassionate self-care strategies. This dimension was interpreted as representing compassionate self-care. The variables most important in the LDF were (in order of correlation strength): neuroticism (BFIn), resilience (CD-RISC-25), depression (PHQ-9), self-compassion (SCS-SF), emotion dysregulation (DERS-18), positive emotionality (PANAS-Pos), negative urgency (UPPS.P-NegUrg), student stress (ICSRLE), mindfulness (MAAS), anxiety (GAD-7), and negative emotionality (PANAS-Neg). An examination of the group centroid plots indicated that group separation on the underlying dimension was best described as separating the NSSI Proximal group from the other two groups. Contrary to expectations, the NSSI Distal group had comparable scores to the No NSSI group, and the second LDF was not significant. The unexpected nature of this finding could be based on the fact that a distinction between people that are actively self-harming (i.e., within the past year) to those no longer self-harming (i.e., no past year NSSI) is often not made in the literature.

By treating people no longer actively engaging in NSSI as being the same as people actively engaging in NSSI, we may be inadvertently masking important differences between the populations

that can elucidate important risk factors and protective factors. In support of this, the results of the present study indicate that people with a lifetime history of NSSI are significantly different from people who have self-harmed within the past year. Thus, researchers should consider the time frame of NSSI in future research, as people who have self-harmed within the past year likely have different risk factors and outcomes than people with lifetime NSSI (Wilcox et al., 2012). Delineating sub-groups of people actively engaging in NSSI and their respective risk profiles is important to ensure effective preventative and treatment strategies.

When the NSSI-Distal group were compared to the No NSSI group on the variables using a MANOVA, the results were non-significant. This finding suggests that, although these people have self-harmed in the past, they have lower levels of psychological and emotional distress and have likely developed more compassionate coping abilities that prevent NSSI from being the preferred or only way to cope with stress. Support for this is found when examining the pattern of scores on the variables for the two groups, as seen in Table 1. For example, the people in the NSSI-Distal group, on average, had relatively higher levels of resilience (M = 68.64, 95% CI [65.65, 71.63], SD = 9.83) and self-compassion (M = 33.02, 95% CI [30.57, 35.47], SD = 8.06) compared to the NSSI-Proximal group's average level of resilience (M = 56.19, 95% CI [51.84, 60.54], SD = 13.41) and self-compassion (M = 26.92, 95% CI [24.83, 29.01], SD = 6.45). In addition, the NSSI-Distal group, on average, had less neuroticism (M = 3.43, 95% CI [3.19, 3.67], SD = .80) and emotion dysregulation (M = 41.93, 95% CI [38.17, 45.69], SD = 12.37) compared to the NSSI-Proximal group's average level of neuroticism (M = 4.06, 95% CI [3.84, 4.28], SD = .68) and emotion dysregulation (M = 49.69, 95% CI [46.32, 53.07]. However, because individuals with a history of NSSI have learned this behaviour, it

is likely that they still represent a unique population that is at risk of future self-harm as learning theory suggests these learned behaviours are never really extinct and can spontaneously return (Dunsmoor, Niv, Daw, & Phelps, 2015). Thus, although this group may be similar to people who have never self-harmed, they may still be at risk for future NSSI episodes. As such, future research should continue to employ qualitative and quantitative collection methods to further our understanding of how people have stopped self-harming, what prevents them from starting again, and how clinicians and policy-makers might best be able to help people currently self-harming (Rosenrot & Lewis, 2018; Hack & Martin, 2018).

Hypothesis 1B. Support for this hypothesis was found as both self-compassion and mindfulness were significantly related to the LDF providing group separation. The nature of this relationship would suggest that higher levels of self-compassion (more than mindfulness) act as a protective factor against past year NSSI. This finding is consistent with previous literature, which suggests that in adolescence, self-compassion protects against NSSI by moderating the impact of depression (Xavier, Pinto-Gouveia, & Cunha, 2016). The fact that depression was strongly correlated with group separation provides additional theoretical support that self-compassion and mindfulness act as important protective factors against NSSI. These findings further demonstrate that employing NSSI harm reduction strategies rooted in a compassionate standpoint are likely to be beneficial to both those with a lifetime history of NSSI and those actively self-harming.

By teaching people to be more self-kind in times of distress, to not isolate themselves from social supports, and to not overidentify with their emotions, the less likely they are to engage in behaviours that deliberately harm themselves to regulate these feelings. There are many ways to do this,

from formal methods, such as meditation programs like the Mindful Self-Compassion program (Neff & Germer, 2012), to more informal methods such as journaling or writing about events to induce a self-compassionate mindset (Leary et al., 2007; Johnson & O'Brien, 2013). For instance, NSSI is common amongst people prone to self-directed negative emotions and self-criticism (Glassman, Weierich, Hooley, et al., 2007; Hooley & St Germain, 2013). Thus, the brief self-compassionate writing exercises described by Johnson & O'Brien (2013), which demonstrated a reduction in university student's self-directed negative emotions, provide an interesting avenue for potentially helping people who engage in NSSI. Nevertheless, individuals looking to learn about meditation techniques, such as loving-kindness meditation (Siegel, 2012), should seek out qualified and trained practitioners of the technique due to potential adverse reactions for unexperienced practitioners or those new to meditation (Cebolla, Demarzo, Martins, Soler, & Garcia-Campayo, 2017; Lustyk, Chawla, Nolan, & Marlatt, 2009).

Thus, separation between people who self-harmed in the past year to those who have not self-harmed in the past year may be attributed largely to differences in their ability to cope with psychological distress in a compassionate/mindful way, whatever the form of coping behaviour (see Chambers, Gullone, & Allen, 2009 for an overview of mindful emotion regulation). Given the fact that the causal pathway to NSSI is probabilistic and not deterministic (Chapman et al., 2006; Nock, 2009), this could indicate higher levels of compassionate/mindful emotion regulation acts as a protective factor against engaging in NSSI. Additional support for this conclusion can be found in that participants in the NSSI-Distal group tended to have similar scores on the variables to the No NSSI group. In fact, the follow-up MANOVA comparing people with a history of NSSI to those with

no history of NSSI on the 11 variables was non-significant ($p = .09$), suggesting that both groups are similar on the underlying construct.

These findings are largely consistent with the previous literature, in addition to providing insight into the potentially protective role self-compassion and mindfulness can play in reducing past year self-harm. Specifically, the results show that the two self-care variables, resilience (CD-RISC-25) and self-compassion (SCS-SF), were highly correlated with the LDF suggesting the importance of compassionate coping for protecting against future NSSI episodes. For instance, affect regulation was the most common reason provided for self-harm's function in the current sample. When combined with a predisposition to negative emotionality and impulsivity when experiencing negative emotions, teaching people with a history of NSSI how to engage in compassionate emotion regulation behaviours, such as mindfulness meditation, could act as a protective factor against subsequent NSSI episodes.

Thus, the present research contributes to the literature by examining the dimensionality of group differences in NSSI based on past year, lifetime, and no history of NSSI. Past research has tended to look at lifetime or past-year NSSI separately, and not comparatively (Klonsky & Olino, 2008; You et al., 2018). However, when examined separately, different predictors start to emerge (Wilcox et al., 2012). For instance, Wilcox and colleagues (2012) found in their longitudinal study of NSSI predictors and motivations in college students that affective dysregulation was a significant predictor of past year NSSI, but not lifetime history. The results of the present research further demonstrate that researchers should consider the time frame aspect when studying NSSI, as people who have self-harmed within the past year are distinctly different from people who report just a

lifetime history of NSSI. More importantly, the descriptive discriminant function results demonstrate that an ability to compassionately cope with stress is likely to act as a protective factor against NSSI.

Hypothesis 2A & Hypothesis 2B. The second set of research hypotheses were focused on group prediction of past year NSSI, with a particular interest in the predictors accounting for a significant amount of unique variance. It was hoped that this analysis would bring parsimony to the collection of predictors most central in accurately classifying past year NSSI. The findings from the predictive discriminant analysis provides mixed support for Hypothesis 2A and no support for Hypothesis 2B. First, in terms of classification accuracy (Hypothesis 2A), the cross-validation accuracy rate was quite low, with positive predictive power being just 38%, indicating that only 38% of people with past year NSSI were accurately classified. On the other hand, classification for no NSSI in the past year was excellent, with a negative predictive value of 96%. Although the classification of participants was better than chance, the low positive predictive value suggests that variables or groupings or both are missing from the predictive model. The low classification accuracy from the PDA provides additional support for the research question that distinct sub-groupings of NSSI are likely to exist. One reason for the low classification accuracy could be that NSSI sub-groups would have significantly different scores on the linear composite. In other words, even within the seemingly homogenous grouping of NSSI-Proximal, underlying differences on the linear combination could lead to misclassification suggesting other variables are important for describing/predicting that group membership. Because accurate classification in PDA is based on a person's closeness to the group centroid, participants farther from that centroid are likely to be misclassified (Huberty & Olejnik, 2006). In the current study, group membership was already known and assigned based on the last time

a person self-harmed. It is possible that other features of NSSI, such as function, more refined

measures of frequency, or method could define different populations (Klonsky & Olino, 2008). At the

very least, people who have very low scores on the LCF might be at risk for NSSI, but there is a lot of

uncertainty. Because these traits are common across several mental health disorders and maladaptive

coping behaviours, classification accuracy could also be impacted by these factors. However, the fact

that a large number of people known to have engaged in NSSI within the past year were incorrectly

classified suggests that the predictive model was missing variables, missing sub-groups, or both.

