A cognitive-experiential avoidance model (C-EAM): Understanding non-suicidal self-injury as a form of avoidance

by

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ABSTRACT

A COGNITIVE EXPERIENTIAL AVOIDANCE MODEL (C-EAM): UNDERSTANDING NON-SUICIDAL SELF-INJURY AS A FORM OF AVOIDANCE

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Few theoretical models formally integrate the roles of cognitive and emotional factors in understanding non-suicidal self-injury (NSSI). The first study outlines a new model, which considers both emotionality and cognition as predictors of experiential avoidance. NSSI is proposed to be an experientially avoidant behaviour, used to avoid from or escape unwanted emotional experiences. Specifically, it was proposed that emotion dysregulation would moderate the relation between two cognitive perceptions associated with general forms of self-harm, namely defeat (e.g., “I am rejected/experienced loss/am defeated”) and entrapment (e.g., “I am stuck in this state and there is no way out”). This model, coined the Cognitive-Experiential Avoidance Model (C-EAM) was tested in a sample of 464 undergraduate students – a known high-risk population for NSSI. Findings provided preliminary support for the model, suggesting that the perception of defeat predicts the perception of entrapment more for those with poor emotion regulation skills. Entrapment also predicted significant variance in experiential avoidance, which varied as a function of NSSI frequency group. Logistical regression analyses also demonstrated that entrapment and experiential avoidance predicted NSSI group membership. Those with a history of NSSI reported poorer emotion regulation skills and higher perceptions of entrapment compared to those without a history of NSSI; however, effect sizes were largest for those with more than four lifetime occurrences of NSSI. The second study evaluated an in-situ measure of experiential avoidance using a subset of participants from Study 1. Results did not support the proposed hypotheses, as those with a history of NSSI did not opt to discontinue a stressful task earlier than those without a history of NSSI. Findings speak to the importance of considering both cognitive and emotional factors in NSSI management. Future research should focus on model replication in other at-risk samples (e.g., youth), using momentary assessments of emotions and cognitions to ascertain the temporal nature of model components, and assessing the role of emotion regulation as a moderator of other cognitive factors associated with NSSI.
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A Cognitive Experiential Avoidance Model (C-EAM):
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I. Introduction

Non-suicidal self-injury (NSSI) is the deliberate act of inflicting immediate tissue damage on the self, without conscious suicidal ideation that occurs outside the realm of culturally or socially sanctioned practices (e.g., piercings, tattooing; Nock & Favazza, 2009). Prominent researchers in the field have called for testing new NSSI models using methodologies that extend beyond reliance on retrospective self-report approaches (see Nock, 2009). Part of the reason for this call comes from the high rates of NSSI. Researchers have found that among university students, 17 percent reported having engaged in an act of self-injury, with about 70 percent of these students having reported repeat episodes of self-injury (Whitlock, Eckenrode, & Silverman, 2006). Another reason stems from the risks associated with NSSI, including psychiatric symptoms (e.g., depression, suicidal ideation, anxiety) and in some cases, death by suicide (Hawton, Rodham & Evans, 2006; Walsh, 2006; Whitlock et al., 2006; Zahl & Hawton, 2005). Thus, it is imperative for researchers to develop comprehensive, theory-driven and empirically supported models to better understand the processes involved in self-injury. The goal of this dissertation is to examine a novel self-injury model that synthesizes two related yet distinct research streams.

To meet this objective, key processes involved in NSSI were examined by integrating two theoretical models. In the first model, namely the Experiential Avoidance Model (EAM; Chapman, Gratz & Brown, 2006), it is suggested that individual and stable differences in emotion regulation (i.e., one’s skills in modulating arousal and access to such skills at times of high distress) and emotion temperament (i.e., one’s ability to tolerate distress and the experience of distress) play a proximal and central role in the process leading from stressor to self-injury (Chapman et al., 2006). While being more reactive to emotionally-salient experiences (i.e., having a more intense reaction to a stressor), may require greater skills in emotion regulation (i.e., to tolerate a greater degree of distress), the two are distinct facets of emotional experience. Specifically, within the model, an individual’s emotional response to a stressful trigger is suggested to be moderated by his/her emotion regulation skills, distress tolerance and emotion reactivity. Difficulties in these latter areas are hypothesized to be related to a strong need to avoid internal distress; NSSI is thought to be one such avoidance method. This model, while theoretically and heuristically strong, does not formally consider cognitive content (e.g., thoughts such as: I am helpless, I am no good, I am trapped), which may precede or co-exist with affective states. People who self-injure report experiencing negative thoughts in general and directly prior to and during acts of self-injury (Najmi, Wegner, & Nock, 2007; Nock, Prinstein & Sterba, 2009). Moreover, research on intervention for NSSI indicates that therapies focusing on aspects of cognition, including dialectical behaviour therapy and cognitive behavioural therapy may be effective for NSSI (Klonsky, 2007; Klonsky & Muehlenkamp, 2007; Slee, Spinhowen, Garnefski & Arensman, 2008; Walsh, 2006). A core component of these treatment approaches is a focus on cognitions as one of several vehicles for therapeutic change. Thus, considering a person’s cognitive states (both at the time of distress, and more stable cognitive distortions) in a comprehensive model of self-injury seems warranted. Elucidating common cognitions associated with NSSI, alongside different emotional factors may inform clinical intervention.
In keeping with the inclusion of cognitive factors in a formal NSSI model, researchers have found that there may be utility for the *Cry of Pain Model* (CoP), a model often used to study suicide, to understand NSSI. Specifically, researchers have found that self-harm (which is a broader construct under which NSSI is subsumed; Hawton et al., 2006) may result from a perception of being trapped, with no perceived escape, in a highly stressful situation (Rasmussen et al., 2010). This model takes into account an individual’s cognitive perceptions of defeat (i.e., “I want to get out of this”) and entrapment (i.e., “There is no way out of this”). However, this model does not formally account for individual differences in emotions or emotion regulation despite evidence that suggests that emotional factors are imperative in understanding self-injury (Klonsky, 2009; Linehan, 1993; Nock, 2009; Nock, Wedig, Holmberg, & Hooley, 2008).

For the current dissertation, it is suggested that individual differences in one’s reactivity and subsequent ability to regulate emotions, will moderate the relation between perceiving a need to escape and a perception of no escape. Perceiving no escape in the context of a stressor is thought to be related to avoidance of emotions through the use of NSSI. Specifically, the ability to manage emotions (emotion regulation) adequately is thought to impact the relation between a perception of defeat and a perception of entrapment. For those with adequate regulation skills, perceptions of entrapment may be less common since these individuals can adaptively and adequately manage emotions when they are heightened. These individuals may be protected from perceptions of entrapment. Thus, reactivity to emotional cues and aspects of emotion regulation may play a key role that is unique from that outlined in the EAM model.

Given that emotional and cognitive factors are important in intervention for this behaviour (Linehan, 1993; Sleet et al., 2008) and have been implicated as important in understanding NSSI in a large body of research (Gratz, 2001; Klonsky, 2009; Najmi, Wegner & Nock, 2007; Nock & Mendes, 2008) it may be that an integrated model can enhance our understanding of NSSI. Indeed, findings from this model may be useful in further informing clinical interventions, assessments and prevention programs for this highly complex behaviour. The present dissertation explored a novel theoretical model, coined the *Cognitive Experiential Avoidance Model of Self-Injury* (C-EAM; Figure 1). The C-EAM synthesizes key components from the abovementioned theories into a more comprehensive model by integrating emotional temperament, emotion regulation and cognitive perceptions of defeat and entrapment. Prior to outlining the rationale for the development of an integrated model of NSSI, it is first important to provide a summary of the history and scope of NSSI, in order to highlight the critical role of cognitions and emotions in understanding self-injury.

II. The Scope of Self-injury

*Definition.* Research on NSSI is fraught with inconsistencies in the definition of the behaviour (for a review see Nock & Favazza, 2009). The field has recently agreed that NSSI is best viewed as the intentional destruction of body tissue without conscious suicidal intent, and not for socially or culturally sanctioned purposes (Nock & Favazza, 2009). NSSI includes but is not limited to: cutting, burning, scraping, scratching, and self-inflicted bruising. The harm to the body must be immediate, which precludes behaviours that cause gradual damage to the body.
over time and do not result in tissue damage (e.g., eating disordered behaviours, drug use, and alcohol abuse).

Although NSSI is the agreed upon term among many researchers (ISSS, 2010), there are other referents common in the literature which merit consideration and discussion. It is important to review the various terms used within this body of literature, as these terms are not synonymous and preclude the ability to draw comparisons across studies where different terms are used. While the term *self-mutilation* includes many behaviours that are now considered NSSI (e.g., cutting) Nock and Favazza (2009) highlighted that *mutilation*, by its definition, (e.g., “to cut up or alter radically so as to make imperfect”; Merriam-Webster’s collegiate Dictionary, 2005; p. 820) does not necessarily or accurately reflect all behaviours considered NSSI (which may range in severity and not necessarily indicate *mutilation*, as defined).

Other common terms in the literature are *deliberate self-harm* and *parasuicide*. While these terms include behaviours classified as NSSI (e.g., cutting and burning), they encompass a wider variety of behaviours that do not always include tissue damage (e.g., overdosing without intent to die). As well, these terms do not exclude behaviours that may carry suicidal intent, which is an essential aspect of the NSSI definition. Researchers have found that there are important differences between acts that are lethal versus non-lethal (for a review see Nock & Favazza, 2009). For instance, individuals who self-injure but do not attempt suicide tend to injure frequently, with multiple, less lethal methods, and are at less risk for death by suicide than those who employ more lethal methods and do so less frequently (Muehlenkamp, 2005; Nock, Joiner, Gordon, Lloyd-Richardson, & Prinstein, 2006).

The noted differences in terminology highlight the importance of operationalizing terms within the NSSI literature. Using terms interchangeably may have implications that are both conceptual and empirical in nature, such as precluding comparisons across some studies where terminology is not consistent. For this reason, the term and formal definition for NSSI were adopted for the current studies in order to be consistent with the growing body of literature on this topic. Where other terms are used herein, they are consistent with the literature being reviewed.

*Epidemiology.* Typically, the age of onset for self-injury is 13 to 14 years (Favazza & Conterio, 1989; Nock, et al., 2006), with the modal age of onset being 16-years in the United States (Skegg, 2005). In Canada, reports of engagement in one act of NSSI in adolescent samples have been found to be as high as 14-15 percent (Ross & Heath, 2002). These rates are mirrored or exceeded in university samples where rates are about 17 percent (Whitlock et al., 2006). Alternatively, research has found that in adult populations, rates of NSSI are at about 5.9 percent (Klonsky, 2011). Indeed, these rates, as well as research indicating that NSSI generally onsets during early to mid-adolescence (Rodham & Hawton, 2009) suggest that adolescent and early adulthood may be important periods at which there is high risk for NSSI engagement (Gratz, 2001; Whitlock et al., 2006). Although rates of NSSI in youth and young adult populations may vary, there is a consistent finding that between 14-24 percent have engaged in NSSI at least once (Nock & Favazza, 2009).
Whereas females are often presumed to self-injure more than males, research has indicated that rates of NSSI between men and women are similar (Klonsky, Oltmanns, & Turkheimer, 2003; Whitlock, Eckenrod & Silverman, 2003). For instance, several studies have found no sex difference in the lifetime rate of NSSI in community samples and university students (Muehlenkamp & Gutierrez, 2007; Whitlock et al., 2006). Instead, it has been suggested that males and females differ in other aspects of NSSI, including the method used and body location of the injuries. For example, while females are more likely to engage in cutting of their wrists and thighs, males are more likely to burn their hands (Whitlock et al., 2006) or self-hit (Laye-Gindhu & Schonert-Reichl, 2005). Sex differences have not been found in terms of duration, number of methods used or physical pain experienced during NSSI (Nock et al., 2006). Specifically, women may engage in more cutting, and injure their arms and thighs while men may engaging in more burning or hitting of themselves or objects to cause injury to their hands (Claes, Vandereycken & Vertommen, 2006; Whitlock et al., 2006). With regards to ethnicity, higher rates of NSSI have been found in Caucasian as compared to non-Caucasian populations (Gratz, 2006; Ross & Heath, 2002; Whitlock et al., 2006).

**Psychiatric Correlates.** Perhaps the most commonly cited psychiatric disorder associated with NSSI is borderline personality disorder (BPD). While there is strong evidence indicating that individuals with borderline personality disorder exhibit NSSI (particularly those in inpatient settings; Nock et al., 2006), the presence of NSSI is neither necessary nor sufficient for a diagnosis of BPD. Thus, while about 70% of those with Borderline Personality Disorder self-injure (Linehan, 1993), NSSI occurs in the context of a variety of other diagnoses and even in the complete absence of a formal diagnosis (Favazza, 1989, 1998; Klonsky & Olino, 2008; Nock & Prinstein, 2006; Whitlock et al., 2006).

In addition to the link between BPD and NSSI, there is evidence to show that NSSI is associated with symptoms of depression, and anxiety (Ross & Heath, 2003). While some researchers have identified a correlation between eating disordered behaviour and NSSI in college students (Ross, Heath, & Toste, 2009; Whitlock et al., 2006), not all findings confirm this link (Clæs & Vandereycken, 2007; Zlotnic et al., 1999). While in a sample of adolescent inpatients, more than half the adolescents met criteria for an Axis I disorder (Nock et al., 2006), equal numbers were found to meet diagnostic criteria for externalizing and substance abuse disorders as well (Nock et al., 2006). Importantly, while NSSI has a number of diagnostic correlates, it frequently occurs in the absence of any diagnosable mental health difficulty (Favazza, 1989, 1998; Favazza & Conterio, 1989; Klonsky & Olino, 2008; Nock et al., 2006; Nock & Prinstein, 2006; Whitlock et al., 2006). It may be the case that individuals engaging in NSSI experience emotional difficulties that do not meet criteria for a formal diagnosis.

**Emotionality.** In the instances where NSSI occurs in the absence of a formal diagnosis, it may occur in the context of distress and emotional difficulties that are not indicative of a formal diagnosis (i.e., they do not fit diagnostic criteria). For example, individuals who enact NSSI have been shown to have higher negative emotionality, described as a tendency to experience more frequent and intense negative emotions in their daily lives as compared to controls at the time of ongoing self-injury (Gratz, 2007; Klonsky, 2007; Simeon & Favazza, 2001). In the same regard, individuals who self-injure have been shown to have difficulties with their experience of emotion, wherein they experience periods of dissociation causing impairment to their emotional
experience (Gratz et al., 2002). Those engaging in NSSI have also been found to have difficulty identifying or understanding their emotional experiences compared to individuals who do not self-injure (Favazza & Conterio, 1989; Lundh, Karim & Quilisch, 2007). Finally, engaging in NSSI has been found to be related to difficulty expressing emotions (Gratz, 2006). With regards to emotion regulation, there has been a clear link between engagement in NSSI and emotion regulation deficits (Chapman et al., 2006; Gratz, 2007; Nock et al., 2008), which will be discussed explicitly below.

Risks of NSSI. Despite historical beliefs that self-injury and suicide are driven by a common anger toward oneself (Menninger, 1938), the link between the two behaviours is complex. While both behaviours share some psychosocial risk factors (Walsh, 2006), they differ fundamentally in the intent underlying the behaviour, and some associated phenomenology. Research has documented a fundamental difference in intent between those who engage in suicidal behaviour versus NSSI. Whereas those who attempt suicide intend to die as the result of their actions, most individuals engaging in NSSI report no intention to die, and in fact may report the need to feel alive, or connected to their own emotional experiences (Muehlenkamp, 2005). Those who self-injure have also been found to have less suicidal ideation, fewer depressive symptoms, and a more positive attitude toward life than those who have attempted suicide (Muehlenkamp, 2005). It has been approximated that between 59 and 72 percent of people who self-injure do not have suicidal ideation at the time of injury, and 15 to 45 percent of self-injurers have no reported history of suicide attempt (Muehlenkamp, 2005). It has also been argued that suicide attempts made by individuals who self-injure are often in response to an inability to control self-injury. This reason for attempting suicide does not overlap with commonly reported motivations for engaging in NSSI (Favazza, 1992).

Although the two behaviours are distinct, some individuals who engage in NSSI report having attempted suicide. For instance, reports from inpatient settings indicate that 70 percent of adolescent inpatients who self-injured reported a lifetime history of at least one suicide attempt (Nock et al., 2006). High rates are also found in community samples of adolescents where 50 percent of individuals engaging in NSSI reported having attempted suicide at least once (Muehlenkamp & Gutierrez, 2007). There are various factors implicated in the association between NSSI and suicide. The number of lifetime suicide attempts associates with the number of different NSSI methods used as well as the length of time for which adolescents had been engaging in the behaviour and absence of physical pain during NSSI (Joiner, 2005; Nock et al., 2006; Nock & Prinstein, 2005). The overall number of adolescent NSSI episodes, however, was not related to the number of lifetime suicidal attempts. Alternatively, individuals at higher risk for suicide have reported higher levels of self-criticism, fewer familial connections and less fear about dying than do those engaging in NSSI who are at lower risk for suicide attempt (Muehlenkamp & Gutierrez, 2007). Researchers have also found that engaging in NSSI alone, versus while around others was positively associated with suicidality (Glenn & Klonsky, 2009). Compared to suicidal behaviours, NSSI tends to be less lethal in injury severity, engaged in more frequently, and is engaged in using multiple methods. Suicide, on the other hand, is used to cease living, tends to be highly lethal, engaged in only once and with a sole method (Muehlenkamp, 2005). Because there are various factors implicated in the relation between NSSI and suicide, the importance of comprehensive functional assessments of individuals engaging in NSSI is
imperative to determine the risk of death by suicide (Klonsky & Muehlenkamp, 2007; Klonsky, Muehlenkamp, Lewis & Walsh, 2011; Klonsky & Weinberg, 2009).

There are various other risks associated with NSSI. Perhaps the most obvious is that by virtue of self-injuring, individuals cause damage to body tissue which may merit immediate medical attention in the short-term and may lead to scarring over the long-term. Individuals who engage in NSSI have been found to be isolated to a greater degree than those who do not self-injure (Magne-Ingvar, Ojehagen & Traskman-Bendz, 1992; Skegg, 2005), which may preclude their opportunity for positive social interactions or even help-seeking. Because individuals are more likely to harm in isolation rather than in the presence of others, this may increase the frequency of the behaviour and place the individual at further risk for mental health difficulties (Glenn & Klonsky, 2009).

Summary. As described above, NSSI may or may not be linked to a diagnosable mental illness (Favazza, 1989, 1998; Favazza & Conterio, 1989; Klonsky & Olino, 2008; Nock et al., 2006; Nock & Prinstein, 2006; Whitlock et al., 2006). Nevertheless, NSSI is a common clinical problem that peeks in adolescence and young adulthood, occurs for both males and females, and associates with various risk factors ranging in severity (Muehlenkamp, 2005; Nock et al., 2006; Whitlock et al., 2006). Importantly, researchers have identified the role of emotions in understanding pathways leading to NSSI (Klonsky, 2007; Ross & Heath, 2003). While those who injure may be at risk because of their experience of emotions, the ability to regulate emotions is deemed to be an important factor to consider in understanding NSSI engagement, beyond differences in experienced emotion (Gratz, 2007; Linehan, 1993).

III. NSSI and Emotion Regulation

Because the ability to regulate emotions effectively is contingent on individuals’ experience of emotions, it has been suggested that the intensity and frequency of people’s reaction to negative stimuli is important in understanding the ability to subsequently tolerate and manage this distress (Chapman et al., 2006; Gratz, 2007; Nock et al., 2008). In this way, people’s experience of emotion, tolerance for emotion, and then regulation of emotion are thought to play a proximal and central role in the process leading from stressor to NSSI (Chapman et al., 2006). Research pertaining to the role of emotion regulation in NSSI indicates the need to study this concept within a larger theoretical model. While a formal model has not been assessed, there is sufficient research assessing the role of affect regulation as it relates to NSSI (Chapman et al., 2006; Gratz, 2007; Gratz & Roemer, 2008; Selby, Anestis, & Joiner, 2008).

Some research has helped to delineate emotion regulation and emotional temperament (reactivity to emotions, intensity of emotions and tolerance for emotions) as they pertain to NSSI (Gratz, 2006). Accordingly, emotion regulation is seen as an adaptive way of responding to one’s emotions, irrespective of the reactivity to, intensity or tolerance of emotions (Gratz, 2006). While regulating emotions may be more difficult for those who are highly reactive to emotional cues, experience emotions intensely and/or have less tolerance for emotions (qualities of emotional temperament), the concepts are theoretically distinct. Thus, while emotional temperament is important to consider in NSSI, it is necessary rather than sufficient and the relation to NSSI is not necessarily direct (Gratz, 2006). It is possible that an individual may be emotionally intense
or reactive, but does not have difficulty regulating that emotion, and thus NSSI is less likely to be linked to these emotional factors. Nevertheless, emotion reactivity, intensity and low distress tolerance may contribute to emotion regulation difficulties, as more intense and less tolerated emotions require greater regulation skills (Flett, Blankstein, & Obertynski, 1996; Klonsky, 2007; Klonsky, 2009; Selby et al., 2008). Although the evidence is mixed in terms of emotion temperament and its link to NSSI, research has indicated that emotion regulation is central when considering processes involved in the behaviour (Linehan, 1993).

The relation between emotion regulation and NSSI has been well-researched. Emotion dysregulation has been found to be positively associated with the frequency of NSSI, and accounts for unique variance in NSSI beyond that explained by childhood maltreatment, inexpressivity of emotions and affect intensity/reactivity (Gratz & Roemer, 2008). In particular, limited access to emotion regulation strategies and a lack of emotional clarity each enhance the predictive utility of NSSI (Gratz & Roemer, 2004). This is consistent with conceptualizations of NSSI as an emotion regulation strategy (Gratz, 2007; Selby et al., 2008) and with work indicating that while emotional temperament factors are important in understanding avoidant behaviours, such as NSSI, neither is sufficient without first accounting for emotion regulation skills (Chapman et al., 2006).

Emotion regulation has also been found to be related to NSSI broadly. In assessing the role of cognitive emotion regulation (e.g., cognitive strategies employed to manage affect) strategies on deliberate self-injury in young women, researchers investigated the relation between the use of different emotion regulation strategies and NSSI (Slee, Gamefski, Spinhoven & Arensman, 2008). It was suggested that those women who had been referred to a medical centre because of their deliberate self-harm would report higher suicidal cognitions, self blame, catastrophizing, lack of awareness of emotions and lack of acceptance of emotions (e.g., ineffective emotion regulation strategies). Results indicated that the women struggled to employ effective mechanisms by which to manage their affect, even after controlling for depression severity. Results suggest that those with a history of self-injury have less well developed skills for managing negative affect. The study also highlights the interrelatedness of emotions and cognitions as they pertain to behaviour; a fundamental contention of the present dissertation.

Emotion regulation is thought to be important in preventing individuals from engaging in behaviours used to cope with or avoid unwanted aversive emotions. Chapman and colleagues (2006) proposed the Experiential Avoidance Model (EAM) to better understand the interrelatedness of various emotional factors as they pertain to NSSI, which was hypothesized to be an experientially avoidant behaviour (Chapman et al., 2006). The theoretical model encompassed the notion that NSSI works by allowing the individual to escape from, or reduce unwanted strong negative emotions. In their model, Chapman and colleagues asserted that NSSI could fit into the broader class of experientially avoidant behaviours. Experiential avoidance refers to any behaviour that functions to avoid, or escape from unwanted internal experiences or the external conditions that elicit them (Hayes, Wilson, Gifford, Follette & Strosahl, 1996). The class of experiential avoidance behaviours is bound together by the common function of avoiding or escaping unwanted, unpleasant internal experiences. From this core idea, the model contends that following a stimulus which elicits an emotional response, certain individual characteristics pertaining to emotion moderate the relation between that stimulus response and an
experientially avoidant behaviour. NSSI is hypothesized to be a method of avoiding negative emotional experiences that are intolerable to the individual (Chapman et al., 2006). There are various emotional factors highlighted within this model.

