ASSESSING PROTECTIVE FACTORS FOR NON-SUICIDAL SELF-INJURY: DEVELOPMENT OF THE BARRIERS TO SELF-INJURY INVENTORY

by

Brianna J. Turner
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Name: **Brianna Turner**

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Examining Committee:

              Chair: **Dr. Kevin Douglas**

                          Assistant Professor of Psychology

_____

Dr. Alexander Chapman
Senior Supervisor
Assistant Professor

_____

Dr. Shannon Zaitsoff
Supervisor
Assistant Professor

_____

Dr. E. David Klonsky
External Examiner
Assistant Professor, Department of Psychology,
University of British Columbia

Date Defended/Approved: June 18, 2010

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ABSTRACT

This study had two objectives: 1) To investigate reasons that an individual with a history of NSSI might refrain from NSSI and 2) to developed a measure (the Barriers to Self-Injury Inventory) to assess these barriers. In Study One, I used qualitative methods to elucidate motivations and situations that might prevent or dissuade an individual from engaging in NSSI. The reasons generated in Study One were combined to create an initial inventory of 115 items. In Study Two, this inventory was administered to 197 individuals with a history of NSSI. After confirming the dimensionality of the subscales and eliminating ill-fitting items, the refined measure consisted of 68 items, with 11 subscales and 3 super-ordinate scales. Subscales demonstrated acceptable reliability. Further, the scales demonstrate adequate convergent validity (i.e. positively correlated with coping, treatment engagement and reasons for living) and divergent validity (i.e. uncorrelated with suicidal behaviour).

Keywords: Non-suicidal self-injury; protective factors; assessment; psychometrics.

DEDICATION

To Mr. Gajda and Mme. Boltress, for nurturing my curiosity and

confidence, and to my parents, for their unconditional support.

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1: INTRODUCTION

1.1 Overview and Rationale

Non-suicidal self-injury (NSSI), defined as the deliberate, direct destruction of one's own body tissue without suicidal intent (Nock & Prinstein, 2004; Pattison & Kahan, 1983), has received increasing attention from researchers and clinicians in recent years. This increase in research and clinical efforts may reflect the recognition that NSSI is surprisingly prevalent among both clinical and non-clinical populations. Approximately 4% of adults report having engaged in NSSI at least once during their lifetime (Briere & Gil, 1998). Rates of NSSI are much higher among certain sub-populations, including undergraduate students (17-38%; Gratz, 2006; Whitlock, Eckenrode, & Silverman, 2006), adolescents (16%; Laye-Gindhu & Schonert-Reichl, 2002), forensic populations (48%: Chapman, Specht & Celluci, 2005) and psychiatric patients (21%; Briere & Gil, 1998).

A second reason for the increased concern about NSSI may be the association with a number of serious negative consequences for both physical and mental health. For example, although NSSI is functionally distinct from suicidal behaviour in that NSSI occurs without suicidal intent, individuals who engage in NSSI are at heightened risk for suicidal behaviour: Studies suggest that between 55% and 85% of individuals who report a history of NSSI also report a history of suicidal behaviour (Dulit, et al., 1994; Langbehn & Pfohl,

1993). Furthermore, recent theoretical models suggests that NSSI may increase risk for later suicide attempts and suicide completion (Joiner, 2005). In addition to its relationship with suicidal behaviour, NSSI is associated with negative physical, emotional and interpersonal consequences. Physically, NSSI can lead to tissue damage, scarring and increases risk for infection. Emotionally, although NSSI often results in an immediate reduction in emotional distress (Chapman & Dixon-Gordon, 2007; Haines, Williams, Brain & Wilson, 1995), long-term emotional consequences often include shame, guilt and regret (Leibenluft, Gardener & Cowdry, 1987). Interpersonally, NSSI often arouses intense negative reactions in others and can disrupt social functioning and supportive relationships (Favazza, 1998).

In addition to clarifying the negative health consequences of NSSI, research has examined the course of NSSI over time. Findings from early studies suggested that NSSI can be intractable, often beginning in adolescence and, in some cases, persisting for decades (Pattison & Kahan, 1983). Further, some research suggests that significant proportions of individuals who engage in NSSI do so frequently. One recent study used a cut-off of at least 10 incidents of NSSI to delineate frequent, clinically meaningful levels of NSSI (Gratz & Roemer, 2008), finding that 46% of undergraduates who reported a history of NSSI met criteria for frequent self-injury. Individuals with Borderline Personality Disorder (BPD) are particularly likely to engage in NSSI and have a more chronic, frequent course of this behaviour over a 10-year period, compared to individuals with other Axis-II disorders (Zanarini et al., 2008). At the same time, evidence

suggests that the frequency and severity of NSSI often decreases over time in clinical populations (Zanarini et al., 2008) and that some individuals stop this behaviour without psychological intervention (Sinclair & Green, 2005). Given that there is variability in the chronicity, course and resolution of this behaviour, research is needed to determine what accounts for the ability of some individuals to refrain from NSSI. A clear understanding of the factors that promote the reduction or cessation of NSSI would facilitate prevention and treatment efforts.

1.2 Risk Factors and Functions of NSSI

Research investigating why individuals engage in NSSI has thus far focused largely on risk factors for and functions of NSSI. For instance, previous work has highlighted long-term risk factors for NSSI, including early developmental and in utero complications (Deliberto & Nock, 2008), childhood maltreatment (Gratz, 2006), and family history of suicidal ideation (Deliberto & Nock, 2008). In addition, research has discovered several proximal risk factors which might maintain NSSI behaviour, including depression (Kumar, Pepe, & Steer, 2004), difficulty regulating one's emotions (Gratz, 2006), self-criticism (Glassman et al., 2007), parental criticism (Wedig & Nock, 2007) and social conflict and isolation (Sourander et al, 2006). Individuals report engaging in NSSI for a variety of reasons, including to reduce distress and regulate emotions, to end dissociative experiences, to express or reduce anger, to communicate distress with others and to punish themselves (Brown, Comtois, & Linehan, 2002; Kumar, Pepe, & Steer, 2002; Nock & Prinstein, 2004).

Despite the growing body of research investigating NSSI and the serious implications of this behaviour for physical and emotional health, remarkably little is known about factors that might protect against NSSI, including characteristics that encourage resiliency and motivations an individual might have to reduce or cease their engagement in NSSI. The development of successful clinical interventions targeting NSSI requires an understanding of both risk and buffering factors that are amenable to change (Osman et al., 1998). Indeed, research on protective barriers against NSSI has the potential to inform treatment refinements through the incorporation or enhancement of these barriers in treatment or prevention efforts. In the extant research, many identified risk factors are not modifiable through treatment efforts (e.g., historical factors, such as childhood sexual abuse, or traits, such as personality features or negative emotionality). For this study, I define a "barrier" to NSSI as any intra- or interpersonal event, circumstance or situation that motivates an individual to reduce or cease their engagement in NSSI, either over the short term or the long term, or directly prevents an individual from engaging in NSSI. Given the exploratory nature of this research, I have chosen a broad definition that includes both internal motivations (e.g. fear of social disapproval, desire to find healthier ways of coping) and external circumstances (e.g. not having the means to injure oneself available, being directly prevented from engaging in NSSI by someone else). Unlike stable risk factors, such as age, gender or history of childhood maltreatment, barriers to NSSI are contingencies that may be present in an

individual's internal or external environment. As such, barriers to NSSI are more likely to be amenable to clinical intervention than long-term risk factors.

1.3 Motivations to Refrain from NSSI: Theoretical Models

At present, few theoretical models of NSSI explicitly describe factors that might prevent or dissuade an individual from engaging in NSSI. However, theoretical models of the functions of NSSI, or contingencies that motivate NSSI, may provide some direction in terms of which factors might serve as barriers to NSSI. In particular, the Four Factor Model and the Experiential Avoidance Model of NSSI articulate reinforcing contingencies of NSSI; as such, they may also illuminate factors that could punish NSSI. The Four Factor Model (FFM; Nock & Prinstein, 2004) posits two orthogonal dimensions along which the functions of NSSI may be organized. The first dimension involves whether the desired changes will occur within the individual engaging in NSSI (intrapersonal or automatic functions) or in the social environment (interpersonal or social functions). The second dimension refers to whether the NSSI is positively reinforced (i.e. a desired condition is added to an individual's internal or external environment) or negatively reinforced (i.e. an unwanted condition is removed from an individual's internal or external environment). For example, engaging in NSSI to feel pain is considered a positive automatic function of NSSI, whereas engaging in NSSI to reduce the demands of others would be considered a negative social function of NSSI. Similarly, the Experiential Avoidance Model (EAM; Chapman, Gratz & Brown, 2006) proposes that NSSI is maintained primarily through the avoidance or reduction of unwanted experiences such as

thoughts, emotions, somatic sensations or other internal experiences that are distressing or uncomfortable. According to the EAM, the immediate reduction of unpleasant experiences provides powerful reinforcement for NSSI, despite the negative consequences that frequently occur over the longer term.

Although these models do not explicitly consider reasons that an individual might refrain from NSSI, they may guide our expectations regarding reasons why an individual might choose not to engage in NSSI. Both models focus on conditions that reinforce NSSI; by extension, any event or situation that changes the reinforcing properties of NSSI would be expected to diminish the likelihood an individual will choose to engage in NSSI. According to the Experiential Avoidance Model, self-injuring individuals would be most likely to avoid NSSI if they were able to find alternative ways to cope with, avoid, or accept unwanted emotions. According to the Four Factor Model, barriers to NSSI might include interpersonal situations that diminish the reinforcing properties of NSSI (for example, receiving support that is not contingent on NSSI) as well as intrapersonal situations that diminish the reinforcement of NSSI (for example, learning to tolerate or manage dissociative experiences, or reductions in stressful life events).

1.4 Motivations to Refrain from NSSI: Empirical Evidence

Although few studies have directly examined barriers to NSSI, evidence regarding the negative consequences of NSSI may provide initial insight into factors that might discourage people from engaging in NSSI. For example, research suggests that NSSI often results in a variety negative short and long-

term consequences, such as feelings of shame and guilt (Chapman & Dixon-Gordon, 2007; Kleindienst et al., 2008; Leibenluft et al., 1987) and very negative reactions from others (Favazza, 1998). These consequences may serve as barriers to NSSI, as individuals are likely to learn to associate NSSI with these negative outcomes.

Recently, a few studies have examined individuals' self-reported reasons for stopping NSSI. For example, Deliberto & Nock (2008) asked 94 adolescents why they would or would not like to stop engaging in NSSI. The majority of participants (78.8%) generated at least one reason for wanting to stop NSSI, indicating that many individuals who engage in NSSI may experience some ambivalence about their continued engagement in this behaviour. Of the adolescents who gave a reason to stop, most reported they wanted to stop because NSSI is unhealthy (56.1%), because NSSI attracts unwanted attention (17.1%), to avoid scarring (14.6%), to reduce or avoid shame (7.3%) and to avoid upsetting friends and family (4.9%).

Another recent study used in-person interviews to assess reasons why individuals stop engaging in NSSI (Sinclair & Green, 2005). Twenty adults with a history of either suicidal behaviour or NSSI who had stopped engaging in these behaviours were interviewed using a single, open-ended question ("In what way do you think things have changed, or stayed the same, since that time [when you engaged in self-harm]?"). After reviewing the qualitative responses, the authors identified three overall themes: 1) NSSI was triggered by distress associated with normative adolescent developmental challenges (lack of autonomy, etc.) and

once this distress resolved, the NSSI resolved as well, 2) participants recognized that alcohol often precipitated or maintained self-injury episodes and thus stopped drinking to reduce NSSI and 3) individuals recognized and sought treatment for an underlying condition (e.g. depression) and once the symptoms remitted, the NSSI resolved. However, because suicidal and non-suicidal self-injury were not differentiated, it is difficult to know whether these reasons apply primarily to suicidal behaviour, to NSSI or equally to both.

Finally, a recent population-based study of young adults who engaged in NSSI and suicidal self-injury found that, of those participants who reported a history of NSSI and who had stopped, 36.9% reported stopping because they realized NSSI was causing distress among family and friends or they realized that NSSI was "stupid", 26.2% reported stopping because NSSI represented a "one off" or temporary phase, 24.6% reported stopping because they coped, felt better or found purpose and 12.3% reported stopping because they received professional help or help from family and friends (Young, Van Beinum, Sweeting, & West, 2007). Relative to males, females were more likely to stop self-injury after receiving professional help or help from family and friends; however, females are more likely than males to seek psychotherapy in general (Vessey & Howard, 1993), thus it is unclear whether this difference is related to differential treatment seeking or differential treatment outcomes.

Taken together, these studies provide initial information regarding factors that might prevent or dissuade an individual from engaging in NSS. Consistent with the FFM and EAM, it seems that self-injuring individuals report both

intrapersonal (e.g. shame) and interpersonal (e.g. distress of family and friends) barriers to NSSI. Furthermore, many individuals report that the resolution of the distress that precipitated NSSI was an important factor in promoting a reduction in NSSI. Generally, these studies highlighted similar themes in barriers to NSSI. However, each study identified at least one factor that the others had not. In some cases, the relative importance of each reason differs between studies. For example, in Deliberto & Nock's (2008) study of adolescents, upsetting friends and family was the least frequently endorsed reason to stop NSSI, whereas in Young et al.'s (2007) study of young adults, it was the most frequently endorsed reason. It is possible that this difference could be due to the different ages of each of the samples or because of differences in definitions of self-harm. Future research that directly compares barriers to NSSI in adolescent versus adult samples and among individuals who had engaged in NSSI versus suicidal self-harm could clarify these differences.

These studies contribute to our understanding of factors that might encourage an individual to refrain from NSSI. However, several gaps in the literature remain. For example, these studies primarily examined reasons that an individual would refrain from NSSI over longer periods of time (months or years). Barriers that might help an individual stop engaging in NSSI over the short term (e.g. when the urge first occurs) have not yet been examined. Examination of both short-term and long-term barriers to NSSI could inform and refine existing theoretical models of NSSI. Furthermore, each of these studies used a single open-ended question to probe for barriers to NSSI. The development of a

comprehensive, psychometrically sound measure of protective barriers against NSSI would allow researchers to better assess and understand factors that prevent or dissuade NSSI.

1.5 Primary Aims of the Present Research

In order to address these gaps in the literature, this study aimed to (1) examine the motivations and situations that prevent or dissuade people from engaging in NSSI, both over the short- and the long-term and (2) develop a novel psychometric measure (the Barriers to Self-Injury Inventory) to assess protective barriers against NSSI. In terms of protective barriers, my focus was on motivations and situations that might prevent or dissuade an individual from engaging in NSSI both in the short-term and over the longer-term. Study One focused on understanding people's motivations to refrain from NSSI and the situations that might prevent them from engaging in NSSI. Further more, Study One aimed to generate a pool of items using qualitative methods, while Study Two focused on item reduction and initial examination of the psychometric properties of this measure. Together, these studies resulted in the creation of a psychometrically sound measure of barriers to NSSI that can be submitted to future research to further validation and refinement.