Additionally, drawing on the empirical research of suicide prediction, accurate prediction is difficult

and focusing solely on prediction could lead to incorrect risk assessments (Chan et al., 2016). Thus,

comprehensively delineating and describing any NSSI sub-groups should take higher priority and be of

more use than accurate group prediction.

Switching our focus to Hypothesis 2B, the results from the Roy-Bargman Stepdown Analysis

indicated that only neuroticism (BFIn), emotion dysregulation (DERS-18), depression (PHQ-9),

anxiety (GAD-7), and resiliency (CD-RISC-25) made significantly unique contributions to the

prediction of group membership. These findings are largely consistent with a longitudinal study that

also found depression and emotion dysregulation to be significant predictors of past year NSSI in

college students (Wilcox et al., 2012). Thus, there was no support for the hypothesis that self-

compassion and mindfulness accounted for a unique amount of variance between the grouping

variables. Yet, the *post-hoc* follow-up analysis does provide additional support for another sub-grouping

of NSSI, as these incorrectly classified participants had a different profile than those accurately

classified. In this case, it would appear that people incorrectly classified might represent a group of

people who engage in NSSI but are better able to manage their impulsivity when faced with negative emotions, as seen in their significantly lower UPPS.P-NegUrg scores. In conclusion, the LCF appears to be most accurate at classifying a sub-group of NSSI-Past Year participants who had high levels of neuroticism and psychological distress, emotional dysregulation, and low resiliency. In the present sample, the predictors most important for accurate classification in predicting NSSI-Past Year were neuroticism, emotion regulation, depression, anxiety, and resiliency. These findings would suggest that, within this sample, a distinct sub-grouping of NSSI involves people with high levels of neuroticism and psychological distress, emotion dysregulation, and low levels of resiliency.

Taken together, the results from the DDA and PDA demonstrate that the biggest risk factors for active NSSI continue to be psychological distress in conjunction with a poor stress coping ability. In both analyses, a person's level of resilience and emotion dysregulation accounted for a significant amount of variation between the groups and variables. This finding provides additional support for Nock's (2009) and Chapman et al.'s (2006) models of NSSI, which place an emphasis on a person's ability to cope with emotional stress as an important risk factor for NSSI. Furthermore, the role of self-compassion as a protective factor for NSSI cannot be overlooked. Self-compassion played an important role in group separation. In fact, group separation appeared to be partly driven by having higher scores on the compassionate coping response portion of the function. Although self-compassion did not play a significant role in predicting past year NSSI, this could simply mean that other variables play a more central role in predicting active self-harm, while improving someone's self-compassion could still be used to prevent someone from engaging in future NSSI.

CHAPTER 6

Limitations and Future Directions

Limitations. The biggest limitation for the present study is the generalizability of the findings

to other populations. The present sample was heavily represented by educated white women drawn

from a Psychology Department's Participant Pool. As such, generalizing these findings to people

outside of this demographic requires caution. This is problematic because the NSSI literature

demonstrates that the behaviour is not limited to just this section of the population. At the very least,

the findings from the present study can be of use to NSSI researchers and clinicians working with

predominantly women-based non-clinical populations in post-industrialized Western settings. A

second limitation has to do with the heterogeneity in the forms of NSSI reported by participants.

Although cutting was the most endorsed behaviour for people reporting a history of NSSI, with 80%

reporting this behaviour, every form of behaviour on the DSHI was endorsed by at least one

participant. Given the fact that past research suggests the method of NSSI can be used to group people

(Klonsky & Olino, 2008), the findings are limited in the sense that all forms of NSSI were treated

equally. Nevertheless, the present study provides further clarity in how the predictors for NSSI vary

based on the time frame. Future research should ensure that distinctions are made between function,

method, frequency of injury, and time since last episode. A third limitation, which is more of a

statistical concern, has to do with the sample size and issues with multivariate normality. In terms of

sample size, discriminant function analysis is robust to unequal group sizes, but the ability to examine

groupings based on the method or function of NSSI were not possible due to the fact that the group

sizes would have been quite small. For instance, if grouping was done based on method, 66 people

endorsed cutting, with other forms of NSSI having generally less than 10 people, some with fewer than 5 people. In terms of multivariate normality, although discriminant function analysis is robust to violations of normality when the violation is caused by skewness, caution is still warranted about how these results may generalize to other samples. Although caution is warranted for generalizing the findings to other populations very different than the one studied, the consistency of the findings with the research literature help provide additional certainty that an appropriate conclusion was reached. Furthermore, the cross-sectional, retrospective self-report design is a limitation. Not only can participants' accounts of their own behaviour be inaccurate, the present study did not make use of a social desirability measure. Thus, it is possible that people may have wanted to "fake good," which would be problematic as it could mask any real finding. Given the results of the present study, it is unlikely that participants were attempting to fake good. However, the present study is also unable to rule out that participants were "faking bad." Although there is no real incentive for participants to do this, and an attempt was made to mask that the study was looking at self-harm, it is possible some participants may have presented themselves in an overly negative light. Of course, the cross-sectional nature also means that causality cannot be inferred from the present-findings. Nevertheless, the consistency of the findings with the literature provides additional confidence in the results. Finally, the discrepancy in prediction is a final limitation in the findings and suggest that important predictors for the accurate classification of NSSI-Proximal are missing. Yet, we must consider the utility of group prediction in the present study. The predictive discriminant analysis was conducted to better understand what predictors were most important for this group membership. As such, the interest was not in trying to predict past year or active NSSI, per se. In fact, an overt focus on prediction alone

could be harmful and prevent a full risk assessment being completed by mental health professionals trying to help people engaging in NSSI (Chan et al., 2016). The present study is still important because the focus was on group separation and on the dimension best characterizing the separation. Although more distinct clusters of NSSI could not be explored, the ability to examine group differences based on the time-frame of NSSI is important.

Future directions. The findings of the present study add to the growing self-injury literature indicating that NSSI is more complex than a binary coding of the behaviour as present or absent, and that sub-populations of NSSI exist with different correlates and outcomes. Delineating the nature of these sub-populations and how they may or may not be similar on correlates of NSSI can improve outcomes by targeting the underlying issues for each group. This approach to understanding NSSI will provide clarity into the heterogeneity seen in functions and correlates of NSSI, as these are likely the result of underlying population differences. Future research should continue to explore how we can group the contextual, descriptive, and functional factors behind NSSI into a coherent classification system. A second future direction involves exploring how self-compassion and mindfulness can act as a protective factor against NSSI. In theory, if someone holds high levels of self-compassion the idea of self-harm would be antithetical to that stance. Further, with emotion dysregulation playing a central role in NSSI, the ability of both self-compassion-based meditation and mindfulness-based meditation to help with emotion regulation must be explored within the context of NSSI. Future research should examine how compassion-based interventions such as the Mindful Self-Compassion program (Neff & Germer, 2012), could be used to help people engaging in NSSI for affective regulation purposes.

Conclusion

The present study attempted to explore how sub-groups of NSSI were best separated on a linear discriminant function composed of several important variables. Group separation was best characterized as between people with past year NSSI and those with no past year NSSI (including self-reported life-time history). People with past year NSSI tended to have significantly higher levels of neuroticism, depression, emotion dysregulation, and low levels of resiliency. Self-compassion and mindfulness played important roles as protective factors against past year NSSI. The findings from the present study were largely consistent with theory and previous research literature. The findings highlight the importance of clinicians exploring compassionate-based harm reduction strategies and interventions to help their clients who engage in NSSI. Moreover, given the high rates of NSSI seen in the sample, clinicians should continue to focus on comprehensive risk assessments for all clients as the base-rate of NSSI is likely to be higher than that seen in this non-clinical sample. Finally, the rate of NSSI found in the present sample raise concerns about how universities can best address this often-overlooked behaviour affecting their students. University administrators are in a unique position to address the issue of NSSI likely present on their campuses by implementing compassion-based harm reduction strategies that focus on improving their students' ability to cope with stress.

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Appendices
Appendix A. Consent to Participate in Research

Title of Study: *The Role of Personality and Coping Methods in University Students Experiences with Normative Distress*

You are asked to participate in a research study conducted by Jann MacIsaac and Dr. Carlin Miller, from the Psychology Department at the University of Windsor. The results of this study will form the basis of Jann MacIsaac's Master's thesis.

If you have any questions or concerns about the research, please feel to contact Jann MacIsaac through email at macisaan@uwindsor.ca or Dr. Carlin Miller by phone at 519-253-3000 ext. 2226 or through email at cjmiller@uwindsor.ca.

PURPOSE OF THE STUDY

The purpose of this research project is to gain a better understanding of the factors that contribute to certain behaviours students may use to cope with their emotions and stress. Specifically, this study is trying to determine what aspects of a person's personality may influence the type of coping strategy they use in times of emotional distress. For some individuals, they may resort to more direct, destructive ways of coping with emotional distress. However, there is a lack of research about how people who use these more extreme coping methods differ not only from each other, but from people who do not resort to these coping methods. This study attempts to address this lack of knowledge by examining how certain aspects of a person's personality contribute to the coping strategies they use in times of distress.