One variable that may account for heightened tendency to engage in experiential avoidance is high levels of physiological arousal that may precede, coincide with, or follow exposure to emotionally provoking events. Individuals with a tendency to respond this way require greater skill in regulating emotion (Nock & Mendes, 2008). If individuals do not have the necessary skills to regulate the intensely experienced emotion, they may be motivated to avoid it. Increased physiological arousal is typically related to being highly reactive to emotional cues. While reactivity to emotional cues is an essential feature of regulation of emotion, its link to experiential avoidance is not direct; thus, increased physiological arousal, which is the somatic accompaniment of reactivity to emotional cues, is not thought to be a sufficient factor for engagement in experientially avoidant behaviours (Chapman et al., 2006). It is conceivable that some individuals experience increased physiological arousal and are subsequently skilled at regulating this affect. Thus, although emotional reactivity is important to assess as it pertains to engagement in avoidant behaviours, it seems important to account for emotion regulation skills. It may be the case that those with strong emotion regulation skills are able to adequately down-regulate physiological reactions experienced in part because of a high reactivity to emotional cues.

According to the EAM (Chapman et al., 2006), individuals who engage in NSSI may have heightened physiological responses specifically resulting from emotional distress, and/or they may have lower overall distress tolerance. Whereas individuals with a heightened response to the experienced emotion may be more reactive (including physiologically), there are also those who may be less able to tolerate distress, irrespective of the intensity of the emotional cue. That is, low levels of emotion intensity may be intolerable for them. This suggests that individuals may experience their arousal as aversive or unpleasant, or be less able to tolerate emotions even when the arousal is not overly intense. If the individual has the capacity to regulate emotional experiences, then reactivity and/or low distress tolerance may not lead to engagement in NSSI (Chapman et al., 2006; Linehan, 1993).

According to the EAM, emotion dysregulation or the inability to modulate one’s own affect is hypothesized to be another variable leading to experiential avoidance, and thus NSSI (Chapman et al., 2006). Individuals who have a limited ability to retract their attention from emotional stimuli, lower physiological arousal, inhibit affect-driven behaviour and engage in behaviour oriented toward achieving non-mood-dependent goals (Gottman, & Katz, 1989) tend to be those at greater risk for engaging in avoidant behaviours, including NSSI. Insufficient emotion regulation skills may be especially disadvantageous when individuals are highly reactive, experience emotions intensely and have low tolerance for distress, and so the need to regulate is high. It is at these high levels of experienced emotion that individuals with emotion regulation skill deficits are likely to use maladaptive strategies to avoid or modulate the present emotion.

In the EAM (Chapman et al., 2006), each of these variables is conceptualized to moderate the relation between experiencing aversive emotions and avoidance of the emotions (experiential
avoidance), via use of NSSI. Because the act of injuring the self is thought to result in temporary relief from unwanted emotional experience, the behaviour is proposed to be negatively reinforced by the reduction in intensity or escape from an unwanted emotional arousal. Chapman and colleagues (2006) suggest that over time the behaviour becomes a more automatic and conditioned response to emotional arousal. While this model of NSSI accounts for individual differences in the experience and regulation of emotion, it does not formally consider cognitive factors associated with the behaviour. The model accounts for people’s experiences of emotions, and their ability to manage these, but not their perception of their world.

IV. Cognitions and NSSI

To date, research on NSSI management indicates that dialectical behaviour therapy and cognitive behavioural therapy may be effective, and research-informed, modes of intervention (Gratz & Gunderson, 2006; Klonsky, 2007; Linehan, 1993; Nock, 2009; Walsh, 2006). A core component of these treatment orientations is a focus on cognitions as a source of therapeutic change. Specifically, these therapeutic approaches rely on teaching clients skills in emotion regulation as well as restructuring of maladaptive cognitions as the mechanism of change. Thus, from a clinical perspective, including cognitive variables in a comprehensive model of NSSI may be well supported.

Researchers have indicated that individuals who engage in NSSI have aversive cognitive perceptions (i.e., negative perceptions pertaining to themselves, the world and others) both preceding and at the time of NSSI (Selby et al., 2008; Walsh, 2006). Understanding cognitions is notably important in attempting to discern an individual’s experience of and emotional reactions to the world (Beck, 1995; Folkman & Lazarus, 1988). Rather than a focus on how people respond emotionally to aversive events, it has been suggested that it is how individuals’ think about these events that is related to their emotional response and subsequent behaviour. Specifically, cognitive activity that influences the deployment of attention from the event, or alters the subjective meaning of the event may impact ones emotional responding (Folkman & Lazarus, 1988). Folkman and Lazarus (1988) contend that understanding the emotion process is contingent on linking each emotion to a cognitive appraisal that influences it. Therefore, understanding the types of thoughts that individuals have is important to conceptualizing their affective state(s), and subsequent behaviour(s). Individuals who engage in NSSI often report cognitions associated with helplessness (“Nobody can help me to solve my problems”), poor perceptions of distress tolerance (“I cannot stand this pain anymore”) and perceived burdensomeness (“I am completely unworthy of love”) (Rudd & Joiner, 2001; Williams, Crane, Barnhoffer, Van der Does, & Segal, 2006). These forms of cognitions are referred to as cognitive content, which refers to thoughts and appraisals available to the individual (Slee et al., 2008). Research indicates that those who self-injure may have higher levels of suicidal thoughts, lower perceived self-concept, higher self-blame, lower positive reappraisals and a higher tendency to catastrophize as compared to a control group (Slee et al., 2008). Thus, their cognitive content was significantly more maladaptive in comparison to those with no history of NSSI. Results highlight the need to assess cognitions pertaining to perceptions of the self and one’s appraisal of the world in understanding NSSI engagement.
Research has found that particular biases are evident in the thinking of individuals who engage in NSSI. Cognitive skills have also been researched as they pertain to one’s experience of emotion. Thus, particular deficits in cognitive organization, understanding and interpretation (including styles of thinking) of emotion may be related to aversive emotional experiences and subsequent self-injury. Common cognitive processes that have been researched as they relate to NSSI include thought suppression and rumination (Najmi et al., 2007; Selby et al., 2008). Although both of these cognitive processes are employed with the attempt to reduce negative affect, they often work counterproductively. Whereas NSSI may be conceptualized as a behaviour used to regulate emotion – cognitive processes including thought suppression and rumination may precede this final regulation strategy. Based on cognitive theory, it is proposed that maladaptive cognitive processes work to assimilate incoming information to fit into core beliefs that are highly negative and fairly stable (e.g., I am a failure, I am unlovable; Beck, 1995). These styles of thinking (cognitive processes), are likely to result in cognitive content that is highly negative, unrealistic, and assumed to be likely, which may be related to an increase in negative emotionality. The emotional cascades model suggests that emotions and rumination work in a positive feedback loop to consistently aggravate one another. As the intensity of emotions rise, the individual finds it more difficult to avert attention away from the emotional stimuli, engaging in ruminative thinking, which further exacerbates the negative emotion (Selby, Anestis, Bender, & Joiner, 2009).

Related to this, Najmi and colleagues (2007) found a specific relation between the suppression of maladaptive and unwanted thoughts associated with NSSI and engagement in actual NSSI. Indeed, they suggested that individuals engage in NSSI in order to reduce the distress associated with aversive thoughts and emotions. If individuals enact NSSI with the goal of reducing aversive thoughts and emotions, negative cognitions may share an important relation with both aversive emotional experiences as well as NSSI. Thus, considering negative cognitions in the context of comprehensive NSSI models may be an important step toward gaining a clearer understanding of why individuals self-injure. Individuals may not only self-injure to manage or reduce negative emotional experiences but also to reduce and regulate negative thinking patterns. Support has shown that individuals who engage in NSSI typically have negative cognitions and lack the adequate skills to think more realistically (a skill that can be taught in treatment). As the result, many may use NSSI as a means to avoid these negative cognitions and the associated emotions.

Research assessing the role of rumination (the tendency to think about the causes, situational factors and consequences of one’s emotional experience repeatedly; Nolen-Hoeksema, 1991) has also been undertaken as it pertains to dysregulated behaviours (Selby et al., 2008). Despite it being a maladaptive strategy, rumination is often employed with the goal of solving an emotional problem (e.g., attempting to think about the situation until a solution is yielded). Continuous engagement in this process, however, may increase negative affect and heighten the intensity of the experienced emotion (Donaldson, & Lam, 2004; Selby et al., 2009). Researchers used a composite of behaviour dysregulation (determined by alcohol consumption, eating disorders inventory, sensation seeking and impulsivity measures) to assess the influence of rumination on behavioural dysregulation (Selby et al., 2008). Although they did not look specifically at NSSI, it was noted that NSSI is an example of a behavioural regulation strategy, typically used to escape or regulate negative affect. Results indicated that at times of high
rumination, individuals more frequently engage in dysregulated behaviours. Alternatively, current levels of rumination did not necessarily predict later changes in behavioural dysregulation. Results may be related to research indicating that directly preceding engagement in NSSI individuals report highly negative cognitive content (Klonsky, 2009; Nock, Prinstein, & Sterba, 2009). Findings highlight that people may use self-injurious behaviours as a method of distraction from aversive cognitions, which are likely the result of ineffective cognitive processes, including rumination (Najmi et al., 2007).

Whereas previous work has not been prospective in nature, therefore not capturing NSSI as it might occur in people’s daily lives, ecological momentary assessment devices were used to assess self-injurious thoughts and behaviours to determine which proximal factors predicted the transition from thinking about self-injuring to actual engagement in the behaviour (Nock et al., 2009). Results suggested that engagement in NSSI, typically serves a regulation function by way of distracting individuals from their unwanted thoughts or maladaptive thought patterns (e.g., rumination). Research is consistent with Najmi and colleagues (2007) suggesting that assessment of the content of cognitions associated with self-injury is an important factor in understanding engagement in the behaviour.

Because it is evident that cognitions are important in the context of NSSI, it is reasonable that they be considered in the context of NSSI models. One model considering cognitions in the context of NSSI and related acts such as self-harm and suicide is the Cry of Pain (CoP) Model (Williams, 2001) which has recently been extended to study self-harm behaviour (Rasmussen et al., 2010). The CoP model originated from a compilation of Baumeister’s (1990) research on suicide, and the notion of arrested flight (Gilbert & Allan, 1998). The model was developed as a model of suicide, but has recently been extended to look at self-harm populations, which includes NSSI (Rasmussen et al., 2010).

Baumeister (1990) conceptualized suicide as an escape from the self. His ideas centered on the notion that suicide is the action of escaping from one’s own self-awareness which holds negative implications about the self. As such, he contended that suicide is the final act in a series of related events that occur in temporal sequence. In his theory, Baumeister indicates that individuals experience the feeling of falling below standards and blame the disappointing outcomes on themselves. Thus, they engage in an aversive state of self-awareness that evolves from their feeling of inadequacy when comparing themselves to others. From this, they experience extremely negative affect and attempt to escape from meaningful thought into cognitive deconstruction (consisting of a narrow focus on the present, a focus on immediate movements and sensations, and actions guided by proximal rather than distal goals), which is not effective in minimizing negative affect. Moreover, by virtue of engaging in mental narrowing and thus focusing only on the present, there is no perception that one’s current mental state and level of distress will end. Because individuals are in a deconstructed mental state, they have reduced inhibitions which may contribute to an increased willingness to commit suicide. Taken together, this theory suggests that suicide emerges from a person’s desire to escape from a life for which there are negative perceptions about the self. A key part of Baumeister’s theory is the implication of cognitions (i.e., mental narrowing) leading to eventual death by suicide.
In an extension of Baumeister’s theory, Williams (2000, 2001) integrated the notion of arrested flight (traditionally assessed in the animal literature) in the context of psychopathology. Rooted in ethological models of depression, arrested flight describes a situation in which an animal is defeated, rejected or feels loss but has no means of escape. MacLean (1990) indicated that it is the state of entrapment (lack of escape) that is dangerous. In other words, it is not that the animal has experienced defeat, but rather that the animal sees no foreseeable escape from the experience of defeat which is linked to suicide. Researchers have contended that there is a parallel reaction in humans which may play an explanatory role in the context of depression, suicidal and self-injurious behaviours (Gilbert & Allan, 1998; O’Connor, 2009; Williams & Pollack, 2000, 2001). Following Baumeister’s notion that individuals engage in social comparison with others, Gilbert and Allan (1998) studied social rank theory. They hypothesized that humans are naturally inclined to engage in comparisons between themselves and others and as a result are placed in a position of defeat when they feel inferior to others, or defeated by circumstances. In an extension of Baumeister’s work, Gilbert and Allan asserted that individuals are motivated to take flight upon recognizing a reduction in rank (rather than engaging in cognitive destructuring immediately), perceptions of rejection, and loss. Taking flight, however, is not always possible. Accordingly, it has been suggested that arrested flight, also termed entrapment, are related to suicidal and NSSI behaviour (Gilbert & Allan, 1998; Rasmussen et al., 2010).

The Cry of Pain model suggests that suicidal ideation and actions are the end products of being trapped in a stressful situation from which there is no perceived escape or rescue (Williams, 2001; Williams, & Pollack, 2000, 2001). The model, which was derived from Baumeister’s (1990) escape theory of suicide and the phenomenon of arrested flight (Gilbert, 1990; Gilbert, & Allan, 1998; Williams, 2001), was more recently used by Rasmussen and colleagues (2010) to assess self-harm. As such, self-harm was conceptualized as a cry of pain. Whereas NSSI is thought to occur in the absence of intent to die, a common theme in these behaviours is motivation to escape from an intolerable situation. Thus, the behaviour is viewed as being born out of psychological pain, or a series of cognitions which have left the individual with a perception of there being no way out. NSSI may therefore represent a temporary way out.

Viewing NSSI as a method of escaping aversive emotions and/or cognitions is not new. While evidence for NSSI being used as a method of escape has been researched specifically for escape from internal distress, it has also been researched as it pertains to escape more generally. Specifically, research has suggested that NSSI can also represent a reaction to stressful and pervasive conditions (Nock & Prinstein, 2004). Various studies have assessed NSSI in prison settings, indicating that prisoners engaging in these behaviours were placed in protective custody for this behaviour, often allowing them to escape from other inmates (Ballinger, 1970; Ferrence & Johnson, 1974; Jarvis et al., 1976). Other accounts which have viewed NSSI as a form of escape have described patients using mutilative behaviours as a way of escaping their fantasy or hallucinatory life and being brought back to reality (Offer & Barlow, 1960). Less concrete methods of escape have also been documented. For example, self-injury has been used to escape from suicidal thoughts, dissociative experiences (for a review see Klonsky, 2007), and aversive emotional and cognitive experiences (Chapman et al., 2006; Najmi et al., 2007). Thus, the concept that NSSI is used to escape from aversive experiences has been well documented for some time.
The CoP model contends that it is not the sense of defeat, but rather that of entrapment that is related to self-harm engagement (Rasmussen et al., 2010). The notion of entrapment can be conceptually related to the well-established concept of hopelessness in depressive disorders. The hopelessness theory of depression suggests that hopelessness is an expectation that highly desired outcomes will not occur, or that highly aversive outcomes will occur and the individual has no method of changing the outcome (Metalsky et al., 1993). According to theory, the individual feels hopeless in the face of negative outcome expectancies, and subsequently in the face of actual negative outcomes. In the same way, entrapment is characterized by the perception of being unable to escape negative emotionality or the situation that elicited that emotion. Nevertheless, Gilbert and Allan (1998) highlight key distinctions between these concepts. Specifically, hopelessness differs from entrapment in that it does not explore the strength of escape motivation. That is, perceptions of hopelessness refer to having minimal hope regarding the future, but do not necessarily account for the intensity of the desire to escape from the existing perception. Thus, entrapment focuses not solely on the perception of no future, but of the desire to escape from such perceptions or the situations that elicit them.

Notably, in studying concepts of defeat and entrapment, Rasmussen and colleagues (2010) assessed self-harm, rather than NSSI. Although they included participants who engaged in NSSI in their study (e.g., cutting), they also included individuals who used overdosing without an intent to die, which is not the same as NSSI (ISSS, 2009). Because of this conceptual difference, assessing whether this model generalizes to NSSI is important. For those individuals with a history of self-harm, entrapment mediated the relation between perceptions of defeat and self-harm (Rasmussen et al., 2010). It will be important to determine whether this occurs in the context of NSSI. Moreover, although the CoP model accounts for important cognitive perceptions pertaining to the behaviour, it does not formally account for individual differences in the experience of emotion. For instance, individuals who think there is no escape when they are defeated may be motivated to escape using self-harm, but this does not account for those who feel defeated but experience no perception of entrapment. Research has also shown that NSSI can occur without any diagnosable mental health issue, and as such, evaluation of other predictors of the behaviour is critical (Favazza, 1989, 1998; Favazza & Conterio, 1989; Klonsky & Olino, 2008). Therefore, the role of various emotional factors which are central to understanding NSSI, may be also have utility in understanding the relation between triggering events and NSSI (Chapman et al., 2006; Gratz & Roemer, 2008).

V. A new model of NSSI

Research has indicated that those individuals with adequate resources for managing emotions may not self-injure by virtue of having these resources (Gratz, 2007; Najmi et al., 2007). What has not yet been explored is the role of emotion regulation in understanding the relation between the perception of defeat and the perception of entrapment. Those individuals who perceive entrapment are hypothesized to engage in experiential avoidance, which may predict engagement in NSSI. Recent research expanding the CoP model of suicide to a sample of patients who self-harmed indicated that patients who engaged in repeated self-harm reported significantly higher levels of defeat (perceptions of rejection/loss) and entrapment (a perception that one is unable to escape) than control subjects. Results further indicated that it was not the perception of defeat, but rather that of entrapment that distinguished those with and without a
Beyond consideration of cognitive factors in the context of NSSI, aspects of emotions are also important to consider in understanding NSSI (Chapman et al., 2006; Gratz, 2007). Specifically, the ability to regulate or manage one’s emotional responses is considered an essential factor in the process leading from stressor to self-injury, as it highlighted in the EAM Model (Chapman et al., 2006).

Although each model highlights separate aspects of NSSI antecedents (emotions versus cognitions), the two models are interrelated in several ways. Specifically, individuals with deficits in emotion regulation tend to be those who engage in ruminative thinking and catastrophizing (cognitive processes), which may serve to exacerbate negative emotions, rather than regulate them. While the EAM and CoP models account for unique aspects of NSSI, neither formally accounts for both individual differences in emotion and cognitive factors as they relate to NSSI. As such, it may be that a model formally considering both emotions and cognitions, may add to the understanding of NSSI above and beyond these individual models.

The goal of this dissertation was to develop a new and parsimonious model accounting for some of the emotional and cognitive processes involved in NSSI. Specifically, the goal was to explore what emotional factors are involved in understanding the relation between defeat and entrapment (two cognitive perceptions found to be related to engagement in suicidal and self-injurious acts). While it is conceivable that many individuals experience perceptions of defeat, it remains unclear what individual factors best account for perceptions of entrapment (the belief that ‘there is no escape’), which has been shown to be important in predicting NSSI. Because aversive thoughts and aversive emotions are thought to impact each other in a cyclic manner (Beck, 1995; Selby et al., 2008), one possibility is that an inability to manage aversive emotions moderates the relation between perceptions of defeat and perceptions of entrapment. In other words, the relation between defeat and entrapment may vary based on emotion regulation skills (or difficulties therein). Those individuals who are unable to regulate emotions were more likely to endorse perceptions of entrapment following from perceptions of defeat. This hypothesis was important to the development of the C-EAM model of NSSI.

Aspects of both the EAM and COP models were combined in a way that supported extant literature on the role of cognitive and emotional factors in NSSI. The model is best described as beginning with a triggering emotional event. According to the EAM model, an event triggers a corresponding emotional response. Because cognitive theory highlights that it is how one thinks about an event that determines the emotional response to that event (Beck, 1995), it is proposed that the emotional trigger is related to a negative cognition or evaluation of the event in the context of NSSI. Thus, in the current model, it is hypothesized that individuals have cognitive interpretations of particular emotionally salient events. The degree to which a person is emotionally reactive is thought to moderate the relation between the emotionally salient event and cognitions pertaining to defeat. Therefore, the emotionally salient event will not trigger perceptions of defeat for all individuals, but rather only for those who are prone to emotional reactivity. The CoP model contends that the perception of defeat is related to the perception of entrapment, or the thought that there is no way to escape the aversive emotional state or the conditions that elicited that state. Currently, however, the mechanism involved in why some individuals who have perceptions of defeat do not also have perceptions of entrapment remains unclear. Based on the extensive literature indicating that emotion regulation plays a role in the
relation between certain risk factors and NSSI (Gratz, 2007; Gratz & Roemer, 2008; Linehan, 1993), emotion regulation or the ability to modulate one’s affect may impact the relation between the perception of defeat and that of entrapment. Engaging in adaptive emotion regulation strategies is proposed to protect individuals from escalating from a perception of defeat to a perception of entrapment. For the current thesis, it was proposed, that individuals who perceive entrapment would report higher levels of experiential avoidance, which in turn, would predict NSSI group membership (presently regarded as one experientially avoidant behaviour; see C-EAM model in Figure 1). Importantly, not all model linkages explained above were able to be assessed in the present study. Nevertheless, describing the model as comprehensively as possible was regarded as crucial to informing future research.

VI. Study 1

Research Goals

The current dissertation comprised two studies, which involved: (1) assessing C-EAM model sufficiency using online self-report measures and (2) using a laboratory procedure to evaluate participant tendency to engage in experiential avoidance when distressed.

For the first study, undergraduate university students, a group reporting high NSSI rates (Heath et al., 2008; Whitlock et al., 2006), were recruited to complete online self-report questionnaires assessing each component of the proposed C-EAM model. For comparison, participants with and without a history of NSSI were recruited. Because accessing cognitions and emotions during an act of NSSI poses several ethical and practical barriers, the proposed model was assessed using measures that capture the constructs as closely as possible. In places, trait measures were used rather than having an in the moment assessment of state cognition or emotion, in order to evaluate more stable tendencies toward particular cognitive content. Also, many of these measures are well-validated and reliable indicators of the evaluated constructs, and thus allowed for complex analyses. The following hypotheses were made for the first study, and follow from the C-EAM model (see Figure 1). The frequency groupings were consistent with the proposed DSM-V criteria for NSSI, which stems from research suggesting that patients who had self-injured more than 5 times were more likely to be in treatment and were more likely to meet criteria for an additional psychiatric diagnosis (American Psychiatric Association, 2011; Dulit, Fyer, Leon, Brodsky & Frances, 1994; Shaffer & Jacobson, 2009). Importantly, the dashed lines depicted in Figure 1 represent theoretical relations that could not be tested using the current design:

(1) Addition of cognitive variables in the context of the EAM model will add incremental utility in the prediction of NSSI (that is, addition of cognitive variables into a model of experiential avoidance is warranted, as cognitive factors explained unique variance in experiential avoidance beyond what emotional variables can explain).

(2) Participants with a history of NSSI will be more likely to be high in emotional reactivity compared to those without a history of NSSI. Those with higher NSSI frequency (5+ lifetime occurrences) will have higher emotional reactivity than those with no NSSI history and those who have engaged less frequency in the behaviour (1-4 lifetime
occurrences). Those participants with current NSSI (within the past calendar year) will be higher in emotional reactivity than those with a past history of the behaviour.

(3) Emotional reactivity and emotional regulation would be significantly related (Figure 1, Line A).

(4) Emotional reactivity would predict variance in trait perceptions of defeat (Figure 1, Line B).

(5) Participants with a history of NSSI would be more likely to have deficits in emotion regulation skills, compared to those without a history of NSSI. Those with higher NSSI frequency (5+ lifetime occurrences) will have significantly worse emotion regulation skills than those with no NSSI history and those who have engagement less frequently in the behaviour (1-4 lifetime occurrences). Those participants currently engaging in NSSI (within the past calendar year) will have poorer emotion regulation skills than those with a past history of the behaviour.

(6) After controlling for anxiety and depression, defeat and emotion regulation would explain unique variance in entrapment (Figure 1, Line C).

(7) After controlling for depression, emotion regulation skills would moderate the relation between the cognitive trait perception of defeat and the cognitive trait perception of entrapment. Specifically, there would be a significant interaction between defeat and emotion regulation (Figure 1, Line C).

(8) Entrapment would explain significant variance in experiential avoidance and would mediate the relation between defeat and experiential avoidance (Figure 1, Line D).