Developing a data-driven understanding of barriers to NSSI has the potential to refine existing treatment approaches, prevention programs and empirical theories of NSSI. For example, by developing a measure of barriers to NSSI, we can examine factors that might be more important to certain age groups (e.g., adolescents vs. adults), different diagnostics groups, etc., thus

allowing more precision in interventions targeting NSSI among specific

subpopulations. Furthermore, longitudinal research that includes an examination

of barriers to NSSI might allow researchers to pinpoint internal and external

contingencies that are especially powerful in promoting or discouraging NSSI,

thus allowing the further refinement of existing theoretical models of NSSI.

2: STUDY ONE

2.1 Overview and Objectives

The primary objective of Study One was to gather qualitative data regarding self-reported barriers to NSSI and to generate a pool of items using these data. In order to query reasons to stop engaging in NSSI, I created a 12 item open-ended questionnaire that could be administered in interview or online (Barriers Questionnaire I; see Appendix A). This questionnaire asked participants about reasons why they would prevent themselves from engaging in NSSI both in the moment, when an urge first occurs (short-term) and over longer periods of time, such as days or weeks (long-term). The Barriers Questionnaire I was administered to four samples: 1) a sample of self-injuring individuals recruited from online self-injury chat and social networking groups (N=138), 2) a sample of individuals recruited from community mental health clinics (N=13), 3) a sample of university students with and without a history of NSSI (N=112) and 4) a sample of clinicians and researchers who had some experience treating individuals who engage in NSSI or who had conducted research on NSSI (N=27).

2.2 Hypotheses

Although this research as largely exploratory, particularly with respect to Study One, I had several tentative hypotheses regarding the types of barriers that might be important, based on the previously discussed theories and

research. Consistent with both the EAM and FFM, I expected that participants would generate both intra- and interpersonal reasons to stop NSSI.   Further, I expected that some barriers would refer to the negative consequences of NSSI (e.g. shame, unwanted attention), while others would reference the resolution of distress, or improvements in coping ability. Finally, given that participants were asked to generate reasons that they might refrain from NSSI over the short term, I expected that some barriers would be situation-specific or time-limited in nature. Thus, I expected three broad categories of barriers to NSSI: Intrapersonal barriers, Interpersonal barriers and Situational barriers.

2.3 Participants

2.3.1 Participants recruited from online forums

Participants were 138 individuals recruited from online support and social networking communities related to non-suicidal self-injury, including non-suicidal self-injury support communities on popular social networking websites such as Facebook.com, LiveJournal.com and Dailystrength.org. Most of the participants resided in the United States of America (50.7%), the United Kingdom (16.6%), Canada (13.8%) and Australia (8.7%) at the time of their participation. The mean age of participants was 22.72 years (SD = 7.24; range 16 - 57 years). Participants were predominantly female (92.8%) and white (86.2%). Forty-four percent of participants were attending or had attended college or university, but had not yet completed a degree, 14.5% had completed a college or university degree, 18.1% completed high school and 18.1% had completed some high school but had not graduated.

With respect to experience with different methods of NSSI, 99.2% of participants endorsed having engaged in cutting at some point in their lives and 87.5% of participants reported that this was their most frequent method of self-injury. Other methods included, for example, hitting one's self (63.3%), scratching one's skin until blood was drawn (63.4%), burning one's self (49.6%) and banging one's head against a wall (46.5%). In terms of average frequency of NSSI over the lifetime, 15.4% of participants reported that they engaged in NSSI daily, 27.7% reported engaging in NSSI 3-6 times per week, 15.4% reported engaging in self-harm 1-2 times per week, 23.8% reported engaging in NSSI 2-3 times per month and 17.7% reported engaging in NSSI once a month or less often. With respect to average frequency of NSSI over the past 3 months, 4.6% of participants reported engaging in NSSI daily, 13.7% reported engaging in NSSI 3-6 times per week, 20.6% reported engaging in NSSI 1-2 times per week, 22.9% reported engaging in NSSI 2-3 times per month and 16.0% reported engaging in NSSI once a month or less often.

2.3.2 University student sample

Participants were 112 university students recruited via introductory psychology courses and posters at the Simon Fraser University campus in Burnaby, BC. Most participants were female (77%). In terms of ethnicity, 44.6% of participants identified themselves as Asian, 20.5% identified themselves as Caucasian and 12.5% identified themselves as South Asian. The mean age of participants was 22.16 years (s.d. = 5.473, range 18-49). In terms of experience with NSSI, 15.2% of this sample reported at least one instance of NSSI in their

lifetime, with the majority of these participants (82.3%) reporting that they had not engaged in NSSI in the last six months. The most frequent methods of NSSI included cutting (64.7%), banging one's head against a wall (47.1%) and hitting oneself (29.4%).

2.3.3 Clinical sample

Participants were 13 individuals recruited from community mental health centres who met inclusion criteria for a larger, ongoing study. Most participants were female (92.3%). In terms of ethnicity, 46.3% of participants identified themselves as Caucasian, 23.1% identified themselves as Aboriginal or First Nations and 15.4% identified themselves as Asian. The mean age of participants in this sample was 37.08 years (s.d. = 13.62, range = 19 to 59). In terms of experience with NSSI, 23.1% of this sample reported at least one instance of NSSI in their lifetime.

In terms of psychiatric diagnosis, 38.5% of participants in this sample met criteria for a Major Depressive Episode within the past year, and 15.3% met criteria for a hypomanic episode in their lifetime. In terms of anxiety disorders, 46% of participants met criteria for Post Traumatic Stress Disorder, 30.7% met criteria for a specific phobia, 23% met criteria for social phobia, 7.7% met criteria for Obsessive Compulsive Disorder, 7.7% met criteria for generalized anxiety disorder and 8.3% met criteria for agoraphobia. In terms of lifetime prevalence of alcohol and substance use, 23% of participants met criteria for alcohol abuse, 15.3% met criteria for alcohol dependence, and 15.3% met criteria for substance

abuse and dependence. Finally, 30.7% of participants in this sample met

diagnostic criteria for Borderline Personality Disorder.

2.3.4 Clinician and researcher sample

Participants were 27 clinicians and researchers recruited from relevant list

serves. Participants were predominantly female (81.5%) and Caucasian (92.6%).

In terms of educational background, 51.9% of participants indicated they had

completed a Ph.D., 25.9% had completed a master's degree and 11.1% had

completed a Psy.D. In terms of professional training, 59.3% of participants

identified themselves as psychologists, 14.8% identified themselves as social

workers and 14.8% identified themselves as mental health counsellors. In terms

of primary work activity, 55.6% of participants identified themselves as primarily

clinicians, 18.5% identified themselves as primarily researchers, 11.1% identified

themselves as primarily administrators and 11.1% identified themselves as

primarily academics. The most common treatment approaches used by

participants included Dialectical Behaviour Therapy (37.0%), Cognitive-

behavioural Therapy (22.2%) and Behavioural therapy (11.1%).

In terms of experience treating NSSI, 92.6% of participants had provided

individual therapy for at least one client who had disclosed a history of NSSI and

37.0% had provided individual therapy for 10 or more such clients. 66.7% of

participants had provided group therapy for individuals who had disclosed a

history of NSSI and 81.5% of participants had provided assessment services for

clients with a history of NSSI. In terms of training, 77.8% of participants had

attended a workshop or training seminar that addressed the treatment NSSI,

while 70.4% had taught such a workshop or seminar. Participants reported a mean of 598.37 direct contact hours with clients who engaged in NSSI (s.d. = 1275.47, range = 0 – 5000).

2.4 Methods

Instrument development procedures for Study One were modelled, in part, after the procedures used by Linehan et al. (1983) in the development of the Reasons for Living Inventory, a measure of the importance that individuals attach to reasons not to kill themselves, by Brown and Ryan (2003) in the development of the Mindful Attention Awareness Scale, a measure of attention and awareness of one's consciousness and by Osman et al. (1998) in the development of the adolescent version of the Reasons for Living Inventory.

2.4.1 Recruitment

Recruitment of participants from online forums.

To recruit participants from online discussion forums and social networking groups devoted to self-injury, the administrators of the online groups were provided information about the study and asked whether they would allow the researcher to post information about the study on the group web pages. If the group administrator gave permission, an advertisement describing the study was posted on the community page. Recruitment postings were updated approximately once per month.   Individuals who were interested in participating in the study contacted the lab scheduler, who provided participants with further information about the study as well as a password and link to the secure study

webpage. Identifying information was stored in a separate data file from participant responses and both were stored on a secure server to protect confidentiality. Once they logged in to the study webpage, participants completed a battery of questionnaires that took approximately two hours to complete, including the Barriers Questionnaire I. Participants received the equivalent to $5 (Canadian currency) for their participation in the study via electronic gift certificate.

Recruitment of a clinical sample.

Participants in the clinical sample were recruited as part of an ongoing study investigating emotion regulation in individuals with Borderline Personality Disorder and Major Depressive Disorder. Participants completed a 20-30 minute screening interview over the phone to assess eligibility for the larger, ongoing study. Eligibility criteria for the larger study included: 1) *BPD group*: endorsing 5 or more SCID-II screening questions for BPD, no endorsement of mania screening questions; or 2) *depression group*: endorsing at least one screening questions for depression (dysphoric mood or anhedonia lasting at least two weeks), endorsing no more than 3 SCID-II screening questions for BPD and no endorsement of mania screening questions. If the participant was eligible, he or she was invited to complete an in-person interview, which included the Structured Clinical Interview for DSM-IV (SCID-I and SCID-II), the Barriers Questionnaire I and an online battery of questionnaires. History of NSSI was assessed using the item from the SCID-II Borderline Personality Disorder module, "Have you ever cut, burned or scratched yourself on purpose?". As part

of the assessment procedure, interviewers administered the Barriers Questionnaire I, prompting participants to generate as many reasons as possible using a standardized set of prompts until no new reasons were generated. The interviews were recorded using a digital audio recorder and were then transcribed. Participation in the entire protocol (SCID interview, questionnaire battery and Barriers Interview) took approximately 2-4 hours and participants were paid $20 for their participation.

Recruitment of a university student sample.

University students were recruited from introductory psychology courses. Participants completed a battery of questionnaires including measures of NSSI history. Individuals who did not report a history of NSSI were asked to respond to questions by generating hypothetical reasons why someone else might refrain from engaging in NSSI (e.g. what are reasons that other people might not injure themselves even when they want to?), while individuals who reported a history of NSSI were asked to respond to questions based on their own experiences. The online questionnaires took approximately one hour to complete and participants received course credit or $5 for their participation.

Recruitment of clinicians and researchers.

Clinicians with experience in treating NSSI and researchers with expertise in NSSI were recruited from relevant email list-serves, including the list-serves for the Association for Behavioural and Cognitive Therapies, Division 12 of the American Psychological Association and the International Society for the Study

of Self-Injury. Clinicians and researchers who responded to the recruitment email completed an adapted version of the Barriers Questionnaire I, wherein the questions were worded to be more applicable to researchers and clinicians (Barriers Questionnaire II; see Appendix B).

2.5 Measures

2.5.1   Demographics

Demographics for each of the four samples were assessed using a standard form. All participants were asked to report their age, ethnicity, country of residence, etc. In addition, university student participants were asked to report their year of study and Grade Point Average, while clinicians and researchers were asked to report their highest level of education, the number of years they had been practicing, as well as to describe their experience in the assessment, treatment and/or research of NSSI. The demographics questionnaire administered to clinicians and researchers was adapted in part from the Therapist Interview-4 (Linehan, 1987) and the Evaluation of Dialectical Behaviour Therapy Trainings (Linehan, 2009).

2.5.2   NSSI Behaviour

History of NSSI was assessed using the Questionnaire for Non-Suicidal Self-Injury (QNSSI; Schmahl, Bohus, Stieglitz & Reicherzer, 2008; developed for Kleindienst et al., 2008) and the Deliberate Self-Harm Inventory (DSHI; Gratz, 2001). The QNSSI was developed with female psychiatric inpatients diagnosed with BPD and measures the frequency, severity, methods, expectations and

emotional antecedents and consequences of NSSI. The DSHI was developed using a sample of undergraduate students and has shown high internal consistency, adequate convergent and discriminant validity and adequate test-retest reliability in undergraduate populations.

2.5.3 Barriers to NSSI

As mentioned previously, university student, clinical and online self-injuring samples completed the Barriers Questionnaire I while researcher and clinicians completed Barriers Questionnaire II (Appendix B), both of which were developed for this study.

2.6 Data Analysis

The primary goal of data analysis for Study One was to use participant's qualitative responses to create a battery of items such that a sufficient number of items were retained to adequately cover all aspects of the construct identified by their responses, while at the same time a sufficient number of items were eliminated to ensure the measure was not overly time consuming to complete. Coding of qualitative responses into an initial item set proceeded in three iterative stages. The first stage focused on generating an exhaustive pool of responses by listing all of the semantically distinct responses to the Barriers Questionnaire I and II for each participant. For example, if more than one reason to refrain from NSSI was generated in response to a single prompt (e.g. "Having to hide it at work and during the summer, hurting my sister, stressing out my best friend"), the response was parsed into distinct statements (e.g. 1: "Having to hide it at work

and during the summer", 2: "Hurting my sister", 3: "Stressing out my best friend").

In this phase, the participants' original language and phrasing was retained, although spelling and grammatical errors were corrected. This process resulted in an exhaustive list of barriers generated by each participant.

The second stage combined reasons across participants to identify common themes and statements. The response sets generated in stage one were reviewed to identify semantically similar reasons and these statements were grouped according to themes. For example, if several participants responded "I wouldn't want to disappoint [my family, my friend, my boyfriend]", the single statement "I don't want to disappoint someone" was extracted from the data and grouped into the minor category "Disappointing Others". This stage resulted in a pool of 283 unique statements, grouped into 58 minor categories, which were further grouped according to the three super-ordinate categories (intrapersonal barriers [number of statements=150], interpersonal barriers [number of statements=99] and situational barriers [number of statements=34]).

The final stage of analysis refined and reduced the data by combining categories and statements generated in stage two. Because this stage involved the most subjective interpretation of the meaning and organization of statements, I worked with two experts in NSSI (Dr. Chapman and Dr. Gratz), discussing decisions and achieving consensus in order to reduce potential individual bias in interpretation. Dr. Alexander Chapman, my senior supervisor, and Dr. Kim Gratz developed the Experiential Avoidance Model of NSSI (Chapman, Gratz, & Brown, 2006), and both have expertise in both the research and treatment of

NSSI. Furthermore, Dr. Kim Gratz has developed a measure of NSSI behavior (Deliberate Self-harm Inventory; Gratz, 2001) and a treatment for NSSI (Gratz, unpublished research). In terms of data analysis, minor categories were reviewed and combined into broader subcategories according to consensus. This process resulted in the creation of thirteen subcategories. Items within each subcategory were then reviewed and a sample items were written to encompass the meaning of similar statements in order to further reduce the item set (please see Appendix C for examples). Dr. Chapman, Dr. Gratz and I reviewed sample items to ensure they adequately captured the meaning of the original statements and to ensure clarity. This process resulted in the creation of a set of 115 items.