PROCEDURES

If you volunteer to participate in this study, you will be asked to: Complete a psychological battery, comprised of a series of questionnaires, that will take 120 minutes of your time. No other commitments will be required from you as a participant.

The psychological battery you will be asked to complete will ask you questions about:
1. Your basic demographic information.
2. Personality, impulsivity, and levels of risk-taking.
3. Emotions and your ability to manage your emotions.
4. Levels of stress and psychological well-being.
5. Coping strategies, coping skills, and level of resiliency.

POTENTIAL RISKS AND DISCOMFORTS

Your participation in my project will not expose you to any procedures that will put you at a physical risk. However, participation in my project has the potential to evoke feelings of discomfort or distress, particularly around questions about self-harm and psychological well-being. It is important to note, that you have the right to not answer questions without fear of penalty. It is also important to note, that you have the right to withdraw your consent for the research project at any time without penalty. With that said, at the end of the study you will be provided a list of resources that *all students* should be aware of and make use of when feeling distressed. In the unlikely event that you feel that you require immediate assistance with your levels of distress, we recommend that you contact the Peer Counselling Centre or Student Counselling Centre (both located in the CAW). Finally, if you have had Jann MacIsaac as a GA in any of your psychology courses or if you know the research assistant, and you feel uncomfortable participating in the research project, you can withdraw from the study without penalty.

To help mitigate any concerns you may have about how the data will be collected, stored, and presented the following procedure will be used:

1. Data will be collected in such a way that you do not place any personally identifying information on the questionnaires. You will be provided a numeric code, that is placed on all questionnaires. When you complete your survey form, you will then place the completed form in an envelope that you seal.
2. Your numeric code will also be placed on this consent form. This is the only location where both your code and personally identifying information will be placed. This is done so that if you request to have your data pulled from the study, we can facilitate this request. Consent forms will be stored *separately* from survey data. Finally, the RA will not have access to consent forms after the initial data collection.
3. All survey data will be stored in a locked filing cabinet in a locked research space.
4. The raw survey data and consent forms will be stored until July 2018, after which they will be destroyed. After this point, your data will not be able to be pulled from the study. De-identified digital data will be retained for the foreseeable future.
5. The data gathered in this project will only be presented as group-level, aggregate data.

POTENTIAL BENEFITS TO PARTICIPANTS AND/OR TO SOCIETY

Given the nature of this project, you will experience few direct benefits. Rather, the benefits will be for the scientific and clinical community. Nevertheless, one possible benefit for you as a participant is gaining insight into how psychological research is conducted. The biggest benefit arising from this project is that your participation will help the scientific and clinical community understand the factors that contribute to destructive behaviours in university students. The knowledge generated from this project will help in the development of a more nuanced understanding of destructive behaviours. This knowledge can then be used to inform current and future interventions designed to reduce these behaviours in university students.

COMPENSATION FOR PARTICIPATION

Participants will receive 2 bonus points for 120 minutes of participation towards the psychology participant pool, if registered in the pool and enrolled in one or more eligible courses. In recognition of the effort with the participation in in-lab research, you will receive an additional 0.5 bonus credits.

CONFIDENTIALITY

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission. Due to this study using the Psychology Participant Pool, we can't offer anonymity because the retention of your information is needed to assign any bonus marks received. Nevertheless, we have established certain procedures to ensure that all survey data remains confidential. These procedures involve the use of a numeric code on all survey materials, placing completed survey forms in sealed envelopes, and storing consent forms separately from survey data. The only location your personally identifying information and numeric code will appear together is on your consent form. The raw survey data will be stored in a locked filing cabinet in a locked research space. Consent forms and raw survey data will be stored until July 2018, after which they will be confidentially destroyed. After July 2018, you will not be able to have your data withdrawn from the study. De-identified digital data will be stored on encrypted hard drives for the foreseeable future. It is important to note, this data will form the basis of a Master's thesis project, but all data will be presented in a de-identified, group-level, aggregate manner. Thus, there would be no way for any individual to identify that you participated in this specific research project.

PARTICIPATION AND WITHDRAWAL

As a research participant, you have the right to withdraw consent for this project at any time and have your data removed from the study. You also have the right to not answer any questions you find uncomfortable or distressing without penalty. You will be allowed to withdraw your data up to the point that data entry is complete and the hard copies of the consent forms are destroyed. Thus, after July 2018, you will no longer be able to withdraw your data from the study.

As outlined in the *Psychology Participant Pool Manual 4th Edition*, in situations where you partially complete the study, you will be awarded compensation commensurate to the time spent in the study. In situations where you do not engage in the study process in a meaningful manner, the withholding of compensation will occur, per *Psychology Participant Pool Manual 4th Edition* guidelines. The determination of 'meaningful engagement' will involve reviewing the validity questions embedded throughout the survey questionnaires. If you fail two or more validity checks you will have your compensation withheld.

FEEDBACK OF THE RESULTS OF THIS STUDY TO THE PARTICIPANTS

The results of this study will be posted on my supervisor's website.

Web address: http://www1.uwindsor.ca/cjmiller/completed-studies

GROUP SEPARATION OF NSSI

Date when results are available: Fall 2018
SUBSEQUENT USE OF DATA

These data may be used in subsequent studies, in publications and in presentations.

RIGHTS OF RESEARCH PARTICIPANTS

If you have questions regarding your rights as a research participant, contact: Research Ethics Coordinator, University of Windsor, Windsor, Ontario, N9B 3P4; Telephone: 519-253-3000, ext. 3948; e-mail: ethics@uwindsor.ca
SIGNATURE OF RESEARCH PARTICIPANT/LEGAL REPRESENTATIVE

I understand the information provided for the study *The Role of Personality and Coping Methods in University Students Experiences with Normative Distress* as described herein. My questions have been answered to my satisfaction, and I agree to participate in this study. I have been given a copy of this form.

_____

Name of Participant

_____   _____

Signature of Participant   Date
SIGNATURE OF INVESTIGATOR

These are the terms under which I will conduct research.

_____   _____

Appendix B. Letter of Information for Consent to Participate in Research

Title of Study: *The Role of Personality and Coping Methods in University Students Experiences with Normative Distress*

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The purpose of this research project is to gain a better understanding of the factors that contribute to certain behaviours students may use to cope with their emotions and stress. Specifically, this study is trying to determine what aspects of a person's personality may influence the type of coping strategy they use in times of emotional distress. For some individuals, they may resort to more direct, destructive ways of coping with emotional distress. However, there is a lack of research about how people who use these more extreme coping methods differ not only from each other, but from people who do not resort to these coping methods. This study attempts to address this lack of knowledge by examining how certain aspects of a person's personality contribute to the coping strategies they use in times of distress.

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SIGNATURE OF INVESTIGATOR

These are the terms under which I will conduct research.

_____   _____

Signature of Investigator   Date

Appendix C: Post-Session Feedback Form

It is well known that university students are experiencing higher rates of stress and mental health issues than ever before. Accessing resources that will help you through your time as a university student is important. Knowing where to turn in times of distress is the first step. The following are a list of local resources available to all University of Windsor students who are interested in seeking help/guidance. Even if you aren't actively experiencing distress, utilizing these resources to promote and maintain your mental health and well-being can be beneficial.

Resources located on campus:

1. Peer Support Centre: The Peer Support Centre is a drop-in centre where students from across campus can find a supportive peer to talk to. It's a safe and inclusive space where trained peer support volunteers offer peer counselling to students. The Centre is located at the CAW Student Centre, on the 2nd Floor, in Room 208. The contact phone number for the Peer Support Centre is 519-253-3000 Ext. 4551.

2. Student Counselling Centre: The Student Counselling Centre at the University of Windsor provides free, confidential counselling to registered students as well as consultation and referral services for University of Windsor faculty and staff. The Centre is located at the CAW Student Centre, in Room 293. The contact phone number for the Student Counselling Centre is 519-253-3000 Ext. 4616.

Resources located off-campus:

1. Windsor Regional Hospital – Ouellette Campus can be accessed by anyone if they feel extreme distress and need a safe space to be. Their location is 1030 Ouellette Ave, Windsor, ON N9A 1E1.