(9) Entrapment and experiential avoidance will predict NSSI group membership (Figure 1, Line E and F).

(10) Because NSSI is viewed as an experientially avoidant behaviour, it was proposed that individuals who perceive entrapment are more likely to have a reported history NSSI versus those who do not report entrapment. Those with higher NSSI frequency (5+ lifetime occurrences) would have higher perceptions of entrapment than those with no NSSI history and those who engaged less frequently in NSSI (1-4 lifetime occurrences). Those participants engaging in current NSSI (within the past calendar year) would have higher perceptions of entrapment than those with a past history of the behaviour (Figure 1, Line E).

(11) Those with a history of NSSI would report higher experiential avoidance (lower scores on the AAQ-II) than those without a history of NSSI. Those with higher NSSI frequency (5+ lifetime occurrences) would have higher levels of experiential avoidance than those with no NSSI history and those who engaged less frequency in NSSI (1-4 lifetime occurrences). Those participants currently engaging in NSSI (within the past
calendar year) would have higher levels of experiential avoidance than those with a past history of the behaviour.

Study 1 was also used to gather information about whether participants with a history of NSSI are more likely to experience increases in negative thinking and negative affect following emotional arousal. This was included to replicate past findings which suggest that those with a history of NSSI are more susceptible to increased negative affect and negative thinking when emotionally triggered. This was evaluated by asking participants to report their state-like cognitions and emotions before and after a mood induction task in which individuals write about a past negative event. This did not directly assess the model proposed, but was included to provide further insight into how these variables may relate in the moment as the inter-relatedness of the two is central to the model. The following was predicted:

(12) Perceptions of state defeat and state entrapment will increase significantly from before to after the emotional event disclosure, only for those with a history of NSSI.

(13) Negative affect will increase significantly from before to after emotional event disclosure, only for those with a history of NSSI.

Method: Study 1

Participants

Participants were recruited from the University of Guelph subject pool, as well as through advertisements on campus and announcements made in undergraduate psychology classes. A sub-portion of these participants were invited back to take part in Study 2 (described below). Participants enrolled in Introductory Psychology at the University of Guelph received course credit for their participation in Study 1. All participants not enrolled in Introductory Psychology were placed into a draw for an iPod touch. Participation in the study was voluntary. Participants needed to be enrolled at University of Guelph to be eligible to participate.

Participants included 464 undergraduate students from the University of Guelph. Eighty three participants identified as male and 380 as female, with one person leaving this field unanswered. Participants ranged in age from 17 to 48 years (M = 19.09 years, SD = 8.63). Age did not correlate with any variables of interest, thus it was not used as a covariate in analyses.

Of the total sample, 230 (49.6%) reported at least one lifetime occurrence of NSSI, whereas 234 participants (50.4%) reported no history of NSSI. Lifetime occurrences were summed across the 17 behaviours assessed using the DSHI (Table 1). Similar rates of NSSI have been found in past research using self-report measures (Lloyd-Richardson, Perrine, Dierker & Kelley, 2007; reported 46.5% of their sample endorsed at least one instance of NSSI). Despite this, Heath and colleagues (2008) suggest that checklist measures used to assess NSSI consistently result in higher incidence rates, given some of the behaviours (e.g., biting, interfering with wound healing) effectively broaden the construct. Although NSSI includes these behaviours by a researcher’s conceptualization, individuals endorsing these behaviours typically would not consider themselves “self-injurers”. In the present study, a checklist measure was
used, thus increasing incidence rates of NSSI. Of those reporting a history of NSSI (\(n = 230\)), 48.2 percent indicated they had engaged in the behaviour between one and four times (\(n = 111\)), whereas 44.7 percent indicated they had engaged in NSSI five or more times (\(n = 103\)). Sixteen participants who indicated they engaged in NSSI did not have frequency data. Ninety two of those who reported a lifetime history of NSSI (\(n = 230\)) indicated that they had engaged in the behaviour within the past year. Participants were also asked if they had sought help for NSSI. If participants indicated that they had sought professional help, they were subsequently asked by whom help was sought and to rate their perceived degree of satisfaction with the help. Only 1% of participants asked reported a history of NSSI help seeking, and so this was not explored further.

With regard to NSSI phenomenology, of the 380 self identified females, 190 indicated at least one lifetime occurrence of NSSI (50%). Of those, 86 females indicated they had engaged in NSSI one to four times across the lifetime (45.3% of those reporting NSSI), and 91 females indicated they had engaged in NSSI five or more times across the lifetime (47.8% of those reporting NSSI). Seven percent of those females reporting a history of NSSI did not provide frequency data. Of those reporting a history of NSSI, 103 female participants indicated a past history of engaging in NSSI (more than one calendar year ago; 54.2%), whereas 77 female participants reported currently engaging in NSSI (within the past calendar year; 40.5%). Five percent did not indicate whether there NSSI was current or in the past. See Table 2 for frequency by NSSI behaviour, reported by each sex.

**Materials**

**Demographics Questionnaire.** This brief scale was developed in order to determine the sex, age and ethnicity of participants (Appendix A).

**Deliberate Self-Harm Inventory (DSHI; Gratz, 2001).** The DSHI (Appendix B) is a 17-item self-report measure developed to assess various behavioural features of NSSI. Specifically, the measure provides an assessment of NSSI frequency, severity, and duration for all methods used. Past research has indicated that the DSHI has good construct, convergent and discriminant validity (Gratz, 2001). The DSHI has been found to have high internal consistency, adequate construct, convergent and discriminant validity and adequate test-retest reliability over a period ranging from 2 to 4 weeks (\(M = 3.3\) weeks; \(\Phi = .68\), \(p < .001\); Gratz, 2001).

**Positive and Negative Affect Schedule: Modified (PANAS; Watson, Tellegen, & Clark, 1988).** The PANAS is a commonly used measure of state emotional experience. A modified version of the self-report measure was used for the present study (Appendix C). This
modification was adapted from previous work in which an abridged PANAS which has been used (Nock, & Mendes, 2008; Nock, personal communication, 2010). On the measure, participants were asked to rate five negative and five positive emotions using a 5-point Likert scale from 1 (not at all), to 5 (extremely). The five negative emotions rated included: frustrated, sad, confused, angry and irritable. Internal consistency was computed both for baseline (T1) mood ratings ($\alpha = .86$) and following the Emotional Event Disclosure task (T2; $\alpha = .91$). The five positive emotions rated include: happy, confident, satisfied, calm and at ease. Internal consistency coefficients were computed both for baseline (T1) mood ratings ($\alpha = .81$) and following the Emotional Event Disclosure task (T2; $\alpha = .85$). Research has indicated that a shorter version of the PANAS has adequate convergent, criterion-related validity and cross-cultural validity (Thompson, 2007). The PANAS may be able to capture a wider range of affect by using multiple seemingly redundant items. Word level analyses are not deemed important; thus the word content is not crucial so long as its emotional valence is clearly in one direction.

The PANAS was used currently to assess participant affect directly before and following (after three minutes) emotional arousal. It was not used to directly assess model sufficiency.

**State Defeat and Entrapment.** In order to assess participant’s levels of perceived defeat and entrapment at the time of emotional arousal, participants were asked a single question assessing cognitive state prior to (T1) and following (T2) completion of the Emotional Event Disclosure task (Appendix D). Participants were asked to rate on a Likert scale ranging from 0 (not at all) to 4 (extremely) the extent to which the following statements described their thoughts at the time of asking (e.g., directly following Emotional Event Disclosure): “I am defeated/would like to escape from the emotions I feel” and “I feel trapped in these emotions, as if there is no escape”. Given these were single items, reliability analyses could not be computed. As such, statistical analyses using these items should be interpreted cautiously. These items were mostly important to gather information about whether those with a history of NSSI were more susceptible to increased negative cognitions following emotional arousal, as compared to non-injuring counterparts. These items were not used to directly assess model sufficiency.

**Emotional Event Disclosure.** This task was developed based on a rumination induction procedure used by Selby and colleagues (2009) where participants were instructed to spend 3 minutes free associating (via typing into a blank provided text box) about something in their life currently or in the past that was upsetting to them. They completed the PANAS, as well as state measures of defeat and entrapment directly before and directly following this task. Please refer to Appendix E for the script used. Participants were allowed to write about whatever they wanted and were be instructed to continue writing about the event for three minutes, or as long as they wished to continue. Participants were reminded that their responses were confidential. The goal of this task was to elicit emotional reactions in participants using their own individual experiences. This task has been found to be successful in initiating rumination in participants when they are not asked to type, but rather just think on their past experiences (Selby et al., 2009). Thus, there is evidence to indicate that disclosing this information via typing may have similar effects. In this study, the task was administered to 16 graduate students to pilot its effect. Results indicated that participants demonstrated a significant increase in negative affect on the PANAS following disclosure of an emotional event, $t(15) = -3.74, p < 0.01$. This task was used currently to emotionally arouse participants so as to assess affect and cognitions before and following arousal. It was not used to directly assess model sufficiency.
Emotional Reactivity Scale (ERS; Nock et al., 2008). The ERS is a 21-item self-report measure designed to assess an individual’s emotional reactivity (Appendix F). The scale assesses three primary components including: (1) emotion sensitivity (comprised of 8 items, e.g., “I tend to get emotional very easily”), (2) emotional intensity (comprised of 10 items, e.g., “When I experience emotions, I feel them very strongly/intensely”), and (3) emotion persistence (comprised of 3 items, e.g., “When I am angry/upset, it takes me much longer than most people to calm down”). All items are rated on a 0 (Not at all like me) to 4 (completely like me) scale, and all items sum to one overall score (Min = 0, Max = 84). Higher scores indicate higher reactivity to emotional triggers. The ERS has been demonstrated to have good internal consistency, when assessing both the total scores and individual subscales. As such, total ERS scores as well as the individual subcomponents are reliable indicators of emotional reactivity. The ERS has also been demonstrated to have good convergent, divergent, and criterion-related validity. Internal consistency was shown to be high (α = .95, N = 430).

Difficulties in Emotion Regulation Questionnaire (DERS; Gratz & Roemer, 2004). The DERS is a 36-item questionnaire which asks about difficulties in emotion regulation (Appendix G). It includes six dimensions of emotion regulation where difficulties might occur. The dimensions include: (1) lack of awareness of emotional responses (“When I’m upset, I acknowledge my emotions” = reverse scored) (2) lack of clarity of emotional responses (“I have difficulty making sense out of my feelings”) (3) non-acceptance of emotional responses (“When I’m upset I become embarrassed for feelings that way) (4) limited access to emotion regulation strategies (“When I’m upset, I believe there is nothing I can do to make myself feel better”) (5) difficulties controlling impulses when experiencing negative emotions (“When I’m upset I feel out of control), and (6) difficulties engaging in goal directed behaviour when experiencing negative emotions (“When I’m upset, I have difficulty thinking about anything else”). All items are rated on a Likert scale ranging from 1 (almost never) to 5 (almost always). Higher scores indicate greater difficulty in regulating emotions. The DERS has been shown to have good construct and predictive validity, as well as adequate test-retest reliability over a period ranging from 4 to 8 weeks. Internal consistency was shown to be high for the total DERS Total score (α = .95, N = 418). Subscale of the DERS also showed high internal consistency [Nonacceptance, α = .91, N = 457; Difficulty with Goal Directed Behaviour, α = .90, N = 455; Impulse Control, α = .87, N = 456; Limited Access to ER Strategies, α = .92, N = 460; Lack of Emotional Awareness, α = .84, N = 447; Lack of Emotional Clarity, α = .81, N = 457].

Defeat Scale (Gilbert & Allan, 1998). Broadly, defeat is conceptualized as sensitivity to environmental cues that signal defeat. The Defeat Scale is a 16-item self-report measure of perceived failed struggle and loss of rank (Appendix H). Respondents were asked to indicate the extent to which each item was true for them in the past seven days, ranging from 0 (never) to 4 (always/all the time). An example of an item on this scale is, “I feel defeated by life”. Higher scores indicate a greater perception of defeat. This scale has been found to have good psychometric properties (Gilbert & Allan, 1998), including high levels of internal consistency for both non-clinical and clinical groups. Internal consistency was found to be high (α = .96, N = 447).
Entrapment Scale (Gilbert & Allan, 1998). Entrapment represents the perception of an inability to escape feelings of rejection and defeat. The Entrapment Scale is a 16-item self-report measure designed to assess both internal (six items assessing escape motivation triggered by one’s own thoughts and feelings, e.g., “I feel powerless to change myself”) and external entrapment (10 items assessing the perception of things in the outside world that induce escape motivation, e.g., “I feel trapped by other people”; Appendix I). Participants were asked to describe using a 5-point Likert scale ranging from 0 (not at all like me) to 4 (extremely like me) the extent to which the items represented them. Higher scores indicate a greater sense of entrapment, or inability to escape current situations/feelings. This scale has been found to have good psychometric properties, including high levels of internal consistency for both non-clinical and clinical groups (Gilbert & Allan, 1998). Internal consistency was shown to be high (α = .96, N = 440).

Acceptance and Action Questionnaire—Second Edition (AAQ-II; Hayes et al., 2004). The AAQ-II is a self-report measure designed to assess a person’s experiential avoidance, immobility, acceptance and action. The 10 items on the AAQ-II were rated on a 7-point Likert type scale ranging from 1 (never true) to 7 (always true). Lower scores on the measure are reflective of greater experiential avoidance and immobility, whereas higher scores reflect greater acceptance and action around emotional experiences. An example of an item on this measure is, “It is OK if I remember something unpleasant”. This measure had high internal consistency for the current study (α = .90, N = 451). For the full scale see Appendix J.

The Beck Depression Inventory-II (BDI-II; Beck, Steer & Brown, 1996; Appendix K). The BDI-II is a 21-item self-report measure of depressive symptoms. Participants rated the degree to which depressive symptoms have been present during the previous two weeks on a 4-point Likert scale ranging in intensity. In sample of college students, the BDI-II has been shown to have good internal consistency and adequate convergent validity (Storch, Roberti, & Roth, 2004). Because of the well researched link between psychiatric disorders and NSSI, it will be important to ensure model factors can explain variance beyond that accounted for solely by depressive symptoms. As has been reported frequently in the past, this scale demonstrated high internal consistency (α = .93, N = 428).

The Beck Anxiety Inventory (BAI; Beck, Epstein, Brown & Steer, 1988; Appendix L). The BAI is a 21-item self-report measure assessing an individual’s anxiety within the past week. Participants rated the degree to which each anxiety symptom was true of them on a 4-point Likert scale ranging from 0 (not at all) to 4 (severely). In a community sample, the BAI has been documented to have good internal consistency and concurrent validity (Osman et al., 1993). Because of the well researched link between psychiatric disorders and NSSI, it will be important to ensure model factors can explain variance beyond that accounted for solely by anxiety related symptoms. As has been reported frequently in the past, this scale demonstrated high internal consistency (α = .93, N = 426).

Procedure

After viewing the letter of information posted online on the University of Guelph participant pool website (Appendix M), participants were asked to email the experimenter to
obtain a unique password, which granted access to the online study. Each password expired once the study was complete to ensure security of individual responses. Once participants reviewed what the study entailed and consented to participation (Appendix N) they had access to begin the online study. Participants were required to complete the study during one sitting. Demographic information was collected to ascertain information pertaining to gender, age, and ethnicity. Participants were then required to indicate whether they had ever engaged in each of the 17 NSSI behaviours described in the DSHI. Those who indicated that they had a history of any behaviour were asked to provide information pertaining to frequency of the behaviour and other descriptive features (e.g., How long did you engage in the behaviour for? When did you last engage in the behaviour?).

To address the proposed research questions, participants then completed the modified PANAS as a baseline rating of state affect and the State Defeat and Entrapment Items as a baseline rating of state cognitions. Next, participants completed the three-minute emotional event disclosure task. This task is has been shown to be an effective way of negatively arousing participants (Selby et al., 2009). Following this, participants completed a second mood rating using the modified PANAS, and a second State Defeat and Entrapment Scale to assess cognitive perceptions in the moment. This task was used to assess whether affect and cognitions varied as a function of NSSI group when participants were emotionally triggered. Participants then completed the DERS, ERS, Defeat Scale, Entrapment Scale, AAQ-II, BDI and BAI (in this order, for all participants). These measures, in concert with the DSHI, were used to assess model utility explicitly. Participants were debriefed following participation (Appendix O). See Figure 2 for online procedure.

Analysis Plan Study 1

The model outlined in Figure 1 was evaluated using a variety of statistical analyses. For each key model component (ERS, DERS, Entrapment, Defeat, AAQ-II), analysis of variance (ANOVA) tests were computed to determine if NSSI groups differed significantly. Next, specific model linkages were evaluated. In these cases, a multiple regression was computed in order to determine if there was utility in combining cognitive (Defeat, Entrapment) and emotional (DERS, ERS) factors into one cohesive model predicting experiential avoidance. This was followed by a linear regression, computed to determine whether emotional reactivity predicted unique variance in defeat (Figure 1, Line B). From here, anxiety and depression were controlled for when determining, using multiple regression analyses, if defeat and emotion regulation (DERS) predicted significant variance in entrapment.

Moderation models were tested using multiple regression to determine whether emotion regulation moderated the relation between defeat and entrapment (Figure 1, Lines C/D). Simple slopes were computed to determine the nature of significant interaction terms (i.e., interaction between emotion regulation scores from the DERS and defeat). Next, mediation analyses were conducted (using both Sobel and Bootstrapping methods) to determine if entrapment explained the relation between defeat and experiential avoidance (Figure 1, Lines C/F). Finally, a logistic regression analysis was computed to determine if entrapment and experiential avoidance predicted NSSI group membership (yes nssi/no nssi; Figure 1, Lines E/F).
A second set of analyses were conducted to determine if participant affect and cognitions changed from before to after the emotional event disclosure, which was completed as part of the online methodology in Study 1. Repeated measures ANOVA analyses were used to determine if affect and state cognition changed from pre-to-post emotional event disclosure, based on NSSI group.

Results: Study 1

Statistical Evaluation of the C-EAM Model

Given the complexity of the proposed model, the results and analyses are numbered to match to those listed in the introduction (i.e., by hypothesis).

Analyses assessing outcome differences between NSSI-frequency groups were based on the following three groups: (1) No history of NSSI reported, \( n = 234 \) [NH] (2) One to four occurrences across the lifetime, \( n = 111 \) [1-4SI] (3) Five or more occurrences across the lifetime, \( n = 103 \) [5+SI]. Indeed, some participants had a history of NSSI but indicated they could not recall the frequency or did not report it \( (n = 16) \). These participants were not included in subsequent analyses involving frequency data. Frequencies were computed by summing reported incidences of NSSI across all 17 behaviours assessed using the DSHI. Of those reporting a lifetime history of NSSI \( (n = 230) \), 92 participants reported recent episodes of NSSI (within the past calendar year), whereas 125 participants reported occurrences of NSSI occurring in the past (more than one calendar year prior to participation). Indeed, some participants had a history of NSSI but indicated they could not recall the last occurrence or did not report it \( (n = 13) \).

(1) Addition of cognitive variables into the EAM model will add incremental utility to the overall prediction of experiential avoidance.

A multiple regression analysis was computed to determine the incremental utility of adding cognitive factors to the EAM model above that of emotional factors. To see correlations among all predictor variables see Table 3. Because defeat and entrapment were highly related, various measures were taken to ensure multicollinearity did not impact the results. A common method of correcting for multicolinearity is to center the overlapping predictors. As such, defeat and entrapment were centered prior to being entered into the regression equation. In the first step, experiential avoidance was regressed on emotion regulation and emotional reactivity (Model 1); results indicated that these variables accounted for 69% of the variance in experiential avoidance, \( R^2 = .69, F(2, 360) = 392.65, p = .00 \). Both factors predicted unique variance in experiential avoidance. Emotion regulation explained 19% of unique variance in experiential avoidance, \( sr^2 = .19, t(360) = -14.97, p = .00 \) and emotional reactivity explained 4% of unique variance in experiential avoidance, \( sr^2 = .04, t(360) = -7.02, p = .00 \) Next, to determine the incremental utility of adding cognitive variables, defeat and entrapment were entered in as step 2 (Model 2). The addition of these cognitive variables added 12% of unique variance, \( R^2\Delta = .12, F\Delta(2, 358) = 110.18, p = .00 \). Both defeat and entrapment predicted unique variance in experiential avoidance. Defeat explained 2% of unique variance in experiential avoidance, \( sr^2 = .02, t(358) = -6.22, p = .00 \), whereas entrapment explained 1.4% of unique variance in experiential avoidance, \( sr^2 = .01, t(358) = -5.30 p = .00 \) Thus, the overall model explained 81%
of the variance in experiential avoidance, $R^2 = .81 \ F(4, 358) = 370.50, p = .00$. Results supported the addition of cognitive variables into the EAM model (Chapmen et al., 2006) providing initial support to look more closely at the newly developed C-EAM model. For regression tables, see Table 4.

(2) Participants with a lifetime history of NSSI will be more likely to be high in emotional reactivity compared to those without a history of NSSI (Figure 1)

An independent samples t-test was computed to determine whether those with a history of NSSI reported higher emotional reactivity than those without a history of NSSI. Results indicated that those with at least one occurrence of NSSI ($M = 34.26, SD = 18.01$) reported significantly higher emotional reactivity than those without a lifetime history of NSSI ($M = 23.34, SD = 14.32$), $t(431) = -6.99, p < .00, \hat{d} = 0.70$. A one way analysis of variance (ANOVA) was conducted to examine the nature of this effect by NSSI-frequency. Results indicated several significant differences, $F(2, 414) = 35.19, p = .00$. Specifically, those in the NH group ($M = 23.34, SD = 14.32$) had significantly lower emotional reactivity than those in 1-4 SI group ($M = 30.20, SD = 16.08$), $q (2, 414) = 4.73, p < .01, \hat{d} = 0.50$, and those in the 5+SI group ($M = 39.65, SD = 18.74$), $q (2, 414) = 11.25, p < .01, \hat{d} = 1.00$. Those in the 5+SI group were also significantly more emotionally reactive than those in the 1-4SI group, $q (2, 414) = 6.52, p < .01, \hat{d} = 0.60$. Of those reporting a lifetime history of NSSI, those engaging in NSSI within the past year ($M = 38.35, SD = 18.42$) had significantly higher scores on the ERS than those engaging in NSSI in the past ($M = 31.72, SD = 17.33$), $t(212) = -2.66, p < .01, \hat{d} = 0.40$.

In order to obtain an in the moment assessment of participants negative affect when triggered, participants were asked to rate their mood using the Positive and Negative Affective Scale before and after completing the Emotional Event Disclosure task, where they were required to write for three minutes on an upsetting event in their own lifetime. A one way analysis of variance was computed to determine if there were significant differences between groups in terms of negative affect following the emotional event disclosure task. Results indicated a significant overall effect, $F(2, 438) = 31.70, p = .00$. Specifically, the NH group ($M = 9.96, SD = 3.74$) did not have significantly higher post-EED negative affect than the 1-4SI group ($M = 10.70, SD = 3.96$), $q (2, 438) = 2.05, ns$. The 5+SI group ($M = 13.85, SD = 5.06$) had significantly higher negative affect following the EED than the 1-4SI group, $q (2, 438) = 8.75, p < .01, \hat{d} = 0.70$ and the NH group, $q(2, 438) = 10.81, p < .01, \hat{d} = 0.90$.

(3) Emotional Reactivity and Emotional regulation will be significantly related. (Figure 1 Line A).

Scores on the ERS were significantly related to scores on the DERS, $r = .69, p = .00$. All subscales of the ERS (Sensitivity, Arousal/Intensity, Persistence) were significantly related to all subscales of the DERS (Nonacceptance, Difficulty with Goal Directed behaviour, Impulse Control Difficultes, Lack of access to emotion regulation strategies, Lack of emotional clarity), with the exception of one subscale (Lack of emotional awareness) which was not related to any ERS subscales or the total ERS (For correlations, see Table 5).
(4) Emotional reactivity will predict variance in trait perceptions of trait defeat. (Figure 1, Line B)

Analyses were conducted to understand the more general relation between emotional reactivity and defeat, using the Defeat Scale which demonstrated sound internal consistency. A regression analysis indicated that scores on the ERS predicted 34% of the variance in trait defeat, $R^2 = .34, F(1, 417) = 217.97, p = .00$.