As a final step, instructions were generated asking participants to rate the relative importance of each statement in terms of how important each of these reasons is for you at this point in time for not engaging in self-injury on a scale of 1 (not at all important) to 5 (extremely important). A 5-point Likert scale was selected to maximize psychometric properties while allowing an appropriately fine degree of discrimination between response options (Cicchetti, Showalter, Tyrer, 1985). Instructions specified that participants should use a full range of scores. This set of 115 items and instructions comprised the Barriers Questionnaire III.

2.7 Results

Study One resulted in an initial inventory of 115 items and 13 subscales. Six subscales were conceptualized as tapping into Intrapersonal barriers to NSSI. The Negative Emotional Consequences subscale contained 16 items, and

examined a variety of negative emotions and beliefs about the self that can arise from NSSI (e.g. "I would feel guilty", "Self-injury makes me feel like a failure"). The Lack of Positive Consequences subscale contained 4 items and tapped into beliefs that NSSI would not be effective or beneficial (e.g. "It won't solve my problems", "The long-term consequences aren't worth the short-term relief"). The Deterrent Beliefs subscale contained 5 items that tapped into a variety of negative beliefs about NSSI (e.g. "Self-injury is an immature or childish thing to do", "Self-injury is an unhealthy way to deal with emotions"). The Negative Physical Consequences subscale contained 12 items, and examined barriers related to health risks and scarring (e.g. "I don't want my body to look bad", "I don't want to lose too much blood or pass out"). The Positive Coping subscale contained 18 items tapping into the resolution of distress, learning new coping skills and desire for a healthy life (e.g. "I want to find a better way to cope with my problems or emotions", "I have replaced self-injury with a more healthy way to cope"). The Loss of Control subscale contained 6 items that tapped into a participant's belief that NSSI was becoming addictive or difficult to control (e.g. "My self-injury is getting worse (more frequent, more serious more urges)", "Self-injury is consuming my thoughts").

Four subscales tapped into Interpersonal barriers to NSSI. The Negative Effects on Relationships subscale contained 8 items that examined a variety of negative social consequences (e.g. "Self-injury is straining my relationships with friends and family", "I don't want to hurt my friends, family or loved ones"). The Negative Reactions and Stigma subscale contained 16 items that tapped into

fears that one's self-injury would be discovered or would provoke a negative reaction from others (e.g. "I don't want other people to find out about my self-injury", "I don't want people to think I'm doing it for attention"). The Positive Relationships subscale contained 12 items that examined barriers related to supportive relations (e.g. "I promised someone I would stop", "I have supportive and caring people around me who can help me when I feel the urge"). The Monitor and Control subscale contained 5 items that tapped into the perception that someone else was forcing the participant to stop NSSI (e.g. "Someone checks my new body for new injuries or scars, and he/she would notice if I did it", "I don't want to be punished if I'm caught").

Three subscales were conceptualized as tapping into time-limited or situational barriers to NSSI. The Wrong Time, Place or Means subscale contained 5 items that referenced not having the preferred means, sufficient privacy or sufficient energy to engage in NSSI (e.g. "I don't have any clean tools that I would usually use to self-injure", "I don't have the time or energy to clean up afterwards"). The Prevented from Doing Things subscale contained 4 items that examined goals that might be blocked if a participant engaged in NSSI (e.g. "I want to help others, so I need to be healthy my self", "I'm worried that self-injury might make me lose my job or make it hard to get a job"). Finally, the Desire Not to be in Treatment subscale contained three items referring to a desire to avoid medical or psychological intervention (e.g. "I don't want to end up in the hospital", "I don't want to have to go to therapy").

Overall, these results of this study were consistent with the expectation that qualitative responses could be organized into three broad categories. However, there were some answers that were not easily categorized into one of these categories. For example, responses that referenced wanting to avoid scarring sometimes referred to negative intrapersonal consequences (e.g. feeling ashamed of scars, finding one's scars ugly), while at other times they referred to interpersonal consequences (e.g. interfering with relationships, evoking negative reactions from others). In general, Dr. Chapman, Dr. Gratz and I agreed that these barriers seemed to refer more often to intrapersonal consequences, or the intrapersonal consequences that would arise from interpersonal events (e.g. feeling lonely if others rejected you after seeing scars). Barriers related to scarring were included in the Negative Physical Consequences subscale, on the Intrapersonal dimension. Further, several participants also referred to their relationships with their pets as a reason to refrain from NSSI; these responses were coded as interpersonal, but were subsumed under the item "I don't want to disappoint my friends, family or other loved ones" in the final set of 115 items.

2.8 Discussion

Overall, the results of Study One were consistent with previous research in the field indicating that individuals with a history of NSSI endorse a variety of reasons to refrain from NSSI, including negative beliefs about NSSI, resolution of previous distress, negative emotional consequences of NSSI such as shame and guilt and negative impacts on close relationships (Deliberto & Nock, 2008; Sinclair & Green, 2005; Young, Van Beinum, Sweeting, & West, 2007).

Specifically, Deliberto and Nock (2008) found that participants reported that NSSI

is unhealthy as a reason to refrain from NSSI; this barrier is captured in the

broader category of "Deterrent Beliefs" in this study. Likewise, previous research

has highlighted the role of distress of friends and family and unwanted attention

in motivating self-harming individuals to refrain from NSSI (Deliberto & Nock,

2008; Young et al., 2007); in the present research, these barriers are captured

within the categories "Negative Effects on Relationships" and "Negative

Reactions or Stigma". In the present research, the "Positive Coping" category

encompasses several reasons to refrain from that have been highlighted in

previous research, including resolving adolescent or temporary distress (Sinclair

& Green, 2005; Young et al., 2007), finding a way to cope, feel better or find

purpose (Young et al., 2007), and receiving professional help or support (Sinclair

& Green, 2005; Young et al., 2007). Similarly, the "Negative Emotional

Consequences" encompasses the role of shame in discouraging NSSI (Deliberto

& Nock, 2008), the "Negative Physical Consequences" encompasses the role of

scarring (Deliberto & Nock, 2008) and the "Positive Relationships" category

encompasses the role of support from friends or family.

With respect to discrepancies between the results of the present study and

previous research on barriers to NSSI, one previous study found that some

individuals refrain from NSSI because they recognize the role of alcohol use in

precipitating self-harm episodes, and so modify their use of alcohol (Sinclair &

Green, 2005), but this barrier to NSSI was not identified by participants in any of

the samples in the current study, so it was not included in the Barriers

Questionnaire III. Given that Sinclair and Green (2005) did not distinguish NSSI and suicidal self-harm, it is possible that changing alcohol use is more relevant for refraining from suicidal self-harm than NSSI. Future research on barriers to NSSI may investigate how the chronology of substance and alcohol use affects frequency of NSSI and suicidal behaviour to clarify this relationship. On the other hand, the present study identified several barriers to NSSI that had not been identified by previous research, including Lack of Positive Consequences, Loss of Control, Monitor and Control, Wrong Time, Place or Means, Being Prevented from Doing Things and Desire not to be in Treatment. As expected, the present research identified a number of barriers that may be more time-limited or situation-specific in nature, particularly barriers related to Wrong Time, Place or Means and Being Prevented from Doing Things. This research asked about situations or reasons that dissuade an individual from engaging in NSSI in the short-term, when the urge first occurs, whereas other studies have focused primarily on barriers that dissuade or prevent an individual from engaging in NSSI over long periods of time (days, weeks or months). Longitudinal, prospective research will be essential in clarifying whether individuals who endorse primarily time-limited or situation-specific barriers to NSSI are more or less likely to refrain from NSSI over time compared to individuals who endorse more intrapersonal or interpersonal barriers to NSSI.

Overall, the items generated in Study One capture a diverse range of motivations or situations that could prevent or dissuade an individual from engaging in NSSI. Further, the use of data-driven techniques and diverse

samples of individuals with varying experience with NSSI represents an important strength of this study, in that it increases confidence that the items generated in Study One will apply to diverse populations. This study represents the most comprehensive qualitative examination of barriers to NSSI to date; as such, the results represent an important step towards understanding reasons that individuals refrain from NSSI.

3: STUDY TWO

3.1 Objectives and Overview

The primary objective of Study Two was to reduce the item set and investigate the psychometric properties of the Barriers Questionnaire III. As in Study One, participants recruited from online self-injury groups and university student populations completed online questionnaires including the Barriers Questionnaire III. I used confirmatory factor analysis to examine the dimensionality of each subscale and to eliminate ill-fitting items until each scale was unidimensional. Once the set of unidimensional items had been identified, I evaluated the performance of each item in terms of a) item-total correlations within each subcale, b) associations with socially desirable response patterns and c) factor loadings. Items that did not add sufficient information to the measurement of the construct (e.g. low item-total correlation, low factor loading) or that strongly correlated with socially desirable response patterns were eliminated. Next, I calculated the reliability of both the unit-weighted composites of the items in each subscale and the reliability of the weighted composites. Finally, I investigated the convergent and divergent validity of the subscales, the three super-ordinate scales and the total score.

In the validation phase of measure development, it is important for the researcher to specify his or her expectations about how the measure will perform in advance. Specifically, the researcher must identify how he or she expects the

scores to perform, as well as how he or she expects the construct to relate to other relevant constructs. With respect to item performance, I expected the item scores to be distributed quasi-continuously, consistent with the 5-point Likert rating scale. I expected the relationship between the latent construct (e.g. construct that each subscale purports to measure) and the item scores to be linear increasing (i.e. as an individual's level of the latent construct increases, so too will his or her score on each item and this relationship between latent construct and item score will be linear in nature). Finally, I expected that the items would be error-laden. That is, I expected that there would be some item-specific error in the measurement of the construct such that some items would measure the latent construct more precisely than other items. Further, I expected there would be error specific to each individual, such that the items are fallible indicators of the underlying construct.

Convergent and divergent validity are an important step in measure validation in that they allow the researcher to examine whether the scores are associated with other measures or constructs that are conceptually similar (convergent validity), and are unassociated with constructs that are conceptually distinct (divergent validity). In terms of my expectations regarding the performance of the Barriers Questionnaire III in relation to other constructs, I began by specifying several general expectations about the construct of barriers to NSSI. Given my definition of barriers (i.e. any intra- or interpersonal event, circumstance or situation that motivates an individual to reduce or cease their engagement in NSSI, either over the short term or the long term, or directly

prevents an individual from engaging in NSSI), I expected barriers to NSSI to be associated with lower frequency of NSSI over time. In the present study, prospective data was not available; however, I examined the associations of barriers to NSSI with frequency of NSSI over the past three months and over the lifetime as an initial step.

A second important consideration was how barriers to NSSI might be related to suicidal behaviour. On the one hand, NSSI is conceptually distinct from suicidal behaviour in that the behaviours are enacted with different purpose; on the other hand, research shows there is significant overlap in terms of the functions and risk factors for these two behaviours (e.g., Brown, Comtois, & Linehan, 2002), and there is reason to expect that factors that dissuade or prevent an individual from engaging in one behaviour would likely be relevant for dissuading or preventing the other behaviour. Overall, I expected that reasons to refrain from suicidal behaviour would be positively associated with barriers to NSSI.

A third consideration was that barriers were, by definition, expected to be higher among individuals who are motivated to refrain from NSSI. By extension, I expected individuals who more strongly endorsed barriers to NSSI to have more desire for change, hopefulness for the future, desire for change and motivation for treatment. I also expected barriers to be more salient for those with strong, supportive relationships. Furthermore, I expected barriers to be higher among individuals who had engaged in some form of counselling or psychotherapy, as these motivations would likely be highlighted and made more salient over the

course of therapy. Conversely, it is possible that those who receive therapy engage in more frequent or severe NSSI, and thus the negative consequences of NSSI may be more salient to these individuals.

3.2 Hypotheses

3.2.1 Confirmatory Factor Analysis

As a first step to evaluating the performance of the 115 items of the Barriers Questionnaire III, I used confirmatory factor analysis (CFA) to refine the item set for each subscale created in Study One. Because each subscale was expected to tap into a single latent construct, I expected the subscales to be unidimensional. I also expected the subscales to be grouped according to the three super-ordinate factors described in Study One (Intrapersonal, Interpersonal and Situational barriers). I used hierarchical factor analysis to formally test whether higher order factors could account for the intercorrelations among subscales.

3.2.2 Reliability

Reliability of the subscales and super-ordinate scales will be assessed using an internal consistency approach. I calculated both Cronbach's alphas, which are the lower bound to reliability of a unit-weighted sum of the items and omega coefficients, which allow me to calculate the lower bound to reliability when a weighted sum of the items is used. In general, I expected the weighted reliabilities to outperform the unweighted reliabilities, as I expected that some items would be more sensitive to the underlying construct than others.

3.2.3 Convergent and Divergent Validity

Convergent and discriminant validity were assessed using Pearson Product Moment Correlations in five key areas: past NSSI behaviour, suicidality, coping strategies, attachment and social support and therapy engagement.

Past NSSI Behaviour.

As discussed previously, I expected that the BSII subscales would be negatively associated with frequency of NSSI behaviour over the past three months and over the lifetime. Given that situational barriers were conceptualized as situation-specific or time-limited that may be more applicable over the short-term rather than stable and enduring motivation, I expected these barriers to be weakly or unassociated with frequency of NSSI. Further, I expected the BSII scales to be positively associated with the number of types of NSSI that an individual has engaged in, as I expected barriers to be more salient among individuals who had engaged in multiple types of NSSI.

Suicidality.

I expected barriers for NSSI to be positively associated with beliefs that protect against suicide (i.e. reasons for living), as I expected that many of the barriers that protect against suicide would also protect against NSSI (e.g. fear of social disapproval, social support, positive coping beliefs, etc.). Given that NSSI is conceptually distinct from suicidal behaviour, I expected that some barriers to NSSI would also serve dissuade or prevent suicidal behaviour (e.g. not wanting to upset others, wanting to avoid shame or guilt, monitor and control by others),

and thus be negatively associated with history of suicidal ideation and suicidal behaviour. On the one hand, some barriers to NSSI may be uniquely important in dissuading NSSI (e.g. wanting to avoid scarring, fearing that one is losing control over one's self-harm), and thus would be unassociated or weakly associated with past suicidal ideation or behaviour.

Coping Strategies.

I expected barriers to NSSI to be positively associated with a variety of coping strategies. Specifically, I expected intrapersonal and interpersonal barriers to be more strongly associated with active coping strategies, given that these are thought to be more stable and enduring motivations to refrain from NSSI. On the other hand, I expected situational barriers to be associated with more passive coping strategies, as situational barriers are transient or situation-specific.

Social Support and Attachment Style.

In terms of attachment and support, I expected interpersonal barriers to be positively associated with secure attachment to both parents and peers and with perceived social support, as these barriers were expected to be more salient among those with strong social relationships. I also expected intrapersonal barriers to be positively associated with secure attachment and perceived social support, although not as strongly as interpersonal barriers. On the other hand, I expected situational barriers to be unassociated with perceived social support as

these barriers were expected to relate to situation specific circumstances rather than social support.

Therapy Engagement.

In terms of variables that might predict treatment engagement, I expected intrapersonal barriers to be positively associated with hope for the future, intrinsic motivation for therapy and history of therapy involvement. I expected also interpersonal barriers to be positively associated with hope for the future, and I expected they would be associated with both intrinsic and extrinsic motivations for therapy. Finally, I expected situational barriers to be unassociated with hope for the future and to be associated with extrinsic motivation and amotivation for therapy.