2. For general information about mental health, students are recommended to check out the Canadian Mental Health Association's Mental Health Website: http://www.cmha.ca/mental-health/

3. Ontario's 24/7 Mental Health Helpline: 1-866-531-2600

4. Good2Talk is a 24-hour student helpline, they can be reached at: 1-866-925-5454

Appendix D: Demographic Information

Date of Birth (MM/YY): ___/___   Age (years): ____

GENDER:

Race/ethnic background:
[1] ABORIGINAL
[2] ASIAN OR ASIAN DESCENT (NON-ARAB)
[3] HISPANIC/LATINO
[4] NON-HISPANIC BLACK OR AFRICAN DESCENT
[5] NON-HISPANIC WHITE, CAUCASIAN, OR EUROPEAN DESCENT
[6] ARAB OR MIDDLE-EASTERN DESCENT
[7] OTHER/MIXED (please describe) _____
[8] PREFER NOT TO ANSWER

Marital Status:
[1] SINGLE
[2] IN A ROMANTIC RELATIONSHIP (NON-COHABITING)
[3] MARRIED/CIVIL UNION/COHABITING
[4] DIVORCED/SEPARATED AND SINGLE
[5] DIVORCED/SEPARATED AND IN A ROMANTIC RELATIONSHIP (NON-COHABITING)
[6] WIDOWED

Please describe your current level of employment, outside of being a student:
                    [1] Full-time (including volunteer work)
                    [2] Part-time (including volunteer work)
                    [3] Not currently employed or volunteering

ACADEMIC HISTORY

Please indicate your year at UWindsor: [1] 1st year
                    [2] 2nd year
                    [3] 3rd year
                    [4] 4th year
                    [5] 5th year or beyond

To which academic faculty do you belong?
[1] Faculty of Arts, Humanities and Social Sciences
[2] Faculty of Science

[3] Faculty of Business Administration
[4] Faculty of Education
[5] Faculty of Engineering
[6] Faculty of Human Kinetics
[7] Faculty of Nursing
[8] Inter-Faculty Program, Please Specify:

_____

Overall GPA: [1] below 60
                                                   [2] 60-70
                                                   [3] 70-80
                                                   [4] 80 or above

Major GPA: [1] below 60
                                                   [2] 60-70
                                                   [3] 70-80
                                                   [4] 80 or above

Indicate your level of experience with mindfulness or other meditation practices, including yoga and other movement practices, other forms of meditation, devotional practice that is contemplative, and psychotherapy involving mindfulness:

[1] No experience
[2] Highly variable (e.g., some weeks you go to one 1 yoga class, some weeks you go to 8 yoga classes, sometimes you meditate at home)
[3] 3 or fewer times per week every week for 6 months or less
[4] Less than 6 months of experience (at least 4 times per week every week)
[5] 3 or fewer times per week every week for more than 6 months
[6] More than 6 months of experience (at least 4 times per week every week)

Appendix E: Risk-Taking 18 Questionnaire

Please select the answer that best applies:

1) Do you often get into a jam because you do things without thinking?
    a. Yes
    b. No
2) Do you usually think carefully before doing anything?
    a. Yes
    b. No
3) Do you mostly speak before thinking things out?
    a. Yes
    b. No
4) Do you enjoy taking risks?
    a. Yes
    b. No
5) Would you enjoy parachute jumping?
    a. Yes
    b. No
6) Do you welcome new and exciting experiences and sensations, even if they are a little frightening and unconventional?
    a. Yes
    b. No
7) I often try new things just for fun or thrills, even if most people think it is a waste of time.
    a. Yes
    b. No
8) I often spend money until I run out of cash or get into debt from using too much credit.
    a. Yes
    b. No
9) I like to think about things for a long time before I make a decision.
    a. Yes
    b. No
10) I usually think about all the facts in detail before I make a decision.
    a. Yes
    b. No
11) I enjoy saving money more than spending it on entertainment or thrills.
    a. Yes
    b. No
12) I often follow my instincts, hunches, or intuition without thinking through all the details.
    a. Yes
    b. No
13) I often do things on impulse.
    a. Yes

      b. No

14) I enjoy getting into new situations where you can't predict how things will turn out.

      a. Yes

      b. No

15) I sometimes like to do things that are a little frightening.

      a. Yes

      b. No

16) I sometimes do "crazy" things just for fun.

      a. Yes

      b. No

17) I prefer friends who are excitingly unpredictable.

      a. Yes

      b. No

18) I like "wild" uninhibited parties.

      a. Yes

      b. No

Appendix F: Difficulties in Emotion Regulation Scale-18

1	2	3	4	5
Almost Never	Sometimes	About Half the Time	Most of the Time	Almost Always
(0-10%)	(11-35%)	(36-65%)	(66-90%)	(91-100%)

Please indicate how often the following 18 statements apply to you by writing the appropriate number from the scale above (1 – 5) in the box alongside each item.

1) I pay attention to how I feel. _____
2) I am attentive to my feelings. _____
3) When I am upset, I acknowledge my emotions. _____
4) I have no idea how I am feeling. _____
5) I have difficulty making sense out of my feelings. _____
6) I am confused about how I feel. _____
7) When I am upset, I have difficulty getting work done. _____
8) When I am upset, I have difficulty focusing on other things. _____
9) When I am upset, I have difficulty concentrating. _____
10) When I am upset, I become out of control. _____
11) When I am upset, I have difficulty controlling my behaviors. _____
12) When I am upset, I lose control over my behaviors. _____
13) When I am upset, I become embarrassed for feeling that way. _____
14) When I am upset, I feel ashamed with myself for feeling that way. _____
15) When I am upset, I feel guilty for feeling that way. _____
16) When I am upset, I believe that I will remain that way for a long time. _____
17) When I am upset, I believe that I'll end up feeling very depressed. _____
18) When I am upset, I believe that wallowing in it is all I can do. _____

Appendix G: Deliberate Self-Harm Inventory

This questionnaire asks about a number of different things that people sometimes do to hurt themselves. Please be sure to read each question carefully and respond honestly. Often, people who do these kinds of things to themselves keep it a secret, for a variety of reasons. However, honest responses to these questions will provide us with greater understanding and knowledge about these behaviors and the best way to help people. Please answer yes to a question only if you did the behavior intentionally, or on purpose, to hurt yourself. Do not respond yes if you did something accidentally (e.g., you tripped and banged your head on accident). Also, please be assured that your responses are completely confidential.

1) Have you ever intentionally (i.e., on purpose) cut your wrist, arms, or other area(s) of your body (without intending to kill yourself)? (circle one):
   a. Yes
   b. No

If yes,

How old were you when you first did this?_____
How many times have you done this? _____
When was the last time you did this? _____
How many years have you been doing this? (If you are no longer doing this, how many years did you do this before you stopped?) _____
Has this behavior ever resulted in hospitalization or injury severe enough to require medical treatment? _____

2) Have you ever intentionally (i.e., on purpose) burned yourself with a cigarette?
   a. Yes
   b. No

If yes,

How old were you when you first did this?_____
How many times have you done this? _____
When was the last time you did this? _____
How many years have you been doing this? (If you are no longer doing this, how many years did you do this before you stopped?) _____
Has this behavior ever resulted in hospitalization or injury severe enough to require medical treatment? _____

3) Have you ever intentionally (i.e., on purpose) burned yourself with a lighter or a match?
   a. Yes
   b. No

If yes,

How old were you when you first did this?_____
How many times have you done this? _____

When was the last time you did this? _____

How many years have you been doing this? (If you are no longer doing this, how many years did you do this before you stopped?) _____

Has this behavior ever resulted in hospitalization or injury severe enough to require medical treatment? _____

4) Have you ever intentionally (i.e., on purpose) carved words into your skin?
   a. Yes
   b. No

If yes,

How old were you when you first did this?_____

How many times have you done this? _____

When was the last time you did this? _____

How many years have you been doing this? (If you are no longer doing this, how many years did you do this before you stopped?) _____

Has this behavior ever resulted in hospitalization or injury severe enough to require medical treatment? _____

5) Have you ever intentionally (i.e., on purpose) carved pictures, designs, or other marks into your skin?
   a. Yes
   b. No

If yes,

How old were you when you first did this?_____

How many times have you done this? _____

When was the last time you did this? _____

How many years have you been doing this? (If you are no longer doing this, how many years did you do this before you stopped?) _____

Has this behavior ever resulted in hospitalization or injury severe enough to require medical treatment? _____

6) Have you ever intentionally (i.e., on purpose) severely scratched yourself, to the extent that scarring or bleeding occurred?
   a. Yes
   b. No

If yes,

How old were you when you first did this?_____

How many times have you done this? _____

When was the last time you did this? _____

How many years have you been doing this? (If you are no longer doing this, how many years did you do this before you stopped?) _____

Has this behavior ever resulted in hospitalization or injury severe enough to require medical treatment?
_____

7) Have you ever intentionally (i.e., on purpose) bit yourself, to the extent that you broke the skin?
   a. Yes
   b. No

If yes,

How old were you when you first did this?_____

How many times have you done this? _____

When was the last time you did this? _____

How many years have you been doing this? (If you are no longer doing this, how many years did you do this before you stopped?) _____

Has this behavior ever resulted in hospitalization or injury severe enough to require medical treatment?
_____

8) Have you ever intentionally (i.e., on purpose) rubbed sandpaper on your body?
   a. Yes
   b. No

If yes,

How old were you when you first did this?_____

How many times have you done this? _____

When was the last time you did this? _____

How many years have you been doing this? (If you are no longer doing this, how many years did you do this before you stopped?) _____

Has this behavior ever resulted in hospitalization or injury severe enough to require medical treatment?
_____

9) Have you ever intentionally (i.e., on purpose) dripped acid onto your skin?
   a. Yes
   b. No

If yes,

How old were you when you first did this?_____

How many times have you done this? _____

When was the last time you did this? _____

How many years have you been doing this? (If you are no longer doing this, how many years did you do this before you stopped?) _____