(5) Participants with a history of NSSI are more likely to have deficits in emotion regulation skills compared to those without a history of NSSI.

An independent samples t-test was computed, and those with a history of NSSI ($M = 91.95, SD = 24.75$) had significantly higher scores on the total DERS than those without a history of NSSI ($M = 77.04, SD = 19.50$), $t(416) = 6.84, p = .00, d = 0.70$. A one way analysis of variance (ANOVA) was conducted to examine differences in frequency of NSSI on total DERS scores. There were significant differences between groups on DERS scores, $F(2, 399) = 40.88, p = .00$. Specifically, those in the NH group ($M = 77.04, SD = 19.50$) had significantly better emotion regulation skills than those in the 5+SI group ($M = 101.26, SD = 24.34$), $q(2, 399) = 12.10, p < .01, \hat{d} = 1.16$. Those in the 1-4SI group ($M = 84.02, SD = 22.33$) had significantly better emotion regulation skills than those in the NH group, $q(2, 399) = 3.49, p < .05, \hat{d} = 0.30$, and those in 5+SI group. $q(2, 399) = 8.61, p < .01, \hat{d} = 0.70$. Of those reporting a lifetime history of NSSI, those engaging in NSSI within the past year ($M = 100.39, SD = 23.52$) had significantly poorer emotion regulation skills than those engaging in NSSI in the past ($M = 86.82, SD = 23.52$), $t(207) = -3.98, p = .00, \hat{d} = 0.60$. To see DERS subscale differences between groups (i.e. history, frequency, recency), refer to Tables 6 – 8.

(6) After controlling for anxiety and depression, defeat and emotion regulation will explain unique variance in entrapment (Figure 1, Line C).

Analyses were conducted to determine whether defeat and emotion regulation explained unique variance in entrapment beyond anxiety and depression; thus, entrapment was regressed on BAI and BDI scores. BAI and BDI scores were entered first, into Model 1 and predicted 64% of the variance in entrapment, $R^2 = .64, F(2, 342) = 309.36, p = .00$. The BDI predicted 33% of unique variance in entrapment, $sr^2 = .33, t(342) = 17.89, p = .00$, while the BAI predicted 1% of unique variance in entrapment, $sr^2 = .01, t(342) = 2.81, p = .01$. Next, defeat and DERS Total were added into Model 2 and were found to predict 14% of unique variance, beyond that predicted by BAI and BDI, $R^2\Delta = .14, F\Delta(2, 340) = 107.82, p = .00$. When all predictors were in the model, defeat predicted 9% of unique variance, $sr^2 = .09, t(340) = 12.02, p = .00$ and the DERS Total predicted 1% of unique variance, $sr^2 = .01, t(340) = 3.31, p = .00$. As expected, the BAI and BDI remained significantly unique predictors, although explaining less unique variance [BDI Model 2, $sr^2 = .01, t(340) = 4.08, p = .00$; BAI Model 2, $sr^2 = .00, t(340) = 2.09, p = .04$]. The BDI’s decrease in uniquely explained variance can be attributed to the overlap between defeat and depression ($r = .85$). This is a significant limitation of the measures but mirrors past research (Rasmussen et al., 2010; $r = .81$). Although these are theoretically distinct concepts (emotional versus cognitive), a high degree of relatedness is expected (i.e., depressive symptoms should follow from perceptions of defeat). The large sample size presently should correct for
some model deficiencies due to multicolinearity, however results should be interpreted bearing in mind this high correlation. Thus, the total model accounted for 78% of the variance in entrapment, $R^2 = .79$, $F(4, 340) = 305.21$, $p = .00$.

The same analysis as above was computed, but instead included DERS broken down by subscale. The DERS scale was comprised of six subscales. Regression analyses were computed to determine the unique role of each emotion regulation facets in explaining variance in entrapment, beyond that explained by anxiety, depression and defeat. BAI and BDI scores were entered first, into Model 1 and predicted 64% of the variance in entrapment, $R^2 = .64$, $F(2, 342 = 309.36$, $p = .00$. The BDI predicted 33% of unique variance in entrapment, $sr^2 = .33$, $t(342) = 17.89$, $p = .00$, while the BAI predicted 1% of unique variance in entrapment, $sr^2 = .01$, $t(342) = 2.81$, $p = .01$. Next, Defeat and the DERS subscales were added into Model 2, and were found to predict 14% of unique variance, beyond that predicted by BAI and BDI, $R^2\Delta = .14$, $F\Delta(7, 335) = 36.47$, $p = .00$. Correlations among the DERS subscales were examined, and were moderate (.02 to .67) indicating that multicolinearity was not an issue for this analysis. Examination of the part correlations indicated that only one DERS facets explained unique variance in entrapment, not accounted for by any other emotion regulation subscales, defeat, anxiety or depression [non-acceptance of emotions accounted for 1% of unique variance in entrapment $sr^2 = .01$, $t(335) = 4.51$, $p = .00$].

(7) After controlling for depression, emotion regulation skills will moderate the relation between the cognitive trait perception of defeat and the cognitive trait perception of entrapment. Specifically, their will be a significant interaction between defeat and emotion regulation (Figure 1, Line D).

Using a multiple regression analysis, the overall model accounted for 77% of the variance in entrapment, $R^2 = .79$, $F(4, 357) = 325.43$, $p = .00$. There was a significant interaction between defeat and emotion regulation, such that the relation between defeat and entrapment varied at different levels of emotion regulation, $t(357) = 3.42$, $p = .00$. At the mean level of emotion regulation ($M = 0$, $SD = 23.46$) the simple slope was significant, $t(357) = 11.50$, $p = .00$, indicating that the slope of the regression line was significantly different from 0. Holding emotion regulation constant 1 standard deviation above the regression line, the simple slope was also significant, $t(57) = 12.82$, $p = .00$, indicating that those individuals with emotion regulation scores 1 standard deviation above the mean regression line had significantly different perceptions of entrapment depending on perceptions of defeat. Finally, holding emotion regulation constant 1 standard deviation below the regression line, the simple slope was also significant, $t(357) = 8.47$, $p = .00$, indicating that for those individuals who had emotion regulation scores 1 standard deviation below the mean regression line, entrapment scores also varied significantly depending on defeat scores. Figure 3 presents simple slope regression lines. The model should be interpreted with caution, considering the moderate correlation (.70) between defeat and emotion regulation. Given this correlation is less than .75, multicolinearity is not deemed to be a problem. Nevertheless, the more distinct measures of each construct may be warranted in future research.

(8) Entrapment will predict significant variance in experiential avoidance. More specifically, entrapment will mediate the relation between defeat and experiential avoidance (Figure 1, Line C/F).
A linear regression analysis was computed to determine the amount of variance in experiential avoidance explained by entrapment. AAQ-II scores were regressed onto Entrapment Scale scores, and entrapment was found to explain 66% of the variance in experiential avoidance, $R^2 = .66, F(1, 427) = 812.89, p = .00$.

A mediation model was computed to assess whether the relation between defeat and experiential avoidance was mediated by entrapment, as depicted in the C-EAM model (Figure 1). Mediation analyses were computed based on guidelines offered by Preacher and Hayes (2004). Bootstrapping approaches are thought to have some well-founded advantages. Bootstrapping methods allow for testing the indirect effect of defeat on experiential avoidance, through entrapment while accounting for the greater probability of Type I error. This method produces an estimate of the sampling distribution by repeated random re-sample of the data available in the study. Despite having adequate sample size for more traditional approaches in the current study, this method was still considered to be superior. Because of the high correlation between defeat and entrapment ($r = .85$), the author utilized bootstrapping, as it is the most robust statistical test for evaluating mediation. Despite this, the high relation between the variables is a significant limitation of the analyses and inherent problem with the measures (an issue also in past research: Rasmussen et al., 2010). This should be addressed in future research. In this study, 5,000 re-samples were computed. Bootstrapping analyses also produce output for more traditional approaches, including Sobel’s test (1982).

More traditional approaches were supportive of partial mediation. Both defeat, $R^2 = .69, F(1, 435) = 969.40, p = .00, B = -.71, t(435) = -31.14, p = .00$, and entrapment, $R^2 = .67, F(1, 427) = 812.89, p = .00, B = -.67, t(435) = -28.51, p = .00$, were found to predict significant variance in experiential avoidance (AAQ-II). Taken together, defeat and entrapment predicted 73% of the variance in experiential avoidance, $R^2 = .73, F(2, 414) = 548.53, p = .00$, however the associated $B$ weight for defeat lowered when entrapment was added into the model, indicating partial mediation, $B = -.42, t(414) = -9.87, p = .00$ A Sobel test supported this, $Z = -7.62, p < .000$. Bootstrapping results also indicated this to be significant which was evident by zero not being contained within the confidence intervals yielded by the analyses (upper and lower values for CI$^95$ were -.19 and -.37; Preacher & Hayes, 2004).

(9) Entrapment and experiential avoidance will predict NSSI group membership (Figure 1, Line E/F).

Because it was expected that entrapment and experiential avoidance would predict NSSI, a logistic regression was utilized to assess this relation. Because the present measure of NSSI was not continuous, a linear regression analysis was not appropriate. Given that logistic regression equations require a dichotomous dependent variable, the NSSI history variable (yes/no) was used to evaluate this relationship. Logistic regression analyses use continuous predictors (i.e. entrapment and experiential avoidance) to determine likelihood of group membership in the dependent variable (i.e. history of NSSI). The results demonstrated that both entrapment and experiential avoidance add predictive power to the model. That is, when these predictor variables are not included the likelihood of assigning accurate group membership is 50%, which increased to 67% overall with entrapment and experiential avoidance as predictor
variables (59% for ‘yes nssi’ and 75% for ‘no nssi’). A test of the full model against a constant only model was statistically significant, indicating that the predictors as a set reliably distinguished between those with and without a history of NSSI (Chi Square = 72.34, \( p = .00 \), \( df = 2 \)). Nagelkerke's \( R^2 \) of .21 indicates a moderate relationship between the predictors and groupings. The model was deemed well fitting as the Hosmer and Lemeshow goodness of fit test was non-significant. Therefore, the model predictions did not significantly differ from the observed model. The Wald criterion indicated that both experiential avoidance (\( p = .00 \)) and entrapment (\( p = .02 \)) made a significant contribution to the prediction. There were only two outliers observed, which did not significantly change the findings of the logistic regression.

(10) Because NSSI is currently considered an experientially avoidant behaviour (Chapman et al., 2006), it is proposed that individuals who perceive entrapment are more likely to have a reported history of self-injury than those who do not endorse this perception.

An independent samples t-test was computed, and those with a history of NSSI were found to report significantly higher perceptions of entrapment (\( M = 16.56, SD = 15.27 \)) than those without a history of NSSI (\( M = 6.71, SD = 9.22 \)), \( t(438) = -8.20, p = .00, \hat{d} = 0.80 \).

A one-way ANOVA was computed to determine whether there were significant differences in scores on the entrapment scale between frequency groups. The overall model was significant, \( F(2, 421) = 53.58, p = .00 \). Specifically, those in the NH group (\( M = 6.71, SD = 9.22 \)) reported significantly less perceptions of entrapment than those in the 1-4SI group (\( M = 11.35, SD = 12.38 \)), \( q(2, 421) = 3.97, p < .05, \hat{d} = 0.50 \), and the 5+SI group (\( M = 21.83, SD = 16.60 \)), \( q(2, 421) = 12.92, p < .01, \hat{d} = 1.26 \). Those in the 1-4SI group had significantly lower perceptions of entrapment than those in the greater 5+SI group, \( q(2, 421) = 8.95, p < .01, \hat{d} = 0.70 \). Of those reporting a lifetime history of NSSI, those engaging in NSSI within the past year (\( M = 21.04, SD = 16.72 \)) had significantly higher perceptions of entrapment than those engaging in NSSI in the past (\( M = 13.80, SD = 13.65 \)), \( t(218) = -3.50, p < .01, \hat{d} = 0.50 \).

(11) Those with a history of NSSI are expected to have lower scores on the AAQ-II, (reflecting higher experiential avoidance).

Those without a history of NSSI had significantly higher acceptance of emotions (\( M = 54.95, SD = 8.85 \)), than those with a history of NSSI (\( M = 46.99, SD = 12.09 \)), \( t(449) = 7.99, p = .00, \hat{d} = 0.80 \).

A one-way ANOVA was computed to determine whether there were significant differences in scores on the AAQ-II between frequency groups. The overall model was significant, \( F(2, 432) = 62.62, p = .00 \). Specifically, those in the NH group (\( M = 54.96, SD = 8.85 \)) reported significantly higher acceptance of emotions than those in the 1-4SI group (\( M = 51.79, SD = 9.63 \)), \( q(2, 432) = 3.56, p < .05, \hat{d} = 0.40 \), and the 5+SI group (\( M = 41.58, SD = 12.52 \)), \( q(2, 432) = 15.03, p < .01, \hat{d} = 1.32 \). Those in the 1-4SI group had significantly higher acceptance of emotions than those in the 5+SI group, \( q(2, 432) = 11.58, p < .01, \hat{d} = 0.90 \). Of those reporting a lifetime history of NSSI, those engaging in NSSI within the past year (\( M =
had significantly lower scores on the AAQ-II than those engaging in NSSI in the past ($M = 49.97$, $SD = 10.70$), $t(221) = 4.83$, $p = .00$, $d = 0.70$.

Assessment of Affect and Cognitions when emotionally aroused

(12) Perceptions of state defeat and state entrapment will increase significantly from before to after the emotional event disclosure, only for those with a history of NSSI.

State defeat and state entrapment were assessed before and following the emotional event disclosure task using single item measures. Statistical findings should be interpreted bearing in mind that only a single item for defeat and a single item for entrapment were used to assess each cognitive perception at T1(before EED) and T2(after EED).

Repeated measures ANOVAs were computed to determine if defeat and entrapment varied across time as a function of NSSI history (yes/no). Time was the repeated measures variable in each analysis. Sphericity violations were corrected for by using the Greenhouse-Geisser correction. Although the homogeneity of variance assumption was violated, the sample size was deemed large enough to correct for this violation.

First, state defeat was assessed. There was a significant interaction between time and NSSI group, $F(1, 427) = 7.20$, $p = .008$. Specifically, those with a history of NSSI had significantly higher perceptions of defeat from T1 ($M = .81$, $SD = 1.0$) to T2 ($M = 1.12$, $SD = 1.2$), whereas those without a history of NSSI had no significant change in their perception of defeat from T1 ($M = .44$, $SD = .76$) to T2 ($M = .57$, $SD = .84$).

Next, state entrapment was assessed. There was a significant interaction between time and NSSI group, $F(1, 425) = 8.73$, $p = .003$. Specifically, those with a history of NSSI had significantly higher perceptions of entrapment from T1 ($M = .72$, $SD = 1.06$) to T2 ($M = 1.00$, $SD = 1.20$), whereas those without a history of NSSI had no significant change in their perception of entrapment from T1 ($M = .29$, $SD = .62$) to T2 ($M = .38$, $SD = .76$).

(13) Negative affect will increase significantly from before to after emotional event disclosure, only for those with a history of NSSI.

Currently, negative affect was assessed before (T1) and following (T2) the emotional event disclosure task using the PANAS. A repeated measures ANOVA was computed to determine if negative affect varied across time as a function of NSSI history (yes/no). Time was the repeated measures variable in each analysis. Sphericity violations were corrected for by using the Greenhouse-Geisser correction.

There was not significant interaction between time and NSSI, $F(1, 454) = 1.20$, $ns$. Main effects were examined. There was a significant main effect of time, $F(1, 454) = 95.29$, $p = .00$, indicating that negative affect increased significantly from T1 to T2, irrespective of NSSI group. There was also a significant between subjects main effect of NSSI group, $F(1, 454) = 33.69$, $p = .000$, indicating that those with a history of NSSI ($M = 22.55$, $SD = 8.34$) had significantly more negative affect than those without a history of NSSI ($M = 18.58$, $SD = 6.10$), irrespective of time
(PANAS Negative scores were summed across both administrations [T1 + T2] to obtain means and standard deviations).

**VII. Study 2**

*Research Goals*

The second study was designed to evaluate an in-situ measure of experiential avoidance. Specifically, participants were asked to come into the laboratory, engage in a stressful task and were permitted to discontinue at a certain time point should they choose (to assess tendency to engage in experiential avoidance when distressed). Participant affect and cognitions were assessed in the moment. The purpose of the study was to assess individual’s tendency to avoid when emotionally stressed. All individuals participating in this study completed the first study. This overcomes previously identified limitations in the field (see Nock, 2009) by providing a compliment to self-report data and a proxy for avoidance of distressing stimuli. The following was hypothesized:

1. Individuals with a NSSI history would report greater negative affect across time (during the distressing task) compared to those with no NSSI history.

2. Individuals with a NSSI history would report lower positive affect across time (baseline and two time points throughout distressing task) compared to those with no NSSI history.

3. Individuals with a NSSI history would be more likely to engage in avoidance when emotionally aroused as compared to those with no such history, determined by point of discontinuation of the task.

*Method: Study 2*

*Participants*

Participants who signed up for both Study 1 and Study 2 participated in this study. The goal was to obtain equal numbers of participants with and without a self-reported history of NSSI. Additional participants were recruited following the completion of Study 1 ($n = 15$), but still completed all Study 1 measures according to the same protocol. Participants recruited at this later time were rewarded with a $5.00 Tim Hortons© gift card for completing both studies.

Participants included 57 undergraduate students from the University of Guelph. Ten of the participants identified as male and 47 as female. Participants ranged in age from 17 to 33 years old ($M = 19.79, SD = 2.67$).

Of the Study 2 sample, 38 (66.70%) reported at least one lifetime occurrence of NSSI, whereas 19 (33.3%) reported no history of NSSI. Lifetime occurrences were summed across the 17 behaviours assessed using the DSHI.
Of those reporting a lifetime history of NSSI ($n = 38$), 60.5 percent ($n = 23$) reported NSSI engagement within the past year, whereas 39.5 percent ($n = 15$) reported a past history of the behaviour. In terms of frequency of engagement in NSSI, 68 percent ($n = 26$) of those reporting a lifetime history of NSSI indicated that they had engaged in NSSI five or more times, whereas 31.5 percent ($n = 12$) reported between one and four occurrences of NSSI across the lifetime.

**Materials**

*Positive and Negative Affect Schedule: Modified version.* A modified version of the *PANAS* (Watson, Tellegen, & Clark, 1988) was used to ascertain participants’ emotional state at various time points throughout the procedure. The adapted version follows from Nock and Mendes (2008), and identifies key negative and positive affect words, without the same time commitment as the full PANAS scale. Participants rated the degree to which they were feeling several emotions numerous times throughout this study using a 5-point Likert scale ($1 = \text{slightly/not at all}, 5 = \text{extremely}$). The five negative words included: frustrated, sad, confused, angry and irritable. The five positive words included: happy, confident, satisfied, calm and at ease.

*State Defeat and Entrapment.* In order to assess participant’s levels of perceived defeat and entrapment at the time of emotional arousal, participants were asked a single question assessing cognitive content prior to and then following completion of the *Distress Tolerance Task*. Participants were asked to rate on a Likert scale ranging from 0 (not at all) to 4 (extremely) the extent to which the following statements described their thoughts at the time of asking (e.g., directly following Emotional Event Disclosure): “I am defeated/would like to escape from the emotions I feel.” and “I feel trapped in these emotions, as if there is no escape”.

*Distress Tolerance Task* (Nock & Mendes, 2008). The Distress Tolerance task was designed to assess individual’s ability to tolerate distress resulting from repeated failure feedback. Using the stimulus cards from the Wisconsin Card Sorting Test, four cards were shown face up and the standard instructions were provided, indicating that the participant should match subsequent cards to the key cards in the way they feel is most adequate (for full instructions see Appendix P). Participants were told that there were 64 cards total, but that they were only required to complete 20 cards. Participants received feedback in the form of ‘correct’ or ‘incorrect’. Regardless of where the participant placed the card, the experimenter responded ‘correct’ to the first three cards and “incorrect” to the next seven cards. After presentation of the first ten cards, the participants completed the modified PANAS again (T2) as well as an assessment of state cognition using the defeat and entrapment items. The eleventh card was presented and the participant was informed that their response was “correct” (to re-engage the participant). Cards eleven through twenty were identified to the participant as “incorrect”. After twenty cards, participants completed, again, the modified PANAS (T3). They were instructed that they had completed twenty cards and could discontinue at any time. Card number at which the participant opted to discontinue was reported. At the time the participant decided to discontinue the task, they completed a final mood rating (PANAS T4). Prior card sorting tasks have been used to induce experimental distress (Hirito & Seligman, 1975; Ruggero & Johnson, 2006) and others have used the current task specifically (Nock & Mendes, 2008). By providing
more consistently negative feedback in a shorter period of time, the DTT has been found to induce distress. Past research has shown that individuals consistently felt more frustrated after the 20th card than at the task outset (Nock & Mendes, 2008).

Procedure

Study 2 involved an experimental paradigm in which a portion of the participants who completed Study 1 took part in a laboratory paradigm designed to elicit distress. The purpose of this procedure was to assess the experiential avoidance component of the C-EAM model in laboratory to corroborate and compliment findings based on self-report measures. Specifically the study was designed to assess the degree to which participants would avoid distress through this task, as a proxy for actual emotional avoidance tendencies. Thus, the experiment was designed to evaluate an in-situ measure of experiential avoidance.

Upon arrival at the lab, participants were greeted by the experimenter who explained that the study was designed to understand cognitive functioning in those with and without a history of NSSI. The experimenter was blind to the condition of the participant. Once participants read the letter of information and consented to participation (Appendices Q) they completed a baseline measure of affect (modified PANAS T1) and state cognitions (State Defeat and Entrapment Scale). Next, the Distress Tolerance Task (DTT; Nock & Mendes, 2008,) was administered as a vehicle through which to induce negative mood. PANAS ratings were administered two times throughout this task and upon completion of the task. The task was administered by trained graduate and undergraduate psychology research assistants. Mood and cognitive perceptions were collected at various points throughout this paradigm.

Upon completion of the task participants were required to watch 10 minutes of a sitcom in order to ensure that their mood returns to baseline. Participants were required to read a debriefing letter (Appendix R) which outlined the nature of study in greater detail and provided additional resources for information and help-seeking. All participants were informed that the responses they received from the experimenter during the DTT were identical for all participants and did not accurately reflect their performance. Participants were invited to ask any questions they may have had and signed a second consent form identifying that they have been informed of the DTT paradigm deceit. Participants received a comprehensive list of recommended services within the appropriate geographical region in case they required assistance with their social-emotional health or well-being. No participants appeared to be in significant distress upon study completion.

Results: Study 2

Results and analyses are numbered identically to those presented in the study introduction (i.e. the hypotheses).

(1) Individuals with a history of NSSI will report greater negative affect across time (baseline and two time points throughout the distress task) compared to those with no NSSI history.
Repeated measures analyses were used to assess differences in affect across Time (participating in distressing task). Mood was assessed at baseline (T1), after ten cards (T2), after 20 cards (T3). For those participants who continued the task, affect was assessed at task discontinuation (T4). Included in the ANOVAs were T1, T2 and T3 data. Time 4 data was not included in these analyses given only a portion of participants completed this measure. Repeated measures analyses were computed for the following: (a) with versus without an NSSI history (b) frequency of NSSI [NH, 1-4SI, 5+SI] and (c) past versus current NSSI [recency]. Time was the repeated measures variable in each analysis. Sphericity violations were corrected for by using the Greenhouse-Geisser correction.

(a) There was no significant interaction between time and NSSI group, $F(1, 73) = .12, ns$. For descriptive statistics see Table 9. There was a significant main effect of time, $F(1, 73) = 53.69, p = .00, \eta^2 = .50$, indicating that negative affect increased across time irrespective of group membership. There was also a significant main effect of NSSI, $F(1, 54) = 3.89, p = .05, \eta^2 = .06$. Specifically, those in the NSSI group had significantly more negative affect than those without a history of NSSI, irrespective of time.

(b) There was no significant interaction between time and frequency, $F(3, 106) = .15, ns$. For descriptive statistics see Table 10. There was a significant main effect of time, $F(1, 106) = 55.87, p = .00, \eta^2 = .51$, indicating that negative affect increased across time irrespective of frequency group. There was no significant main effect of frequency group, $F(2, 53) = 1.93, ns$.