3.3 Participants

Participants were 197 individuals who reported having engaged in at least one act of NSSI in their lifetimes. Participants were predominantly female (85.8%). The mean age was 21.06 years (s.d. = 4.969, range = 16 – 52). Participants primarily resided in Canada (55.3%), the USA (27.9%) and the UK (7.1%). Most participants had attended some college or university (67.0%), while 12.7% were attending high school and 9.1% had completed a university degree. Most participants identified themselves as Caucasian (72.6%), while 15.2% identified themselves as Asian. 39.1% of participants came from the university student population, while 60.9% participants came from online communities.

In terms of average frequency of NSSI over the lifetime, 44.7% of participants reported that they had engaged in NSSI once a month or less often on average over their lifetime, while 17.8% reported engaging in NSSI 2-3 times per month and 13.2% reported engaging in NSSI 3-6 times per week. In terms of recent frequency of NSSI (i.e. past three months), 40.1% of participants reported that they had not engaged in NSSI in last 3 months, while 26.4% reported they had engaged in NSSI once a month or less often. In terms of methods of NSSI, 79.2% of participants had engaged in cutting, 33.5% had engaged in burning, 46.7% had engaged in head banging and 60.9% reported hitting themselves. Participants had engaged in an average of 4.79 types of NSSI (s.d.= 2.62).

3.4 Methods

3.4.1 Recruitment

Recruitment procedures for the online and university student samples were the same as in Study One. Online group administrators were contacted and recruitment advertisements were posted on online forums pertaining to self-harm. University students were invited to participate via introductory psychology courses and posters around campus. Unlike in Study One, university students were only eligible to participate if they had a history of NSSI. Participation in Study Two took approximately 90 minutes.

3.5 Measures

3.5.1 Non-suicidal Self-injury

Participants completed the same measures of NSSI frequency and severity described in Study One (DSHI; Gratz, 2001; QNSSI; Kleindienst et al., 2008).

3.5.2 Barriers to Non-suicidal Self-injury

Participants completed the Barriers Questionnaire III, as described in Study One.

3.5.3 Social Desirability

Socially desirable response patterns were assessed using the Marlowe-Crowne Social Desirability Scale Form-C (MCSDS Form-C; Reynolds, 1982). The MCSDS Form-C is a 33-item measure and has demonstrated good internal consistency and convergent validity in undergraduate samples (Reynolds, 1982).

3.5.4 Suicidal Behaviour

The Suicidal Behaviour Questionnaire – Revised (SBQ-R; Osman et al., 2001) is a four-item measure used to identify risk for suicidal behaviour. Items on the SBQ-R investigate lifetime suicidal ideation and attempts, frequency of suicidal ideation in the past twelve months, threats of suicidal behaviour and self-reported likelihood of future suicidal behaviour. The SBQ-R has demonstrated good reliability in adolescent inpatients (α=.88), high-school students (α=.87), adult inpatients (α=.87) and adequate reliability in undergraduate students (α=.76; Osman et al., 2001). Furthermore, a cut-off score of 7 is sensitive and

specific in identifying suicidal versus non-suicidal individuals, supporting the convergent validity of this measure.

3.5.5 Suicidal Ideation

The Positive and Negative Suicidal Ideation Inventory (PANSII; Osman, Kopper, Barrios & Gutierrez, 2007) is a 14-item measure used to assess positive or buffering thoughts that protect against suicide and to assess negative ideation or thoughts about suicide. Previous research has shown that the PANSII has excellent internal consistency, with alphas ranging from .91 to .93 and convergent validity with measures of depression, hopelessness and general distress.

3.5.6 Reasons for Living

The Reasons for Living Inventory (RFLI; Linehan et al., 1983) is a 48-item measure and is composed of 6 subscales (Survival and Coping Beliefs, Responsibility to Family, Child Related Concerns, Fear of Suicide, Fear of Social Disapproval and Moral Objections), each of which has high internal consistency in clinical and nonclinical samples (α's = .72 to .89; Linehan et al., 1983). Furthermore, the RFLI can differentiate between non-suicidal individuals and those with suicidal ideation, supporting its validity (Linehan et al., 1983).

3.5.7 Motivation for Therapy

The Client Motivation for Therapy scale (CMOTS; Pelletier, Tuson, Haddad, 1997) is a 24-item measure used to assess six dimensions of motivation along a continuum of automony, from intrinsic to extrinsic and amotivation,

proposed by Deci and Ryan (1985). According to this model, instrinsic motivation

for therapy is defined as engaging in therapy purely for the pleasure or

satisfaction that is derived from the experience. By contrast, external motivation

is defined as motivation to obtain a reward or avoid a punishment; the individual

does not include engage in the behaviour for its own sake. Between intrinsic and

external motivation are three other dimensions: Introjected motivation (i.e. when

the external motivator has been internalized so that its presence is no longer

required to motivate the behaviour), Identified motivation (i.e. the individual

engages in the behaviour because it is consistent with his or her goals, but is still

externally motivated) and Integrated motivation (i.e. the individual values the

activity and it is consistent with other schemas of his- or herself). Finally,

Amotivation is defined as a lack of motivation to engage in therapy. Previous

research has shown that subscales have fair to excellent internal consistency,

with alphas ranging from .70 to .92 and excellent convergent validity with client

and therapist ratings (Pelletier, Tuson, Haddad, 1997).

3.5.8 Therapy Engagement

The Treatment History Interview-2 (Linehan & Heard, 1997) is an interview

protocol used to assess past exposure to psychotherapy, hospitalizations,

medical treatment, pharmacotherapy and other psychosocial treatments or

supports. The THI was adapted for this study so that it could be easily

administered online as a 30-item, self-report inventory measuring treatment

engagement. For the purposes of this study, we used a single item to assess

whether an individual had received help from a therapist, counsellor, group, case manager or program during the past year.

3.5.9 Hopefulness

The Adult Dispositional Hope Scale (ADHS; Snyder et al., 1991) is a 12-item measure used to assess motivations for pursuing goals (agency) and ability to identify means for goal attainment (pathways). Previous research has shown that the ADHS has excellent test-retest reliability over 10 weeks and acceptable internal consistency, with alphas ranging from .74 to .84 (Snyder et al., 1991). Furthermore, the ADHS has been positively associated with measures of self-esteem and expectation for success and was negatively associated with a measure of depression (Snyder et al., 1991).

Further, an adapted version of the Domain Specific Hope Scale (DSHS; Sympson, 1999) was used to assess hope regarding participants' ability to refrain from NSSI. The DSHS contains 8 items that are rated on a 7-point Likert scale. The original version of the DSHS demonstrated excellent internal consistency, with alphas ranging from .86 to .93.

3.5.10 Coping Styles

The brief COPE (Carver, 1997) is a 28-item measure used to assess fourteen coping strategies: self-distraction, active coping, denial, substance use, use of emotional support, use of instrumental support, behavioural disengagement, venting, positive reframing, planning, humour, acceptance, religion and self-blame. Many of the brief COPE subscales demonstrated

adequate internal consistency in a sample of hurricane survivors, despite the short length (Carver, 1987).

3.5.11 Parent and Peer Attachment

The Inventory of Parent and Peer Attachment (IPPA; Armsden & Greenberg, 1987) was used to assess attachment using three subscales: Trust (11 items), Communication (10 items) and Alienation (7 items). Attachment scores are calculated by summing Trust and Communication raw scores and subtracting from this sum the Alienation raw score, yielding a continuous range of scores from -7 to 21. Low scores on the IPPA indicate insecure attachment style while high scores indicate secure attachment style. The IPPA has shown good internal consistency and convergent validity in undergraduate populations (Armsden & Greenberg, 1987).

3.5.12 Social Support

The Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet & Farley, 1988) is a 12-item measure used to assess support from family, friends and significant others. The MSPSS has excellent internal consistency, with alphas ranging from .91 to .95 and good convergent validity (Zimet et al., 1988).

3.6 Results

Descriptive statistics for each of the measures used in Study Two, including Cronbach's alphas, are presented in Table 1. Once item reduction via CFA was completed, variables that violated the assumption of normality were

transformed using log transformation (BSII Wrong Time, Place or Means; BSII Situational Barriers; RFL Fear of Social Disapproval; RFL Moral Objections) or squared transformation (BSII Deterrent Beliefs).

3.6.1 Confirmatory Factor Analysis and Item Reduction

Confirmatory Factor Analysis.

The dimensionality of a scale refers to the number of latent constructs that influence scores on the scale; in the case of unidimensionality, a single latent construct drives the scores on the scale. It is important to consider the dimensionality of the items as a first step in test validation because many other statistics (e.g. Cronbach's alpha, item-total correlations, Pearson-Product Moment Correlations) assume that the items may be composited into a single (weighted or unweighted) total score. Compositing the items is only justified when the items are in fact measuring a single latent construct. Confirmatory factor analysis (CFA) was selected to evaluate the dimensionality of the subscales of the Barriers Questionnaire III because it offers several advantages over exploratory factor analysis (EFA). First, CFA allowed me to specify my expectations about how the items would perform in advance. In Study One, I used data-driven procedures to derive the item pool and to specify expectations regarding item groupings and scale structure. The specification of these expectations, consistent with an Item Response Theory approach to test validation, results in a quantitative, statistical consequence that can be submitted to a formal hypothesis test to examine the fit of the model (Slaney & Maraun, 2008). If the model is accepted, the resulting estimation of the parameters (e.g.

factor loadings) may be used to inform test scoring and item analysis (Thissen, Steinberg, Pyszczynski & Greenberg, 1983). Further, CFA allowed me to test competing models in which successively more parameters are constrained to be equal (e.g. congeneric, tau-equivalent and parallel models; Thissen et al., 1983). By contrast, EFA does not require that the statistical model be specified in advance; thus it does not formally test the goodness of fit of a specified model, rendering its parameter estimates less valuable. In addition, in EFA the number of latent variables is not specified in advance, all observed variables are allowed to influence all latent variables and measurement errors are not allowed to correlate, which can make interpretation of the results difficult (Brown, 2006).

The factor analysis proceeded according to three stages: first, the model was specified a priori; second, the models were submitted to CFA to identify localized area of misspecification and third, poorly fitting items were eliminated and the model was refined until it met appropriate fit criteria. In Study One, items were grouped into three super-ordinate scales and thirteen subscales; this organization of data in Study One implied the model for the data. Specifically, I expected each of the thirteen subscales to measure a single construct (i.e. to be unidimensional). Consistent with my expectations regarding the performance of the item scores (i.e. that they would be quasi-continuous, error laden, with a linear increasing relationship with the latent construct), linear factor analysis (LFA) was selected as the appropriate method for assessing the dimensionality of the items (Slaney & Maraun, 2008).

In order to test the specified models, I calculated covariance matrices for the items in each subscale and submitted each covariance matrix to LFA using Maximum Likelihood estimation. All CFA analyses were performed using LISREL 8 (Joreskog & Sorbom, 1993). For each subscale, I tested three competing models of unidimensionality: 1) the congeneric model, in which both the error variances and factor loadings were unconstrained; 2) the tau-equivalent model, in which the factor loadings were constrained to be equal, but the error variances were unconstrained; and 3) the parallel model, in which both the factor loadings and the error variances were constrained to be equal. In order to evaluate whether the items were unidimensional for any of the three models, I utilized the following cut-offs: 1) the chi-square value should be less than twice the degrees of freedom; 2) the root mean square error of approximation (RMSEA) is within the interval of 0 to 0.08; 3) the 90% confidence interval of the RMSEA should contain the value 0.05; 4) the Comparative Fit Index (CFI) should be above 0.90; and 4) the standardized residuals should be within the interval -2 to 2 (Browne & Cudeck, 1993; Byrne, 1994; Hu & Bentler, 1999). These cut-offs were selected in order to optimize of several types of fit indices, including absolute fit (e.g. chi square), parsimony (e.g. RMSEA), comparative fit (e.g. CFI) and localized area of strain (e.g. standardized residuals). If the evidence generally fit these criteria, the items were retained as unidimensional. In cases of poor fit, the standardized residuals were examined to identify localized areas of poor fit. Poor-fitting items deleted from the model so as to potential for unidimensionality and preserve the underlying construct (Anderson and Gerbing,

1988). In cases where the subscale could not be retained as unidimensional, items were reviewed by myself and Dr. Chapman and were either discarded or related to a different factor as long as the scale remained unidimensional after the addition of the item. This process allowed me to ensure that each subscale was tapping in to a single construct and to eliminate items that did not contribute to the measurement precision of the construct.

Goodness of fit indices, type of model accepted (congeneric, tau-equivalent, or parallel) and final number of items retained for each subscale are presented in Table 2. Three of the subscales were retained in the first round of the LFA (Monitor and Control; Wrong Time, Place or Means; Prevented from Doing Things). Seven of the other subscales were refined and retained within four rounds of LFA (Negative Emotional Consequences, Deterrent Beliefs, Negative Physical Consequences, Positive Coping, Loss of Control, Negative Effects on Relationships, Negative Reactions and Stigma, Positive Relationships). Because a minimum of four items is required for LFA, the Desire Not to be in Treatment subscale could not be submitted to LFA. Furthermore, the Lack of Positive Consequences subscale was not unidimensional and because it only had four items, items could not be eliminated from this subscale and then resubmitted to LFA. Thus, the seven items from the Desire Not to be in Treatment and Lack of Positive Consequences subscales were reviewed by Alexander Chapman and I and were added to subscales that were consistent with the semantic construct. If the subscale remained unidimensional with the addition of the new item, the item was retained; if the subscale was no longer

unidimensional, the item was discarded. This process resulted in the elimination

of 38 items. The subscale called "Prevented from Doing Things" was renamed

"Future Goals" to better reflect the final content of the subscale. The final

subscales were: 1) Negative Emotional Consequences, 2) Deterrent Beliefs, 3)

Negative Physical Consequences, 4) Positive Coping, 5) Loss of Control, 6)

Negative Effects on Relationships, 7) Negative Reactions and Stigma, 8) Positive

Relationships, 9) Monitor and Control, 10) Wrong Time, Place, or Means and 11)

Future Goals.

Secondary Item Reduction.

After the subscales had been refined and the final item set had been

selected, I further reduced the item set by eliminating any item that a) had a

factor loading of less than .4, b) had an item-total correlation with the subscale

score below .35, c) had a correlation with socially-desirable response patterns

(MCSDS total score) above .29 (Osman et al, 1998). In examining the factor

loadings, a further 3 items were deleted ("19. My religious beliefs say I shouldn't

hurt my body", λ=.35; "21. I like the challenge of trying to quit", λ=.35; "52. I could

be kicked out of my treatment program if I self-injure", λ=.24). All the items

retained in stage one correlated greater than .35 with the appropriate subscale.