Has this behavior ever resulted in hospitalization or injury severe enough to require medical treatment?
_____

10) Have you ever intentionally (i.e., on purpose) used bleach, comet, or oven cleaner to scrub your skin?
   a. Yes
   b. No

If yes,

How old were you when you first did this?_____

How many times have you done this? _____

When was the last time you did this? _____

How many years have you been doing this? (If you are no longer doing this, how many years did you do this before you stopped?) _____

Has this behavior ever resulted in hospitalization or injury severe enough to require medical treatment? _____

11) Have you ever intentionally (i.e., on purpose) stuck sharp objects such as needles, pins, staples, etc. into your skin, not including tattoos, ear piercing, needles used for drug use, or body piercing?
   a. Yes
   b. No

If yes,

How old were you when you first did this?_____

How many times have you done this? _____

When was the last time you did this? _____

How many years have you been doing this? (If you are no longer doing this, how many years did you do this before you stopped?) _____

Has this behavior ever resulted in hospitalization or injury severe enough to require medical treatment? _____

12) Have you ever intentionally (i.e., on purpose) rubbed glass into your skin?
   a. Yes
   b. No

If yes,

How old were you when you first did this?_____

How many times have you done this? _____

When was the last time you did this? _____

How many years have you been doing this? (If you are no longer doing this, how many years did you do this before you stopped?) _____

Has this behavior ever resulted in hospitalization or injury severe enough to require medical treatment? _____

13) Have you ever intentionally (i.e., on purpose) broken your own bones?
   a. Yes

b. No

If yes,

    How old were you when you first did this?_____

    How many times have you done this? _____

    When was the last time you did this? _____

    How many years have you been doing this? (If you are no longer doing this, how many years did you do this before you stopped?) _____

Has this behavior ever resulted in hospitalization or injury severe enough to require medical treatment? _____

14) Have you ever intentionally (i.e., on purpose) banged your head against something, to the extent that you caused a bruise to appear?

    a. Yes

    b. No

If yes,

    How old were you when you first did this?_____

    How many times have you done this? _____

    When was the last time you did this? _____

    How many years have you been doing this? (If you are no longer doing this, how many years did you do this before you stopped?) _____

Has this behavior ever resulted in hospitalization or injury severe enough to require medical treatment? _____

15) Have you ever intentionally (i.e., on purpose) punched yourself, to the extent that you caused a bruise to appear?

    a. Yes

    b. No

If yes,

    How old were you when you first did this?_____

    How many times have you done this? _____

    When was the last time you did this? _____

    How many years have you been doing this? (If you are no longer doing this, how many years did you do this before you stopped?) _____

Has this behavior ever resulted in hospitalization or injury severe enough to require medical treatment? _____

16) Have you ever intentionally (i.e., on purpose) prevented wounds from healing?

    a. Yes

    b. No

If yes,

    How old were you when you first did this?_____

How many times have you done this? _____

When was the last time you did this? _____

How many years have you been doing this? (If you are no longer doing this, how many years did you do this before you stopped?) _____

Has this behavior ever resulted in hospitalization or injury severe enough to require medical treatment? _____

17) Have you ever intentionally (i.e., on purpose) done anything else to hurt yourself that was not asked about in this questionnaire? If yes, what did you do to hurt yourself?
    a. Yes
    b. No

If yes,

How old were you when you first did this?_____

How many times have you done this? _____

When was the last time you did this? _____

How many years have you been doing this? (If you are no longer doing this, how many years did you do this before you stopped?) _____

Has this behavior ever resulted in hospitalization or injury severe enough to require medical treatment? _____

Appendix H: Inventory of Statements About Self-Injury

This questionnaire asks about a variety of self-harm behaviours. Please only endorse a behavior if you have done it <u>intentionally</u> (i.e., on purpose) and <u>without suicidal intent</u> (i.e., not for suicidal reasons).

1. **Please estimate the number of times in your life you have intentionally (i.e., on purpose) performed each type of non-suicidal self-harm (e.g., 0, 10, 50, 100, 500):**

Cutting _____	Severe Scratching _____	
Biting _____	Banging or Hitting Self _____	
Burning	Interfering w/ Wound Healing (e.g., picking scabs) _____	
Carving _____	Rubbing Skin Against Rough Surface _____	
Pinching _____	Sticking Self w/ Needles _____	
Pulling Hair _____	Swallowing Dangerous Substances _____	
Other: _____		

Important: **If you have performed one or more of the behaviours listed above, please complete the final part of this questionnaire. If you have not performed any of the behaviours listed above, you are done with this particular questionnaire.**

2. If you feel that you have a *main* form of self-harm, please circle the behavior(s) on the first page above that you consider to be your main form of self-harm.

3. At what age did you:

First harm yourself?_____ Most recently harm yourself? _____
(approximate date – month/date/year)

4. Do you experience physical pain during self-harm?

Please circle a choice: Yes   Sometimes   No

5. When you self-harm, are you alone?

Please circle a choice: Yes   Sometimes   No

6. Typically, how much time elapses from the time you have the urge to self-harm until you act on the urge?

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Please circle a choice:

< 1 hour	1-3 hours	3-6 hours
6 – 12 hours	12 – 24 hours	>1 day

7. Do/did you want to stop self-harming?

Please circle a choice: Yes   No

Inventory of Statements About Self-Injury (ISAS) – Section II. Functions

Instructions

This inventory was written to help us better understand the experience of non-suicidal self-harm. Below is a list of statements that may or may not be relevant to your experience of self-harm. Please identify the statements that are most relevant for you:

- Circle **0** if the statement is **not relevant** for you at all
- Circle **1** if the statement is **somewhat relevant** for you
- Circle **2** if the statement is **very relevant** for you

"When I self-harm, I am...		Response	
1.	...calming myself down	0 1 2	
2.	...creating a boundary between myself and others	0 1 2	
3.	...punishing myself	0 1 2	
4.	...giving myself a way to care for myself (by attending to the wound)	0 1 2	
5.	...causing pain so I will stop feeling numb	0 1 2	
6.	...avoiding the impulse to attempt suicide	0 1 2	
7.	...doing something to generate excitement or exhilaration	0 1 2	
8.	...bonding with peers	0 1 2	
9.	...letting others know the extent of my emotional pain	0 1 2	
10.	...seeing if I can stand the pain	0 1 2	
11.	...creating a physical sign that I feel awful	0 1 2	
12.	...getting back at someone	0 1 2	
13.	...ensuring that I am self-sufficient	0 1 2	
14.	...releasing emotional pressue that has built up inside of me	0 1 2	
15.	...demonstrating that I am separate from other people	0 1 2	
16.	...expressing anger towards myself for being worthless or stupid	0 1 2	
17.	...creating a physical injury that is easier to care for than my emotional distress	0 1 2	
18.	...trying to feel something (as opposed to nothing) even if it is physical pain	0 1 2	
19.	...responding to suicidal thoughts without actually attempting suicide	0 1 2	
20.	...entertain myself or others by doing something extreme	0 1 2	

21.	...fitting in with others	0	1	2
22.	...seeking care or help from others	0	1	2
23.	...demonstrating I am tough or strong	0	1	2
24.	...proving to myself that my emotional pain is real	0	1	2
25.	...getting revenge against others	0	1	2
26.	...demonstrating that I do not need to rely on others for help	0	1	2
27.	...reducing anxiety, frustrating, anger, or other overwhelming emotions	0	1	2
28.	...establishing a barrier between myself and others	0	1	2
29.	...reacting to feeling unhappy with myself disgusted with myself	0	1	2
30.	...allowing myself to focus on treating the injury, which be gratifying or satisfying	0	1	2
31.	...making sure I am still alive when I don't feel real/	0	1	2
32.	...putting a stop to suicidal thoughts	0	1	2
33.	...pushing my limits in a manner akin to skydiving or other extreme activities	0	1	2
34.	...creating a sign of friendship or kinship with friends or loved ones	0	1	2
35.	...Keeping a loved one from leaving or abandoning me	0	1	2
36.	...proving I can take the physical pain	0	1	2
37.	...signifying the emotional distress I'm experiencing	0	1	2
38.	...trying to hurt someone close to me	0	1	2
39.	...establishing that I am autonomous/independent	0	1	2
Response Key: 0 – not relevant, 1 – somewhat relevant, 2 – very relevant				

(Optional) In the space below, please list any statements that you feel would be more accurate for you than the ones listed above:

(Optional) In the space below, please list any statements you feel should be added to the above list, even if they do not necessarily apply to you:

Appendix I: Positive and Negative Affect Schedule

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you generally feel this way, that is, how you feel on the average. Use the following scale to record your answers.

1=Very slightly or not at all
2=A little
3=Moderately
4=Quite a bit
5=Extremely

____interested	____irritable
____distressed	____alert
____excited	____ashamed
____upset	____inspired
____strong	____nervous
____guilty	____determined
____scared	____attentive
____hostile	____jittery
____enthusiastic	____active
____proud	____afraid

Appendix J: Mindful Attention and Awareness Scale

Below is a collection of statements about your everyday experience. Using the 1–6 scale below, please indicate how frequently or infrequently you currently have each experience. Please answer according to what really reflects your experience rather than what you think your experience should be." The accompanying 6-point scale is 1 = almost always, 2 = very frequently, 3 = somewhat frequently, 4 = somewhat infrequently, 5 = very infrequently, and 6 = almost never.