(c) There was no significant interaction between time and recency, $F(3, 73) = .93, ns$. For descriptive statistics see Table 11. There was a main effect of time, $F(1, 72) = 64.24, p = .00, \eta^2 = .55$, indicating that negative affect increased across time irrespective of whether NSSI was occurred within the past year or prior to that time. There was no significant main effect of NSSI group, $F(2, 53) = 2.35, ns$.

(2) **Individuals with a history of self-injury will report lower positive affect across time (baseline and two time points throughout distressing task) compared to those with no history of self-injury.**

Repeated measures analyses were used to assess differences in affect across Time (participating in distressing task). Mood was assessed at baseline (T1), after ten cards (T2), after 20 cards (T3). For those participants who continued the task, affect was assessed at task discontinuation (T4). Included in the ANOVAs were T1, T2 and T3 data. Time 4 data was not included in these analyses given only a portion of participants completed this measure. Repeated measures analyses were computed for (a) with versus without an NSSI history (b) frequency of NSSI [NH, 1-4SI, 5+SI] (c) past versus current NSSI [recency]. Time was the repeated measures variable in each analysis. Sphericity violations were corrected for by using the Greenhouse-Geisser correction.

(a) There was no significant interaction between time and NSSI, $F(1, 72) = .00, ns$. For descriptive statistics see Table 12. As such, main effects were examined. There was a significant main effect of time, $F(1, 72) = 53.32, p = .00, \eta^2 = .51$, indicating that positive
affect decreased across time irrespective of group membership. There was also a significant main effect of NSSI, \( F(1, 55) = 6.72, p = .01, \eta^2 = .11 \). Specifically, those without a history of NSSI had significantly higher positive affect than those with a history of NSSI, irrespective of time.

(b) There was no significant interaction between time and frequency, \( F(3, 71) = .24, ns \). For descriptive statistics see Table 13 There was a significant main effect of time, \( F(1, 71) = 60.13, p = .00, \eta^2 = .58 \), indicating that positive affect decreased across time irrespective of frequency group. There was also a significant between subjects main effect of frequency group, \( F(2, 54) = 3.32, p = .04, \eta^2 = .11 \). Tukey’s post hoc analyses were computed, and participants in the 1-4SI group did not differ significantly from those in the 5+SI group, \( q (2, 54) = .33, ns \). Those in the NH group, however, differed significantly from those in the 1-4SI group, \( q (2, 54) = 3.60, p < .01, \hat{d} = 0.30 \). Although approaching significance, those in the NH group did not differ significantly from those in the 5+SI group, \( q (2, 54) = 3.27, ns \) (Figure 4).

(c) There was no significant interaction between time and recency, \( F(3, 71) = .65, ns \). For descriptive statistics see Table 14. However, there was a main effect of time, \( F(1, 71) = 65.21, p = .00, \eta^2 = .55 \), indicating that positive affect decreased across time irrespective of whether NSSI occurred within the past year or in the past. There was also a significant between subjects main effect of recency, \( F(2, 54) = 3.32, p = .04, \eta^2 = .11 \). Tukeys post hoc analyses were computed, and those in the 1-4SI group did not have significantly different positive affect than those in the 5+SI group, \( q(2, 54) = .29, ns \). Participants in the NH group had significantly higher positive affect than those currently engaging in NSSI, \( q(2, 54) = 3.22, p < .05, \hat{d} = 0.20 \), but not from those who engaged in NSSI in the past, \( q(2, 54) = 2.93, ns \) (Figure 5).

(3) Individuals with a history of NSSI are more likely to engage in avoidance when emotionally aroused as compared those with no such history.

The Distress Tolerance Task consisted of 64 cards total. Participants were presented with the opportunity to discontinue after 20 cards or to continue on for as long as they chose. Card at which the participant discontinued was recorded.

An independent t-test determined that there was no significant difference between those with a history of NSSI (\( M = 32.37, SD = 15.41 \)) and those without a history of NSSI (\( M = 36.58, SD = 20.54 \)) in terms of point of discontinuation, \( t(55) = .89, ns \). A one way analysis of variance was computed to determine if there were significant differences between frequency groups in terms of time of discontinuation. There were no significant group differences, \( F(2, 54) = .97, ns \). For descriptive statistics see Table 15. A subsequent one way analysis of variance determined that there was no significant differences between recency groups in terms of time of discontinuation, \( F(2, 54) = .77, ns \). For descriptive statistics see Table 16.
VIII. Discussion

The results of this dissertation supported and expanded on past literature assessing the role of emotions (e.g., Chapman et al., 2006; Klonsky, 2009; Nock, 2009), and cognitions (e.g., Rasmussen et al., 2010; Selby et al., 2008; Walsh, 2006) in understanding NSSI. Results also supported the notion that NSSI may be an experientially avoidant behaviour; that is, a behaviour used to escape from or avoid unwanted emotional experiences (Chapman et al., 2006). Further, results provided some evidence that future research should evaluate non-behavioural mechanisms of experiential avoidance as it has been recently suggested that broadening the construct may crucial to understanding frequent engagement in experiential avoidance (Chapman et al., 2011). The current set of studies sought to integrate two existing theoretical models, and research on the role of emotions and cognitions to better delineate the process leading from stressor to experiential avoidance and subsequently NSSI. Based on components of the EAM Model (Chapman et al., 2006) and the CoP Model (Williams, 2001), the Cognitive Experiential Avoidance Model (C-EAM) was developed to formally consider both cognitions and emotions in the context of an integrated NSSI model. Specifically, the C-EAM model considered the role of emotions and cognitions in understanding experiential avoidance (where NSSI is one such avoidant behaviour), with a specific focus on the role of emotion regulation as a moderator of particular cognitive content. Model components were included based on previous models (Chapman et al., 2006; Rasmussen et al., 2010) as well as the broader literature assessing emotional and cognitive factors. Results from Study 1 and 2 are discussed separately below, followed by a general discussion to address clinical implications, limitations, and suggestions for future research.

Study 1: C-EAM Model Sufficiency

Study 1 had two main goals. First, the sufficiency of the C-EAM model was examined. Findings are explored below based on model linkages outlined in Figure 1. Second, information about participants’ in-situ affect and cognitions preceding and following an emotional trigger was obtained. This latter goal was addressed to gain information about whether those with a history of NSSI had greater increases in negative emotion and cognition following an emotional trigger. These measures were not used to directly assess model sufficiency, and will be discussed following the results examining C-EAM model sufficiency.

Despite research supporting the role of cognitive factors in understanding NSSI (Najmi et al., 2007; Selby et al., 2008) these have not been formally considered in the context of the experiential avoidance model of NSSI; the C-EAM model was developed based on two existing models (CoP and EAM) used in the past to study suicidal and self-harm behaviours with the goal of giving consideration to both emotional and cognitive processes in the context of NSSI. Results from Study 1 suggested that experiential avoidance could be better explained by the combination of cognitive and emotional factors, rather than emotional factors alone, which is consistent with the a large body of research finding that emotions and cognitions interplay to impact behavioural outcomes (Beck, 1995; Folkman & Lazarus, 1988; Selby, et al., 2009). Results speak to the importance of considering both emotional and cognitive factors when trying to understand NSSI, particularly to inform intervention (discussed below in the General Discussion).
The C-EAM model was developed based on the view that NSSI is an experientially avoidant behaviour (Chapman et al., 2006). Results supported this postulation, as those without a history of NSSI were found to have significantly higher acceptance of emotions (rather than avoidance or attempt to escape from emotions) than those with a history of the behaviour. Further, those with greater NSSI frequency (five or more lifetime occurrences) had significantly lower acceptance of emotions than those with no NSSI history and those who engaged in the behaviour fewer than five times over the course of their lifetime. Experiential avoidance was also found to significantly predict NSSI group membership. These findings are consistent with past research which suggests that individuals engaging in NSSI five or more times have significantly higher psychiatric symptoms (Klonsky & Olino, 2008; Whitlock et al., 2008), and speaks to the importance of evaluating frequency of NSSI in continued research.

C-EAM: Link A/B (Figure 1)

As expected, individuals with a history of NSSI were found to be more emotionally reactive than those without a history of NSSI. Consistent with past research, these individuals may be inclined toward increased sensitivity to emotional events, putting them at greater risk for engagement in experiential avoidance (Chapman, et al., 2006; Chapman, Dixon-Gordon & Walters, 2011; Gratz, 2006). Emotional reactivity itself has not been found to be a sufficient predictor (when considered alone) of NSSI (Chapman et al., 2006; Gratz, 2006), which suggests it may lead to NSSI when other factors are considered. Accordingly, the current study explored the relation between emotional reactivity and cognitive content, namely perceptions of defeat. Specifically, it was suggested that increased emotional reactivity would explain variance in defeat. Results supported this link, suggesting that emotional reactivity is one contributing factor to the perception of defeat. It may be that those with increased reactivity to emotional cues are quicker to perceive defeat when faced with emotional triggers; however this was not assessed temporally in the present study. There are several possible explanations for this link.

First, individuals may anticipate limitations around their own ability to regulate when aroused. Thus, it may be that a history of poor affect regulation capacities triggers perceptions of defeat for those who are more reactive emotionally (i.e., individuals have consistently struggled to regulate effectively, and therefore perceive defeat when emotionally aroused). Alternatively, being highly emotionally reactive (when close others are not) may trigger, or initiate social comparison. When individuals notice that close others are not as reactive to the same cue, they may feel inferior which can trigger perceptions of defeat. This contention is also consistent with social rank theory (Gilbert & Allan, 1998) which purports that humans are inclined to compare themselves to close others and any notable disadvantages (e.g., being more reactive) may trigger perceptions of defeat or rejection. Further, this link can be conceptualized as occurring at a more automatic level. In concert with Baumeister's escape theory (1990), individuals under distress may experience a breakdown in their cognitive or information processing systems. When cognitive and information processing systems narrow, which occurs under conditions of intense affective arousal, individuals have been found to have difficulty problem solving (Gellatly & Meyer, 1992). It may be that an inherent struggle to problem solves leads to perceptions of defeat and entrapment, which may also lead to implementation of quick and easily conducted strategies to regulate emotions (e.g., NSSI). NSSI has been considered as an urgent mechanism of escape (Klonsky & Glenn, 2008), and individuals may not have time to consider the implications of their actions beyond instant relief from emotional distress. Research has suggested that...
individuals spend less than a few minutes considering their behaviour before engaging in NSSI (Nock & Prinstein, 2005).

It is also notable that emotional reactivity, as predicted, was related to all emotion regulation facets with the exception of one subscale (lack of emotional awareness). Theoretically this non significant relation was expected, as a lack of awareness of one’s emotions would preclude reactivity to emotions.

**C-EAM: Link C and Link D (Figure 1)**

Further, those with a history of NSSI were found to have significantly poorer emotion regulation skills compared to those without a history of NSSI. Although research has supported that those who engage in NSSI tend to have emotion regulation difficulties (Klonsky, 2009; Linehan, 1993; Nock, 2009; Nock et al., 2008), this study was the first to evaluate emotion regulation as a moderator of two prominent cognitive traits that have been found to be related to engagement in suicidal and self-harm behaviours (Rasmussen et al., 2010). The CoP model contends that individuals are motivated to engage in self-harm or suicide, not only when they perceive defeat, but when they perceive that they are stuck or trapped in situations that may evoke intense emotions. Thus, the C-EAM model proposed two hypotheses. First, while many individuals may perceive defeat when emotionally triggered, those with poor emotion regulation skills (who therefore cannot manage the emotional response) may be more likely to perceive an inability to escape from the situations that evoke such emotions or the emotions themselves.

Second, it was predicted that emotion regulation would moderate the defeat/entrapment relationship, and that entrapment would mediate the relation between defeat and experiential avoidance. Results supported both hypotheses. Emotion regulation was found to moderate the relation between defeat and entrapment, indicating that perceptions of defeat impacted perceptions of entrapment differently based on emotion regulation skills, after controlling for depression severity. These findings support emotion regulation as a key mechanism in the process from stressor to NSSI (Chapman et al., 2006; Gratz and Roemer, 2008). As well, findings suggest that importance of the interplay between emotions and cognitions. Consistent with the emotional cascades model (Selby et al., 2009), the findings of the current study highlight that deficits with emotional regulation (including the use of ineffective and ultimately harmful mechanisms, such as rumination; Selby et al., 2009), may trigger cognitive content (entrapment) which increases negative affect even further, and is linked closely to engagement in NSSI. As well, although depression and defeat were highly correlated, depression has been found to be a non-specific predictor of NSSI, and the present findings suggest that cognitive precursors to depressive feelings are a more specific predictor of outcome.

Entrapment, or the perception of being trapped, was found to partially explain the relation between defeat and experiential avoidance. As such, the perception of defeat may not be independently sufficient to engage in a behaviour intended to escape from emotions, such as NSSI. Rather, individuals who perceive defeat may be at greater risk for perceiving entrapment if they have poor affect regulation, and entrapment may ultimately increase their risk of engaging in experientially avoidant behaviours, one of which may be NSSI. Whereas defeat was the cognitive state considered currently (based on the CoP model), it may be that there are alternative cognitions (or even non-cognitive factors) that lead to the perception of entrapment if
an individual cannot adaptively regulate his or her emotional response to that cognition. Looking at the role of entrapment as predicting experiential avoidance, results indicated that entrapment alone explained more than half the variance in experiential avoidance suggesting that a perception of feeling trapped is an excellent predictor of engagement in behaviours that are meant to escape from or avoid emotions or the situations that elicit them.

**C-EAM: Link E and Link F (Figure 1)**

Although NSSI was not a continuous variable, logistic regression analyses suggested that both entrapment and experiential avoidance predicted NSSI group membership. That is, engagement in NSSI (yes/no) could be predicted by these factors, more so than by chance. Results support the contention that NSSI can be conceptualized as an experientially avoidant behaviour. Specifically, it is the case that knowledge of an individual’s level of experiential avoidance and entrapment both can uniquely predict whether or not the individual has engaged in NSSI. It will be critical to examine how this may differ based on frequency of NSSI, which was not possible at present given that logistic regressions require dichotomous variables.

**C-EAM: Model linkages by NSSI Group**

In order to thoroughly evaluate model linkages, NSSI groups were formed in three distinct ways, namely: history (yes/no nssi), frequency (no nssi/1-4 times/5+times) and recency (past/current). Whereas all findings provided unique information about different NSSI groups, grouping participants by frequency of NSSI resulted in the greatest effect sizes for most model linkages. Those with greater NSSI frequency (five or more lifetime occurrences of the behaviour) were found to be most emotionally reactive and least able to regulate emotions as compared to those without a history or with less than five lifetime occurrences of the behaviour. Results suggest that frequent engagement in NSSI may indicate more impairing emotional difficulties, which is consistent with past research (Klonsky & Olino, 2008). Findings speak to the importance of including measures of frequency when conducting research on NSSI.

**Emotions and Cognitions: An in-situ evaluation**

The first study also assessed whether those with a history of NSSI had significant increase in negative state cognitions and affect following emotional arousal, compared to those who do not self-injure. Findings suggest that those with a history of NSSI are more likely to have increased negative thinking (i.e., perceptions of in-the-moment defeat and entrapment) following emotional arousal, compared to those without a history of NSSI. In looking at participant affect, while participants with a history of NSSI had significantly higher negative affect in general than those without a history of NSSI, negative affect did not increase more from pre-to-post emotional trigger for those with an NSSI history as compared to non-injuring counterparts. Past research suggests that those with an NSSI history may also have depressive symptomology (Ross & Heath, 2003), which is consistent with current results suggesting overall lower mood in self-injuring participants.

There are several possible interpretations of the non-significant difference in changes in negative affect between history groups from pre-to-post trigger. First, the emotional trigger may not have been sufficient enough to increase negative mood in those who self-injure. Although the task was designed to increase negative mood in participants by having them type about a negative event in their lives for three-minutes, the online procedure precluded the ability to
determine length of time spent on the task and there is no way to ascertain whether or not the participants were engaging in other tasks simultaneously which may have detracted from their re-experiencing of the negative event, as intended. Second, because those with a history of NSSI had lower mood at baseline than non-injuring counterparts, the task may have not been intense enough to lower mood sufficiently in those participants with an NSSI history.

**Study 2: Evaluation of an in-situ measure of experiential avoidance.**

In an attempt to evaluate experiential avoidance using a laboratory procedure, a second study was conducted. Given that experiential avoidance is primarily assessed using self-report measures, this study used an in-situ measure to evaluate participant’s tendency to avoid or escape distress, in the moment. Specifically, participants from Study 1 took part in this task. It was predicted that the task would increase negative affect across time significantly more for those in NSSI groups (i.e., history, frequency, recency) than those without a history of NSSI. It was also predicted that those in the NSSI groups (vs. the non-NSSI group) would discontinue the task sooner, reflecting greater tendency toward experiential avoidance.

Results suggested that participants experienced significantly lower mood as the task progressed, however this was not a function of any NSSI group membership (i.e., history, frequency or recency). In fact, whereas those with a history of NSSI were found to have overall lower mood than those without a history of NSSI, this did not vary as a function of time spent engaged in the task. These findings suggest that the task was sufficient to induce negative mood in all participants, but did not distinguish between those with and without a history of NSSI. This finding replicates the finding from the EED task in study one. It may be that receiving negative feedback from the experimenter was not an intense enough mood induction task to lower mood in those with a history of NSSI who already had lower mood at baseline than those without a history.

Results of the study also did not support the proposed hypothesis that participants with a history of NSSI would discontinue the task significantly before those without a history of NSSI. Whereas past research has found significant differences between NSSI groups on point of discontinuation during this task (Nock & Mendes, 2008), the current study had a more heterogeneous NSSI group, which may have precluded replication of this finding. This is further discussed in limitations below. Thus, despite significant differences between self-report measures of experiential avoidance in Study 1; an attempt to assess experiential avoidance in Study 2 using a laboratory procedure did not adequately reflect these differences. Notably, the sample size in Study 2 was significantly smaller than that in Study 1. Although the results did not support the proposed hypotheses, replication with a larger sample is suggested, as the study may have been underpowered to detect differences between groups.

**General Discussion**

The purpose of these studies was to examine the relation between emotional and cognitive factors when NSSI is conceptualized as a form of experiential avoidance. Findings from the first study underscored the importance of assessing emotion regulation as a moderator of particular cognitions associated with NSSI, even after controlling for anxiety and depression. The study findings supported the view that those who perceive defeat and have poor emotion regulation skills are at greater risk for perceiving entrapment and thus engaging in experiential
avoidance. Findings also suggest that the former may increase the need to regulate, but is not sufficient in explaining the process that leads from stressor to experiential avoidance. Findings from this dissertation support a process that leads from emotional trigger to experiential avoidance, which combines emotional temperament, emotional regulation and cognitive factors. That is, not only are those with a history of NSSI more reactive to emotional triggers, but have an increased tendency to perceive defeat, have a lower ability to regulate emotional reactions and a higher motivation to escape from overwhelming emotions, despite having a lack of effective (non-harmful) mechanisms of escape. This dissertation also found high relatedness between the construct of experiential avoidance and engagement in NSSI, supporting the conceptualization of NSSI as one such experientially avoidant behaviour. Specifically, experiential avoidance and entrapment were found to adequately predict whether participants did or did not have a history of NSSI. Results are consistent with research which suggests that among those with BPD, deficits in emotion regulation increase the likelihood of experiential avoidance (Chapman et al., 2011). Although NSSI occurs outside the context of BPD, it is one such behaviour commonly associated with the disorder. As well, given that the current measure (AAQ-II) used to evaluate experiential avoidance moved beyond the traditional functional-behavioural class put forth by Hayes and colleagues (1996; e.g., includes motivation to escape from, as well as non-behavioural mechanisms of escape), results suggesting that those with an NSSI history engaged in significantly more experiential avoidance than non-injurers suggests that further research needs to evaluate non-behavioural mechanisms of EA (e.g., suppressing emotions) both in place of and alongside NSSI and other behaviours considered experientially avoidant.

Given the prominence placed on emotion regulation in the current model, it was imperative to consider how various facets of emotion regulation differed between NSSI groups. As compared to those without a history of NSSI those reporting at least one lifetime occurrence of NSSI had significantly higher scores on all subscales of the DERS, with the exception of ‘lack of emotional awareness’ (see Figure 3). Guided by past research which has found that increased deficits in emotion regulation are a function of frequency of NSSI (Gratz & Roemer, 2008), subscale differences were computed based on frequency groups. As expected, those with five or more lifetime occurrences of NSSI had significantly higher scores on all subscales of the DERS as compared to both non-injuring counterparts and those reporting between one and four lifetime occurrences of NSSI. Alternatively, those reporting between one and four lifetime occurrences of the behaviour only differed significantly from non-injuring counterparts with regards to their non-acceptance of emotions, difficulties accessing emotion regulation strategies and impulse control difficulties. Similar to findings by Gratz and Roemer (2008), the present study found the largest effect size for the DERS subscale “lack of access to emotion regulation strategies” when comparing those with versus without a history of the behaviour. This finding is consistent with the conceptualization of NSSI as serving an emotion regulation function, as individuals who do not have access to effective strategies to regulate their emotions, particularly during periods of time where the interplay of emotions and cognitions is heightening the intensity of their emotional experience (Selby et al., 2009), may be more likely to use NSSI, a maladaptive, yet effective regulation strategy for distraction or regulation (Chapman et al., 2006; Gratz & Roemer, 2008; Selby et al., 2009).

Findings from the second study suggest that superior methods of evaluating in-situ experiential avoidance are warranted. Importantly, while the task lowered mood in participants
across time irrespective of NSSI group, those with an NSSI history had lower mood than those without a history of NSSI overall. This suggests that initial differences in baseline may have prohibited an appropriate estimate of the impact of the task on mood across time. Inconsistent with the current predictions, the distressing task in Study 2 did not adequately tap into the significant differences in experiential avoidance between groups which was found using the self-report measure in Study 1. Although this task has been used in prior research (Nock & Mendes, 2008), various sample differences are thought to explained the present lack of findings as discussed in limitations (below). As well, research on the construct of experiential avoidance has suggested that there are mechanisms of engaging in EA which are not behavioural in nature (Chapman et al., 2011). While it is possible that individuals partaking in this task found methods of escaping from the aversive experience without actually discontinuing the task (e.g., thinking about something else, diverting attention away from the task, mentally discounting the importance of the task), it is more likely (as discussed below) that the design of this study did somewhat flawed precluding finding meaningful differences as has been found in past research.

Limitations

Both studies relied on undergraduate, convenience samples. Thus, data may not be generalized to other samples, such as clinical samples. Despite this, effect sizes within this sample were quite high indicating that the effect might be quite robust, and thus merits exploration in other populations (e.g., clinical). Another possible limitation of Study 1 was the reliance on self-report measures of all constructs. Despite high reliability, and a large sample size, reliance on self-report measures to ascertain information about important emotional and cognitive constructs relies on introspection and attention on the part of participants. Given that participants completed the study online, it is not possible to gage level of engagement with the study. As well, the current model assessed state cognitions using only single item measures. That is, although well-validated measures were used to ascertain the participants’ tendency to perceive trait defeat and entrapment, the study only used a single item measure to ascertain defeat and entrapment in the moment both preceding and following disclosure of an emotional task. Although the single item provided unique and valuable information, single item measures are not appropriate for complex statistical analyses and may not fully examine complex constructs.

Another limitation of Study 1 was the high relation between the constructs of defeat and depression. Although the sample size was large, and statistical analyses were chosen with the effort to minimize error, this represents a fundamental measurement issue and should be addressed in future research. Given that depression is likely the emotion reaction to perceptions of defeat, the relation is not surprising; yet poses difficulties for complex analyses looking at the relationship between these and other variables. A more distinct measure of defeat is likely warranted, given the longstanding and well validated measure of depression used presently.