Further, none of the items correlated above .29 with socially desirable

responding. Two items from the Positive Coping subscale were significantly

correlated with socially desirable response patterns ("87. I want to find a better

way to cope with my problems and emotions", r=.152, p=.033; "107. I have

replaced self-injury with a more healthy way to cope", r=.160, p=.025), as well as

one item from the Negative Effects on Relationships ("76. I want to regain friendships I've lost", r=.143 p=.045), one item from the Positive Relationships ("51. I want to set a healthy example for a friend, family member or romantic partner", r=.172, p=.016) and one item from the Future Goals subscale ("115. I want to help others, so I need to be healthy myself", r=.152, p=.032). However, none of these items met the cut-off of r >.29; therefore, these items were retained.

Hierarchical Factor Analysis.

In order to examine whether the subscales loaded onto the second-order factors proposed in Study One, I conducted three hierarchical CFAs. Goodness of fit indices for the hierarchical analyses are presented in Table 3. For intrapersonal barriers, the hierarchical model provided good fit (χ2=1189.72, df=522, RMSEA=0.083, CFI=0.945). Factor loadings indicated that Negative Emotional Consequences (λ=0.955) and Positive Coping (λ=0.802) were most strongly associated with the underlying super-ordinate construct while Loss of Control was least sensitive to the underlying construct (λ=0.483). For interpersonal barriers, the hierarchical model provided moderately acceptable fit (χ2=788.90, df=248, RMSEA=0.108, CFI=0.918). Negative Reactions and Stigma (λ=0.957) and Monitor and Control (λ=0.976) were most sensitive of the underlying construct, while Positive Relationships was least sensitive (λ=0.683). For situational barriers, the hierarchical model provided adequate fit (χ2=91.71, df=33, RMSEA=0.091, CFI=0.900). The Future Goals subscale was more

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sensitive to the underlying construct (λ=0.978) than the Wrong Time, Place or Means subscale (λ=0.835).

3.6.2 Reliability of the Unweighted and Weighted Composites

I calculated the reliability of the unit-weighted composite of the items using Cronbach's alpha. Overall, reliabilities for five of the eleven subscales were acceptable to excellent ($\alpha > .80$). Four other subscales had reliabilities $>.70$. The reliabilities for the Monitor and Control subscale and Future Goals subscales were less than .70, indicating marginal reliability. Cronbach's alphas for all variables are presented in Table 1 and Table 2.

I also calculated the reliability of a weighted composite of each subscale using omega coefficients. Assigning different weights to each item takes into consideration differences in terms of factor loadings or sensitivity to the underlying construct. This is especially important for subscales in which the tau-equivalent or congeneric model provided the best fit, as these models specify that factor loadings of each item are unequal. Omega coefficients are presented in Table 2. In all cases, omega values indicated that using a weighted composite improved the subscale's reliability. When weighted composites were used, all the subscales had acceptable reliabilities ($\omega > .70$).

3.6.3 Convergent and Divergent Validity

Preliminary Analyses: Demographics and Within Sample Differences.

I used Pearson Product Moment Correlations to examine whether any of the BSII scales were associated with demographic variables such as age, gender

and socioeconomic status. Age was negatively associated with Negative Reactions and Stigma (r=-.193, p=.008) and total number of Interpersonal barriers (r=-.151, p=.040). Socioeconomic status was positively associated with Positive Relationships (r=.156, p=.032), Monitor and Control (r=.186, p=.010) and overall Interpersonal Barriers (r=.146, p=.046). T-tests revealed that females participants placed more importance on barriers related to Loss of Control (t=2.93, df=189, p=.004), Reaction and Stigma (t=3.138, df=190, p=.002), Monitor and Control (t=2.56, df=192, p=.011) and Interpersonal Barriers (t=2.43, df=184, p=.016) than males.

I also conducted a series of t-tests to examine whether there were any differences between participants who were recruited from the student population at Simon Fraser University (SFU) versus those who were recruited from online self-harm communities. T-tests revealed that SFU students were significantly younger than online participants (t=2.103, df=194, p=.037). University students also endorsed engaging in fewer methods of NSSI (t=6.524, df=190, p<.001) and less frequent NSSI over the past 3 months (t=-6.161, df=195, p<.001) and over their lifetime (t=-7.251, df=195, p<.001). With respect to barriers to NSSI, university student participants more strongly endorsed Deterrent Beliefs (t=-5.738, df=191, p<.001) and Positive Coping (t=-2.832, df=191, p=.005), while they less strongly endorsed Loss of Control (t=4.614, df=189, p<.001), and Monitor and Control (t=2.618, df=192, p=.010). These patterns generally remained significant after controlling for frequency of NSSI. Overall, it seems that

the university student participants represent a less clinically severe population of self-harmers compared to the participants recruited from online communities.

Preliminary regression analyses reveal that the pattern of findings for convergent and divergent validity reported below remains similar when controlling for group. However, these findings must be interpreted with caution due to the relatively small sample size for university students (n=77). In general, the aim of this study was to provide an initial validation of the BSII in a diverse sample rather than compare the psychometrics of the measure in different populations. Thus, I collapsed these groups in all subsequent analyses. Future research should examine the psychometric populations of the BSII in each population to ensure adequate convergent and divergent validity in different populations.

Past NSSI Behaviour.

Correlations between BSII scales, frequency and methods of NSSI are presented in Table 3. Five subscales were positively associated with lifetime frequency of NSSI (Loss of Control, r=.382, p<.001; Negative Effects on Relationships, r=.215, p=.003; Positive Relationships, r=.217, p=.002; Monitor and Control, r=.206, p=.004; Future Goals, r=.227, p=.001), as was the overall endorsement of Interpersonal barriers (r=.221, p=.002) and the barriers total score (r=.183, p=.015). On the other hand, Deterrent Beliefs were negatively associated with lifetime NSSI frequency (r=-.328, p<.001). Overall, these findings were contrary to my expectation that barriers would be associated lower frequency of NSSI over the lifetime. Instead, they suggest that certain barriers

are endorsed more strongly by individuals who have had more experience with NSSI. That is, for those individuals who have engaged in NSSI more frequently, negative consequences of NSSI may be more salient, resulting in stronger endorsement of certain barriers. In particular, these individuals more strongly endorsed interpersonal barriers, which could indicate that NSSI has more strongly impacted their relationships. Further, it seems that individuals who have engaged in more frequent self-harm are more likely to feel their NSSI is becoming hard to control, to feel that it could interfere with their ability to achieve their goals, and to perceive someone else as monitoring or controlling their ability to engage in NSSI. It should also be noted that, contrary to my expectations, many subscales were *not* associated with lifetime frequency of NSSI. In particular, lifetime frequency of NSSI was not associated with several intrapersonal and situational barriers. It is possible that these barriers are better predicted by other variables (e.g. emotional awareness, method of NSSI, etc.). Further, it could be that the limited range of scores was not sensitive enough to capture differences for these constructs.

In terms of recent frequency of NSSI, Loss of Control was positively associated with frequency of NSSI over the past three months (r=.332, p<.001). On the other hand, three subscales were negatively associated with frequency of NSSI over the past 3 months (Negative Emotional Consequences, r=-.198, p=.006; Deterrent Beliefs, r=-.346, p<.001; Positive Coping, r=-.328, p<.001). Further, overall endorsement of Intrapersonal Barriers was negatively associated with NSSI frequency over the past 3 months (r=-.161, p=.028). These findings

were consistent with my expectation that individuals who more strongly endorse various barriers to NSSI would also report lower frequency of NSSI. However, only Intrapersonal barriers were negatively associated with recent frequency of NSSI. This might indicate that Interpersonal and Situational barriers are insufficient to reduce NSSI; however, longitudinal research is necessary in order to clarify which barriers *protect* against NSSI. Again, it is also possible that the limited range of scores restricted my ability to detect differences.

In terms of methods of NSSI behaviour, Deterrent Beliefs (r=-.372, p<.001) and Positive Coping (r=-.147, p=.044) were negatively associated with the number of types of NSSI, indicating that these barriers are endorsed more frequently by individuals who have engaged in fewer methods of NSSI. On the other hand, Loss of Control (r=.292, p<.001), Negative Effects on Relationships (r=.262, p<.001), Negative Reactions and Stigma (r=.168, p=.022), Positive Relationships (r=.207, p=.005), Monitor and Control (r=.273, p<.001), Wrong Time, Place or Means (r=.224, p=.007) and Future Goals (r=.167, p=.022) were positively associated with the number of NSSI methods. Furthermore, Total Interpersonal Barriers (r=.281, p<.001) and Total Situational Barriers (r=.225, p=.002) were positively associated with the number of methods of NSSI. Overall, these findings suggest that many barriers are more strongly endorsed by individuals who have engaged in more methods of NSSI. Again, it is possible that these barriers become more salient as an individual engages in more methods of NSSI, resulting in higher endorsement.

Suicidality.

Full correlations between BSII scales and suicidality variables are presented in Table 4. Consistent with my expectations, only two of the BSII subscales were associated with past suicidal behaviour (Loss of Control, r=.179, p=.015; Future Goals, r=.173, p=.013). Three subscales and one super-ordinate scale were positively associated with frequency of suicidal ideation (Loss of Control, r=.232, p=.001; Wrong Time, Place or Means, r=.247, p=.001; Future Goals, r=.149, p=.038; Total Situational Barriers, r=.195, p=.007), while two subscales were negatively associated with frequency of suicidal ideation (Deterrent Beliefs, r=-.238, p=.001; Positive Coping, r=-.171, p=.017). Three subscales were associated with suicidal threats (Negative Effects on Relationships, r=.151, p=.037; Positive Relationships, r=.170, p=.019; Future Goals, r=.247, p=.001). In terms of higher order scales, Intrapersonal, Interpersonal and Total barriers were not associated with past suicidal behaviour. However, Situational barriers were positively associated with suicidal ideation (r=.195, p=.007) and suicidal threats (r=.157, p=.032), suggesting that Situational barriers are more strongly endorsed by participants who have engaged in more suicidal behaviour. It is possible that participants who endorse Situational barriers may be more clinically severe in terms of symptom presentation and self-harm history; future research is necessary to clarify this relationship.

In terms of protective beliefs against suicide, three of the subscales on the Intrapersonal dimension were positively associated with positive suicidal ideation, or protective beliefs for suicidal behaviour (Negative Emotional Consequences,

Deterrent Beliefs, Positive Coping, r's=.219 - .344), as were total Intrapersonal

barriers (r=.232, p=.002). Two subscales were negatively associated with

negative suicidal ideation (Deterrent Beliefs, r=-.150, p=.037; Positive Coping, r=-

.202, p=.005), while three subscales were positively associated with negative

suicidal ideation (Loss of Control, Wrong Time, Place or Means, Future Goals;

r's=.144 - .285).

In terms of reasons for living, nine subscales were positively associated

with overall reasons for living (r's=.240 - .494), as were Intrapersonal Barriers

(r=.529, p<.001), Interpersonal Barriers (r=.323, p<.001) and the total barriers

score (r=.458, p<.001). Six subscales were positively associated with survival

and coping beliefs (r's=.159 - .494), nine subscales were positively associated

with responsibility to family (r's=.208 – 314), five subscales were positively

associated with child-related concerns (r's= .159 - .292), nine subscales were

associated with fear of suicide (r's=.192 - .383), ten subscales were associated

with fear of social disapproval (r's=.150 - .450) and eight subscales were

associated with moral objections to suicide (r's=.165 - .299).

Overall, these results suggest that the BSII subscales converge with

protective beliefs against suicide and diverge from suicidal behaviour, as

expected. Further, although many BSII scales were positively correlated with

reasons for staying alive, these correlations were moderate at best, suggesting

that the BSII is tapping into something unique from reasons to stay alive per se.

Situational barriers were positively associated with history of suicidal behaviour

and suicidal ideation; this may suggest that individuals who endorse situational barriers have a more severe clinical presentation.

Coping Strategies.

Full correlations between BSII scales and coping strategies are presented in Table 5. Overall, subscales from all three super-ordinate domains were associated with active coping strategies such as Use of Emotional Support, Use of Instrumental Support, Positive Reframing, Planning and Acceptance (*r*'s=.151 – .550). Intrapersonal barriers were not associated with passive coping strategies such as Self-Blame, Behavioural Disengagement and Denial, while Interpersonal and Situational Barriers were associated with these coping strategies (*r*'s=.162 - .378). Overall, these findings support the expectation that barriers to NSSI would be associated with other efforts at dealing with problems and distress. Findings also suggest that Intrapersonal barriers may be more strongly associated with active coping, while interpersonal and situational barriers are associated with both active and passive coping efforts.

Social Support and Attachment Style.

Full correlations between the BSII scales and attachment and social support variables are presented in Table 6. Overall, Intrapersonal barriers were positively associated with perceived support from family and friends (*r*'s=.188 - .257), as were three of the intrapersonal subscales (Negative Emotional Consequence, Deterrent Beliefs, Positive Coping, *r*'s=.189 - .354) and two of the interpersonal subscales (Negative Effects on Relationships, Positive

Relationships, *r*'s=.184 - .224). By contrast, Loss of Control and Wrong Time, Place or Means were negatively associated with social support, suggesting that these barriers may be more common among individuals who do not perceive or receive social support from others.

In terms of attachment style, intrapersonal barriers were associated with secure attachment to parents (*r*=.212, *p*=.004), and negatively associated with communication with peers (*r*=-.203, *p*=.006). Interpersonal barriers were positively associated with alienation from parents (*r*=.153, *p*=.038) and negatively associated with alienations from peers (*r*=-.219, *p*=.003) Situational barriers were positively associated with communication with parents (*r*=.148, *p*=.044) and negatively associated with alienation from peers (*r*=-.162, *p*=.062). Overall, these results suggest that barriers to NSSI are associated with social support and aspects of attachment, but these relationships are not specific to interpersonal barriers. Only intrapersonal barriers were associated with secure attachment, which may suggest greater resiliency among those who endorse intrapersonal barriers. Further, results suggest that interpersonal barriers may be associated with more positive relationships with peers, while situational and intrapersonal barriers may be associated with more positive relationships with parents.

Therapy Engagement and Hopefulness.

The full correlations between the BSII scales and therapy engagement and hopefulness variables are presented in Table 7. In terms of motivation for therapy, Negative Emotional Consequences and Positive Coping were positively

associated with more intrinsic motivations for therapy (*r*'s=.298 - .513). Loss of

Control and Negative Effects on Relationships were associated with mid-range

motivations for therapy (i.e. integrated, identified, introjected and external

motivations; *r*'s=.297 - .354). Negative Reactions and Stigma, Positive

Relationships and Future Goals were associated with relatively more external

motivations for therapy (i.e. introjected, external and amotivation for therapy;

r's=.276 - .430).

In terms of hope, Negative Emotional Consequences, Deterrent Beliefs,

Positive Coping were associated with motivation to pursue goals (Agency),

dispositional hope and domain-specific hope, while Future Goals were positively

associated with Agency (*r*'s=.150 - .339). On the other hand, Loss of Control and

Wrong Time, Place or Means were negatively with domain-specific hope (*r*'s=-

.167 to -.190), indicating that these barriers are more strongly endorsed by

individuals who do not believe they will be able to refrain from NSSI.