1. I could be experiencing some emotion and not be conscious of it until some time later.
   - 1 = almost always
   - 2 = very frequently
   - 3 = somewhat frequently
   - 4 = somewhat infrequently
   - 5 = very infrequently
   - 6 = almost never

2. I break or spill things because of carelessness, not paying attention, or thinking of something else.
   - 1 = almost always
   - 2 = very frequently
   - 3 = somewhat frequently
   - 4 = somewhat infrequently
   - 5 = very infrequently
   - 6 = almost never

3. I find it difficult to stay focused on what's happening in the present.
   - 1 = almost always
   - 2 = very frequently
   - 3 = somewhat frequently
   - 4 = somewhat infrequently
   - 5 = very infrequently
   - 6 = almost never

4. I tend to walk quickly to get where I'm going without paying attention to what I experience along the way.
   - 1 = almost always
   - 2 = very frequently
   - 3 = somewhat frequently
   - 4 = somewhat infrequently
   - 5 = very infrequently
   - 6 = almost never

5. I tend not to notice feelings of physical tension or discomfort until they really grab my attention.
   - 1 = almost always

2 = very frequently
3 = somewhat frequently
4 = somewhat infrequently
5 = very infrequently
6 = almost never

6. I forget a person's name almost as soon as I've been told it for the first time.
   1 = almost always
   2 = very frequently
   3 = somewhat frequently
   4 = somewhat infrequently
   5 = very infrequently
   6 = almost never

7. It seems I am "running on automatic" without much awareness of what I'm doing.
   1 = almost always
   2 = very frequently
   3 = somewhat frequently
   4 = somewhat infrequently
   5 = very infrequently
   6 = almost never

8. I rush through activities without being really attentive to them.
   1 = almost always
   2 = very frequently
   3 = somewhat frequently
   4 = somewhat infrequently
   5 = very infrequently
   6 = almost never

9. I get so focused on the goal I want to achieve that I lose touch with what I am doing right now to get there.
   1 = almost always
   2 = very frequently
   3 = somewhat frequently
   4 = somewhat infrequently
   5 = very infrequently
   6 = almost never

10. I do jobs or tasks automatically, without being aware of what I'm doing.
   1 = almost always
   2 = very frequently
   3 = somewhat frequently
   4 = somewhat infrequently
   5 = very infrequently
   6 = almost never

11. I find myself listening to someone with one ear, doing something else at the same time.
    1 = almost always
    2 = very frequently
    3 = somewhat frequently
    4 = somewhat infrequently
    5 = very infrequently
    6 = almost never

12. I drive places on "automatic pilot" and then wonder why I went there.
    1 = almost always
    2 = very frequently
    3 = somewhat frequently
    4 = somewhat infrequently
    5 = very infrequently
    6 = almost never

13. I find myself preoccupied with the future or the past.
    1 = almost always
    2 = very frequently
    3 = somewhat frequently
    4 = somewhat infrequently
    5 = very infrequently
    6 = almost never

14. I find myself doing things without paying attention.
    1 = almost always
    2 = very frequently
    3 = somewhat frequently
    4 = somewhat infrequently
    5 = very infrequently
    6 = almost never

15. I snack without being aware that I'm eating.
    1 = almost always
    2 = very frequently
    3 = somewhat frequently
    4 = somewhat infrequently
    5 = very infrequently
    6 = almost never

Appendix K: Patient Health Questionnaire-9

Over the last 2 weeks, how often have you been bothered by any of the following problems? (Use "✔" to indicate your answer)	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself — or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed? Or the opposite—being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3

If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

Not difficult at all ☐
Somewhat difficult ☐
Very difficult ☐
Extremely difficult ☐

Appendix L: Generalized Anxiety Disorder-7

Over the last 2 weeks, how often have you been bothered by any of the following problems? (Use "✔" to indicate your answer)	Not at all	Several days	More than half the days	Nearly every day
1.Feeling nervous, anxious, or on edge?	0	1	2	3
2.Not being able to stop or control worrying?	0	1	2	3
3.Worrying too much about different things?	0	1	2	3
4.Trouble relaxing?	0	1	2	3
5.Being so restless that it is hard to sit still?	0	1	2	3
6.Becoming easily annoyed or irritable?	0	1	2	3
7.Feeling afraid as if something awful might happen?	0	1	2	3

Appendix M: Perceived Stress Scale

INSTRUCTIONS:

The questions in this scale ask you about your feelings and thoughts during the last month.   In each case, you will be asked to indicate your response by placing an "X" over the circle representing HOW OFTEN you felt or thought a certain way. Although some of the questions are similar, there are differences between them and you should treat each one as a separate question. The best approach is to answer fairly quickly. That is, don't try to count up the number of times you felt a particular way, but rather indicate the alternative that seems like a reasonable estimate.

1) In the last month, how often have you been upset because of something that happened unexpectedly?

Never Often	Almost Never	Sometimes	Fairly Often	Very
0	1	2	3	4

2) In the last month, how often have you felt that you were unable to control the important things in your life?

Never Often	Almost Never	Sometimes	Fairly Often	Very
0	1	2	3	4

3) In the last month, how often have you dealt successfully with day to day problems and annoyances?

Never Often	Almost Never	Sometimes	Fairly Often	Very
0	1	2	3	4

4) In the last month, how often have you dealt successfully with day to day problems and annoyances?

Never Often	Almost Never	Sometimes	Fairly Often	Very
0	1	2	3	4

5) In the last month, how often have you felt that you were effectively coping with important changes that were occurring in your life?

Never Often	Almost Never	Sometimes	Fairly Often	Very
0	1	2	3	4

6) In the last month, how often have you felt confident about your ability to handle your personal problems?

Never Often	Almost Never	Sometimes	Fairly Often	Very
0	1	2	3	4

7) In the last month, how often have you felt that things were going your way?

Never Often	Almost Never	Sometimes	Fairly Often	Very
0	1	2	3	4

8) In the last month, how often have you found that you could not cope with all the things you had to do?

Never Often	Almost Never	Sometimes	Fairly Often	Very
0	1	2	3	4

9) In the last month, how often have you been able to control irritations in your life?

Never Often	Almost Never	Sometimes	Fairly Often	Very
0	1	2	3	4

10) In the last month, how often have you felt that you were on top of things?

Never Often	Almost Never	Sometimes	Fairly Often	Very
0	1	2	3	4

11) In the last month, how often have you been angered because of things that happened that were outside of your control?

Never Often	Almost Never	Sometimes	Fairly Often	Very
0	1	2	3	4

12) In the last month, how often have you found yourself thinking about things that you have to accomplish?

Never Often	Almost Never	Sometimes	Fairly Often	Very
0	1	2	3	4

13) In the last month, how often have you been able to control the way you spend your time?

Never Often	Almost Never	Sometimes	Fairly Often	Very
0	1	2	3	4

14) In the past month, how often have you felt difficulties were piling up so high that you could not overcome them?

Never Often	Almost Never	Sometimes	Fairly Often	Very
0	1	2	3	4

Appendix N: Connor-Davidson Resilience Scale 25 (CD-RISC-25) ©

Initials: ID#:   Date: Age:

For each item, please mark an "x" in the box below that best indicates how much you agree with the following statements as they apply to you over the last month. If a particular situation has not occurred recently, answer according to how you think you would have felt.

	Not true at all (0)	Rarely true (1)	Sometimes true (2)	Often true (3)	True nearly all the time (4)
1) I am able to adapt when changes occur.	☐	☐	☐	☐	☐
2) I have at least one close and secure relationship that helps me when I am stressed.	☐	☐	☐	☐	☐
3) When there are no clear solutions to my problems, sometimes fate or God can help.	☐	☐	☐	☐	☐
4) I can deal with whatever comes my way.	☐	☐	☐	☐	☐
5) Past successes give me confidence in dealing with new challenges and difficulties.	☐	☐	☐	☐	☐
6) I try to see the humorous side of things when I am faced with problems.	☐	☐	☐	☐	☐
7) Having to cope with stress can make me stronger.	☐	☐	☐	☐	☐
8) I tend to bounce back after illness, injury, or other hardships.	☐	☐	☐	☐	☐
9) Good or bad, I believe that most things happen for a reason.	☐	☐	☐	☐	☐
10) I give my best effort no matter what the outcome may be.	☐	☐	☐	☐	☐
11) I believe I can achieve my goals, even if there are obstacles.	☐	☐	☐	☐	☐
12) Even when things look hopeless, I don't give up.	☐	☐	☐	☐	☐
13) During times of stress/crisis, I know where to turn for help.	☐	☐	☐	☐	☐