A final limitation of Study 1 was the lack of inclusion of measures of distress tolerance and emotional intensity, two other facets of emotional temperament that have been found to be important in understanding individuals increase need to regulation (Chapman et al., 2006). The study design and length precluded inclusion of all possible constructs; however, inclusion of other emotional factors may have increased model utility, increased variance explained in defeat, and should be considered in future research.
Study 2 had a small sample size which precluded many between group comparisons. There were also several limitations of using the Distress Tolerance Task (DTT; Nock & Mendes, 2008), to evaluate experiential avoidance in the current study. Nock and Mendes (2008) who found significant differences (assessed by ascertaining point of discontinuation) using this task, did so in the context of a lengthy laboratory visit. Participants were required to undergo a clinical interview about self-injurious thoughts and behaviours, had skin conductance apparatus attached to them and participated in intelligence testing and social problem solving skills tasks in the same laboratory visit as the DTT. The current method included solely the DTT, which in isolation, might not have been sufficient to induce intense enough negative mood to invoke avoidance. As well, whereas Nock and Mendes also had a larger sample size and more homogenous self-injury groups (i.e., all reported at least two episodes of NSSI, 90% reported current NSSI, 73% reported NSSI within the past month), the current study included participants with only one lifetime history of the behaviour and 26% of those reporting a history of NSSI in study two had not engaged in the behaviour in the past year. It is imperative to re-evaluate this in-situ measure using a more homogenous NSSI sample. A clinical sample may best uncover differences between groups with regard to point of task discontinuation with adequate statistical power.

**Clinical Implications**

Results from this dissertation have several clinical implications. Whereas past NSSI models have addressed the role of either emotions or cognitions in the process leading from stressor to NSSI, few have integrated the factors into a single model, and evaluated it empirically. Viewing NSSI as an experientially avoidant behaviour holds implications for the application of the model to other experientially avoidant behaviours. That is, it may be beneficial to apply this model to other behaviours which may used with the intention of avoiding or escaping unwanted emotional experiences (i.e. eating disordered behavior). Given the importance of research-informed approaches to intervention, having an empirically supported theoretical model provides a conduit for replication of model sufficiency and thus informing interventions aimed at lowering engagement in NSSI. The model provides preliminary support for inclusion of both emotional and cognitive factors in understanding how to intervene for NSSI. While CBT and DBT have been researched and found to be beneficial to individuals engaging in self-injury, both those with and without BPD (Linehan et al, 2006; Slee et al., 2008a), less research has been devoted to understanding theoretically the linkages between various cognitive and emotional factors that lead to engagement in NSSI. Understanding that emotion dysregulation is a key factor that leads individuals to feel stuck in a situation or the emotions elicited from that situation, informs clinicians about the importance of teaching regulatory strategies and client recognition of points of intervention (i.e., at what point do strategies have to be employed, how does one recognize these points of intervention).

Findings from the C-EAM model suggest various important considerations for clinical assessment and intervention for NSSI. Based on past research, the model theorizes that NSSI serves an affect regulation function for many individuals engaging in the behaviour (Klonsky, 2007; Klonsky, 2009; Klonsky, Muehlenkamp, Lewis, & Walsh, 2011). Therefore, the model supports clinicians conducting comprehensive functional assessments of NSSI when clients present with NSSI in a clinical setting. That is, clinicians should attempt to understand the nature of NSSI (e.g., type of injury, implements used for injury), frequency of NSSI, severity of NSSI;
but should also inquire about function (e.g., emotion regulation, self-punishment; Klonsky et al., 2011). Assessments should occur frequently if the NSSI is ongoing. Whereas many clinicians emphasize interpersonal-influence or attention-seeking motivations in their therapeutic approaches (Gough & Hawkins, 2000), there is evidence that NSSI is usually performed to cope with acute negative affect and arousal (Klonsky, 2007, 2009) which should alter the approach to intervention. Understanding function of the behaviour then, can better guide intervention efforts. This aligns with treatment guidelines for NSSI (Klonsky et al., 2011).

Whereas assessing components of this model should not replace a comprehensive clinical assessment and formulation of client difficulties, it supports various avenues of intervention that may be fruitful. First, the model suggests that clients may benefit from psycho-education aimed at understanding NSSI (including an understanding of key variables implicated in this behaviour, such as emotion reactivity and emotion regulation). Furthermore, understanding that emotion regulation is often difficult for those engaging in NSSI, it may be clinically beneficial initially to provide clients with alternative mechanisms by which to distract themselves in periods of intense emotionality as they develop more appropriate regulation skills (Slee et al., 2008).

Findings in this dissertation point to emotion regulation serving as a key moderator of defeat and entrapment; this suggests that emotion regulation skills, a module typically used as part of Dialectical Behaviour Therapy (Linehan, 1993) may be critical in attempting to protect the client from perceptions of entrapment. CBT, which aims to help clients adjust unrealistic thinking to more accurately reflect reality, may be extremely beneficial for clients whose cognitive perceptions are distorted. The current study assessed trait perceptions of entrapment, rather than in-situ entrapment, but speaks to the importance of addressing this cognition given that chronic perceptions of entrapment are likely good predictors of people’s in the moment evaluation of a situation. If individuals have chronic perceptions of being trapped in situations, or emotions, they may be more likely to evaluate any given situations in this way (e.g., If I get a bad mark, I’ll feel terrible and will never feel better). Cognitive distortions are cognitions which are highly negative, often catastrophized and presumed to be true by the individual (with little room for other possible explanations; Beck, 1995). Clients who appraise events in this way may be at increased risk of interpreting defeat and entrapment when triggers do not necessarily warrant such extreme cognitions. Thus, the model suggests that cognitive techniques aimed at eliciting more balanced and realistic thinking may be appropriate. In addition, the present study suggested that non-acceptance of emotions significantly predicted unique variance in entrapment, a key cognition leading to NSSI. This is consistent with findings suggesting that non-acceptance of emotions independently predicted deliberate self-harm after controlling for depression (Slee et al., 2008). The non-acceptance of one’s emotions is consistent with the EAM model of self-harm (Chapman et al., 2006). Indeed, not accepting one’s emotions is consistent with and may be a part of avoiding them. Whereas experiential avoidance emphasizes a need to escape from or avoid unwanted emotions, some therapeutic approaches are aimed at enhancing clients’ ability to be present with, and accepting of all emotions (without judgment). If clients are able to accomplish this, they may be protected from desiring escape when overwhelmed. Therefore, important targets for intervention may also include those aimed toward mindfulness, and acceptance, which are included in such interventions as DBT and Acceptance and Commitment Therapy (Hayes et al., 1999; Linehan, 1993).
**Future Directions**

The findings of the current dissertation suggest various avenues for future research. Ideally, future research using checklist measures to assess NSSI should consider using follow up interviews to determine those participants engaging in less typically forms of the behaviour (e.g., biting, wound healing; Heath et al., 2008). This method would help classify a more homogenous group of self-injurers, and would provide an incidence rate which is more consistent with rates in the general population. Further, the model should be replicated on other key populations which are at high risk of NSSI engagement (e.g., adolescents, clinical groups). It may be beneficial to develop an initial screening measure for adolescent samples which aims to evaluate nature (e.g., number of occurrences, number of methods, frequency of NSSI engagement), degree (e.g., severity of injury) and function of NSSI in youth in order to target those adolescents who are at highest risk of ongoing engagement in the behaviour (rather than those who are experimenting and will likely discontinue engagement in NSSI). Screening youth for participation in a model sufficiency study would increase homogeneity of the sample and provide key and critical information about youth who are at risk of ongoing NSSI as well as co-occurring psychiatric correlates of the behaviour (e.g., anxiety, depression, suicide, personality disorders).

Study 1 highlights the need to explore other cognitions associated with NSSI, and the role emotion regulation may play in moderating the relation between other cognitions associated with the behaviour. That is, although defeat was found to predict perceptions of entrapment differently for those with and without regulation capacities, it may be important to understand what other cognitions lead to perceptions of entrapment. It may also be crucial to evaluate cognitive processes (i.e., rumination, thought suppression) to determine how individuals use such strategies with the hopes of lowering negative affect, when preferred emotion regulation skills are not adequately developed or accessible to the individual in distress. Perhaps, individuals who engage in these maladaptive cognitive processes as a means of managing affect do not recognize the impact these strategies have on eliciting even greater negative mood. Understanding the types of strategies employed, prior to NSSI, in an effort to attenuate negative affect may also serve a crucial function in informing intervention.

It may also be useful to evaluate other facets of emotional temperament (e.g., distress tolerance, emotional intensity) in concert with emotional reactivity. While the design of the current study precluded inclusion of all possible factors, including these constructs alongside emotional reactivity in predicting defeat may increased variance explained and ultimately increased overall model sufficiency in understanding the process leading from trigger to experiential avoidance. In line with this, it may be utile assess physiology in participants with reported histories of NSSI when distressed as an adjunct to self-report measures as research has suggested that emotional temperament factors may impact physiology preceding and following engagement in NSSI (Chapman et al., 2006).

Given the current study design, trait measures of defeat and entrapment were relied upon. Future research should aim to use ecological momentary assessments to gain access to cognitions, emotions and regulatory strategies in the participants’ daily life in order to retrieve important information to support the C-EAM model. Ecological momentary assessments would allow for rich qualitative and quantitative data that is temporal in nature and can be linked
directly to engagement in NSSI, in the moment (or close to when it occurs), if used with populations who are currently engaging in the behaviour. This is a key future research avenue.

Finally, some measures were highly related, thus statistical analyses needed to be interpreted with some caution. Although the measures are validated, this may call for revised measures of defeat, for example, in order to more adequately distinguish this cognitive construct from the emotional construct of depression.

**Conclusion**

Engagement in NSSI among youth and young adults is an ongoing health concern, given the high rates, associated psychiatric correlates and relation to suicide ideation and attempt (Hawton et al., 2006; Walsh, 2006; Whitlock et al., 2006; Zahl & Hawton, 2005). In concert with past research, the current dissertation highlights the important role of emotion regulation in understanding engagement in this behaviour (Chapman et al., 2006; Gratz, 2007; Gratz & Roemer 2008, Selby et al., 2009, Slee et al., 2008, 2008a). When individuals are motivated to escape from unwanted intensely experienced emotions and cannot do so effectively, individuals may engage in NSSI. Irrespective of why individuals struggle with regulating their emotions, it is imperative that these individuals engaging in NSSI learn more effective strategies for attenuating their distress. Future research should aim to replicate the C-EAM model, with clinical or other high-risk populations, in order to further inform our understanding of the progression from emotional trigger to NSSI. Ongoing research and further model validation will necessarily inform intervention approaches to managing this complex behaviour.
References


Scandinavica, 79*, 283–289.


Table 1

Frequency of each behaviour reported on the DSHI

<table>
<thead>
<tr>
<th>NSSI Behaviour</th>
<th>N  reporting at least one occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cut your wrists, arms, or other areas of your body (without intending to kill yourself?)</td>
<td>98</td>
</tr>
<tr>
<td>Burned yourself with a cigarette?</td>
<td>8</td>
</tr>
<tr>
<td>Burned yourself with a lighter or a match?</td>
<td>30</td>
</tr>
<tr>
<td>Carved words into your skin?</td>
<td>39</td>
</tr>
<tr>
<td>Carved pictures, designs, or other marks into your skin?</td>
<td>34</td>
</tr>
<tr>
<td>Severely scratched yourself, to the extent that scarring or bleeding occurred?</td>
<td>89</td>
</tr>
<tr>
<td>Bit yourself, to the extent that you broke the skin?</td>
<td>30</td>
</tr>
<tr>
<td>Rubbed sandpaper on your body?</td>
<td>7</td>
</tr>
<tr>
<td>Dripped acid onto your skin?</td>
<td>0</td>
</tr>
<tr>
<td>Used bleach, comet, or oven cleaner to scrub your skin?</td>
<td>3</td>
</tr>
<tr>
<td>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?</td>
<td>53</td>
</tr>
<tr>
<td>Rubbed glass into your skin?</td>
<td>6</td>
</tr>
<tr>
<td>Broken your own bones?</td>
<td>0</td>
</tr>
<tr>
<td>Banged your head against something, to the extent that you caused a bruise to appear?</td>
<td>34</td>
</tr>
<tr>
<td>Punched yourself, to the extent that you caused a bruise to appear?</td>
<td>28</td>
</tr>
<tr>
<td>Prevented wounds from healing?</td>
<td>42</td>
</tr>
<tr>
<td>Done anything else to hurt yourself that was not asked about in this questionnaire?</td>
<td>43</td>
</tr>
</tbody>
</table>

*Note.* Participants may be counted in more than one cell if they endorsed more than one NSSI behaviour.
Table 2

Frequency of each NSSI behaviour on the DSHI by sex

<table>
<thead>
<tr>
<th>NSSI Behaviour</th>
<th>Percentage Female&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Percentage Male&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cut your wrists, arms, or other areas of your body (without intending to kill yourself)?</td>
<td>48%</td>
<td>18%</td>
</tr>
<tr>
<td>Burned yourself with a cigarette?</td>
<td>3%</td>
<td>8%</td>
</tr>
<tr>
<td>Burned yourself with a lighter or a match?</td>
<td>12%</td>
<td>21%</td>
</tr>
<tr>
<td>Carved words into your skin?</td>
<td>16%</td>
<td>21%</td>
</tr>
<tr>
<td>Carved pictures, designs, or other marks into your skin?</td>
<td>14%</td>
<td>16%</td>
</tr>
<tr>
<td>Severely scratched yourself, to the extent that scarring or bleeding occurred?</td>
<td>43%</td>
<td>18%</td>
</tr>
<tr>
<td>Bit yourself, to the extent that you broke the skin?</td>
<td>12%</td>
<td>18%</td>
</tr>
<tr>
<td>Rubbed sandpaper on your body?</td>
<td>3%</td>
<td>5%</td>
</tr>
<tr>
<td>Dripped acid onto your skin?</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Used bleach, comet, or oven cleaner to scrub your skin?</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>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?</td>
<td>25%</td>
<td>13%</td>
</tr>
<tr>
<td>Rubbed glass into your skin?</td>
<td>3%</td>
<td>-</td>
</tr>
<tr>
<td>Broken your own bones?</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Banged your head against something, to the extent that you caused a bruise to appear?</td>
<td>14%</td>
<td>16%</td>
</tr>
<tr>
<td>Punched yourself, to the extent that you caused a bruise to appear?</td>
<td>11%</td>
<td>18%</td>
</tr>
<tr>
<td>Prevented wounds from healing?</td>
<td>19%</td>
<td>16%</td>
</tr>
</tbody>
</table>

<sup>Note</sup>. Participants may be counted in more than one cell if they endorsed more than one NSSI behaviour

<sup>a</sup> n = 190.  <sup>b</sup> n = 38
Table 3

Intercorrelations among emotion regulation, emotion reactivity, defeat and entrapment.

<table>
<thead>
<tr>
<th></th>
<th>DERS Total</th>
<th>ERS Total</th>
<th>Defeat Total</th>
<th>Entrapment Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>DERS Total</td>
<td>1.0</td>
<td>.69*</td>
<td>.72*</td>
<td>.71*</td>
</tr>
<tr>
<td>ERS Total</td>
<td>.69*</td>
<td>1.0</td>
<td>.59*</td>
<td>.55*</td>
</tr>
<tr>
<td>Defeat Total</td>
<td>.72*</td>
<td>.59*</td>
<td>1.0</td>
<td>.85*</td>
</tr>
<tr>
<td>Entrapment Total</td>
<td>.71*</td>
<td>.55*</td>
<td>.85*</td>
<td>1.0</td>
</tr>
</tbody>
</table>

* significant at 0.01 level
Table 4

Regression Tables (Hypothesis 1)

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>R Square Change</th>
<th>F Change</th>
<th>df1</th>
<th>df2</th>
<th>Sig. F Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.828&lt;sup&gt;a&lt;/sup&gt;</td>
<td>.686</td>
<td>.684</td>
<td>6.41480</td>
<td>.686</td>
<td>392.648</td>
<td>2</td>
<td>360</td>
<td>.000</td>
</tr>
<tr>
<td>2</td>
<td>.897&lt;sup&gt;b&lt;/sup&gt;</td>
<td>.805</td>
<td>.803</td>
<td>5.06096</td>
<td>.120</td>
<td>110.184</td>
<td>2</td>
<td>358</td>
<td>.000</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), DERS Total, ERS Total
b. Predictors: (Constant), DERS Total, ERS Total, DefeatCent, EntrapmentCent

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>81.334</td>
</tr>
<tr>
<td></td>
<td>DERS Total</td>
<td>-.293</td>
</tr>
<tr>
<td></td>
<td>ERS Total</td>
<td>-.189</td>
</tr>
<tr>
<td>2</td>
<td>(Constant)</td>
<td>65.725</td>
</tr>
<tr>
<td></td>
<td>DERS Total</td>
<td>-.131</td>
</tr>
<tr>
<td></td>
<td>ERS Total</td>
<td>-.120</td>
</tr>
<tr>
<td></td>
<td>DefeatCent</td>
<td>-.260</td>
</tr>
<tr>
<td></td>
<td>EntrapmentCent</td>
<td>-.214</td>
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</table>

a. Dependent Variable: Experiential Avoidance
Table 5

Correlations between ERS subscales and DERS subscales

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
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<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
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<tbody>
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<td>1. ERS Sensitivity</td>
<td>1</td>
<td>.84**</td>
<td>.76**</td>
<td>.96**</td>
<td>.50**</td>
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<td>.59**</td>
<td>.06</td>
<td>.69**</td>
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<td>.65**</td>
</tr>
<tr>
<td>2. ERS Arousal/Intensity</td>
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<td>1</td>
<td>.73**</td>
<td>.94**</td>
<td>.50**</td>
<td>.52**</td>
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<td>.66**</td>
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<td>3. ERS Persistence</td>
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<td>.73**</td>
<td>1</td>
<td>.86**</td>
<td>.49**</td>
<td>.55**</td>
<td>.55**</td>
<td>.09</td>
<td>.72**</td>
<td>.40**</td>
<td>.67**</td>
</tr>
<tr>
<td>4. ERS Total</td>
<td>.96**</td>
<td>.94**</td>
<td>.86**</td>
<td>1</td>
<td>.53**</td>
<td>.53**</td>
<td>.66**</td>
<td>.02</td>
<td>.73**</td>
<td>.42**</td>
<td>.70**</td>
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<tr>
<td>5. DERS Nonacceptance</td>
<td>.50**</td>
<td>.50**</td>
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<td>.53**</td>
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<td>.40**</td>
<td>.58**</td>
<td>.19**</td>
<td>.68**</td>
<td>.53**</td>
<td>.81**</td>
</tr>
<tr>
<td>6. DERS Difficulty w Goal Directed Beh.</td>
<td>.44**</td>
<td>.52**</td>
<td>.55**</td>
<td>.53**</td>
<td>.40**</td>
<td>1</td>
<td>.46**</td>
<td>.02</td>
<td>.58**</td>
<td>.34**</td>
<td>.67**</td>
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<tr>
<td>7. DERS Impulse Control Difficulties</td>
<td>.59**</td>
<td>.65**</td>
<td>.55**</td>
<td>.66**</td>
<td>.58**</td>
<td>.46**</td>
<td>1</td>
<td>.16**</td>
<td>.67**</td>
<td>.51**</td>
<td>.78**</td>
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<tr>
<td>8. DERS Lack of Emotional Awareness</td>
<td>.06</td>
<td>-.07</td>
<td>.09</td>
<td>.02</td>
<td>.19**</td>
<td>.02</td>
<td>.16**</td>
<td>1</td>
<td>.17**</td>
<td>.52**</td>
<td>.43**</td>
</tr>
<tr>
<td>9. DERS Limited Access to ER Strategies</td>
<td>.69**</td>
<td>.66**</td>
<td>.72**</td>
<td>.73**</td>
<td>.68**</td>
<td>.58**</td>
<td>.67**</td>
<td>.17**</td>
<td>1</td>
<td>.56**</td>
<td>.88**</td>
</tr>
<tr>
<td>10. DERS Lack of Emotional Clarity</td>
<td>.42**</td>
<td>.36**</td>
<td>.40**</td>
<td>.42**</td>
<td>.53**</td>
<td>.34**</td>
<td>.51**</td>
<td>.52**</td>
<td>.56**</td>
<td>1</td>
<td>.76**</td>
</tr>
<tr>
<td>11. DERS Total</td>
<td>.65**</td>
<td>.63**</td>
<td>.67**</td>
<td>.69**</td>
<td>.81**</td>
<td>.67**</td>
<td>.78**</td>
<td>.43**</td>
<td>.88**</td>
<td>.76**</td>
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</table>

** correlation is significant at the 0.01 level (2-tailed)
Table 6

Mean values of DERS Subscales by history

<table>
<thead>
<tr>
<th>DERS Subscale</th>
<th>NSSI History</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>DERS Nonacceptance</td>
<td>no nssi</td>
<td>233</td>
<td>11.80</td>
<td>4.88</td>
</tr>
<tr>
<td></td>
<td>yes nssi</td>
<td>224</td>
<td>14.80</td>
<td>6.45</td>
</tr>
<tr>
<td>DERS Difficulty w Goal Directed Beh</td>
<td>no nssi</td>
<td>230</td>
<td>14.74</td>
<td>5.03</td>
</tr>
<tr>
<td></td>
<td>yes nssi</td>
<td>225</td>
<td>16.75</td>
<td>4.89</td>
</tr>
<tr>
<td>DERS Impulse Control Difficulties</td>
<td>no nssi</td>
<td>231</td>
<td>9.76</td>
<td>3.66</td>
</tr>
<tr>
<td></td>
<td>yes nssi</td>
<td>225</td>
<td>12.36</td>
<td>5.13</td>
</tr>
<tr>
<td>DERS Lack of Emotional Awareness</td>
<td>no nssi</td>
<td>224</td>
<td>15.09</td>
<td>4.57</td>
</tr>
<tr>
<td></td>
<td>yes nssi</td>
<td>223</td>
<td>15.94</td>
<td>5.14</td>
</tr>
<tr>
<td>DERS Limited Access To ER Strategies</td>
<td>no nssi</td>
<td>232</td>
<td>14.96</td>
<td>6.08</td>
</tr>
<tr>
<td></td>
<td>yes nssi</td>
<td>228</td>
<td>19.83</td>
<td>8.10</td>
</tr>
<tr>
<td>DERS Lack Emotional Clarity</td>
<td>no nssi</td>
<td>231</td>
<td>10.46</td>
<td>3.22</td>
</tr>
<tr>
<td></td>
<td>yes nssi</td>
<td>226</td>
<td>11.91</td>
<td>4.01</td>
</tr>
</tbody>
</table>
Table 7

Mean values of DERS Subscales by frequency group

<table>
<thead>
<tr>
<th>DERS Subscales</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DERS Nonacceptance</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No NSSI</td>
<td>233</td>
<td>11.80</td>
<td>4.88</td>
</tr>
<tr>
<td>1-4 x NSSI</td>
<td>109</td>
<td>13.31</td>
<td>5.94</td>
</tr>
<tr>
<td>More than 5x NSSI</td>
<td>100</td>
<td>16.49</td>
<td>6.59</td>
</tr>
<tr>
<td>Total</td>
<td>442</td>
<td>13.24</td>
<td>5.87</td>
</tr>
<tr>
<td><strong>DERS Difficulty w Goal Directed Beh</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No NSSI</td>
<td>230</td>
<td>14.74</td>
<td>5.03</td>
</tr>
<tr>
<td>1-4 x NSSI</td>
<td>110</td>
<td>16.21</td>
<td>4.72</td>
</tr>
<tr>
<td>More than 5x NSSI</td>
<td>100</td>
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<td>5.00</td>
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<tr>
<td>Total</td>
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<tr>
<td><strong>DERS Impulse Control Difficulties</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No NSSI</td>
<td>231</td>
<td>9.76</td>
<td>3.66</td>
</tr>
<tr>
<td>1-4 x NSSI</td>
<td>108</td>
<td>11.29</td>
<td>4.59</td>
</tr>
<tr>
<td>More than 5x NSSI</td>
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<td>13.65</td>
<td>5.52</td>
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<tr>
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<td>4.64</td>
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<td><strong>DERS Lack of Emotional Awareness</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No NSSI</td>
<td>224</td>
<td>15.09</td>
<td>4.57</td>
</tr>
<tr>
<td>1-4 x NSSI</td>
<td>107</td>
<td>14.98</td>
<td>5.13</td>
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<tr>
<td>More than 5x NSSI</td>
<td>101</td>
<td>17.05</td>
<td>4.92</td>
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<tr>
<td>Total</td>
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<td>4.86</td>
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<td><strong>DERS Limited Access To ER Strategies</strong></td>
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<tr>
<td>No NSSI</td>
<td>232</td>
<td>14.96</td>
<td>6.08</td>
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<tr>
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<td>17.01</td>
<td>6.92</td>
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<tr>
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<tr>
<td>Total</td>
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<td>17.32</td>
<td>7.56</td>
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<td><strong>DERS Lack Emotional Clarity</strong></td>
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<td></td>
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<tr>
<td>No NSSI</td>
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<td>3.22</td>
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<td>3.60</td>
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<tr>
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<td>4.24</td>
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<tr>
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Table 8