I performed t-tests to determine whether participants who had received

some sort of counselling, case management, or psychotherapy over the past

year differed in their level of endorsement of certain types of barriers compared

to those who had not. Participants who had received treatment (*n*=82) endorsed

fewer Deterrent Beliefs (*t*=-2.11, df=185, *p*=.036). On the other hand, they

endorsed more barriers related to Loss of Control (*t*=2.50, df=183, *p*=.013),

Future Goals (*t*=3.78, df=184, *p*=.001) and overall Situational Barriers (*t*=3.02,

df=180, *p*=.003).

3.7 Discussion

Study Two aimed to evaluate the psychometric properties of the Barrier to Self-Injury Inventory created in Study One. Confirmatory factor analysis was used to eliminate items that did not fit with the content of each subscale and to create unidimensional subscales. Items that were not sufficiently sensitive to the construct of interest (i.e. factor loadings less than .4) were also eliminated, resulting in a final scale containing 68 items that assess 11 lower-level constructs and 3 super-ordinate constructs. Overall, the subscales demonstrated adequate reliability when a unit-weighted composite of the items is used, with the exception of the Future Goals and the Monitor and Control subscale that demonstrate marginal reliability. When weighted composites are used, all subscales demonstrate adequate reliability. The creation of new items to tap these domains would likely improve the reliability of these scales.

The subscales demonstrated good convergent validity, with overall positive associations with treatment engagement and motivation for therapy, engagement in coping strategies, reasons for living and protective beliefs against suicide. In general, intrapersonal barriers were most strongly associated with resiliency and coping (e.g. reasons for living, secure attachment, active coping, etc.), while situational barriers were least strongly related to resiliency. It is possible that intrapersonal barriers may therefore be more effective at dissuading or preventing future engagement in NSSI. Thus, longitudinal research will be essential for clarifying the role that each of these barriers plays in the prospective course of NSSI, and may help clarify the concept of barriers to NSSI.

With respect to frequency of NSSI, it seems that intrapersonal barriers were more strongly endorsed by participants who have engaged in less frequent NSSI over the past three months, which is preliminary evidence that these intrapersonal reasons may in fact prevent or dissuade NSSI. On the other hand, interpersonal barriers were more strongly endorsed by individuals with greater lifetime frequency of NSSI. It is possible that those with more experience with NSSI may also have had more experiences with negative consequences, particularly negative interpersonal consequences, and thereby report more barriers.

Interestingly, evidence from the convergent validity analysis suggests that the Loss of Control and the Wrong Time, Place or Means subscales may indicate more severe clinical presentation (e.g. more frequent suicidal ideation or behaviour, less perceived social support, amotivation for therapy and less hope that one could overcome NSSI). This is consistent with the content of the subscales, in that Loss of Control taps into worsening patterns of NSSI that are difficult for an individual to control, and Wrong Time, Place or Means relates to barriers that are very time-limited or situation specific, rather than enduring. It would be informative to assess the predictive validity of these subscales to determine whether these types barriers are in fact protective of future engagement in NSSI, or conversely if they predict a more severe course of NSSI over time.

4: GENERAL CONCLUSIONS AND DISCUSSION

This research had two main purposes: 1) to examine the motivations and situations that may prevent or dissuade NSSI among individuals who have engaged in this behaviour and 2) to develop and validate a psychometric measure to assess such barriers to NSSI. Study One elucidated factors that prevent or dissuade an individual from engaging in NSSI using qualitative methodolgy. This study represents an important contribution to the literature because few studies have examined barriers to NSSI over both the short- and long-term. Furthermore, this study represents the most comprehensive examination of barriers to NSSI to date. Study One resulted in the generation of a 115-item inventory, which assessed 13 lower-level categories and 3 super-ordinate categories of barriers to NSSI. Furthermore, the qualitative data gathered expand the scope and depth of barriers to NSSI beyond other studies. Thus, these results can inform future research on barriers to NSSI and may help refine existing theoretical models of NSSI.

Study Two used data- and theory-driven analyses to refine the measure to a final form of 68 items, with 11 lower-level subscales and 3 super-ordinate scales. Overall, this measure demonstrated adequate psychometric properties, including acceptable internal consistencies of the subscales (particularly when weighted composites are used). Further, the measure demonstrates good convergence with positive coping and resiliency factors (e.g. social support,

hope, motivation for change, etc.), supporting the construct validity of the measure. However, as discussed previously, the investigation of convergent and divergent validity also yielded several important refinements to my conceptualization of barriers to NSSI. For example, I expected barriers to NSSI to be associated with less frequent NSSI, especially over the past three months. Contrary to this expectation, it seems that many barriers to NSSI are more strongly endorsed by individuals with a higher frequency of NSSI, particularly over the lifetime. It seems possible that those with more frequent NSSI would have more experience with the negative consequences of NSSI, and thus barriers to NSSI may be more salient for these individuals. Again, prospective research would clarify which of these factors serve as barriers to NSSI (e.g. predict lower frequency of NSSI) and under what circumstances they serve as barriers to NSSI. For example, it is possible that changes in one's social environment (e.g. acquiring supportive relationships, resolving interpersonal conflict) may increase both interpersonal and intrapersonal motivation to refrain from NSSI. Further, longitudinal research may help clarify the relationship between barriers to NSSI and resiliency factors such as motivation for treatment, hope and use of effective coping strategies. Given that barriers are more strongly endorsed by individuals with a more frequent lifetime history of NSSI, it would be interesting to examine how changes in resiliency factors and barriers to NSSI evolve naturally over time, or how changes in one variable might influence the others.

A second interesting finding was that situational barriers seem to be associated with negative clinical characteristics (e.g. lack of hope regarding ability to recover from NSSI, more frequent suicidal behaviour and ideation). As mentioned previously, prospective research over various time periods (minutes, days, weeks, months) will help clarify when these barriers are effective in preventing and dissuading NSSI, and the overall course of NSSI among individuals who endorse these barriers.

Overall, these findings fit very well with existing theoretical models of NSSI such as the Four Factor Model and the Experiential Avoidance Model. Consistent with the FFM, the hierarchical models examining intrapersonal and interpersonal factors provided excellent fit with the data. Consistent with the EAM, many of the barriers elucidated in this research referenced wanting to avoid unwanted consequences of NSSI (e.g. negative emotional, physical and social consequences). The findings of this study, and the examination of barriers to NSSI more broadly, have important implications for the further development and refinement of theoretical models of NSSI. Eventually, researchers should aim to articulate a comprehensive model of NSSI that includes distal and proximal risk factors for NSSI, functions of NSSI and proximal and distal resiliency factors, including barriers to NSSI. Therefore, this study adds to the existing knowledge regarding factors that may alter the course of NSSI.

The development of a measure to evaluate barriers to NSSI also has several important implications for the field. A measure of barriers to NSSI such as the BSII enables clinicians and researchers to reliably assess barriers to

NSSI, thereby enabling them to conduct more precise research and to refine existing psychological treatments for NSSI. Given that, at present, very little evidence regarding efficacious and effective treatments for NSSI exists (Hawton et al., 1999), the identification of motivations to refrain from NSSI is especially important. For example, the BSII could be used to identify treatment targets and individual strengths that can be enhanced over the course of therapy. Further, the BSII could be used to inform preventative efforts for high-risk individuals as well. From a research perspective, the BSII may stimulate research clarifying important protective factors for NSSI. Furthermore, the BSII could be used to examine the efficacy of different clinical interventions in increasing motivation to refrain from NSSI.

Measure validation and refinement is a continuous, iterative process. Thus, future research investigating the performance of the BSII is essential in evaluating the utility of the BSII and in informing and refining theories and knowledge about barriers to NSSI. As discussed previously, the goal of this research was to provide an initial validation of the BSII in a relatively diverse sample of individuals with a history of NSSI. Future research should examine and compare the psychometric properties of the measure in different populations, such as undergraduate students, individuals with Borderline Personality Disorder, etc. Furthermore, future research could compare the theoretical model of barriers to NSSI proposed with other models (for example, organizing barriers into categories based on their ability to predict NSSI over the short- versus long-term in addition to intrapersonal, interpersonal and situational categories).

Longitudinal research examining various risk and protective factors for NSSI will be especially important in this regard. For example, it is possible that certain types of barriers may be more likely to protect an individual from NSSI over the long-term, while others may be more effective in protecting against NSSI over the short-term. Unfortunately, in the present research, only retrospective frequency of NSSI was available. As mentioned previously, because barriers are expected to protect against *future* NSSI, longitudinal research will be essential in clarifying the role of barriers in preventing or dissuading NSSI. Currently, I am collecting three-month follow-up data from participants in Study Two as a first step in evaluating which types of barriers best predict future engagement in NSSI. Additionally, ecological momentary assessment (EMA) research would allow researchers to clarify internal and external contingencies and situations that promote or prevent NSSI, including situations or contingencies that might make barriers to NSSI more or less salient or potent for an individual.

Future research should also focus on verifying the factor structure and psychometric properties of the BSII in university student versus clinical samples. Initial findings suggest that there may be important differences between these two populations in terms of the relative importance of different types of barriers. Unfortunately, sample size did not permit separate investigation of factor structure and psychometric properties in each population in this study; I am presently continuing to recruit participants for this purpose. Establishing the psychometric properties of the BSII in a clinical sample will be especially important for the treatment utility of the measure, while verifying the psychometric

properties of the BSII in a university sample will be informative for researchers, as research on NSSI is often conducted using university student samples and these samples often demonstrate high rates of NSSI (17-38%; Gratz, 2006; Whitlock, Eckenrode, & Silverman, 2006). Given that the BSII was developed using data-driven techniques and data collected from a variety of populations, it is expected that the BSII will perform adequately in a variety of samples.

Although this study has many important implications, several limitations should be recognized. First, the utility of the BSII may be limited by the methods used to generate and validate the measure. In this study, I relied largely on online data collection methods. It is possible that the psychometric properties of the measure might differ when the measure is administered in an online format versus if it is administered as a paper-and-pencil questionnaire. Thus, examination of the psychometric properties with different methods of administration would support the validation of the measure. Further, although efforts were made to reduce variability in the testing environment that can arise from online administration (e.g. participants cannot navigate back or forward in their web browsers, questionnaire order is consistent, questionnaire batteries must be completed in a single session, etc.), it is impossible to control or monitor the environment in which participants complete the questionnaires, which may increase the error variability in the data. However, the convenience of online data collection allowed me to recruit a relatively large sample of individuals with a history of NSSI; thus, I believe the benefits of this method outweighed the potential costs.

A second potential limitation arises from the characteristics of the samples used to generate and validate the measure. It is likely that, because I used online data collection, participants in this study may have been younger, had a higher socioeconomic status, have been more computer-savvy and have been more educated than the general population or other groups of self-injurers. These characteristics could limit the generalizability of my findings. Furthermore, in almost all of the samples used in this study, the majority of participants were female. Although some evidence suggests that NSSI is more common among females (Favazza & Conterio, 1989; Suyemoto, 1998), this may limit the generalizability of the measure among males who engage in NSSI. Thus, in future research it will be especially important to attend to potential gender differences in terms of item endorsement and measure performance. Finally, the majority of participants in Study Two had engaged in NSSI relatively infrequently (once a month or less often) over the three months prior to participation. Thus, the performance of the BSII in more severe populations of self-injuring individuals should be formally evaluated before it is used in these populations. On the other hand, because I recruited two samples of participants from online chat and social networking groups, it is likely these samples are more geographically, ethnically and culturally diverse than would have been possible if I recruited individuals who resided locally. Overall, the diversity of these samples represents a significant strength of this study in that it increases the likelihood that the items generated in Study One will be applicable to diverse populations. However, independent validation of the BSII with other samples (e.g. younger adolescents, individuals

with Borderline Personality Disorder, etc.) will provide further support for the measure.

A third limitation arises directly from the exploratory nature of this research. Because the initial data is qualitative in nature, it is possible that my prior expectations and perceptions regarding barriers to NSSI may have created a bias in terms of the scope and organization of the items that were extracted from the data. I attempted to address this concern first by having two experts in the research and treatment of NSSI review the item wording and organization and second by making my own expectations clear (e.g. that data would be consistent with the Experiential Avoidance and Four Factor models of NSSI). Nonetheless, qualitative research is often vulnerable to bias and thus it is important to be attentive to the possibility that a bias in item selection and organization in Study One may have influences the selection and scope of the items we selected. Future research examining barriers to NSSI, especially empirical replication, could help identify areas that may not be adequately covered by the BSII. Furthermore, testing the theoretical model proposed in this study against alternative models has the potential to both refine the measure by identifying areas of ill-fit, and to refine theories of NSSI. For example, it is possible that other higher order factors may fit the data (e.g. short- vs. long-term barriers; instrumental versus emotion-focused coping). Future research should examine these alternative models.

A final limitation of this study is that the questions used to generate items for the BSII focus on retrospectively recalled barriers to NSSI. It is likely that

some factors that dissuade an individual from engaging in NSSI operate outside a person's awareness (e.g. external reinforcement or punishment contingencies). Furthermore, certain barriers may be less likely to be recalled after the fact (for instance, an individual might more vividly recall barriers that are more emotionally-salient than less emotionally-salient barriers that could also be important). Furthermore, it is possible that participants were less likely to report reasons that are not seen as socially desirable or acceptable. This is especially important in Study One, as it is very difficult to correct or account for content that was omitted from this qualitative phase. I attempted to minimize these limitations by using samples of individuals with a range of experience with NSSI to generate the initial item pool (e.g. clinicians, researchers, individuals with and without a history of NSSI). By incorporating a range of perspectives, it is less likely that substantive areas were missed in the initial qualitative research phase. However, future research on barriers to NSSI using methods other than retrospective self-reports (e.g. laboratory study, ecological momentary assessment) would expand the current understanding of factors that discourage or prevent NSSI and further illuminate the situations in which various barriers are salient and effective in reducing NSSI.

Overall, this study represents an important step in clarifying the motivations and situations that prevent or dissuade NSSI. The clarification of these factors, as well as the development of a measure to assess them, will help to inform and improve upon existing research and clinical guidelines. Future research should

examine the treatment utility and predictive validity of the BSII in clinical and non-

clinical samples of self-injuring individuals.

APPENDICES

Appendix A: Barriers Questionnaire I

<u>Barriers to Self-Harm</u>

We are interested in learning about the things that keep people from engaging in self-injury. Even if you have *never* self-injured, we are very interested in what you think.

Just so you know what we are talking about, ***self-injury*** (sometimes called "self-harm") involves harming yourself on purpose. Some examples include cutting or burning yourself, taking an overdose of pills, or banging your head. Self-injury does not include things like smoking, drinking, not eating, eating too much, or other things you may do knowing that they are harmful, but where you are not actually trying to injure yourself, and the damage is often does not happen immediately. We are interested in **self-injury when you do NOT intend to kill yourself**, not the kind of self-injury where you want to die (that would be called a "suicide attempt").

If you <u>have self-injured</u> at any time in the past, these questions ask you about some of the reasons that might keep you from self-injuring.

If you <u>have never</u> self-injured, we are interested in your ideas about what might prevent other people from self-injuring.

Have you ever deliberately injured yourself without intending to die?

   ☐ Yes

   ☐ No

If NO, please skip to QUESTION 10.

The following questions ask about things that might stop you from injuring yourself **in the moment OR for an extended period of time.** Please take as much space as you want or need to answer the questions below.