14) Under pressure, I stay focused and think clearly.	☐	☐	☐	☐	☐
15) I prefer to take the lead in solving problems rather than letting others make all the decisions.	☐	☐	☐	☐	☐
16) I am not easily discouraged by failure.	☐	☐	☐	☐	☐
17) I think of myself as a stong person when dealing with life's challenges and difficulties.	☐	☐	☐	☐	☐
18) I can make unpopular or difficult decisions that affect other people, if it is necessary.	☐	☐	☐	☐	☐
19) I am able to handle unpleasant or painful feelings like sadness, fear, and anger.	☐	☐	☐	☐	☐
20) In dealing with life's problems, sometimes you have to act on a hunch without knowing why.	☐	☐	☐	☐	☐
21) I have a strong sense of purpose in life.	☐	☐	☐	☐	☐
22) I feel in control of my life.	☐	☐	☐	☐	☐
23) I like challenges.	☐	☐	☐	☐	☐
24) I work to attain my goals no matter what roadblocks I encounter along the way.	☐	☐	☐	☐	☐
25) I take pride in my achievements.	☐	☐	☐	☐	☐

Appendix O: The Social Provisions Scale

Participant ID:_____

Social Provisions Scale

Please count the number of your family members who reside in the area. Specifically, please provide:

1. The **number** of your immediate family members (parents, spouses, siblings and children) living in

the Windsor/Detroit area:

_____

 and

2. The **number** of extended family members (grandparents, aunts, uncles, and cousins) living in the

Windsor/Detroit area:

_____

Next I'm going to ask you about your relationship with other people. Please tell me how much each statement describes your situation by using these responses." *[Hand answer card and read responses.]* **"So, for example, if you feel a statement is VERY TRUE you would say Strongly Agree. If you feel a statement CLEARLY does not describe your relationships, you would answer Strongly Disagree. Do you have any questions?"**

	<u>Strongly Disagree</u>	<u>Disagree</u>	<u>Agree</u>	<u>Strongly Agree</u>
1. There are people I know will help me if I really need it.	1	2	3	4
2. I do not have close relationships with other people.	1	2	3	4
3. There is no one I can turn to in times of stress.	1	2	3	4
4. There are people who call on me to help them.	1	2	3	4
5. There are people who like the same social activities I do.	1	2	3	4
6. Other people do not think I am good at what I do.	1	2	3	4

7. I feel responsible for taking care of someone else.	1	2	3	4
8. I am with a group of people who think the same way I do about things.	1	2	3	4
9. I do not think that other people respect what I do.	1	2	3	4
10. If something went wrong, no one would help me.	1	2	3	4
11. I have close relationships that make me feel good.	1	2	3	4
12. I have someone to talk to about decisions in my life.	1	2	3	4
13. There are people who value my skills and abilities.	1	2	3	4
14. There is no one who has the same interests and concerns as me.	1	2	3	4
15. There is no one who needs me to take care of them.	1	2	3	4
16. I have a trustworthy person to turn to if I have problems.	1	2	3	4
17. I feel a strong emotional tie with at least one other person.	1	2	3	4
18. There is no one I can count on for help if I really need it.	1	2	3	4
19. There is no one I feel comfortable talking about problems with.	1	2	3	4
20. There are people who admire my talents and abilities.	1	2	3	4
21. I do not have a feeling of closeness with anyone.	1	2	3	4
22. There is no one who likes to do the things I do.	1	2	3	4
23. There are people I can count on in an emergency.	1	2	3	4
24. No one needs me to take care of them.	1	2	3	4

Appendix P: Self-Compassion Scale Short-Form

HOW I TYPICALLY ACT TOWARDS MYSELF IN DIFFICULT TIMES

Please read each statement carefully before answering. To the left of each item, indicate how often you behave in the stated manner, using the following scale:

Almost   Almost
never   always
1   2   3   4   5

_____1. When I fail at something important to me I become consumed by feelings of inadequacy.

_____2. I try to be understanding and patient towards those aspects of my personality I don't like.

_____3. When something painful happens I try to take a balanced view of the situation.

_____4. When I'm feeling down, I tend to feel like most other people are probably happier than I am.

_____5. I try to see my failings as part of the human condition.

_____6. When I'm going through a very hard time, I give myself the caring and tenderness I need.

_____7. When something upsets me I try to keep my emotions in balance.

_____8. When I fail at something that's important to me, I tend to feel alone in my failure

_____9. When I'm feeling down I tend to obsess and fixate on everything that's wrong.

_____10. When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people.

_____11. I'm disapproving and judgmental about my own flaws and inadequacies.

_____12. I'm intolerant and impatient towards those aspects of my personality I don't like.

Appendix Q: Inventory of College Students' Recent Life Experiences

Following is a list of experiences which many students have some time or other. Please indicate for each experience how much it has been a part of your life *over the past month*. Put a "1" in the space provided next to an experience if it was *not at all part* of your life over the past month (e.g., "trouble with mother in law – 1"); "2" for an experience which was *only slightly* part of your life over that time; "3" for an experience which was *distinctly* part of your life; and "4" for an experience which was *very much* part of your life over the past month.

Intensity of Experience over Past Month
1 = *not at all* part of my life
2 = *only slightly* part of my life
3 = *distinctly* part of my life
4 = *very much* part of my life

1) Conflicts with romantic partner's family.   ____
2) Being let down or disappointed by friends.   ____
3) Conflict with professor(s).   ____
4) Social rejection.   ____
5) Too many things to do at once.   ____
6) Being taken for granted.   ____
7) Financial conflicts with family members.   ____
8) Having your trust betrayed by a friend.   ____
9) Separation from people you care about.   ____
10) Having your contributions overlooked.   ____
11) Struggling to meet your own academic standards.   ____
12) Being taken advantage of.   ____
13) Not enough leisure time.   ____
14) Struggling to meet the academic standards of others.   ____
15) A lot of responsibilities.   ____
16) Dissatisfaction with school.   ____
17) Decisions about intimate relationship(s).   ____
18) Not enough time to meet your obligations.   ____
19) Dissatisfaction with your mathematical ability.   ____
20) Important decisions about your future career.   ____
21) Financial burdens.   ____
22) Dissatisfaction with your reading ability.   ____
23) Important decisions with your education.   ____
24) Loneliness.   ____
25) Lower grades than you hoped for.   ____
26) Conflict with teaching assistant(s).   ____
27) Not enough time for sleep.   ____

28) Conflicts with your family. _____
29) Heavy demands from extracurricular activities. _____
30) Finding courses too demanding. _____
31) Conflict with friends. _____
32) Hard effort to get ahead. _____
33) Poor health of a friend. _____
34) Disliking your studies. _____
35) Getting "ripped off" or cheated in the purchase of services. _____
36) Social conflicts over smoking. _____
37) Difficulties with transportation. _____
38) Disliking fellow student(s). _____
39) Conflicts with romantic partner. _____
40) Dissatisfaction with your ability at written expression. _____
41) Interruptions of your school work. _____
42) Social isolation. _____
43) Long waits to get service (e.g., at banks, stores, etc.) _____
44) Being ignored. _____
45) Dissatisfaction with your physical appearance. _____
46) Finding course(s) uninteresting. _____
47) Gossip concerning someone you care about. _____
48) Failing to get expected job. _____
49) Dissatisfaction with your athletic skills. _____

Appendix R: Toronto Alexithymia Scale-20

Using the scale provided as a guide, indicate how much you agree or disagree with each of the following statements by placing an X in the appropriate place. Give only one answer for each state: (1) Strongly Disagree, (2) Moderately Disagree, (3) Neither Disagree nor Agree, (4) Moderately Agree, (5) Strongly Agree.

	Strongly Disagree (1)	Moderately Disagree (2)	Neither Disagree nor Agree (3)	Moderately Agree (4)	Strongly Agree (5)
1. I am often confused about what emotion I am feeling.	1	2	3	4	5
2. It is difficult for me to find the right words for my feelings.	1	2	3	4	5
3. I have physical sensations that even doctors don't understand.	1	2	3	4	5
4. I am able to describe my feelings easily.	1	2	3	4	5
5. I prefer to analyze problems rather than just describe them.	1	2	3	4	5
6. When I am upset, I don't know if I am sad, frightened, or angry.	1	2	3	4	5
7. I am often puzzled by sensations in my body.	1	2	3	4	5
8. I prefer to just let things happen rather than to understand why they turned out that way.	1	2	3	4	5
9. I have feelings that I can't quite identify.	1	2	3	4	5
10. Being in touch with emotions is essential.	1	2	3	4	5
11. I find it hard to describe how I feel about people.	1	2	3	4	5
12. People tell me to describe my feelings more.	1	2	3	4	5

13. I don't know what's going on inside me.	1	2	3	4	5
14. I often don't know why I am angry.	1	2	3	4	5
15. I prefer talking to people about their daily activities rather than their feelings.	1	2	3	4	5
16. I prefer to watch "light" entertainment shows rather than psychological dramas.	1	2	3	4	5
17. It is difficult for me to reveal my innermost feelings, even to close friends.	1	2	3	4	5
18. I can feel close to someone, even in moments of silence.	1	2	3	4	5
19. I find examination of my feelings useful in solving personal problems.	1	2	3	4	5
20. Looking for hidden meanings in movies or plays distracts from their enjoyment.	1	2	3	4	5

Appendix S: Big Five Inventory

How I am in general

Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who *likes to spend time with others*? Please write a number next to each statement to indicate the extent to which <u>you agree or disagree with that statement.</u>

1	**2**	**3**	**4**	**5**
Disagree Strongly	**Disagree a little**	**Neither agree nor disagree**	**Agree a little**	**Agree strongly**

I am someone who...