Mean values of DERS Subscales by recency group

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<thead>
<tr>
<th>DERS Subscales</th>
<th>Current</th>
<th>Past</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>DERS Nonacceptance</td>
<td></td>
<td></td>
<td>123</td>
<td>13.65</td>
<td>5.97</td>
</tr>
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<td>6.74</td>
</tr>
<tr>
<td></td>
<td>current</td>
<td></td>
<td>89</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DERS Difficulty w Goal Directed Beh</td>
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<td></td>
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<td>4.77</td>
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<td>past</td>
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<td>123</td>
<td>17.27</td>
<td>4.96</td>
</tr>
<tr>
<td></td>
<td>current</td>
<td></td>
<td>90</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DERS Impulse Control Difficulties</td>
<td></td>
<td></td>
<td>123</td>
<td>11.55</td>
<td>4.72</td>
</tr>
<tr>
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<td>past</td>
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<td>123</td>
<td>13.54</td>
<td>5.54</td>
</tr>
<tr>
<td></td>
<td>current</td>
<td></td>
<td>90</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DERS Lack of Emotional Awareness</td>
<td></td>
<td></td>
<td>121</td>
<td>15.25</td>
<td>5.04</td>
</tr>
<tr>
<td></td>
<td>past</td>
<td></td>
<td>121</td>
<td>16.97</td>
<td>5.02</td>
</tr>
<tr>
<td></td>
<td>current</td>
<td></td>
<td>90</td>
<td></td>
<td></td>
</tr>
<tr>
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<td></td>
<td></td>
<td>125</td>
<td>17.84</td>
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<td>8.51</td>
</tr>
<tr>
<td></td>
<td>current</td>
<td></td>
<td>91</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DERS Lack Emotional Clarity</td>
<td></td>
<td></td>
<td>124</td>
<td>11.21</td>
<td>3.79</td>
</tr>
<tr>
<td></td>
<td>past</td>
<td></td>
<td>124</td>
<td>12.88</td>
<td>4.13</td>
</tr>
<tr>
<td></td>
<td>current</td>
<td></td>
<td>90</td>
<td></td>
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</table>
Table 9

Negative affect on the PANAS across time during Distress Tolerance Task for those with and without a history of NSSI

<table>
<thead>
<tr>
<th>NSSI History Group</th>
<th>Baseline (T1)</th>
<th>T2</th>
<th>T3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>NH</td>
<td>5.90</td>
<td>1.29</td>
<td>8.84</td>
</tr>
<tr>
<td>YH</td>
<td>7.32</td>
<td>2.61</td>
<td>10.54</td>
</tr>
</tbody>
</table>

*NH = no, NSSI history; YH = yes, NSSI history.*
Table 10

Negative affect on the PANAS across time during Distress Tolerance Task based on NSSI frequency group

<table>
<thead>
<tr>
<th>NSSI Frequency Group</th>
<th>Baseline (T1)</th>
<th>T2</th>
<th>T3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>NH</td>
<td>5.90</td>
<td>1.29</td>
<td>8.84</td>
</tr>
<tr>
<td>1-4SI</td>
<td>6.91</td>
<td>2.47</td>
<td>10.45</td>
</tr>
<tr>
<td>5+SI</td>
<td>7.50</td>
<td>2.70</td>
<td>10.58</td>
</tr>
</tbody>
</table>

*NH = no history of NSSI; 1-4SI = 1-4 times across lifetime; 5+SI = five or more occurrences of NSSI across lifetime.*
Table 11

Negative affect on the PANAS across time based on NSSI recency.

<table>
<thead>
<tr>
<th>NSSI Recency Group</th>
<th>Baseline (T1)</th>
<th>T2</th>
<th>T3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
<td>$M$</td>
</tr>
<tr>
<td>NH</td>
<td>5.90</td>
<td>1.29</td>
<td>8.84</td>
</tr>
<tr>
<td>Past</td>
<td>7.29</td>
<td>2.02</td>
<td>11.36</td>
</tr>
<tr>
<td>Current</td>
<td>7.34</td>
<td>2.96</td>
<td>10.04</td>
</tr>
</tbody>
</table>

*NH* = no history of NSSI; *Past* = NSSI more than one year ago; *Current* = NSSI within the past calendar year
Table 12

Positive affect on the PANAS across time for those with and without a history of NSSI

<table>
<thead>
<tr>
<th>NSSI History Group</th>
<th>Baseline (T1)</th>
<th>T2</th>
<th>T3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>NH</td>
<td>18.58</td>
<td>2.43</td>
<td>15.52</td>
</tr>
<tr>
<td>YH</td>
<td>15.97</td>
<td>3.60</td>
<td>12.84</td>
</tr>
</tbody>
</table>

*NH = no, NSSI history; YH = yes, NSSI history.*
Table 13

Positive affect on the PANAS across time based on NSSI frequency.

<table>
<thead>
<tr>
<th>NSSI Frequency Group</th>
<th>Baseline (T1)</th>
<th>T2</th>
<th>T3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>NH</td>
<td>18.58</td>
<td>2.43</td>
<td>15.52</td>
</tr>
<tr>
<td>1-4SI</td>
<td>16.08</td>
<td>2.81</td>
<td>12.67</td>
</tr>
<tr>
<td>5+SI</td>
<td>15.89</td>
<td>3.95</td>
<td>12.92</td>
</tr>
</tbody>
</table>

*NH = no history of NSSI; 1-4SI = 1-4 times across lifetime; 5+SI = five or more occurrences of NSSI across lifetime.*
Table 14

Positive affect on the PANAS across time based on NSSI recency.

<table>
<thead>
<tr>
<th>NSSI Recency Group</th>
<th>Baseline (T1)</th>
<th>T2</th>
<th>T3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>NH</td>
<td>5.90</td>
<td>1.29</td>
<td>8.84</td>
</tr>
<tr>
<td>Past</td>
<td>16.61</td>
<td>2.69</td>
<td>12.73</td>
</tr>
<tr>
<td>Current</td>
<td>15.52</td>
<td>4.08</td>
<td>12.91</td>
</tr>
</tbody>
</table>

*NH = no history of NSSI; Past = NSSI more than one year ago; Current = NSSI within the past calendar year*
Table 15

Average card at which participant discontinued the DTT based on NSSI frequency.

<table>
<thead>
<tr>
<th>NSSI Frequency Group</th>
<th>DTT Card</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>NH</td>
<td>36.58</td>
<td>20.54</td>
</tr>
<tr>
<td>1-4SI</td>
<td>36.83</td>
<td>18.60</td>
</tr>
<tr>
<td>5+SI</td>
<td>30.31</td>
<td>13.67</td>
</tr>
</tbody>
</table>

*NH = no history of NSSI; 1-4SI = 1-4 times across lifetime; 5+SI = five or more occurrences of NSSI across lifetime.*
Table 16

Average card at which participant discontinued the DTT based on NSSI recency.

<table>
<thead>
<tr>
<th>NSSI Recency</th>
<th>DTT Card</th>
</tr>
</thead>
<tbody>
<tr>
<td>NH</td>
<td>M = 36.58, SD = 20.54</td>
</tr>
<tr>
<td>Past</td>
<td>M = 29.27, SD = 12.89</td>
</tr>
<tr>
<td>Current</td>
<td>M = 34.39, SD = 16.82</td>
</tr>
</tbody>
</table>

*NH* = no history of NSSI; *Past* = NSSI more than one year ago; *Current* = NSSI within the past calendar year
Figure 1. C-EAM Model
<table>
<thead>
<tr>
<th>Time</th>
<th>Study Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Informed consent via email to experimenter.</td>
</tr>
<tr>
<td></td>
<td>Receive Password and study URL via email from experimenter</td>
</tr>
<tr>
<td></td>
<td>Log onto: <a href="https://ssl7.sentex.ca/westresearch_securecgi/rws5.pl?FORM=davis">https://ssl7.sentex.ca/westresearch_securecgi/rws5.pl?FORM=davis</a></td>
</tr>
<tr>
<td></td>
<td>• Brief Introduction to Study and Thanks for Participating</td>
</tr>
<tr>
<td></td>
<td>• Contact for Study 2 (if interested)</td>
</tr>
<tr>
<td></td>
<td>Demographics Questionnaire</td>
</tr>
<tr>
<td></td>
<td>DSHI</td>
</tr>
<tr>
<td></td>
<td>State Defeat and Entrapment Items (T1)</td>
</tr>
<tr>
<td></td>
<td>PANAS (T1)</td>
</tr>
<tr>
<td></td>
<td>Emotional Event Disclosure Task</td>
</tr>
<tr>
<td></td>
<td>PANAS (T2)</td>
</tr>
<tr>
<td></td>
<td>State Defeat and Entrapment Items (T2)</td>
</tr>
<tr>
<td></td>
<td>ERS</td>
</tr>
<tr>
<td></td>
<td>DERS</td>
</tr>
<tr>
<td></td>
<td>Defeat Scale</td>
</tr>
<tr>
<td></td>
<td>Entrapment Scale</td>
</tr>
<tr>
<td></td>
<td>AAQ-II</td>
</tr>
<tr>
<td></td>
<td>BDI-II</td>
</tr>
<tr>
<td></td>
<td>BAI</td>
</tr>
<tr>
<td></td>
<td>Debriefing Form</td>
</tr>
</tbody>
</table>

*Figure 2. Study 1 Protocol*
Figure 3. Simple Slope Regression lines for emotion regulation as a moderator of defeat and entrapment.
Figure 4. Differences between frequency groups on positive affect across time during DTT task.
Figure 5. Differences between recency groups on positive affect across time during DTT task.
Appendix A

Brief Demographics Questionnaire

Please indicate your sex:  Male  ○  Female  ○

Please indicate your age (in years): ___________

Please indicate your ethnicity: ___________
Appendix B

Deliberate Self-Harm Inventory

*Instructions:* 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 you 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)? (check one):

   1. Yes  
   2. 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? ______

   In the questionnaire given to participants, the above format is used for each of the following items, with each index question followed by the five follow-up questions. Like Item 1, each of the following items begins with the phrase: Have you ever intentionally (i.e., on purpose).

2. Burned yourself with a cigarette?
3. Burned yourself with a lighter or a match?
4. Carved words into your skin?
5. Carved pictures, designs, or other marks into your skin?
6. Severely scratched yourself, to the extent that scarring or bleeding occurred?
7. Bit yourself, to the extent that you broke the skin?
8. Rubbed sandpaper on your body?
9. Dripped acid onto your skin?
10. Used bleach, comet, or oven cleaner to scrub your skin?
11. 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?
12. Rubbed glass into your skin?
13. Broken your own bones?
14. Banged your head against something, to the extent that you caused a bruise to appear?
15. Punched yourself, to the extent that you caused a bruise to appear?
16. Prevented wounds from healing?
17. Done anything else to hurt yourself that was not asked about in this questionnaire?
   If yes, what did you do to hurt yourself? __________________________
Appendix C

Positive and Negative Affective Schedule (PANAS) – Revised Version

*Instructions*: This scale consists of a number of words and phrases that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to which you feel this way right now.

5 = Extremely
4 = Quite a bit
3 = Moderately
2 = A little
1 = Not at all

<table>
<thead>
<tr>
<th></th>
<th>Not at all</th>
<th>A little</th>
<th>Moderately</th>
<th>Quite a bit</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>At ease</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2.</td>
<td>Angry</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3.</td>
<td>Confident</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4.</td>
<td>Frustrated</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5.</td>
<td>Calm</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6.</td>
<td>Sad</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7.</td>
<td>Confused</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8.</td>
<td>Satisfied</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9.</td>
<td>Irritable</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10.</td>
<td>Happy</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
Appendix D

State Defeat and Entrapment Items

**Instructions:** Indicate the extent to which you feel the items to be true of you *right now, in this moment.*

<table>
<thead>
<tr>
<th></th>
<th>Not at all</th>
<th>A little bit</th>
<th>Moderately</th>
<th>A lot</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Thinking about this negative situation has me feeling defeated</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2. I feel as though I am trapped in this emotional state, as if there is no escape from how I am feeling</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
Appendix E

Emotional Event Disclosure Task

*Instructions*: Think about something in your life, either recently or in the past, that was upsetting for you. Try to focus all of your concentration on your feelings about that situation. Consider what these feelings mean and why you feel this way. Analyze the events surrounding this situation and try to understand how they contribute to your feelings. Please attempt to write for approximately 3 minutes in the box provided below about this situation and feelings you have about it. You can write for longer than 3 minutes if you want. Feel free to include as much detail as you would like. Recall that your answers to all questions are completely confidential.
Appendix F

Emotional Reactivity Scales (ERS)

**Instructions**: This questionnaire asks different questions about how you experience emotions on a regular basis (for example, each day). When you are asked about being “emotional,” this may refer to being angry, sad, excited, or some other emotion. Please rate the following statements.

<table>
<thead>
<tr>
<th>Statement</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 When something happens that upsets me, it’s all I can think about it for a long time.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2 My feelings get hurt easily.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3 When I experience emotions, I feel them very strongly/intensely.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4 When I’m emotionally upset, my whole body gets physically upset as well.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5 I tend to get very emotional very easily.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6 I experience emotions very strongly.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7 I often feel extremely anxious.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8 When I feel emotional, it’s hard for me to imagine feeling any other way.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9 Even the littlest things make me emotional.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10 If I have a disagreement with someone, it takes a long time for me to get over it.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11 When I am angry/upset, it takes me much longer than most people to calm down.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>12 I get angry at people very easily.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>13 I am often bothered by things that other people don’t react to.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>14 I am easily agitated.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>15 My emotions go from neutral to extreme in an instant.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>16 When something bad happens, my mood changes very quickly. People tell me I have a very short fuse.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>17 People tell me that my emotions are often too intense for the situation.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>18 I am a very sensitive person.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>19 My moods are very strong and powerful.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>20 I often get so upset it’s hard for me to think straight.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>21 Other people tell me I’m overreacting.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Other relevant questions/comments:
Appendix G

Difficulties with Emotion Regulation Scale (DERS)

Instructions:
Please indicate how often the following statements apply to you by writing the appropriate number from the scale below on the line beside each item:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>almost never</td>
<td>sometimes</td>
<td>about half the time</td>
<td>most of the time</td>
<td>almost always</td>
</tr>
<tr>
<td>(0-10%)</td>
<td>(11-35%)</td>
<td>36-65%</td>
<td>(66-90%)</td>
<td>(91-100%)</td>
</tr>
</tbody>
</table>

____ 1) I am clear about my feelings.
____ 2) I pay attention to how I feel.
____ 3) I experience my emotions as overwhelming and out of control.
____ 4) I have no idea how I am feeling.
____ 5) I have difficulty making sense out of my feelings.
____ 6) I am attentive to my feelings.
____ 7) I know exactly how I am feeling.
____ 8) I care about what I am feeling.
____ 9) I am confused about how I feel.
____10) When I’m upset, I acknowledge my emotions.
____11) When I’m upset, I become angry with myself for feeling that way.
____12) When I’m upset, I become embarrassed for feeling that way.
____13) When I’m upset, I have difficulty getting work done.
____14) When I’m upset, I become out of control.
____15) When I’m upset, I believe that I will remain that way for a long time.
____16) When I’m upset, I believe that I’ll end up feeling very depressed.
____17) When I’m upset, I believe that my feelings are valid and important.
____18) When I’m upset, I have difficulty focusing on other things.
____19) When I’m upset, I feel out of control.
____20) When I’m upset, I can still get things done.
____21) When I’m upset, I feel ashamed with myself for feeling that way.
____22) When I’m upset, I know that I can find a way to eventually feel better.
____23) When I’m upset, I feel like I am weak.
____24) When I’m upset, I feel like I can remain in control of my behaviors.
____25) When I’m upset, I feel guilty for feeling that way.
____26) When I’m upset, I have difficulty concentrating.
____27) When I’m upset, I have difficulty controlling my behaviors.
____28) When I’m upset, I believe that there is nothing I can do to make myself feel better.
____29) When I’m upset, I become irritated with myself for feeling that way.
____30) When I’m upset, I start to feel very bad about myself.
____31) When I’m upset, I believe that wallowing in it is all I can do.
____32) When I’m upset, I lose control over my behaviors.
____33) When I’m upset, I have difficulty thinking about anything else.
____34) When I’m upset, I take time to figure out what I’m really feeling.
____35) When I’m upset, it takes me a long time to feel better.
____36) When I’m upset, my emotions feel overwhelming.
Appendix H

Defeat Scale

**Instructions:** Indicate below the extent to which you have felt each of the following statements in the past seven days.

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Mostly</th>
<th>Always/all the time</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel that I have not made it in life</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I feel that I am a successful person (R)</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I feel defeated by life</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I feel that I am basically a winner (R)</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I feel that I have lost my standing in the world</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I feel that life has treated me like a punchbag</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I feel powerless</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I feel that my confidence has been knocked out of me</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I feel able to deal with whatever life throws at me (R)</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I feel that I have sunk to the bottom of the ladder</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I feel completely knocked out of action</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I feel that I am one of life's losers</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I feel that I have given up</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I feel down and out</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I feel I have lost important battles in life</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I feel that there is no fight left in me</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
Appendix I

Entrapment Scale

**Instructions:** Indicate below the extent to which you each item is true of you.

<table>
<thead>
<tr>
<th></th>
<th>Not at all like me</th>
<th>A little bit like me</th>
<th>Moderately like me</th>
<th>Quite a bit like me</th>
<th>Extremely like me</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>I want to get away from myself</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2.</td>
<td>I feel powerless to change myself</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3.</td>
<td>I would like to escape from my thoughts and feelings</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4.</td>
<td>I feel trapped inside myself</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>5.</td>
<td>I would like to get away from who I am and start again</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>6.</td>
<td>I feel I'm in a deep hole I can't get out of</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>7.</td>
<td>I am in a situation I feel trapped in</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>8.</td>
<td>I have a strong desire to escape things in my life</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>9.</td>
<td>I am in a relationship I can’t get out of</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>10.</td>
<td>I often have the feeling that I would just like to run away</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>11.</td>
<td>I feel powerless to change things</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>12.</td>
<td>I feel trapped by my obligations</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>13.</td>
<td>I can see no way out of my current situation</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>14.</td>
<td>I would like to get away from other more powerful people in my life</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>15.</td>
<td>I have a strong desire to get away and stay away from where I am now</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>16.</td>
<td>I feel trapped by other people</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
Appendix J

Acceptance and Avoidance Questionnaire Version II (AAQ-II)

Instructions: Below you will find a list of statements. Please rate how true each statement is for you by circling a number next to it. Use the scale below to make your choice.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Never true</td>
<td>very seldom true</td>
<td>seldom true</td>
<td>sometimes true</td>
<td>frequently true</td>
<td>almost always true</td>
<td>always true</td>
</tr>
<tr>
<td>1.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>2. Its OK if I remember something unpleasant.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>3. My painful experiences and memories make it difficult for me to live a life that I would value.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>4. I’m afraid of my feelings.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>5. I worry about not being able to control my worries and feelings.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>6. My painful memories prevent me from having a fulfilling life.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>7. I am in control of my life.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>8. My emotions cause problems in my life.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>9. It seems like most people are handling their lives better than I am.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>10. Worries get in the way of my success.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>11. My thoughts and feelings do not get in the way of how I want to live my life.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>
Appendix K

Beck Depression Inventory—Second Edition (BDI-II)

Instructions: This questionnaire consists of 21 groups of statements. Please read each group of statements carefully, and then pick out the one statement in each group that best describes the way you have been feeling during the past two weeks, including today. Be sure that you do not choose more than one statement for any group, including item 16 (Changes in Sleeping Pattern) or item 18 (Changes in Appetite).

BDI2_q2. Sadness

- I do not feel sad. (value = 0)
- I feel sad much of the time. (value = 1)
- I am sad all the time. (value = 2)
- I am so sad or unhappy that I can't stand it. (value = 3)

BDI2_q3. Pessimism

- I am not discouraged about my future. (value = 0)
- I feel more discouraged about my future than I used to be. (value = 1)
- I do not expect things to work out for me. (value = 2)
- I feel my future is hopeless and will only get worse. (value = 3)

BDI2_q4. Past Failure

- I do not feel like a failure. (value = 0)
- I have failed more than I should have. (value = 1)
- As I look back, I see a lot of failures. (value = 2)
- I feel I am a total failure as a person. (value = 3)

BDI2_q5. Loss of Pleasure

- I get as much pleasure as I ever did from the things I enjoy. (value = 0)
- I don't enjoy things as much as I used to. (value = 1)
- I get very little pleasure from the things I used to enjoy. (value = 2)
- I can't get any pleasure from the things I used to enjoy. (value = 3)

BDI2_q6. Guilty Feelings

- I don't feel particularly guilty. (value = 0)
- I feel guilty over many things I have done or should have done. (value = 1)
- I feel quite guilty most of the time. (value = 2)
- I feel guilty all of the time. (value = 3)

BDI2_q7. Punishment Feelings

- I don't feel I am being punished. (value = 0)
- I feel I may be punished. (value = 1)
- I expect to be punished. (value = 2)
- I feel I am being punished. (value = 3)

BDI2_q8. Self-Dislike

- I feel the same about myself as ever. (value = 0)
- I have lost confidence in myself. (value = 1)
• I am disappointed in myself. (value = 2)
• I dislike myself. (value = 3)

**BDI2_q9. Self-Criticalness**

• I don't criticize or blame myself more than usual. (value = 0)
• I am more critical of myself than I used to be. (value = 1)
• I criticize myself for all of my faults. (value = 2)
• I blame myself for everything bad that happens. (value = 3)

**BDI2_q10. Suicidal Thoughts or Wishes**

• I don't have any thoughts of killing myself. (value = 0)
• I have thoughts of killing myself, but I would not carry them out. (value = 1)
• I would like to kill myself. (value = 2)
• I would kill myself if I had the chance. (value = 3)

**BDI2_q11. Crying**

• I don't cry anymore than I used to. (value = 0)
• I cry more than I used to. (value = 1)
• I cry over every little thing. (value = 2)
• I feel like crying, but I can't. (value = 3)

**BDI2_q12. Agitation**

• I am no more restless or wound up than usual. (value = 0)
• I feel more restless or wound up than usual. (value = 1)
• I am so restless or agitated that it's hard to stay still. (value = 2)
• I am so restless or agitated that I have to keep moving or doing something. (value = 3)

**BDI2_q13. Loss of Interest**

• I have not lost interest in other people or activities. (value = 0)
• I am less interested in other people or things than before. (value = 1)
• I have lost most of my interest in other people or things. (value = 2)
• It's hard to get interested in anything. (value = 3)

**BDI2_q14. Indecisiveness**

• I make decisions about as well as ever. (value = 0)
• I find it more difficult to make decisions than usual. (value = 1)
• I have much greater difficulty in making decisions than I used to. (value = 2)
• I have trouble making any decisions. (value = 3)

**BDI2_q15. Worthlessness**

• I do not feel I am worthless. (value = 0)
• I don't consider myself as worthwhile and useful as I used to. (value = 1)
• I feel more worthless as compared to other people. (value = 2)
• I feel utterly worthless. (value = 3)

**BDI2_q16. Loss of Energy**

• I have as much energy as ever. (value = 0)
• I have less energy than I used to have. (value = 1)
• I don't have enough energy to do very much. (value = 2)
• I don't have enough energy to do anything. (value = 3)

**BDI2_q17. Changes in Sleeping Pattern**
• I have not experienced any change in my sleeping pattern. (value = 0)
• I sleep somewhat more than usual. (value = 1)
• I sleep somewhat less than usual. (value = 1)
• I sleep a lot more than usual (value = 2)
• I sleep a lot less than usual. (value = 2)
• I sleep most of the day. (value = 3)
• I wake up 1-2 hours early and can't get back to sleep. (value = 3)

BDI2_q18. Irritability

• I am no more irritable than usual. (value = 0)
• I am more irritable than usual. (value = 1)
• I am much more irritable than usual. (value = 2)
• I am irritable all the time. (value = 3)

BDI2_q19. Changes in Appetite

• I have not experienced any change in my appetite. (value = 0)
• My appetite is somewhat less than usual. (value = 1)
• My appetite is somewhat greater than usual. (value = 1)
• My appetite is much less than before. (value = 2)
• My appetite is much greater than usual. (value = 2)
• I have no appetite at all. (value = 2)
• I crave food all the time. (value = 3)

BDI2_q20. Concentration Difficulty

• I can concentrate as well as ever. (value = 0)
• I can't concentrate as well as usual. (value = 1)
• It's hard to keep my mind on anything for very long. (value = 2)
• I find I can't concentrate on anything. (value = 3)

BDI2_q21. Tiredness or Fatigue

• I am no more tired or fatigued than usual. (value = 0)
• I get more tired or fatigued more easily than usual. (value = 1)
• I am too tired or fatigued to do a lot of the things I used to do. (value = 2)
• I am too tired or fatigued to do most of the things I used to do. (value = 3)

BDI2_q22. Loss of Interest in Sex

• I have not noticed any recent change in my interest in sex. (value = 0)
• I am less interested in sex than I used to be. (value = 1)
• I am much less interested in sex now. (value = 2)
• I have lost interest in sex completely. (value = 3)
• Does not apply to me (value = 5)
Appendix L

Beck Anxiety Inventory (BAI)

**Instructions:** Below is a list of common symptoms of anxiety. Please carefully read each item in the list. Indicate how much you have been bothered by that symptom during the past month, including today, by circling the number in the corresponding space in the column next to each symptom.