1. What are the most **important** reasons you can think of for wanting to **not** self-injure? Please answer based on your own experiences.

2. If you are **currently trying to stop** self-injuring, what are your reasons for wanting to stop right now?

2b.   If you have **ever tried to stop** self-injuring **in the past**, what were your reasons for wanting to stop then?

The following questions ask about things that might stop you from self-injuring yourself **in the moment, right when you are experiencing the desire or the urge to self-injure**. For these questions, please imagine the time when you **most strongly** wanted to self-injure (e.g. the urge was almost unbearable), **but you did not self-injure**. Please take as much space as you want or need to answer the questions below.

3.   Think of a specific time when you **most strongly wanted to self-injure and you did not do it** right then. What stopped you from self-injuring in that moment (even though you had the desire or urge to do so)?

4. Think of the time in your life when you **most strongly wanted to self-injure but did not do it**. What were your reasons for not self-injuring at that time?

5. How do you stop yourself from self-injuring even when you **really want to self-injure** (such as when you have strong urges or a strong desire to self-injure)?

The following questions ask about things that might stop you from injuring yourself for **an extended period of time; for example, for weeks or months on end.** Please take as much space as you want or need to answer the questions below.

7.   Think of the **longest period of time** when you have gone without self-injuring. **How long** were you able to go without self-injuring?

7b. What were your reasons for not self-injuring **during that time**?

7c. How do you stop yourself from self-injuring **over a period of weeks or months**?

The following questions ask about things that might stop a person from **EVER** injuring herself or himself**.** For example, we are interested in reasons that would stop individuals from ever considering self-injury or reasons that might stop someone from actually doing so even if they considered it. Please take as much space as you want or need to answer the questions below.

8.   What are some reasons why *other people* might **not ever** self-injure (i.e. why someone would decide not to even try it)?

9.   What are reasons that *other people* might not injure themselves **even when they want to**?

10. How do you think *other people* stop themselves from self-injuring?

Appendix B: Barriers Questionnaire II.

<u>Barriers to Self-Harm</u>

We are interested in learning about the things that keep people from engaging in self-injury. As a clinician who works with individuals who have self-injured, you provide a unique perspective about the reasons individuals have for choosing not to self-injure.

<u>Definition of Self-injury:</u>

Self-injury (sometimes called "self-harm") involves an individual harming him/herself on purpose. Some examples include cutting or burning oneself, taking an overdose of pills, or banging one's head. Self-injury does not include things like smoking, drinking, not eating, eating too much, or other things an individual may do knowing that they are harmful, but where he or she is not actually trying to injure him/herself, and the damage is often does not happen immediately. We are interested in **self-injury when an individual does NOT intend to kill him/herself**, not the kind of self-injury where an individual wants to die (that would be called a "suicide attempt").

<u>Instructions:</u>

When you are thinking of reasons, please feel free to include clients' self-reported reasons for stopping, as well as your clinical impressions of the motives or consequences which may have prompted or supported the reduction or cessation of self-injury. You may note general patterns (e.g. Many people stop self-injuring because...) or speak about particular cases; however, you must not provide any identifying information about the individuals.

Approximately how many clients have you provided therapy for in your lifetime who have engaged in self-injury?

> 0

The following question asks about things that might stop a person from injuring him/herself **in the moment OR for an extended period of time.** Please take as much space as you want or need to answer the questions below.

1. What are the most **important** reasons self-injuring clients might think of for wanting to **not** self-injure?

The following questions ask about things that might stop a person from self-injuring him/herself **in the moment, right when he/she is experiencing the desire or the urge to self-injure**. For these questions, please think of times when a client/clients **most strongly** wanted to self-injure (e.g. the urge was almost unbearable), **but did not self-injure**. Please take as much space as you want or need to answer the questions below.

2. Imagine a situation in which an individual is experiencing his or her **strongest urge to self-injure, but does not do it** right then. What **self-reported reasons** might he/she give for having stopped themselves from self-injuring in that moment (even though they had the desire or urge to do so)?

3.   Imagine a situation in which an individual is experiencing her/his **strongest urge to self-injure, but does not do it** right then. What **consequences (natural or artificial)** might have stopped her/him from self-injuring in that moment (even though she/he had the desire or urge to do so)?

4. What **strategies** might a person use to stop him/herself from self-injuring even when he/she **really want to self-injure**?

The following questions ask about things that might stop an individual from injuring her/himself for **an extended period of time; for example, for weeks or months on end.** Please take as much space as you want or need to answer the questions below.

5. What **self-reported reasons** might an individual provide for not self-injuring for an extended period of time?

6. What kinds of **consequences (natural or artificial)** might stop an individual from self-injuring over an extended period of time?

7. What **strategies** might a person use to stop him/herself from self-injuring **over a period of weeks or months**?

Appendix C: Examples of Item Refinement.

Below are examples of sample items (listed in bold) that were created to encompass the original statements (listed in italics).

1.1. I would feel ashamed.
  1.1.1. Because I would feel ashamed of myself if I self-injured.
  1.1.2. Because I feel ashamed when other people see my injuries or scars.

1.2. I would feel guilty.
  1.2.1. Because it makes me feel guilty.
  1.2.2. Because every time I self-injure I feel a strong sense of guilt.

1.3. Self-injury is an immature or childish thing to do.
  1.3.1. Because it's an immature way to deal with my problems.
  1.3.2. Because it's time I figured out how to deal with my problems in a more mature manner.
  1.3.3. Because I am getting too old to do this to myself.
  1.3.4. Because it is not an adult thing to do.

1.4. I don't want to make my body look bad.
  1.4.1. Because I don't want to leave unattractive marks on my body.
  1.4.2. Because I don't want my body to look worse than it does.
  1.4.3. Because I want to be able to look at myself in the mirror without seeing wounds on my body.
  1.4.4. Because the scars and injuries make me look ugly.
  1.4.5. Because it looks gross.

1.5. I don't want to hurt my friends, family, or other loved ones.
  1.5.1. Because I don't want to hurt the people I care about.
  1.5.2. Because I know how much pain and concern it would cause loved ones.
  1.5.3. Because I don't want to make my friends and family sad.
  1.5.4. Because I think about all the people who care about me.
  1.5.5. Because I've seen how much it affects my friends and family.

1.6. I don't have the energy to do it.
  1.6.1. Because I did not have enough energy to try.
  1.6.2. Because I couldn't be bothered.
  1.6.3. Because I was too tired to do it.
  1.6.4. Because I didn't have the courage to self-injure.

Appendix D: Final Items of the BSII

Instructions

For this questionnaire, we are interested in reasons why you might avoid engaging in self-injury. ***Self-injury*** (sometimes called "self-harm") involves harming yourself on purpose. Some examples of self-injury include cutting or burning yourself, hitting yourself, picking your skin, taking an overdose of pills, or banging your head. Self-injury does not include such behaviors as smoking, drinking, or not eating, which you may do knowing it is harmful to you but where the damage is not acute. We are interested in self-injury when you do NOT want to kill yourself, not the kind of self-injury where you want to die (that would be called a "suicide attempt").

Many people who have engaged in self-injury have tried to stop themselves from engaging in self-injury, either for a short period (minutes, hours, days) or for a long period (weeks, months, or even years).

Below is a list of reasons some people give for **not** engaging in self-injury. We would like to know how important each of these reasons is for you at **this point in time** for **not** engaging in self-injury.

Each reason can be rated from 1 (Not At All Important) to 7 (Extremely Important). Please carefully rate **each item**. If you do not feel an item applies to you, or you don't feel the item is true, you should rate it 1. Try to use a full range of scores (2, 3, 4, etc.).

Intrapersonal Reasons

Negative Emotional Consequences: 12 items
2. Self-injury makes me feel like there is something wrong with me.
3. Self-injury causes more problems for me.
17. I would feel bad about myself as a person if I self-injured.
18. Self-injury doesn't make me feel much better in the short-term.
30. I would be mad or angry with myself if I self-injured.
43. I would feel guilty.
55. I know I would regret it later.
62. I am embarrassed about my self-injury.
65. Self-injury makes me more upset, distressed or anxious in the long-term.
73. The relief is not worth the pain.
81. I don't want to let myself down.
85. I would end up feeling disgusted with myself.

Deterrent Beliefs: 3 items

33. Self-injury is an unhealthy way to deal with emotions.
45. Self-injury is a stupid thing to do.
57. Self-injury is an immature or childish thing to do.

Negative Physical Consequences: 5 items
34. I'm worried I might go too far and I'll hurt myself really badly.
35. I want my body to look good.
67. I have too many injuries already.
90. I want my scars to heal.
94. I don't want to get an infection.

Positive Coping Items: 9 items.
6. I received professional help for my problems.
87. I want to find a better way to cope with my problems and emotions.
98. I know if I wait, the urge will pass.
101. I just don't need to or want to self-injure anymore.
103. I want to stay healthy.
105. I feel hopeful.
107. I have replaced self-injury with a more healthy way to cope.
110. I have the willpower to stop.
112. I want to be kind to myself and not abuse myself anymore.

Loss of Control: 5 items.
22. My self-injury is becoming hard to control.
32. It doesn't work as well as it used to.
36. I am trapped in a cycle of bad feelings and self-injury.
48. I don't want to become addicted or for the addiction to get worse.
69. Self-injury is consuming my thoughts.

Interpersonal Reasons

Negative Effects on Others/Relationships: 8 items.
8. I don't want to hurt my friends, family, or other loved ones.
23. My friends and family are trying to help me stop self-injuring.
49. Self-injury is straining my relationships with friends and family.
61. I'm afraid I might lose friends or relationships if I keep doing this.
76. I want to regain friendships I've lost.

Others Finding Out / Reactions / Stigma: 8 items.
9. I don't want other people to find out about my self-injury.
38. I don't want to have to worry about hiding the scars.
50. I'm afraid someone might question me about what I did.
77. I don't want other people to gossip or spread rumours about me.
83. I don't want other people to think I'm weak or that I can't handle my problems.
92. I don't want people to think I'm suicidal.

96. I don't want people to think I'm doing it for attention.
104. The scars make doctors visits uncomfortable.

Positive Relationship Factors: 7 items.
39. I promised someone I would stop.
51. I want to set a healthy example for a friend or family member.
63. I have supportive and caring people around me who can help me when I feel the urge.
84. People are nicer and more supportive when I'm trying to stop.
89. Self-injury really badly affected someone I'm close to, and I don't want that for myself.
93. I want to maintain my friendships and relationships.
100. I want to make others feel proud of me.

Monitor and Control by Others: 4 items.
11. Someone is forcing me to stop.
26. I don't want to be punished if I'm caught.
40. Someone checks my body for new injuries or scars, and he/she would notice if I did it.
114. I feel like I have to avoid self-injuring.

Situational Reasons

Wrong Place / Time / No means: 5 items.
12. I don't have any clean tools that I would usually use to self-injure.
27. I don't have the privacy to do it.
41. I don't have the energy to do it.
53. I don't have the time or energy to clean up afterwards.
64. I couldn't self-injure safely.

Prevented from doing things: 5 items.
11. I'm worried that self-injury might make me lose my job or make it hard to get a job.
28. I have things I need to do.
29. I don't want to have to go to therapy.
54. If I have to go into the hospital, I'll miss important commitments.
115. I want to help others, so I need to be healthy myself.

Table 1: Descriptive Statistics.

		Mean	Standard Deviation	Min.	Max.	Skewness	Kurtosis	Cronbach Alpha
QNSSI	Lifetime Frequency	3.22	1.41	1	6	0.75	-0.83	N/A
	Past 3 Months Frequency	2.22	1.38	1	6	1.067	0.24	N/A
BSII	Neg. Emotional Consequence	30.38	11.75	12	60	0.31	-0.82	0.909
	Deterrent Beliefs	8.11	3.75	3	15	0.21	-1.09	0.732
	Deterrent Beliefs Transformed	79.73	64.95	9	225	0.77	-0.49	N/A
	Neg. Physical Consequence	13.23	5.25	6	30	0.56	-0.29	0.734
	Positive Coping	23.74	9.42	9	45	0.29	-0.81	0.878
	Loss of Control	10.96	5.05	5	25	0.60	-0.49	0.809
	Neg. Effects on Relationships	11.98	5.08	5	25	0.54	-0.44	0.796
	Neg. Reactions and Stigma	22.31	8.37	8	40	0.17	-0.81	0.857
	Positive Relationships	16.53	7.09	7	35	0.49	-0.66	0.837
	Monitor and Control	8.21	3.88	4	20	0.99	0.45	0.699
	Wrong Time, Place or Means	8.28	3.62	5	25	1.48	2.50	0.701
	Wrong Time, Place or Means Trans.	0.88	0.17	0.7	1.4	0.64	-0.44	N/A
	Future Goals	9.59	3.91	5	25	0.77	0.25	0.622
	Intrapersonal	86.70	28.04	37	175	0.296	-0.485	0.938
	Interpersonal	58.81	20.37	24	120	0.358	-0.385	0.923
	Situational	17.83	6.52	10	50	1.194	2.464	0.761
	Situational - Trans	1.22	0.15	1	1.70	0.251	-0.506	N/A
	Total	162.77	47.92	75	345	0.318	0.130	0.957

		Mean	Standard Deviation	Minimum	Max.	Skewness	Kurtosis	Cronbach's Alpha
CMOTS	Intrinsic	14.44	6.64	1	28	-0.11	-0.78	0.831
	Integrated	15.82	7.21	4	28	0.00	-0.94	0.929
	Identified	19.82	6.52	4	28	-0.82	0.02	0.918
	Introjected	14.47	5.46	3	25	-0.24	-0.37	0.642
	External	11.75	6.63	1	28	0.42	-0.37	0.793
	Amotivation	9.90	5.27	1	25	0.52	-0.31	0.665
RFLI	Total	164.62	42.35	64.65	261.55	-0.08	-0.56	0.938
	Survival & Coping Beliefs	3.73	1.24	1.04	6	-0.28	-0.81	0.962
	Responsibility to Family	4.04	1.34	1	6	-0.56	-0.64	0.883
	Child-related Concerns	2.76	1.90	1	6	0.60	-1.22	0.887
	Fear of Suicide	2.98	1.15	1	5.5	0.16	-0.84	0.765
	Fear of Social Disapproval	3.05	1.49	1	6	0.17	-1.04	0.812
	Fear of Social Disapproval Trans.	0.42	0.25	0	0.78	-0.53	-0.96	N/A
	Moral Objections	2.19	1.41	1	6	1.05	0.04	0.822
PANSI	Positive Ideation	2.94	0.87	1.17	5	0.01	-0.37	0.870
	Negative Ideation	1.91	1.08	1	5	1.00	-0.11	0.957
ADHS	Agency	10.09	2.70	3	16	-0.18	-0.50	0.828
	Pathways	10.64	2.45	2	16	-0.27	0.16	0.778
	Hope	20.67	4.78	5	32	-0.34	0.04	0.870
DSHS	Domain-specific Hope	37.76	13.01	7	56	-0.44	-0.76	0.907
IPPA	Parent - Total	80.69	24.03	28	130	-0.01	-0.71	0.953
	Parent - Trust	31.79	10.26	10	50	-0.25	-0.89	0.924
	Parent – Comm.	27.62	9.55	10	50	0.07	-0.79	0.900
	Parent - Alienation	26.94	6.36	8	40	-0.43	-0.09	0.789