1. _____ Is talkative

2. _____ Tends to find fault with others

3. _____ Does a thorough job

4. _____ Is depressed, blue

5. _____ Is original, comes up with new ideas

6. _____ Is reserved

7. _____ Is helpful and unselfish with others

8. _____ Can be somewhat careless

9. _____ Is relaxed, handles stress well.

10. _____ Is curious about many different things

11. _____ Is full of energy

12. _____ Starts quarrels with others

13. _____ Is a reliable worker

14. _____ Can be tense

15. _____ Is ingenious, a deep thinker

16. _____ Generates a lot of enthusiasm

17. _____ Has a forgiving nature

18. _____ Tends to be disorganized

19. _____ Worries a lot

20. _____ Has an active imagination

21. _____ Tends to be quiet

22. _____ Is generally trusting

23. _____ Tends to be lazy

24. _____ Is emotionally stable, not easily upset

25. _____ Is inventive

26. _____ Has an assertive personality

27. _____ Can be cold and aloof

28. _____ Perseveres until the task is finished

29. _____ Can be moody

30. _____ Values artistic, aesthetic experiences

31. _____ Is sometimes shy, inhibited

32. _____ Is considerate and kind to almost everyone

33. _____ Does things efficiently

34. _____ Remains calm in tense situations

35. _____ Prefers work that is routine

36. _____ Is outgoing, sociable

37. _____ Is sometimes rude to others

38. _____ Makes plans and follows through with them

1	2	3	4	5
Disagree Strongly	**Disagree a little**	**Neither agree nor disagree**	**Agree a little**	**Agree strongly**

39. _____ Gets nervous easily

40. _____ Likes to reflect, play with ideas

41. _____ Has few artistic interests

42. _____ Likes to cooperate with others

43. _____ Is easily distracted

44. _____ Is sophisticated in art, music, or literature

Appendix T: UPPS-P Impulsive Behaviour Scale

Below are a number of statements that describe ways in which people act and think. For each statement, please indicate how much you agree or disagree with the statement. If you Agree Strongly circle 1, if you Agree Somewhat circle 2, if you Disagree somewhat circle 3, and if you Disagree Strongly circle 4. Be sure to indicate your agreement or disagreement for every statement below. Also, there are questions on the following pages.

	Agree Strongly	Agree Some	Disagree Some	Disagree Strongly
1. I have a reserved and cautious attitude toward life.	1	2	3	4
2. I have trouble controlling my impulses.	1	2	3	4
3. I generally seek new and exciting experiences and sensations.	1	2	3	4
4. I generally like to see things through to the end.	1	2	3	4
5. When I am very happy, I can't seem to stop my from doing things that can have bad consequences.	1	2	3	4
6. My thinking is usually careful and purposeful.	1	2	3	4
7. I have trouble resisting my cravings (for food, cigarettes, etc.).	1	2	3	4
8. I'll try anything once.	1	2	3	4
9. I tend to give up easily.	1	2	3	4
10. When I am in a great mood, I tend to get into situations that could cause me problems.	1	2	3	4
11. I am not one of those people who blurt out things without thinking.	1	2	3	4
12. I often get involved in things I later wish I could get out of.	1	2	3	4
13. I like sports and games in which you have to choose your next move very quickly.	1	2	3	4
14. Unfinished tasks really bother me.	1	2	3	4
15. When I am very happy, I tend to do things that may cause problems in my life.	1	2	3	4
16. I like to stop and think things over before I do them.	1	2	3	4
17. When I feel bad, I will often do things I later regret in order to make myself feel better now.	1	2	3	4
18. I would enjoy water skiing.	1	2	3	4
19. Once I get going on something I hate to stop.	1	2	3	4

20. I tend to lose control when I am in a great mood.	1	2	3	4
21. I don't like to start a project until I know exactly how to proceed.	1	2	3	4
22. Sometimes when I feel bad, I can't seem to stop what I am doing even though it is making me feel worse.	1	2	3	4
23. I quite enjoy taking risks.	1	2	3	4
24. I concentrate easily.	1	2	3	4
25. When I am really ecstatic, I tend to get out of control.	1	2	3	4
26. I would enjoy parachute jumping.	1	2	3	4
27. I finish what I start.	1	2	3	4
28. I tend to value and follow a rational, "sensible" approach to things.	1	2	3	4
29. When I am upset I often act without thinking.	1	2	3	4
30. Others would say I make bad choices when I am extremely happy about something.	1	2	3	4
31. I welcome new and exciting experiences and sensations, even if they are a little frightening and unconventional.	1	2	3	4
32. I am able to pace myself so as to get things done on time.	1	2	3	4
33. I usually make up my mind through careful reasoning.	1	2	3	4
34. When I feel rejected, I will often say things that I later regret.	1	2	3	4
35. Others are shocked or worried about the things I do when I am feeling very excited.	1	2	3	4
36. I would like to learn to fly an airplane.	1	2	3	4
37. I am a person who always gets the job done.	1	2	3	4
38. I am a cautious person.	1	2	3	4
39. It is hard for me to resist acting on my feelings.	1	2	3	4
40. When I get really happy about something, I tend to do things that can have bad consequences.	1	2	3	4
41. I sometimes like doing things that are a bit frightening.	1	2	3	4
42. I almost always finish projects that I start.	1	2	3	4

43. Before I get into a new situation I like to find out what to expect from it.	1	2	3	4
44. I often make matters worse because I act without thinking when I am upset.	1	2	3	4
45. When overjoyed, I feel like I can't stop myself from going overboard.	1	2	3	4
46. I would enjoy the sensation of skiing very fast down a high mountain slope.	1	2	3	4
47. Sometimes there are so many little things to be done that I just ignore them all.	1	2	3	4
48. I usually think carefully before doing anything.	1	2	3	4
49. When I am really excited, I tend not to think of the consequences of my actions.	1	2	3	4
50. In the heat of an argument, I will often say things that I later regret.	1	2	3	4
51. I would like to scuba diving.	1	2	3	4
52. I tend to act without thinking when I am really excited.	1	2	3	4
53. I always keep my feelings under control.	1	2	3	4
54. When I am really happy, I often find myself in situations that I normally wouldn't be comfortable with.	1	2	3	4
55. Before making up my mind, I consider all the advantages and disadvantages.	1	2	3	4
56. I would enjoy fast driving.	1	2	3	4
57. When I am very happy, I feel like it is ok to give in to cravings or overindulge.	1	2	3	4
58. Sometimes I do impulsive things that I later regret.	1	2	3	4
59. I am surprised at the things I do while in a great mood.	1	2	3	4

Appendix U: Validity Questions

1) RT-18
   a. I often complete surveys without paying attention to them.
   b. I often complete surveys without paying attention to them.
2) DERS-18
   a. When reading this question, I will respond with "About Half the Time."
   b. When reading this question, I will respond with "Sometimes."
3) DSHI
   a. Have you ever intentionally lied to someone before?
   b. Answer this question the same way you answered the first question.
4) PANAS
   a. Please answer with 5
   b. Please answer with 2
5) MAAS
   a. I find it difficult to stay focused on long surveys, to show you are focused, please select "almost never."
   b. Sometimes people rush through completing forms, to show I am not doing that I will select "somewhat frequently."
6) PHQ-9
   a. Please circle the number 2.
   b. Please circle the number 0.
7) GAD-7
   a. Please circle the number 3.
   b. Please circle the number 1.
8) PSS
   a. In the last month, how often have you felt that you were unable to focus on school work?
   b. Please answer this question in the exact same way that you answered the question about not being able to focus on school work.
9) CD-RISC-25
   a. I face a lot of pressure/stress from school.
   b. Please answer this question in the exact same way that you answered the question about facing a lot of pressure/stress from school.
10) SPS
    a. I will show I am reading this questionnaire by circling "Agree."
    b. I am paying attention, so I will circle "Disagree."
11) SCS-SF
    a. I consider myself to be a good research participant, so I pay attention and will respond with 5.
    b. When reading this question, I will show I read the question by responding with 3.
12) ICSRLE
    a. Answer this question with a 4.
    b. Answer this question with a 1.
13) TAS-20
    a. I find it hard to put words to my physical sensations.
    b. I find it hard to name my physical sensations.

GROUP SEPARATION OF NSSI

14)

    BFI

        a. Is going to answer this question with a 4.

        b. Will respond to this question with a 2.

15) UPPS-P

        a. I'll show that I am paying attention to this survey by circling the Agree some option.

        b. I will answer this question the same way I answered the question about circling the Agree some option.

Vita Auctoris

Jann MacIsaac was born in 1990 in Epekwitk/Abegweit, commonly known for its colonial name: Prince Edward Island. Jann is of colonizer-settler descent and is trans non-binary, using they/them pronouns. Jann graduated from the University of Prince Edward Island where they obtained an Honours Bachelor of Arts degree in 2015, with a major in Psychology and a minor in History. Jann is currently completing a Master of Applied Social Psychology degree at the University of Windsor and expects to finish their degree by Winter 2019.