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Not At All</th>
<th>Mildly but it didn’t bother me much.</th>
<th>Moderately - it wasn’t pleasant at times</th>
<th>Severely – it bothered me a lot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Numbness or tingling</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Feeling hot</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Wobbliness in legs</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Unable to relax</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Fear of worst happening</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Dizzy or lightheaded</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Heart pounding/racing</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Unsteady</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Terrified or afraid</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Nervous</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Feeling of choking</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Hands trembling</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Shaky / unsteady</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Fear of losing control</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Difficulty in breathing</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Fear of dying</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Scared</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Indigestion</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Faint / lightheaded</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Face flushed</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Hot/cold sweats</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

**Column Sum**
Appendix M

Letter of Information (Study 1)

Understanding ways of thinking and experiencing emotion related to self-injury

We are looking for current students at the University of Guelph to complete a series of questionnaires about self-injury. We are interested in hearing from those who have self-injured in the past and those who have not. Therefore, all students are welcome to participate in this study.

Participation is completely voluntary and will take about 60-80 minutes (or less). The study involves completing a number of online questionnaires at your convenience and at a time and in a place that is comfortable for you. The survey must be completed in one sitting. Participation is also completely confidential. This means that anything you say will not be shared with others. When we say completely confidential, this also means that your answers to any questions cannot be traced back to you (e.g., to your name, email address, etc.). Please ensure that the computer you complete the questionnaires on is secure, in order to ensure confidentiality.

If you are interested in learning more about the study and/or would like to take part, please read over the consent form by clicking on the corresponding link below.

For those in the Psychology Participant Pool (who wish to receive 2 credit points for taking part in the study), please follow the link below. You can access the html version or download a pdf version for your own records.

Participant Pool Consent Form (html)
Participant Pool Consent Form (pdf)

For those in outside the Psychology Participant Pool or those who are a part of the Participant Pool, who wish to have their email address entered into a draw for an I-Pod Touch (one I-Pod Touch will be awarded, and the chances will depend on the number of participants who opt to participate and are not receiving course credit for their participation), please follow the links below. You can access the html version or download a pdf version for your own records.

General Consent Form (html)
General Consent Form (pdf)

Please note that you cannot receive both forms of compensation for taking part in the study. Therefore, if you are a part of the Participant Pool, you can only take part and receive compensation for one of these options.

If you have any questions about the study, please do not hesitate to contact Dr. Lewis (slewis@psy.uoguelph.ca) or the graduate student coordinating this research study: Michele Davis (mdavis10@uoguelph.ca).

Please use your University of Guelph email account.
Appendix N

Consent Form (Study 1)

CONSENT TO PARTICIPATE IN RESEARCH
Understanding ways of thinking and experiencing emotion related to self-injury

You are asked to participate in a research study conducted by Stephen P. Lewis and Michele Davis, from the Department of Psychology at the University of Guelph. Results will be contributed to the Ph.D. dissertation of Michele Davis.

If you have any questions or concerns about the research, please feel free to contact

Michele Davis, MA
518.824.4120 ext. 52361
mdavis10@uoguelph.ca

OR

Dr. Stephen P. Lewis
519.824.4120 ext. 53299
slewis@psy.uoguelph.ca

PURPOSE OF THE STUDY
We are conducting this study for a few reasons. First, we want to understand which ways of thinking and feeling relate to self-injury and which do not. Second, we are interested in how some experiences with emotion relate to self-injury and others do not. Finally, we are also interested in what people think about emotions and experiences when they have them and whether this relates to self-injury or does not.

PROCEDURES
If you volunteer to participate in this study, we would ask you to do the following things:

The study is designed in a way that will let the researchers study the relation between different experiences, psychological symptoms and self-injury. To do this, the current study will take place on the Internet where you will be asked to fill out different questionnaires. The website that the questions are on is secure server and your IP address will not be collected. Your responses to questions will be completely confidential. This means that you will not be asked for your name or other information that can match who you are with what you say.

What you will be asked to do:
Each person who takes part in the study in the study will be asked to complete several questionnaires. These ask about aspects of self-injury which some people experience. They also
ask about, thoughts, experiences and psychological symptoms that some people experience. Each questionnaire is briefly described below.

The first set of questionnaires will ask you about self-injury – which you may or may not have experienced. The second question will ask about different feelings and thoughts. Third, you will be asked to write about a past emotional experience and this is followed by other questions about your feelings and thoughts (e.g., what you are feeling and thinking). Fourth, in the next questionnaire, you will be asked about how you experience emotions when they occur (e.g., do you react little bit or a lot). In the next questionnaire, you will be asked about how you manage your emotions when they occur (e.g., is it easy or difficult to cope with emotion). The sixth and seventh questionnaires will ask you about different ways of thinking (e.g., thinking positively or negatively about different situations). The seventh questionnaire asks you about how people tend to either accept different experiences (e.g., feeling uncomfortable) or whether they prefer to avoid these situations. Finally, the last questionnaires will ask you about symptoms of depression (e.g., how your mood has been recently, how you feel about yourself) and symptoms of anxiety (e.g., feeling nervous).

If you have signed up for the subsequent study associated with this same research project, you will be emailed an appointment time to come into the laboratory following completion of the first study.

**How long does the study take?**
In total, all of the questionnaires should not take you more than about 60-80 minutes to complete. However, you may take as long as you need. There is no time limit and you will not be asked to stop if you have not finished a questionnaire so please feel free to take your time. The study will have to be complete in one sitting, however.

**Important information about taking part in the study:**
Before participating it is important that you know that taking part in the study is completely voluntary. This means that you do not have to take part in the study if you do not want to and there is no penalty for dropping out of the study. Finally, if you choose to take part, you may stop participating at any time and for any reason. If you choose to withdraw from the study or if the questionnaires are not complete (e.g., if you decide to skip some questionnaires), all of your data will be destroyed.

If you do agree to take part in the study, you will be asked to email Michele Davis (mdavis10@uoguelph.ca) who you may also contact if you have questions about the research. You may also contact Dr. Lewis with questions about the study (slewis@psy.uoguelph.ca).

If you agree to take part in the study and wish to receive a password to access the questionnaires for the study, please copy and paste the following statement in your email:

“I have read the information provided for the study Understanding ways of thinking and experiencing emotion related to self-injury 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.”
Once you email Michele and indicate that you agree to take part in the study (by pasting the statement above into your email), you will be sent your own unique password. The unique password will be yours and yours only. This means that only you will have access to your questions and that others will not have access to your answers. By completing the questionnaires online, you can also fill out the questionnaires at a time that is convenient for you.

**Answers to questions will be confidential.**

By completing the questionnaires online, you can keep your data confidential. This means, that you cannot be identified because we are not asking for your name, address or other information that is personal. Although your email address (that you first used to contact Michele) will initially be linked to your username and password, once you are assigned your unique username and password, this username will never be linked to the information you provide, or to your email address. That means that you cannot be identified by the answers you give to any questions about symptoms, experiences, self-harm, or help-seeking. You can also do the questionnaires in the privacy of your home or at another location where you feel comfortable. Please note that the only people who will have access to the study database will be Dr. Lewis and Michele Davis.

**POTENTIAL RISKS AND DISCOMFORTS**

Some participants may find some of the questions about self-injury or emotional experiences difficult or upsetting to answer. Although there is no documented evidence that answering these types of questions increases the risk for thinking about self-injury or actually hurting yourself, you may choose to not take part in this study if you would not like to answer questions about these topics.

However, we cannot guarantee that this will not happen. If you experience any discomfort when taking part in the study you are encouraged to contact your family doctor or the researchers (contact information is provided, below). You may also contact the University of Guelph Counselling Centre. Their contact information is as follows:

**Counselling Services**
University Centre - Level 3 South
University of Guelph
Guelph, ON N1G 2W1
Phone: (519) 824-4120 ext. 53244
Fax: (519) 824-9689
Website: [http://www.counselling.uoguelph.ca/counselling/](http://www.counselling.uoguelph.ca/counselling/)

If, at any point, you feel as though you want to hurt yourself, you are encouraged to contact a local crisis line, call 911 or go to your local Emergency Department. This information can be found below.

Local crisis line in Guelph (this is a free, confidential service available 24 hours a day, 7 days a week):
1-877-822-0140 OR 519-821-0140
Local distress line if you are feeling upset (this is a free, confidential service available 24 hours a day, 7 days a week):
1-888-821-3760 OR 519-821-3760

Here is the location of the local emergency department in Guelph (Guelph General Hospital):
Guelph General Hospital
115 Delhi St.
Guelph, Ontario
N1E 4J4

*Please note that this information will also be provided on the website at all times.

POTENTIAL BENEFITS TO PARTICIPANTS AND/OR TO SOCIETY

There is no direct benefit to you directly by participating in this study. However, what we learn from participants may be of benefit to others. For instance, findings from the study can help us to better understand and treat self-injury. Results will also help us learn how to prevent self-injury from occurring. This information will also help to educate mental health professionals about the best way to help those who have hurt themselves.

PAYMENT FOR PARTICIPATION

While everyone who takes part in the study will be asked to volunteer their time, compensation will be offered in two ways. First, for those people in the Psychology Participant Pool, you will receive 2 credit points toward your final grade in applicable undergraduate psychology courses. By signing up for participation through the participant pool website, Dr. Lewis and Michele Davis will know the names of people who partook in the study but in no way will these names be attached to any personal information or individual responses. As mentioned above, your email address is never linked with your answers to any questions.

If you are not a part of the Psychology Participant Pool or wish to take part in this study but not receive credit points, your email will be entered into a draw to win an i-Pod Touch. As mentioned before, your email address is never linked with your answers to any questions. The draw for the i-Pod Touch will take place after the study is over (in the spring of 2011) and the winner will be contacted by email.

CONFIDENTIALITY

*Every effort will be made to ensure confidentiality of any identifying information that is obtained in connection with this study.*

All data collected in this study will be treated with the strictest of confidence. This means that we will never share your data with anyone else. To ensure confidentiality, each person who takes part in the study will be given a unique username and password. This is used to access the online
To further ensure the confidentiality of data collection, all questionnaires will be administered on a secure server and upon completion of all questionnaires, all individual accounts will be closed so that no one can see what answers were given for each question. Further, the server on which the website is located is dedicated to these types of surveys and all content and handling of data is in compliance with the *Personal Information Protection and Electronic Documents Act (PIPEDA)*.

**PARTICIPATION AND WITHDRAWAL**

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may exercise the option of removing your data from the study. You may also refuse to answer any questions you don’t want to answer and still remain in the study. The investigator may withdraw you from this research if circumstances arise that warrant doing so.

**RIGHTS OF RESEARCH PARTICIPANTS**

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. This study has been reviewed and received ethics clearance through the University of Guelph Research Ethics Board. If you have questions regarding your rights as a research participant, contact:

Research Ethics Coordinator  Telephone: (519) 824-4120, ext. 56606
University of Guelph  E-mail: sauld@uoguelph.ca
437 University Centre  Fax: (519) 821-5236
Guelph, ON  N1G 2W1
SIGNATURE OF RESEARCH PARTICIPANT/LEGAL REPRESENTATIVE

I have read the information provided for the study “Understanding thinking and emotions related to self-injury” 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 (please print)

______________________________________
Date

SIGNATURE OF WITNESS

______________________________________
Name of Witness (please print)

______________________________________  __________ ________
Signature of Witness      Date
Appendix O

Debriefing Form (Study 1)

**Project Title:** Understanding ways of thinking and experiencing emotion related to self-injury

Thank you for your time and support in participating in this study. The purpose of this research is to examine self-injury in a sample of university students. In particular, we are interested in understanding the various factors which lead to self-injury. Specifically we want to understand how emotional and cognitive factors work together to impact whether or not a person feels the need to avoid emotional experiences, and may use self-injury to do so.

Self-injury is an important and common behaviour among adolescents and young adults. A recent study of self-injury in University students found that about 17% of students have hurt themselves on purpose in the past, with some studies suggesting that rates are even higher than this. This project will help us gain a better understanding of the ways that emotions, experiences with emotions and thoughts relate to self-injury. It will also help us to understand why some people do not self-injure. Our hope is to get a better understanding of what leads to self-injury so that effective programs can be developed to help treat it and to prevent it.

If you feel distressed by the content of any of the questionnaires, please contact your family doctor, Dr. Lewis, or the crisis hotlines outlined below. If you would like more information about sources of support for self-injury, we have provided you with a list of resources on the next page. If you feel your rights as a participant in research have been violated during the course of this project, you may contact the Research Ethics Officer at the University of Guelph at 519.824.4120 (x53299). This project has been reviewed and received ethics clearance through the Office of Research Ethics Board, University of Guelph.

**Thank you again for your time. Your participation in this study is greatly appreciated and is essential for advancing our knowledge of this important issue.**

If you have any questions or concerns, please feel free to contact any of the researchers.

**Dr. Stephen Lewis**  
Assistant Professor  
University of Guelph  
519.824.4120 (x53299)

**Michele Davis, MA**  
Ph.D. Candidate  
University of Guelph  
mdavis10@uoguelph.ca

**HELP SEEKING RESOURCES**

If you are feeling distressed, struggling with self-injury or other mental health difficulties please contact a service provider.

University of Guelph Counselling Services
Guelph General Hospital (Emergency Department)
115 Delhi St, Guelph, Ontario
519 837-6420

For more information about self-injury, please consult the following:

**Scientific Papers:**

**Books:**

**Online:**
http://www.crpsib.com/
Appendix P

Distress Tolerance Task Instructions

1. Sit at a table, across from subject.
2. Lay out the four WCST category cards; give instructions as you lay them out.
   - This game is a little unusual because I am not allowed to tell you very much about how to do it. You will be asked to match each of the cards in these decks (point to the response card decks) to one of these four key cards (point to each of the stimulus cards in succession, beginning with the red triangle). You must always take the top card from the deck and place it below the key card you think it matches. I cannot tell you how to match the cards, but I will tell you each time whether you are right or wrong. If you are wrong, simply leave the card where you have placed it and try to get the next card correct. There is no time limit on this game. We'd like you to go through at least 20 cards, and it is up to you whether to continue beyond that point and how far to go. Are you ready? Let’s begin.
3. Inform subject that although we have 64 cards, we only expect them to do about 20. Have the participants complete an initiate mood rating (PANAS)
4. Tell the subject that the first three cards are correct. Tell the subject that the next seven cards are incorrect.
   - After these first ten cards, have the subject rate their mood again (PANAS)
5. Resume test. Tell subject that card 11 is correct, then tell them that cards 11-20 are incorrect.
6. After twenty cards, have the subject rate their mood again (PANAS)
7. Tell the participant “OK. You have completed twenty cards, and you can stop at any time”
8. If participant stops, explain procedure
9. If participant continues, record card at which they stop and have the subject rate their mood again (PANAS)
Appendix Q

Letter of Information and Consent Form (Study 2)

UNIVERSITY OF GUELPH

CONSENT TO PARTICIPATE IN RESEARCH
Understanding ways of thinking and experiencing emotion related to self-injury

You are asked to participate in a research study conducted by Stephen P. Lewis and Michele Davis, from the Department of Psychology at the University of Guelph. Results will be contributed to the Ph.D. dissertation of Michele Davis.

If you have any questions or concerns about the research, please feel free to contact

Michele Davis, MA
518.824.4120 ext. 52361
mdavis10@uoguelph.ca

OR

Dr. Stephen P. Lewis
519.824.4120 ext. 53299
slewis@psy.uoguelph.ca

PURPOSE OF THE STUDY

We are conducting this study for a few reasons. First, we want to understand which ways of thinking and feeling relate to self-injury and which do not. Information about thoughts and feelings was obtained during Study 1, which you completed online. Next, we are interested in understanding how those thoughts and feelings related to performance on a cognitive task.

PROCEDURES

If you volunteer to participate in this study, we would ask you to do the following things:

What you will be asked to do:

In the current experiment, we are interested in understanding how people with and without a history of self-injury perform on a cognitive task (explained next). If you choose to take part in the study, you will be asked to complete a card task, in which you are asked to accurately categorize a series of presented cards based on different rules (which will be described to you by the researcher). Throughout the task, you will be asked to rate your mood by answering the questions about how you feel at that moment. The entire task will be timed by the researchers. When you are finished with the task, you will be asked to watch 10-minutes of
a Friends episode (Friends – Season Eight; Title “The one with the videotape”) prior to leaving the laboratory.

How long does the study take?
The study will not exceed one hour. Nevertheless, the amount of time it takes for each participant will vary.

Important information about taking part in the study:
This study is completely voluntary. This means that at any time during the experiment, you will be allowed to end the experiment if you want to with any penalty or loss of credit.

If you do agree to take part in the study, you may email Michele Davis (mdavis10@uoguelph.ca) if you have questions about the research. You may also contact Dr. Lewis with questions about the study (slewis@psy.uoguelph.ca).

Answers to questions will be confidential.
All of your data will be kept with the strictest of confidence. This means that only the researchers will have access to the data and the data will only be used for this research project. Your name will be kept separate from the data to ensure your information is confidential. The data will then be stored on a computer drive that only the researchers can access.

POTENTIAL RISKS AND DISCOMFORTS
When taking part in this experiment, it is possible that people will feel some stress when completing the card task. These effects, however, are temporary. They should not last after the experiment is over. When the study is over, you will receive written feedback that will tell you more about the study. You will also have the opportunity to ask the researcher any questions you have about the study.

If you experience any discomfort when taking part in the study or after the study is complete you are encouraged to contact your family doctor or the researchers (contact information is provided, below). You may also contact the University of Guelph Counselling Centre. Their contact information is as follows:

Counselling Services
University Centre - Level 3 South
University of Guelph
Guelph, ON N1G 2W1
Phone: (519) 824-4120 ext. 53244
Fax: (519) 824-9689
Website: http://www.counselling.uoguelph.ca/counselling/

If, at any point, you feel as though you want to hurt yourself, you are encouraged to contact a local crisis line, call 911 or go to your local Emergency Department. This information can be found below.

Local crisis line in Guelph (this is a free, confidential service available 24 hours a day, 7 days a week):
1-877-822-0140 OR 519-821-0140
Local distress line if you are feeling upset (this is a free, confidential service available 24 hours a day, 7 days a week):
1-888-821-3760 OR 519-821-3760

Here is the location of the local emergency department in Guelph (Guelph General Hospital):
Guelph General Hospital
115 Delhi St.
Guelph, Ontario
N1E 4J4

*Please note that this information will also be provided on the website at all times.

POTENTIAL BENEFITS TO PARTICIPANTS AND/OR TO SOCIETY

There is no direct benefit to you directly by participating in this study. However, what we learn from participants may be of benefit to others. For instance, findings from the study can help us to better understand and treat self-injury. Results will also help us learn how to prevent self-injury from occurring. This information will also help to educate mental health professionals about the best way to help those who have hurt themselves.

PAYMENT FOR PARTICIPATION

For participating in this research your email will be entered into a draw to win an i-Pod Touch. As mentioned before, your email address is never linked with your answers to any questions. The draw for the i-Pod Touch will take place after the study is over (in the spring of 2011) and the winner will be contacted by email.

CONFIDENTIALITY

Every effort will be made to ensure confidentiality of any identifying information that is obtained in connection with this study.

All data collected in this study will be treated with the strictest of confidence. This means that we will never share your data with anyone else. To ensure confidentiality, each person who takes part in the study will be given a unique password, so that nobody can be identified by their first name. Passwords will be matched with those assigned in Study 1, and all identifying information will be discarded from the data file.

PARTICIPATION AND WITHDRAWAL

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may exercise the option of removing your data from the study. You may also refuse to answer any questions you don’t want to answer and still remain in the study. The investigator may withdraw you from this research if circumstances arise that warrant doing so.

RIGHTS OF RESEARCH PARTICIPANTS
You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. This study has been reviewed and received ethics clearance through the University of Guelph Research Ethics Board. If you have questions regarding your rights as a research participant, contact:

Research Ethics Coordinator
University of Guelph
437 University Centre
Guelph, ON N1G 2W1

Telephone: (519) 824-4120, ext. 56606
E-mail: sauld@uoguelph.ca
Fax: (519) 821-5236
Research Consent Form

SIGNATURE OF RESEARCH PARTICIPANT/LEGAL REPRESENTATIVE

I have read the information provided for the study Understanding ways of thinking and experiencing emotion related to self-injury' 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.

I have read the information provided for the study “Understanding thinking and experiencing emotions related to self-injury” 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 (please print) __________________________________________

Signature of participant __________________________________________

Date __________________________

SIGNATURE OF WITNESS

Name of Witness (please print) __________________________________________

Signature of Witness __________________________________________

Date __________________________
Appendix R

Debriefing Form (Study 2)

**Project Title:** Understanding ways of thinking and experiencing emotion related to self-injury

Thank you for your time and support in participating in this study. The purpose of this research is to examine self-injury in a sample of university students. In particular, we are interested in understanding the various factors which lead to self-injury. Specifically, we want to understand how emotional and cognitive factors work together to impact whether or not a person feels the need to avoid emotional experiences, and may use self-injury to do so.

Self-injury is an important and common behavior among adolescents and young adults. A recent study of self-injury in University students found that about 17% of students have hurt themselves on purpose in the past, with some studies suggesting that rates are even higher than this. This project will help us gain a better understanding of the ways that emotions, experiences with emotions and thoughts relate to self-injury. It will also help us to understand why some people do not self-injure. Our hope is to get a better understanding of what leads to self-injury so that effective programs can be developed to help treat it and to prevent it.

**Importantly, the card sorting task you participated in was adapted so that all participants received the same feedback. As such the feedback you received (e.g., correct or incorrect) did not reflect your performance, but was predetermined. The purpose of this was to induce temporary frustration and/or distress.**

If you feel distressed by the content of any of the questionnaires or the tasks, please contact your family doctor, Dr. Lewis, or the crisis hotlines outlined below. If you would like more information about sources of support for self-injury, we have provided you with a list of resources on the next page. If you feel your rights as a participant in research have been violated during the course of this project, you may contact the Research Ethics Officer at the University of Guelph at 519.824.4120 (x53299). This project has been reviewed and received ethics clearance through the Office of Research Ethics Board, University of Guelph.

Thank you again for your time. Your participation in this study is greatly appreciated and is essential for advancing our knowledge of this important issue.

If you have any questions or concerns, please feel free to contact any of the researchers.

Dr. Stephen Lewis         Michele Davis, MA  
Assistant Professor      Ph.D. Candidate
University of Guelph     University of Guelph
519.824.4120 (x53299)    mdavis10@uoguelph.ca
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