		Mean	Standard Deviation	Minimum	Max.	Skewness	Kurtosis	Cronbach 's Alpha
	Peer – Total	65.76	16.01	33.33	115.63	0.33	-0.15	0.928
	Peer – Trust	23.07	8.23	10	50	0.54	0.03	0.942
	Peer – Comm.	20.13	6.44	8	39	0.26	-0.30	0.900
	Peer - Alienation	20.99	4.50	9	31	-0.15	-0.40	0.705
MSPSS	Family	4.04	1.72	1	7	-0.13	-1.04	0.935
	Family Transformed	0.55	0.23	0	0.85	-0.94	0.03	N/A
	Friends	4.79	1.47	1	7	-0.58	-0.29	0.918
	Significant Others	4.81	1.82	1	7	-0.63	-0.62	0.953
		Mean	Standard Deviation	Minimum	Max.	Skewness	Kurtosis	Cronbach 's Alpha
COPE	Distract	5.70	1.67	2	8	-0.38	-0.59	0.523
	Active	4.94	1.75	2	8	0.03	-0.82	0.725
	Denial	2.96	1.43	2	8	1.50	1.45	0.668
	Substance Use	3.67	2.06	2	8	0.90	-0.54	0.947
	Emotional Support	4.87	2.00	2	8	0.13	-1.12	0.836
	Instrumental Support	4.53	1.90	2	8	0.26	-0.89	0.789
	Behavioural Disengage	3.64	1.74	2	8	0.90	-0.16	0.742
	Venting	4.17	1.57	2	8	0.42	-0.36	0.564
	Positive Reframing	4.54	1.92	2	8	0.34	-0.96	0.801
	Planning	4.56	1.95	2	8	0.28	-1.03	0.847
	Humour	3.94	1.88	2	8	0.70	-0.58	0.867
	Acceptance	5.05	1.73	2	8	0.07	-0.77	0.618
	Religion	3.38	1.86	2	8	1.10	-0.10	0.859
	Self-blame	4.74	1.96	2	8	0.20	-1.14	0.773
	Personal Control	24.00	5.65	9	36	-0.42	-0.22	0.755

Table 2: Goodness of Fit and Reliability of Final BSII Subscales

	# of Item	Df	χ2	RMSEA	90% C.I. of RMSEA	CFI	# St. Res	α	ω	Model Accept
Negative Emotional Consequences	12	54	83.69	0.054	0.028 - 0.076	0.99	8	0.909	0.948	C
Deterrent Beliefs	4	2	3.37	0.061	0.0 - 0.172	0.99	0	0.732	0.893	C
Negative Physical Consequences	5	5	9.56	0.072	0.0 - 0.140	0.98	1	0.734	0.817	C
Positive Coping	9	27	52.57	0.068	0.039 - 0.097	0.98	4	0.878	0.926	C
Loss of Control	5	9	13.27	0.044	0.0 – 0.099	0.99	2	0.809	0.884	C
Negative Effects on Relationships	5	5	7.73	0.059	0.0 – 0.130	0.99	2	0.796	0.876	C
Negative Reactions and Stigma	8	34	62.47	0.074	0.047 - 0.099	0.97	5	0.857	0.897	P
Positive Relationships	7	14	30.18	0.077	0.036 - 0.117	0.98	3	0.837	0.881	C
Monitor and Control	4	5	7.68	0.051	0.0 - 0.121	0.98	2	0.699	0.804	TE
Wrong Time, Place, Means	5	5	10.38	0.085	0.044 - 0.126	0.89	2	0.701	0.770	P
Future Goals	5	9	17.40	0.077	0.005 - 0.144	0.93	3	0.622	0.715	TE

Table 3: Results of Hierarchical CFA for Super-ordinate BSII Scales

	# of Items	Df	χ^2	RMSEA	90% C.I. of RMSEA	CFI	Loading on Ksi
Intrapersonal Total	34	522	1189.72	0.083	0.077 – 0.089	0.945	0.483 – 0.955
Interpersonal Total	24	248	788.90	0.108	0.100 – 0.117	0.918	0.683 – 0.976
Situational Total	10	33	91.71	0.091	0.067 – 0.114	0.900	0.835 – 0.979

Table 4: Correlations between BSII Scales and NSSI Frequency and Types

	Frequency of NSSI - Past 3 Months	Frequency of NSSI - Lifetime	Number of Types of NSSI
Negative Emotional Consequences	-.198**	.035	-.111
Deterrent Beliefs	-.346**	-.328**	-.369**
Negative Physical Consequences	.061	.125	.047
Positive Coping	-.328**	-.011	-.147*
Loss of Control	.332**	.382**	.292**
Negative Effects on Relationships	.016	.215**	.262**
Negative Reactions and Stigma	.128	.110	.168*
Positive Relationships	.001	.217**	.207**
Monitor and Control	.107	.206**	.273**
Wrong Time, Place or Means	.122	-.004	.224**
Future Goals	.067	.227**	.167*
Total Intrapersonal Barriers	-.161*	.071	-.063
Total Interpersonal Barriers	.081	.221**	.281**
Total Situational Barriers	.098	.139	.225**
Total Barriers	-.045	.183*	.147

* $p<.05$, ** $p<.01$

Table 5: Correlation between BSII Scales, Suicidal Behaviour and Reasons for Living

	Suicidal Behav.	Suicidal Ideation Frequency	Hx of Suicidal Threats	Positive Ideation	Negative Ideation	Total Reasons for Living	Survival Coping Beliefs	Respons to Family	Child-related Concerns	Fear of Suicide	Fear of Social Disapproval	Moral Object.
Neg. Emo. Consequence	-0.037	-0.071	-0.003	0.219**	-0.099	0.494**	.392**	.314**	0.065	.262**	.397**	.299**
Deter Beliefs	-0.137	-.238**	-0.017	0.231**	-0.150*	0.453**	.392**	.269**	.252**	0.101	.306**	.249**
Neg. Physical Consequence	0.001	0.052	0.081	0.101	0.101	0.387**	.243**	.243**	.159*	.383**	.322**	.225**
Positive Coping	-0.004	-.171*	0.053	.344**	-0.202**	0.492**	.494**	.219**	.292**	0.058	.160*	.213**
Loss Control	.176*	.232**	0.14	-0.11	0.239**	0.059	-0.052	0.111	-0.075	.256**	.150*	0.121
Neg. Effects on Relations.	0.121	0.112	0.151*	-0.015	0.121	0.254**	0.131	.258**	0.132	.159*	.193**	.227**
Neg Reactions and Stigma	0.036	0.131	0.039	-0.048	0.125	0.240**	0.055	.251**	0.043	.346**	.450**	0.082
Positive Relationships	0.106	0.082	0.170*	0.053	0.125	0.325**	.200**	.268**	.163*	.225**	.228**	.216**
Monitor and Control	0.079	0.105	0.050	-0.102	0.138	0.183*	0.044	.174*	0.077	.331**	.198**	0.105
Wrong Time, Place, Means	0.099	0.247**	0.064	-0.086	0.285**	0.044	-0.1	0.012	0.018	.334**	0.135	.216**
Future Goals	0.168*	0.149*	.247**	0.047	0.144*	0.278**	.159*	.208**	.203**	.192**	.224**	.165*
Intrapersonal	-0.023	-0.066	0.059	.232**	-0.064	0.529**	.424**	.315**	.167*	.282**	.362**	.315**
Interpersonal	0.095	0.126	0.121	-0.029	0.156*	0.323**	0.135	.309**	0.125	.325**	.357**	.197**
Situational	0.135	0.195**	0.157*	0.001	0.245**	0.207**	0.059	0.132	0.141	.309**	.201**	.248**
Total Barriers	0.069	0.06	0.118	0.093	0.069	0.458**	.290**	.349**	.173*	.321**	.379**	.268**

*p<.05, **p<.01

Table 6: Correlations between BSII Scales and Coping Styles

	Distract	Active Cope.	Denial	Subs. Use	Emo. Support	Instrum. Support	Behav. Diseng.	Venting	Positive Reframe	Planning	Humour	Accect.	Religion
Neg. Emo. Consequence	.272**	.378**	0.059	-0.135	.384**	.387**	-0.044	.384**	.366**	.341**	-0.013	.255**	.225**
Deterrent Beliefs	0.13	.317**	0.06	-.171*	.170*	.183*	-.149*	.200**	.305**	.250**	0.129	0.131	.192**
Neg. Physical Consequence	.153*	.296**	.261**	-0.069	.290**	.372**	.178*	.404**	.273**	.333**	.151*	.322**	0.139
Pos. Coping	.305**	.554**	0.072	-0.135	.464**	.493**	-.226**	.458**	.550**	.524**	0.038	.421**	.282**
Loss of Control	0.12	0.128	.274**	0.092	.151*	.240**	.302**	.253**	0.092	.157*	0.054	0.142	-0.013
Neg. Effect on Relationship	.195**	.183*	.238**	0.038	.316**	.248**	.165*	.276**	.185*	.169*	0.059	.148*	0.112
Neg. React. Stigma	.254**	.161*	.250**	0.108	.151*	.218**	.248**	.278**	0.071	0.12	0.029	.158*	0.041
Positive Relationship	.242**	.258**	.307**	0.049	.447**	.402**	.220**	.412**	.265**	.226**	0.052	.216**	.152*
Monitor and Control	0.139	0.095	.299**	0.037	.186**	.176*	.317**	.215**	0.054	0.068	0.001	0.094	-0.031
Wrong Time, Place, Means	.154*	0.12	.452**	0.101	0.024	0.055	.345**	.229**	0.109	.170*	.225**	0.079	.149*
Future Goals	.241**	.356**	.303**	0.018	.352**	.353**	.202**	.430**	.243**	.325**	0.035	.249**	0.14
Intrapersonal Total	.276**	.460**	0.145	-0.128	.424**	.495**	0.005	.473**	.441**	.445**	0.042	.342**	.251**
Interpersonal Total	.256**	.214**	.335**	0.081	.334**	.338**	.297**	.377**	.185*	.178*	0.035	.189**	0.106
Situational Total	.228**	.297**	.445**	0.053	.230**	.253**	.315**	.378**	.217**	.284**	0.129	.175*	.162*
Total Barriers	.338**	.424**	.299**	-0.018	.429**	.492**	.199**	.499**	.372**	.393**	0.026	.311**	.210**

* $p<.05$, ** $p<.01$

Table 7: Correlations between BSII Scales, Social Support, and Attachment

	Family Support	Friend Support	Sig. Other Support	Parent Attach.	Parent Trust	Parent Comm.	Parent Alien.	Peer Attach.	Peer Trust	Peer Comm.	Peer Alien.
Neg. Emotional Consequence	.274**	.245**	.177*	.220**	.193**	.249**	-0.124	-.165*	-.160*	-.213**	0.041
Deterrent Beliefs	.354**	.189**	0.108	.403**	.335**	.397**	-.371**	-.238**	-.207**	-.228**	.217**
Neg. Physical Consequence	0.119	0.043	0.013	0.061	0.031	0.105	0.034	-0.018	-0.009	-0.059	-0.078
Positive Coping	.290**	.211**	.150*	.267**	.224**	.290**	-.214**	-.230**	-.211**	-.253**	0.116
Loss of Control	-.145*	-0.035	0.01	-.207**	-.167*	-.179*	.298**	.192**	.153*	0.092	-.288**
Negative Effects on Relationship	0.12	.184*	.206**	0.045	0.044	0.091	0.057	-0.006	-0.018	-0.094	-0.129
Negative Reactions and Stigma	0.022	-0.001	0.009	-0.035	-0.002	0.021	.170*	0.056	0.028	-0.031	-.217**
Positive Relationship	0.14	.212**	.224**	0.049	0.06	0.097	0.08	-0.064	-0.055	-.156*	-0.09
Monitor and Control	-0.014	0.027	0.106	-0.079	-0.044	-0.019	.195**	0.083	0.038	-0.005	-.232**
Wrong Time, Place or Means	-0.034	-.209**	-.145*	-0.045	-0.029	0.049	.200**	.242**	.242**	.201**	-.254**
Future Goals	.149*	0.078	0.039	0.131	0.125	.177*	-0.003	-0.071	-0.078	-0.118	-0.043
Intrapersonal	.257**	.188*	0.125	.212**	.182*	.248**	-0.102	-0.134	-0.119	-.203**	-0.001
Interpersononal	0.086	0.137	.181*	0.004	0.027	0.071	.153*	0.029	0.006	-0.081	-.219**
Situational Total	0.079	-0.064	-0.048	0.062	0.063	.148*	0.102	0.098	0.089	0.056	-.162*
Barriers Total	.187*	.165*	.165*	0.127	0.12	.198**	0.042	-0.043	-0.05	-0.138	-0.129

* $p<.05$, ** $p<.01$

Table 8: Correlations between BSII Scales, Therapy Engagement and Hope

	Intrinsic Motives	Integrated Motives	Identified Motives	Introjected Motives	External Motives	Amotiv.	ADHS - Agency	ADHS - Pathway	ADHS - Hope	Domain specific Hope
Negative Emotional Consequence	.312*	.298*	.349**	.513**	0.223	0.064	.287**	0.099	.228**	.326**
Deterrent Beliefs	0.146	0.176	0.055	0.212	0.123	-0.052	.257**	.221**	.270**	.429**
Negative Physical Consequence	0.100	0.049	-0.09	0.141	0.158	0.239	0.14	0.01	0.096	0.092
Positive Coping	.356**	.426**	.339**	.318*	0.036	-0.022	.339**	.250**	.330**	.486**
Loss of Control	0.235	.297*	.323*	.335**	0.181	0.065	-0.062	-.219**	-0.135	-.190**
Negative Effects on Relationships	0.244	0.111	0.118	.318*	.354**	0.212	0.036	-0.099	-0.023	0.036
Negative Reactions and Stigma	0.058	0.022	0.015	.387**	.430**	.298*	0.008	-.146*	-0.06	-0.015
Positive Relationships	0.122	0.074	0.001	.268*	.411**	.350**	0.094	-0.033	0.05	0.059
Monitor and Control	0.233	0.099	0.07	0.188	.324*	0.175	0.03	-0.053	-0.006	-0.071
Wrong Time, Place or Means	-0.03	-0.092	-.279*	-0.036	0.214	0.19	-0.078	-0.103	-0.094	-.167*
Future Goals	0.235	.276*	0.155	.289*	.299*	.276*	.150*	0.074	0.137	0.027
Intrapersonal Total	.329*	.336*	.300*	.440**	0.183	0.062	.291**	0.118	.242**	.317**
Interpersonal Total	0.165	0.080	0.048	.352**	.450**	.309*	0.039	-0.120	-0.027	-0.011
Situational Total	0.127	0.126	-0.043	0.150	.266*	.280*	0.045	0.002	0.037	-0.096
Total Barriers	0.245	0.226	0.184	.421**	.313*	0.220	.182*	0.008	0.125	.157*

* *p*<.05, ** *p*<.01

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